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Introduction

The Artificial Intelligence in Management (AIM) Laboratory of the Katz School of Business, University of Pittsburgh will employ AIM Lab personnel and consultants to design, develop and test a prototype of the following US Army Medical Research and Materiel Command (USAMRMC), Telemedicine and Advanced Technology Research Center (TATRC), Knowledge Engineering Group (KEG) Artificial Intelligence Research and Development efforts:

Task 1: Design, Development and Prototyping The Expert Consult Broker of GGTS

The AIM Lab will employ a combination of cognitive science, computer science, artificial intelligence, and management science methodologies to perform the task. The Principal Investigator will ensure that each task is analyzed and broken down into individual components which will be then further analyzed for specificity and applicability. Once this is accomplished, the principal investigator will apply current and state-of-the-art processes to improve each component. Once accomplished, the task will be reengineered in an iterative fashion.
As detailed in section 5.1 of the approved Statement of Work, Phase I of award DAMD 17-99-1-9581 included six tasks:

5.1.1 Develop a conceptual model of a telemedicine consult management system operating within a dynamic military environment. The model will address the ways in which consult routing could occur, as in CB-LRCE. Wherever possible, the consult broker will access information regarding dynamic environmental aspects by querying the Combat Service Support Control System - Medical component of the Army Global Command and Control System. The model should be reflective of current worldwide medical consultation management practices and past experience in both the military and civilian sectors.

5.1.2 Select one or more knowledge representation schemes to implement the model.

5.1.3 Instantiate sufficient domain knowledge to enable a structured consultation process walk-through to be demonstrated to a peer review panel composed of physicians and knowledge engineering professionals from military and civilian academic organizations.

5.1.4 Demonstrate that the conceptual model of 5.1.1 together with the domain knowledge of 5.1.3 represented as in 5.1.2 is capable of functioning as an effective and reliable consult manager.

5.1.5 Prepare and deliver expert system model specification.
5.1.6 Prepare and deliver verification, validation and operation prototype test plans.

In this part of our report, we describe our accomplishments associated with each of those tasks. Six documents, attached as appendices, provide the details referred to in this section. Those documents are:


Appendix 5. Summary of naive text classification experiments on teledental and medical data; and


We chose to pursue a data driven approach to Tasks 5.1.1 through 5.1.6 rather than a top-down system development methodology. In other words, we decided to use whatever information could be found that related to at least partly fielded and used Army
telemedical systems as the basis for developing a prototype in a narrow application area. Such a narrow-but-deep strategy could help us appreciate and integrate characteristics that are critical for system acceptance and functionality. The primary risk of our strategy is that what we learn from a narrow application domain may not generalize to other parts of telemedicine, but we considered the benefits of being able to rapidly develop a prototype and to learn from its construction made that an acceptable risk.

In order to pursue a data-driven strategy, we required data. The group at TATRC that was associated with the Army's Teledental system had about 500 e-mail records from their Internet-based system, as was willing to share those records, properly sanitized, with us. We began to receive parts of their data at the beginning of January 2000, and had a complete data set approximately one month later. The teledental data included the text from Form 513 for each patient and the location and code number for the consultant who responded to the request, but not the reason(s) why that particular consultant was chosen or chose to respond.

Task 5.1.1.

A preliminary conceptual model for the Consult Broker, including four possible interface designs, is described in Appendix 2. After receipt of the Teledental data, we further developed that model, specialized in part to characteristics of the Teledental environment. The refined model is discussed in Appendix 3, Appendix 4, and Appendix 1. The computer expression of the conceptual model is fully described in Appendix 6. The interrelationships between the Consult Broker, and a possible
network environment are discussed in Appendix 5 and in Booz-Allen Hamilton (2000).¹

Task 5.1.2.

We chose to represent knowledge structures such as consultants, units, and facilities using objects, and data as instances of those objects. A text description of the representation is included in Appendix 1, and its computer realization in Appendix 6.

Task 5.1.3

Based on analyses of the Teledental data and discussions with TATRC personnel, we first identified three distinct types of teledental consultations.

Type 1: The requester is primarily interested in referring the patient to the consultant, and has asked for a consultation in order to find the best match for that referral. The primary goal of the requester is thus administrative, not medical.

Type 2: The requester fully intends to treat the patient himself, but has encountered complications or problems that are outside of his experience or expertise. The purpose of the consultation is to give him the additional information necessary to permit him to carry out his treatment of the patient. The primary goal of the consultation is medical, not administrative.

Type 3: The type of request is intermediate between types 1 and 2. The request is initially medically oriented, but the requestor will continue treatment only if the problem turns out to be within his expertise, even after having been provided with additional information from the consultant. If the problem is too difficult for the requester, he is interested in referring the patient to the consultant for further treatment.

The type of consultation affects both the way in which the Consult Broker should be expected to interact with the requester and the amount and type of information the requester can be expected to provide to the Consult Broker. In a Type 1 consultation, geographic proximity of the consultant to the requester could be very important, because the patient is going to be handed off from the requester to the consultant. Depth of expertise on the part of the consultant is much more salient in a Type 2 consultation. A request for a Type 2 consultation is more likely to have specific likely procedures identified than would be a Type 1 consult. For example, a Type 1 teledental consult might be as simple as a request to find the nearest oral surgeon so that a patient can have an impacted wisdom tooth extracted. In a Type 2 consult, the requester is more likely to be able to provide the specific CDT procedure code(s) the patient would require.

As detailed in Appendix 3, we developed six scenarios for possible teledental consultations. They are:

- **Scenario 1:** Peacetime, with consultants in their default locations, and the requester able to provide as least the specialty required

- **Scenario 2:** Conflict, in which deployable units may be located in other than their default locations, but with peacetime organizational rules

- **Scenario 3:** Scenario 2, but with special organizational rule for communication and patient movements

- **Scenario 4:** A Type 2 consult in which there is a trade off between immediate consultant availability and specific prior experience

- **Scenario 5:** A consult in which the specific expertise requested is new to the system, and the Consult Broker has to use its knowledge of dental procedures to identify patients most
similar to the new consultation (case-based reasoning on patient records)

Scenario 6: A consult request in which the requestor is not exactly certain of the specific expertise necessary, so that the Consult Broker is expected to provide the names of consultants with similar expertise as well as those with exactly the expertise requested (case-based reasoning on consultants).

Appendix 3 shows the prototype system's behavior, and the interface screens that result, from all six scenarios. The consultation process for those scenarios was demonstrated to an audience of physicians and knowledge engineering professionals at the ATA 2000 national meeting in Phoenix, AZ.

Task 5.1.4.

The demonstration of effectiveness and reliability of the conceptual model and its computer implementation as a stand-alone system would require our having access to a data set in which the choice of consultants to match requests was based on the criteria desired by the Army, and for which those criteria were fully disclosed to us. To demonstrate its effectiveness in a larger network environment would require the development of at least a prototype of that larger environment.

Task 5.1.5

The model specification, for at least the teledental application, is described in Appendix 1 and Appendix 6.

Task 5.1.6

This task also requires that we be provided with suitable data.
Key Research Accomplishments

- Development of a prototype teledental consult broker

- A metric for case-based reasoning based on a multidimensional scaling of similarity judgments of procedures

- A naive Bayesian classifier for extraction of administrative information from technical medical text
Reportable Outcomes


May, Vargas, Johnson, Gilbert, and Illi, "Global Grid Telemedicine System," presented at ATA Fourth Annual Meeting, Salt Lake City, Utah, 1999,

May, Vargas, Gilbert, Illi, Rocca, and Jacobs, "GGTS Consult Broker," presented at the ATA Fifth Annual Meeting, Phoenix, Arizona, 2000,

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Summary of naive text classification experiments on teledental and medical data, and

Code listing for Teledental Consult Broker Prototype.
Conclusions

Our progress to date on this award demonstrates that we have been able to conceptualize, formalize, and implement the technical aspects of a Consult Broker for the Global Grid Telemedicine System. Using techniques from artificial intelligence and statistics, we have successfully represented both data and knowledge for a teledental prototype, and have shown that our prototype is capable of supporting decision making in a variety of scenarios. We have also begun the process of generalizing the teledental model to the more general medical domain, primarily through our experiments in using naive classification to extract what an administrative system, such as the Consult Broker, needs to know from technical medical text.

Progress beyond this point in the development of the Consult Broker will be limited by the availability of adequate data and adequate administrative knowledge, rather than by technical difficulties associated with implementation. With the apparent hiatus in further work on the originally envisioned network environment for the GGTS, a specific delineation of the place and role of the Consult Broker within the larger Global Grid environment is necessary. Such a delineation would define what type of telemedical systems would be supported by the Consult Broker, and the way in which users would be expected to interact with the Consult Broker. If those systems are ones that are at least partly implemented, then data from them and a thorough description of the medical administration of the teleconsultation processes associated with them is critical for Consult Broker development, testing, verification, and validation. If systems to be supported by the Consult Broker are also only at the planning or prototype stage, then descriptions of those systems' intended architecture and the test cases to be used for their testing, verification, and validation, would aid permit us to design a Consult Broker that would be compatible with those systems.
Appendix 1:

THE GLOBAL GRID TELEMEDICINE SYSTEM CONSULT BROKER

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* This research has been supported by grant number DAMD 17-99-1-9581 to the University of Pittsburgh.
1. INTRODUCTION

The Global Grid Telemedicine System (GGTS) is a proposed global telemedicine command and control system (Zajtchuk and Zajtchuk, 1996) that will enable telemedical consultations to occur anywhere in the world, regardless of location or transportation medium. The objectives are to: (1) leverage the extensive military national command communications facilities throughout the world to provide global telemedicine support to US and allied forces, worldwide; (2) provide a transparent fully-integrated commercial communications network backup to military facilities; and (3) develop a computer assisted consultation routing system that maximizes world-wide projection of consultation support from medical consultants and sub-specialists located at military and civilian medical centers throughout the United States. The concept envisions sophisticated network management tools that maximize efficient use of military and civilian communications infrastructure at bandwidths, protocols, security levels, and modalities appropriate to specific telemedicine applications. A key component is an intelligent global teleconsultation routing and management system capable of determining, from very minimal requester provided information, the type and location of consultant needed, the protocol conversions required, the priority of need, and the optimal network routing to facilitate connectivity.

Concept for Global Grid Telemedicine System

For the last several years, the Department of Defense has implemented numerous rapid prototyping and integration efforts as part of the DoD Telemedicine Testbed at Fort Detrick, Maryland. These prototypes were continuously evaluated in Joint Technology Demonstrations, in Army Battle Labs Advanced Warfighting Experiments and other joint service exercises. Contemporary military operations in the Balkans and the Middle East have also offered real-world environments to validate emerging telemedicine technologies. Although much work has been done, the military health system currently does not have an effective method of linking health care providers and diagnostic systems into a seamless diagnostic, treatment, and evacuation capability. Health care personnel at all
echelons of care must be able to communicate with each other by audio, video, and electronic media, so maximum utilization of expert consultant skills, diagnostic capability, and treatment regimens can be quickly implemented to provide state-of-the-art resuscitation, care, and enhanced evacuation. Integration of existing and emerging digital communication technologies into the patient care system, beginning with the individual soldier and continuing throughout the health care continuum, will allow the military health system to project expert preventive medicine and treatment necessary to improve the sustainability of the future military force. In addition, health care in special operations and military operations other than war (e.g. humanitarian and peacekeeping missions) will be enhanced by the utilization of these technological innovations. The timing of this need is based on ongoing joint telemedicine advanced technology demonstrations and advanced warfighting experiments that have demonstrated that integrating emerging information management technologies into the health services mission area will significantly improve combat casualty care.

Traditionally, the military medical community has had very limited access to tactical and strategic communications assets. In addition, the increased employment of telemedicine technologies by the US. military has led to haphazard growth of stovepiped, leased commercial communications networks to support military telemedicine applications. These networks are excessively expensive, inefficiently designed to meet global-needs, and ill-equipped to assist end-users in routing teleconsultation and medical messaging traffic to appropriate destinations. As global telemedicine operations are incorporated into US military medical doctrine for world-wide deployments, increased access to tactical and strategic communications assets for the military medical community is becoming essential.

In order to address these changing operational requirements and to enable the DoD to leverage rapidly emerging technological innovations, the concept of a Global Grid Telemedicine System (GGTS) was conceived. The GGTS will match, in real time or store-and-forward mode, remote or deployed medical personnel or facilities requesting telemedicine consultation support with provider facilities at major military and civilian medical centers. It also
establishes and manages the connectivity required to support the consultation session as well as security firewalls to enable communications from forward tactical forces including special operations forces operating well behind enemy lines. Medical sub-specialty consultants are generally based at medical centers in the United States and accessible through a variety of commercial or defense networks if adequate multilevel security features can enable connectivity. The two key components of the proposed GGTS system are the Consultation Broker Server, and the managed Communications Networks consisting of a Requestor Network on one side of the Consultation Broker, and a Provider Network on the other side. The primary function of the GGTS is to match remote, deployed medical facilities requesting telemedicine consultation support with provider facilities around the world, and to establish and manage the connectivity required to support the consultation session. Consult providers, individual sub-specialty physicians at primary medical facilities, "register" with the GGTS Consult Broker when they are available to receive consult requests within their area of expertise. Remote forward deployed medical facilities (afloat or land-based) submit consult requests to the GGTS Consult Broker specifying the classification of the medical issue and the type of telemedicine session required. The Consult Broker will then match the request with the appropriate registered provider and establish or schedule a real-time consultation session between the two nodes (Provider Node and Requestor Node) or forward a store-and-forward consultation request to an appropriate consultant and return the results to the requestor. It will also manage the Requestor and Provider Network communications resources available to the GGTS to provide optimal bandwidth, quality of service, and security for concurrent telemedicine sessions. Because of rapidly changing bandwidth requirements for strategic communications throughout the entire DoD, the GGTS network will be designed to leverage military bandwidth when available and transparently switch to commercial bandwidth on-demand when other DoD strategic and/or tactical priorities preempt telemedicine applications.

This paper concentrates on the Consultation Broker (CB) component of the GGTS operationalized using Artificial
Intelligence methodologies. The CB is an object oriented global teleconsultation system designed to route incoming requests for consultation to the appropriate "on duty" medical personnel. The CB must have sufficient ingrained "intelligence" to determine - in real time- the type of consultant needed from very minimal requester provided information, and to determine protocol conversions needed, priority of need, and optimal network routing to facilitate connectivity.

Previous research within the Army indicates that telemedical practice requires "standards of utilization" (Walters, 1996). Significant controversy exists over what value various telemedical modalities offer to the consultation process, what minimum information is needed for consultations, and how that information should be presented to the consultant. There are also debates over which medical sub-specialties require what information media or telemedical modalities: store-and-forward versus real-time video consultations, high resolution still images versus full motion video clips, radiology and pathology images versus radiology and pathology reports, and telephone consultations versus e-mail. Calcagni et al. (1996) and Clyburn et al. (1998) provide some experiences with the use of telemedicine. However, insufficient empirical data or hard analysis yet exists to make definitive recommendations by sub-specialty. Therefore an important function of the CB system should be to collect and analyze information on the telemedicine consultation process.

Walters (1996) identified a number of objective and subjective questions that should be asked about each telemedicine consultation in order to determine how best to execute it. In addition to considering what telemedical modalities are appropriate for each case, Walters' list of questions includes basic patient demographic data (e.g., name, date, location, age, and nationality), and consultation specific data (e.g., the requesting physician's specialty, what he/she is asking the consultant, consultation urgency, subspecialties requested, type of equipment used or available, history of present illness, and current differential diagnosis). Walters also extracted and retained information from the consultant's reply, such as the adjusted diagnosis and treatment recommendations. In her research, Walters employed a physician reviewer who addressed questions such as, How sick was the patient? Did the consultation change
the diagnosis, treatment, or duty status of the patient or effect the outcome? What type of communication modality was needed by the consultant to reply to the consultation? Walters found that two patterns of consultation referral developed. The first involved physicians consulting on conditions outside of their own specialty. The second involved specialty physicians consulting with subspecialists or specialists with greater expertise in the requestor's own specialties.

Reporting on the Army telemedicine experience in the republics of the former Yugoslavia, Navein et al. (1996) observed that quality of service (response time, quality of consultation, expertise of consultants, etc.) was the most significant factor in the choice of consultant when consultation routing was left to the prerogatives of requesting physicians alone. Even though the Army considered that "best practice" would dictate that consultations be directed to the "referral center" hospital to which it wanted patients to be evacuated, deployed physicians generally directed consults to the medical center providing the best telemedicine service.

2. THE NETWORK ENVIRONMENT

Booze-Allen Hamilton (1999?) observed that the GGTS, at its highest level, is a system that manages a medical information exchange network in the support key military health service support processes. The GGTS accomplishes this through the use of 4 distinct elements operating through a managed interface to the network. In addition an underlying GGTS communications network is employed to facilitate the interaction between each of the elements of GGTS. Figure 1 shows the relationship between five health service support "pillars", the medical support net, and the GGTS network, elements.

The GGTS is composed of four distinct functional nodes: Field, Requestor, Broker and Provider. Each one of these nodes provides a specific interface to the communications network that supports medical operations across the Operational Continuum. In addition to providing interfaces, each node also contains a specific set of functionality that helps enable the GGTS to manage the communications network.
The Field Node is most commonly associated with the end-user of GGTS. The end-user can anyone from a first responder and forward deployed medics to medical command and control and medical space awareness personnel. It is the Field Node that provides the initial gateway through which medical information and services may be requested. This node accomplishes three tasks:

- Gathering medically relevant information from the patients and facilities.
- Make available relevant information about patients and facilities, and
- Initiate Tele-medicine Consultation Sessions by establishing a connection with the GGTS Requester Node.

The Requestor Node's primary duty is to act as the central gathering point for Field Node requests and to maintain communications links with the Broker and each Field Node it is responsible for. Thus requestor acts a form of mediator between the Broker and each Field Node for which it is responsible. This node serves as the Central point of contact for all Field Nodes in the assigned area of responsibility by processing User Requests to Start Applications, retrieve information and begin Tele-consultations, maintain communication with Broker Node and Field Node/Units, reallocate bandwidth among numerous Field
Nodes, maintain the Status of the Communications Equipment, Format/Transmit Request Messages to Consult Manager in Broker Node, and if possible assign Medical Specialty and establish the required and Requested Bandwidth and Duration of the consultation.

The Broker Node is the "Brains" of the GGTS. As shown in Figure 2 it is sub-divided into four separate managers. Each one being responsible for a different management aspect of the GGTS.

![GGTS Broker Node Managers Diagram](image)

**Figure 2. GGTS Broker Node Managers**

At a high level, the Broker Node performs the following brief list of functions:

- Receive consultation requests from Consultation Requester Node
- Match requests with appropriate Provider node
- Use Medical Artificial Intelligence (AI) to satisfy Field Node requests
- Network management
- Determine physical communications link and topology
- Establish / Maintain permanent path between broker and requester base nodes.
- Dynamically reallocate bandwidth as required
- Maintain numerous ongoing sessions, and
- Establish a connection.
The Network Manager Module is responsible for monitoring the communications networks allocated to the GGTS. It provides continuous topology information to:

- The Network/Bandwidth/Content Manager Module
- The Decision Aides Module

The Network Bandwidth/Content Manager Module is a multi facetted module that manages not only the bandwidth assigned to the GGTS but also the content of the information flowing across its allocated networks. The main functions attributed to the module are:

- To Generate/Execute Bandwidth Reallocation Commands based on input from the Network Manager and Consult Manager Modules;
- To Monitor and Display the Status of the Consultation Provider Nodes, the System performance (e.g. error rate, QoS) of On-Going Consultations and the Available Bandwidth in the entire system; and
- To Monitor and Manage Prioritized Content sent across the network.

The Decisions Aides Modules provides the Broker a set of tools and functionalities designed to help facilitate its decision making process. These tools can be anything from additional rule sets to automated software applications that keep track of specific data and information. Among some of the functionalities it is worth to mention we have:

- Support the interpretation of relationships between system dynamics and user priorities;
- Help to determine optimal utilization of available resources such as Communication and Medical Assets, Specific Paths/Links, Available Equipment, and Satellite Footprints;
• Provide Direction to Network Bandwidth Manager Module (through Consult Manager) in Allocating Communication Assets;

• Evaluate Consultation Requests Against: Provider/Field Node Profiles, Communications Availability, Request Priorities, and Other Mission Specific Rules.

The Consult Manager is the part of the Broker that determines which Medical Providers best meets the stated request from a Field Node. The main tasks of this module are to:

• Receive/Prioritize Consultation Requests;

• Querie Decisions Aides Module for requested system performance (e.g. error rate, Quality of Service (QoS), Availability);

• Notify Consultation Providers of incoming Consultation Requests;

• Prepare/Transmit Network Configuration Messages/Responses;

• Coordinate Consultation Request Information among other Consultation Broker Server Modules; and

• Determine which providers to assign to which consultation request.

The Provider Node is the part of GGTS that interfaces with those locations that contain the requested medical support applications or medical personnel as stated in a Field Node Requests. It is the job of the Provider Node to enable these medical personnel and applications to interact effectively with the requesting Field Node. It is in charge of:

• Processing Requests to Start Applications;

• Receiving/Processing Incoming Consult Warning Message and Configuration Messages;

• Configuring Collocated Communications Equipment;
• Hosting, whenever appropriate, Telemedicine "Applications" or Interface With Them as External Systems;

• Launching Applicable/appropriate Telemedicine Applications or Interface with Them;

• Facilitating medical personal interaction with the Consultation;

• Logging all Consultation related information into a database;

• Maintaining Interface/Communications with the Broker Node;

• Allocating Bandwidth among Provider Node Workstations; and

• Maintaining Provider User Machine Interface.

In order for the GGTS to effectively perform its functions, each functional node of the GGTS needs to be able to communicate with each other. This is accomplished through the use of a GGTS network that enables each node to connect to each other. Figure 3 shows the relationship of each of the functional nodes with regards to each other and the communications network.

Figure 3. GGTS Element Relationship

An emerging information architecture doctrine for the Department of Defense, called Global Information
Grid (GIG) is based on a military concept called "Network Centric Warfare" (NCW). NCW is defined as "an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness". Information superiority is the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. The objective of NCW is to "translate information superiority into combat power by effectively linking knowledgeable entities in the battle space". The GIG was born out of concerns regarding interoperability and end-to-end integration of automated information systems within the Department of Defense. As a unified "system-of-systems", the GIG is the key enabler of information superiority. The GIG is the globally interconnected, end-to-end set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating and managing information on demand to warfighters, policy makers, and support personnel.

The NCW concept is also the basis of the emerging "net-centric" architecture for military medical operations. Net-centric operations military operations are built around command, control, communications, computers, and intelligence (C4I) systems with the specific goal of supplementing or replacing directed linear point-to-point information flows with network centered information flows similar to a message board. A distributed network centered information architecture serves as both a collection center for information from those generating it, as well as a source of information for those needing it, without a pre-planned or required communications link between information generators and information users. Communications systems are traditionally described in terms of send and receive architectures. While any information flow from the communications technical architecture perspective involves a "send and receive" concept, net-centric information flows from the operational architecture perspective involve information contributions (new inputs and updates) and information queries (requests with accompanying outputs). Within net-centric operations many of the information deposits will be of the "transmit and
forget" nature (those inputting the information will not be concerned with who uses it), while many of the information queries will be "blind" (those requesting and using the information will not be aware of its source). In order for the GGTS medical information and communication support network discussed above to be efficiently and securely implemented within the Military Global Information Grid, and also be flexible enough to accommodate spontaneous, random, 24 hour consultation requests, and all four Consultation Broker implementation alternatives discussed in Section 4 below, a net-centric architecture approach that supports "transmit and forget" input and "blind query" output, is essential.

Likewise, under all four Consultation Broker alternatives, the Consultation Broker must have a way to represent requestor, patient, consultant, and consultation site information, with the level of detail necessary dependent in part on the alternative chosen, and a way to represent actual and elapsed time. Much of the patient information can be described numerically. ICD9 diagnostic codes could be used by the requestor to convey possible patient problems and for the consultant to refine differential diagnoses, confirm diagnoses, or modify diagnoses. ASA codes could be used to describe the severity of the patient's condition and its rate of deterioration. Patient demographics (age, sex, etc.) could also be communicated either numerically or by menu choice that would be coded numerically by the CB. Critical consultant and site information could also be represented using ranges of ICD9 codes for specialties, subspecialties, and consultation histories. The data also must be represented in a way that is compatible with its reasoning methodology.

Booze-Allen Hamilton (1999?) proposed to analyze each functional requirement and to generate a specific set of rules for it. Those rules would then form the basis upon which consultation and communications asset allocation decisions would be made. Rule generation would be an iterative process, with the rules being modified as the complexity of the GGTS system development increases. The GGTS would have a rule manager module, a rule-based expert system that interprets relationships between system
dynamics and user priorities. The rule manager module would apply its rules to determine the optimal utilization of available resources (both communications assets and medical personnel) and to provide direction to the Network Bandwidth Manager Module to dynamically allocate communications assets.

In their approach to the CB, the rule manager module would have the following functions.

1. Evaluate requests against user and facility profiles, communications availability, request priorities, and other mission-based rules;

2. Provide responses to requests from the Consult Manager Module;

3. Provide recommendations to the Consult Manager Module if quality of service or level of service parameters cannot be met;

4. Track network resources through interface with the Network Bandwidth Manager and the Network Manager Modules;

5. Collect status/topology information from the Network Manager Module;

6. Determine potential connectivity for paths, links, available equipment, and satellite footprints; and

Determine connection set-up options such as virtual path / virtual circuit (VP/VC), bandwidth, ATM Adaptation Layer (AAL), and Forward Error Correction (FEC).

Regardless of the system alternative architecture chosen, the Consultation Broker must work in close conjunction with a network system manager (see Figure 4). The network system manager tells the CB what types of teleconsultations are feasible at a particular point in time, and handles all administrative functions necessary to initiate and sustain the chosen connection for its duration. France Telecom and INTELSAT's successful development of telecommunication hardware management systems using G2 (ref for G2) and a rule-based approach support the contention that a similar methodology would likely be appropriate for the GGTS network system manager. The type of knowledge necessary to have an effective
Consultation Broker, though, is sufficiently different from that involved in a network system manager that we expect that other reasoning approaches would be more effective for the CB than would be a rule-based methodology.

Figure 4

Rules are an effective way of representing and acting on knowledge when the action (the right-hand-side) parts of the rules are static and deterministic results of the condition (the left-hand-side) parts. The primary hardware components of a telecommunication network do not change frequently, the hardware's behavior is highly predictable, and the physical processes by which the network functions are well understood. As a result, a written procedures manual could be constructed to define the behaviors a person should follow if the network were to be managed manually. The written procedures manual should be adequate to cover almost all decisions that would have to be made as long as the network is functioning normally. A rule-based system is the computer-based equivalent of such a written procedures manual. Reasoning with and about time is a complication in telecommunications management, but G2 has a proven track record for such problem domains, as mentioned earlier, so that a rule-based artifact using that product is a good strategy for the GGTS network system manager.
The Consultation Broker's task of matching requestors to consultants requires reasoning in rapidly changing situations in which procedures are subject to preferences as well as firm guidelines. The decision environment changes because the pool of available consultants changes frequently. The experience and expertise of consultants who remain in the system evolve over time, and consultants' availability may change on a daily or hourly basis. There are advantages to routing all patients with similar problems to the same consultant, because the consultant might then be able to detect patterns of occurrences that are problematic. There are also advantages to utilizing multiple consultants for a set of patients with similar problems, so that more than one individual has the expertise and experience to deal with each type of problem. Rules are good for representing knowledge of the IF (conditions) THEN (actions) type, where the same thing is always done when the same situation is encountered. Rules are not as good for knowledge of the type IF (conditions) THEN USUALLY (actions) UNLESS (more conditions) IN WHICH CASE (actions). Telecommunication network management should be primarily of the former variety. We expect that those aspects of the CB's problem that are based on medical considerations are primarily of the latter; portions of the CB's reasoning that are based on absolute institutional directives might better be represented by rules.

In alternatives or situations in which the Consultation Broker must select a consultant, its task to choose the most appropriate one of a finite set of alternatives. At least two methodologies, case-based reasoning and statistical classification, might apply to such a choice decision in a rapidly changing environment of the type outlined above. Case-based reasoning reasons analogically from experience. If enough consistent experiences exist, then it is efficient to codify the behavior pattern into rules. The same would be true for principles of the field. Medical reasoning, though, is traditionally of the case-based variety, so the approach maps well onto conventional behaviors. Case-based reasoning, because it retains all experiences as opposed to only regularities found in those experiences, has the ability to "learn" from what it does, if we consider remembering to be the most fundamental aspect of learning. Statistical classification also has the potential for resolving the CB's problem, if sufficient data and an adequate data model could be found.
3. CASE-BASED CLASSIFICATION

"A case-based reasoner solves new problems by adapting solutions that were used to solve old problems...Case-based reasoning means reasoning from prior examples." (Riesbeck and Schank, 1989, page 25). Case-based reasoning (CBR) relies on analogy as its basic technique. A CBR system relies on a case base that includes a relevant set of past experiences, each stored as a description of a problem paired with the solution to it. To solve a new problem, a case-based reasoner typically first retrieves from the case base the case whose description most closely matches that of the new problem. It then extracts the solution to the case retrieved from the case base, adapts it if necessary, and then adds the new case plus its solution to the case base. Smyth and Keane (1998) argue that the retrieval of the most similar past case may not necessarily yield the one that is best suited to solving a new problem, and that deeper knowledge is required to determine what previous experience is most relevant.

As a conceptual representation of human problem solving, the CBR approach is very attractive. It "remembers" all of its experiences. Unlike rule-based systems, it works well on problem domains that are poorly understood, for which there is only weak domain theory, and that are dynamic over time. A rule-based system provides answers and explains its reasoning by documenting the rules it used. A CBR system provides precedents, and explains it reasoning by citing a precedent. A CBR approach is thus attractive for problem domains, such a legal reasoning, in which human arguments traditionally proceed by citing precedents. A set of cases might be used by a discovery learning system to extract regularities and rules; see Corruble and Ganascia (1997) for an example of machine learning in a medical context. Kohno et al. (1997) combined rule-based and case-based systems, with the user and the CBR system detecting and correcting mistakes made by the rule-based system. Their architecture combines problem solving and knowledge acquisition, with the case-base serving to improve the rules.

CBR has traditionally been applied to static reasoning problems. Ram and Santamaria (1997) proposed an extension of the approach to continuous domains, such as ones in which sensor data is the basis for reasoning. They were interested in robot navigation. Medical problem solving that requires tracking information over time, such as
ventilator management, might also benefit from their formalization. Spyropoulos and Papagounos (1995) evaluate various AI models used in medicine, and discuss their ethical and methodological limitation.

CBR has been used for classification generally, as surveyed by McKenzie and Forsyth (1995). Other CBR applications in classification include Evans and Winter (1995) and Petersen (1997).

To be effective, a CBR system must be able to retrieve the proper past case from its knowledge base and must be able to adapt the retrieved case's solution to the new problem if need be. The adaptation difficulty can be avoided by selecting classification, as opposed to synthetic, tasks, because it is logical to identify a new case with those cases to which it is most similar, so that no adaptation may be necessary. Classification requires recognition of features; synthesis requires the ability to construct an artifact from a specification. Most CBR work focuses on classification tasks, an area in which there are statistical techniques available, such as discriminant analysis, as well as neural network models and tree-induction approaches. In a study comparing CBR, linear discriminant analysis, and neural network models for a medical classification task (Musgrove and Davies, 1995, quoted in Watson, 1998), a CBR model performed better than a neural network did, and the neural network did better than linear discriminant analysis.

While adaptation might be avoidable, retrieval is not. Retrieval of a case from a case base is similar to conventional database retrieval, in that a set of critical features must be defined for each record (case) to be included, and an effective and efficient algorithm for searching the data (case) base when desired, but differs from it in that database retrieval returns exact matches and CBR retrieval seeks to find the nearest match. Case representation, that is, the selection of the characteristics for indexing cases, is a particular difficulty for CBR applications, such as legal opinions or medical records, in which cases use natural language. Representation should be less problematic for applications such as the Consultation Broker, for which the information in a case could be solicited using a menu with no open-ended entries. Note that certain case descriptors may be measured on at least an interval scale, such as age, some on an ordered categorical scale (ASA classification of the
patient), and others on an unordered categorical scale (ICD9 diagnostic code(s), doctor requested for consult, medical center requested for consult).

Retrieval of the most appropriate case from the case base requires a metric that can, at a minimum, for any new case and two past cases, determine which of the two past cases is more similar to the new case. The metric might be a weighted combination of distance measures for each of the descriptors individually, or it might be a multivariate function of the descriptors. For the Consultation Broker, the more difficult descriptors to use in a metric are those measured on an unordered categorical scale. Of the patient descriptors, the ICD9 diagnostic codes are the most important categorical information. The tree structure that underlies the ICD9 taxonomy may provide a natural metric for determining how similar two ICD9 codes are.

4. CONSULTATION BROKER APPROACHES

We identified four distinct approaches to the way in which the Consultation Broker might determine the most desirable match of consultant to requestor. Regardless of the alternative chosen, the Consultation Broker needs the following components to make it operational:

- A list of all potential consultants by name and by specialty;
- A list of sites providing consultation;
- A link to a network manager that indicates what modes of teleconsultation are feasible between a requestor and all consultation sites at the current time, and which will enable the teleconsultation once its participants have been determined;
- An interface to collect relevant information from the requestor, designed to make that information as complete and as internally consistent as possible;
- An interface to present the requestor's information to the consultant in an effective fashion; and
- A time-keeping capability and a time-based event trigger, to monitor the progress of the teleconsultation
and to initiate actions necessary to guarantee that any mutually desired and feasible consultation will actually take place.

The approaches differ primarily in the degree to which the computer system controls the brokering process: (a) the "active broker" alternative, (b) the automatic alternative, (c) the e-board alternative, and (d) the "yellow pages" alternative.

a. The Active Broker Alternative (AB)

This alternative uses the CB solely to relay information from the requestor and about potential consultants to a human, who is neither the requestor nor a potential consultant. That third party makes the assignments, using the data provided by the CB. The "intelligence" in the CB under this alternative is in the selection of information to be presented to the human assigner, and in the way in which that information is presented to the human so as to make the assigner's behavior as efficient and effective as possible. Under the Active Broker alternative (Figure 5), the human in charge of assignments functions somewhat like an air-traffic controller, monitoring and managing the requests for teleconsultation as they are matched up with consultants.
b. The Automatic Alternative (AU)

In the Automatic Alternative (Figure 6), the Consultation Broker behaves in an autocratic fashion, deciding on a match without user intervention. The CB may use one or more methodologies, such as those that use past experience (for example, case-based reasoning), statistical analysis of a database (e.g., classification), or an electronic procedures manual (e.g., rule-based reasoning) as appropriate. Independently of the methodology used, the Automatic Alternative requires as inputs knowledge of:

- detailed profiles of consultants, and a list of consultants available at the time of the consultation,
- detailed profiles of all sites providing service,
- the list of cases requesting consultations,
- a uniform coding of cases, past and present, and
- at least one assignment methodology.
c. The Electronic Board Alternative (EB)

Requests for consults are posted on an electronic bulletin board (Figure 7), and the consultants select the cases in which they want to participate on a first-come-first-served basis. As the requests are posted, the CB alerts all consultants in the requested specialty of the availability of a new case. If a case is not selected by any consultant within a time period that is a function of the urgency of the case, the CB assigns it in an autocratic fashion, as it would in the automatic alternative. Note that the consultants decide on the case assignment in this alternative. The requestor may ask for a particular institution or a particular physician, but it is the respondent who determines if that particular match-up occurs. The CB's role in supporting the matching process is limited to notification to all potential respondents, and provision to them of the information from the requestor so that they can make up their minds. In addition to the functionalities of the automatic alternative, which are needed if no consultant chooses to respond to the request for a consult, to implement the e-board alternative the CB requires that:

- the requests must be disseminated to all provider nodes along with all the data available for the consultation, and

- the blackboard must be kept in real time.
d. The Yellow Pages Alternative (YP)

As opposed to the e-board alternative, in which the consultant is the decision-maker, the "yellow pages" (Figure 8) alternative puts the requestor in charge of selecting the consultant. The CB assists the requestor by supplying a list of available consultants (the "yellow pages" listing) together with background information that might be useful in making a selection (the "yellow pages ads"). As in the e-board alternative, the CB would have to take charge and make a selection of a consultant if the requestor did not do so within an appropriate length of time. The CB must also be capable of making the assignment if the requestor asks the CB to do so. In addition to the functionality of the automatic alternative, and a time-keeping functionality as in the e-board alternative, to implement the "yellow pages" alternative the CB would need:

- detailed profiles of all consultants along with their history of clinical work,
- detailed profiles of all sites providing service, and
the ability to present the correct subset of the above information to a requestor in real-time in a useful format.

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**5. AN EXAMPLE USING A TELEDENTAL PROTOTYPE**

To illustrate how the GGTS may function when it is eventually fielded, we developed a functional prototype using data from a dentistry communication system (TDENT) currently used by the US Army. Although the Army's TDENT system is purely a store-and-forward e-mail system, the data generated from it contains useful information to model and explore some of the behavior and features of GGTS.

We used objects and classes to represent the information contained in the TDENT records. In the US Army TDENT system, those data are usually electronically introduced using a standard form (Form 513). The fields of the dentistry system contain patient demographic data, patient location, referring physician data and location,
medical data (complaint, history, exam findings, preliminary diagnosis and treatment), specialist/consultant data and location, dental procedure codes (CDTs) and diagnostic codes (ICD9s). For example, the patient in Figure 9 with fictitious first name (fn59) middle initial (E) and last name (ln59) was involved in two prior consultations. Thus, the patient object for FN59 E. LN59 contains links to the previous consultations, c1637 and c1642. Each consultation is an instance of the consultation class.

Figure 9. A patient instance

Figure 10 shows the information contained in the structure of consultation c1637. The information in a consultation is divided into three categories:

- patient demographic and medical information, displayed in the upper half of the consultation information dialog in Figure 10,

- specialty, diagnostic and procedural codes displayed in the lower left, and

- specialist/consultant information such as diagnosis, suggested treatment, and specialist demographic data and location, displayed in the bottom right panel.

Every consultation (known as an encounter in the medical arena) creates an object with the information displayed in Figure 10. Dental images could be attached to the patient record if desired.
Figure 10. Details of a consultation instance

Each specialist, meaning a potential consultant, belongs to the class "doctor" which contains information about the specialist's demographic information (location, unit to which assigned, if appropriate) and involvement with prior consults in the database (past consults, procedures (CDTs) and problems (ICD9s) addressed in those consultations). Figure 11 is an example of a doctor with ID# 101.
Figure 11. An example of a consultant

Doctor 101 is an endodontist who is assigned to (the hypothetical) unit combat hospital Csh-5. Note, from Figure 11, that Doctor 101 is the person who handled consultation c1637. "Unit" is also the name of a class, and each actual unit is an instance of it. The information represented in the instance for Csh-5 is shown in Figure 12. Csh-5 is a deployable unit, so that it and/or Doctor 101 might not always be associated with the same brick-and-mortar facility. As shown in Figure 12, Csh-5 is currently located at the U.S. Army hospital in Wurzburg, Germany.
Facilities are also represented as objects because we need to know things about them in order for the Consult Broker to be able to support decision-making. Each actual facility is an instance of the "facility" class, and includes information such as its geographical location (longitude and latitude), its type (clinic, hospital, and so on), and the type of teleconsultation modalities it can support. Figure 5 shows the data for a hypothetical hospital at Wurzburg. The modality information shown in Figure 13 is for illustrative purposes only, and we do not claim that it describes the capability of the actual U.S. Army hospital in Wurzburg. Other than latitude and longitude, the information about the specific facility is not accurate and it is only used for the purpose of illustration. A similar object exists for the facility to which the consultant is assigned in case of combat.

Figure 12. An example of a unit
The simplest type of support provided by the Consultation Broker is for it to function as a database lookup system, similar to a yellow pages directory. In such a case, the requestor chooses the "heading" under which to "look up" doctors, and uses to system to identify potential consultants, ordered either by their proximity or by their experience. The Broker doesn't try to comprehend the nature of the medical problem, but does collect the Form 513 information provided by the requestor so as to help facilitate the consultation process. Figure 14 shows an (rendered appropriately anonymous) example from the TDENT system. In Figure 14, the requestor asked for Oral Surgeon without specifying any likely procedural codes. The Broker, in Figure 15, offers a list of available consultants, where "consultant" in this case means anyone listed as being an oral surgeon. The list of oral surgeons in Figure 15 is sorted in order of increasing (great circle) current distance from the requestor's location. Because the Broker's knowledge base includes information about where consultant's units are currently located, it adjusts the proximity list if consultants are deployed away from their default locations. The user could have asked, instead, for the list to be sorted by the number of prior consults in the database. If the requestor had specified procedural codes, the lists returned by the Broker would be limited to specialists with experience in exactly those codes (if there is such data in the knowledge base) or from
those with experience in the most similar codes (if there are no exact matches in the knowledge base).

Figure 14. A user request for an Oral Surgeon
Figure 15. Broker response to a request for an Oral Surgeon, Yellow Pages alternative.

Recall that in Yellow Pages mode, the requestor is the decision-maker. The Broker presents its relevant knowledge to the requestor, and waits for the requestor to choose a consultant. Once the requestor does so, the Broker hands off the request to the system components that manage the requestor-consultant interaction. If the Broker is to make the decision, as it would in the Automatic Mode, it works its way down the list of specialists in conformity with organizational rules and preferences. If a human third party, neither the requestor nor the consultants, is to make the decision, in Active Broker mode, the Consultation Broker presents its lists to that human, and waits for that human's decision. Finally, in Electronic Board mode, the consultants are the decision-makers, so the Consultation Broker would post the Form 513 information to all relevant potential consultants and await a response from them.
6. EVALUATION OF ALTERNATIVES

Independently of the methodology used to assign/select a consultant in a case, it is still necessary to decide which is the configuration of the Consultation Broker. As mentioned earlier, we identified four alternative configurations:

- Automatic (AU),
- Electronic board (EB),
- Yellow pages (YP), and
- Active broker (AB).

As in the majority of real life situations, making a decision about the configuration of the Consultation Broker involves not just tangible benefits and/or costs but also intangibles which need to be included in the decision making process. The measurement of intangibles was not possible until a few years ago when Saaty (1977, 1986) developed the Analytic Hierarchy Process (AHP). This theory is based on the use of relative measurement to construct ratio scales, which can be combined in hierarchic structures to yield nonlinear approximations. The theory is based on three principles: decomposition (construction of a hierarchy or network of interactions), measurement (development of ratio scales) and synthesis (hierarchic or network composition. This theory requires expert knowledge to develop the decision making structure (i.e., the hierarchy) and to assess the relative importance/contribution of the criteria and the alternatives (i.e., ratio scales from pairwise comparisons). As an illustration of how the alternatives could be evaluated, we give below (Figure 1) a simple hierarchy of objectives, criteria and alternatives that could be used by a group of experts to evaluate the four alternatives. It is important to note that this theory does not have the same shortcomings as some other theories such as utility theory or outranking methods. The AHP allows for intransitivities of the decision-makers and hence, the logic behind it must be non-monotonic which allows for new facts not necessarily consistent with all other existing facts at the time of a decision.
The selection of an alternative could consider the following four objectives:

- Optimal utilization of resources
- Maximum accessibility of service,
- Quality of care, and
- Readiness.

These objectives could in turn be decomposed as in Figure 16. Below the level of objectives we should insert a set of criteria which will help to measure the contribution of the alternatives to the attainment of the objectives.

To evaluate the four alternative configurations we first need to assess the importance of the objectives, then the importance of the criteria with respect to each objective and finally the relative importance of the alternative configurations with respect to each criterion. The results of these comparisons can then be combined into a unidimensional scale which will indicate, in relative terms, the importance of the alternative according to all the objectives and criteria. This evaluation requires knowledge and experience on the alternative configurations, which is not yet readily available. It is the subject of future research. We propose to select four cases to illustrate the four configurations and show their weaknesses and strengths. A good example of a case similar to this one was summarized in Vlahakis and Partridge (1989). This publication is a summary of a larger study conducted by the U.S. Department of Energy and the Office of the Inspector General to determine the adequacy of security at selected U.S. Department of Energy facilities that produce nuclear weapons. The AHP provided a flexible tool for assessment, planning, and allocation of resources for enhanced security.

Note that to obtain a synthesized scale for the configurations we would need to combine the individual scales obtained under each criterion (see for example Table 1).
Desirability of Alternatives

- Resources
  - Comms
  - Provider
  - Patient

- Access to Care
  - Provider
  - Patient
  - Remote Fac.

- Quality of Care
  - Attending
  - Consultation
  - Outcome

- Readiness
  - Individual
  - Health Rdns
  - CINC’s Mission

Figure 16. Consultation Broker Alternatives Hierarchy
<table>
<thead>
<tr>
<th>Rating Criteria</th>
<th>Use of Resources</th>
<th>Contribution to Access to Care</th>
<th>Contribution to Quality of Care</th>
<th>Contribution to Readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>(u₁, u₂, u₃)</td>
<td>(a₁, a₂, a₃)</td>
<td>(c₁, c₂, c₃)</td>
<td>(r₁, r₂)</td>
</tr>
<tr>
<td>Comms</td>
<td></td>
<td>Comms</td>
<td>Provider Spt</td>
<td>Provider Patient Remote</td>
</tr>
<tr>
<td>Provider Spt</td>
<td></td>
<td></td>
<td>Attending Consultation Outcome</td>
<td>Indiv. Health Rdns</td>
</tr>
<tr>
<td>Provider Patient Remote</td>
<td></td>
<td></td>
<td></td>
<td>CINC's</td>
</tr>
<tr>
<td>Electronic Board</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(consultant involved)</td>
<td>u₁₁ u₁₂ u₁₃</td>
<td>a₁₁ a₁₂ a₁₃ c₁₁ c₁₂ c₁₃</td>
<td></td>
<td>r₁₁ r₁₂</td>
</tr>
<tr>
<td>Electronic Board</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(requestor involved)</td>
<td>u₂₁ u₂₂ u₂₃</td>
<td>a₂₁ a₂₂ a₂₃ c₂₁ c₂₂ c₂₃</td>
<td></td>
<td>r₂₁ r₂₂</td>
</tr>
<tr>
<td>Yellow Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Broker</td>
<td>u₃₁ u₃₂ u₃₃</td>
<td>a₃₁ a₃₂ a₃₃ c₃₁ c₃₂ c₃₃</td>
<td></td>
<td>r₃₁ r₃₂</td>
</tr>
<tr>
<td>(3rd party broker involved)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Using the principle of hierarchic composition, the relative standing of the configurations would be given by the configuration priority (CP):

\[ CP(i) = \sum_{j=1}^{3} u_i u_j + \sum_{j=4}^{3} a_i a_j + \sum_{j=4}^{3} c_i c_j + \sum_{j=4}^{2} r_i r_j \]

Resources + Accessibility + Quality + Readiness

7. CONCLUSIONS

In this paper we describe a global telemedicine command and control system (GGTS) under development that will enable telemedical consultations to occur anywhere in the world, regardless of location or transportation medium. The GGTS consists of four distinct functional nodes: Field, Requestor, Broker and Provider. Each one of these nodes provides a specific interface to the communications network that supports medical operations across the Operational Continuum. This paper concentrates on the Consultation Broker (CB) component, which is operationalized using Artificial Intelligence methodologies such as case-based reasoning and classification theory. The CB is an object oriented global teleconsultation system designed to route incoming requests for consultation to the appropriate "on duty" medical personnel. It may adopt one of four alternative architectures described: automatic, active broker, yellow pages and electronic board. We illustrate the data structures used in the CB and how these architectures would handle different teleconsultations with data from a US Army Teledentistry system in operation.

Many of the concepts embedded in the Consult Broker are new, and hence they are evolving as data become available. In general, there are "common sense" specifications that we would like the alternative configurations to satisfy. These requirements will be refined once working prototypes of the configurations are available. In general, the Consultation Broker architecture should:

(1) Be a virtual link between healthcare providers and medical centers for 24/7 Telemedicine Consultations.

(2) Leverage existing and available military telecommunication infrastructure backed up by civilian
networks to provide remote military health care providers with Telemedicine access to consulting physicians at medical centers.

- System must function with humans to enhance their efficiency

(3) Provide centralized transparent network management and consult routing with knowledge-based system technology.

- Dynamic and flexible
- Deal with uncertainty
- Adjust to change
- Similar to telecommunications routing system for phone calls

(4) Have mirrored capability for Consult Broker Architecture to ensure that if the initial consultation broker drops off-line, the consult in progress is maintained and new consultations are rerouted to the alternative site.

(5) Be sensitive to requirements of all potential customers, who include, at a minimum, the patient, the primary care giver, the Physician at the GGTS control center and, the Consulting Physician at the Medical Center.

(6) Be able to be responsive to and incorporate current and future policy decisions.

(7) Be continuously aware, along with Network and Bandwidth managers, of the state of physical resources and be able to respond to unexpected changes in the availability of those resources.

(8) Be able to recognize the criticality of the request (life threatening) and have a time management capability to clear requests and/or upgrade previous requests after an elapse of time.

(9) Remain in standby mode until initiated, making it the triggering mechanism of the GGTS architecture.

(10) Once initiated, evaluate consults predicated upon:

- Patient Information to include initial diagnosis and criticality
• Attending Primary Care Giver requirements
• Knowledge of physician based protocols
• Network and Bandwidth resource availability
• Operational Policies

(11) Provide a medical decision maker with a list of prioritized options with whom to initiate the consult.

(12) Augment its knowledge base with the results of completed consult case information.
REFERENCES

Booze-Alleen Hamilton, GGTS feasibility study to the US Army 1108th Signal Brigade (Ft. Ritchie, MD), 1999.


G2 ref


Appendix 2:

May, Vargas, Johnson, Gilbert, and Illi, "Global Grid Telemedicine System," presented at ATA Fourth Annual Meeting, Salt Lake City, Utah, 1999

1. Global Grid Telemedicine System (GGTS)

2. What is GGTS?
The Global Grid Telemedicine System (GGTS) is a proposed Global Telemedicine Command and Control System (Zajtchuk and Zajtchuk, 1996) that will enable telemedical consultations to occur anywhere in the world, regardless of location or transportation medium.

3. WHY IS GGTS NEEDED?
- Historically, the military medical community has had limited access to tactical and strategic communication systems. Increased use of telemedicine has previously resulted in the employment of expensive, stove-piped communications. As global telemedicine operations are incorporated into doctrine, the need for a reliable, scalable, rapidly adaptable virtual network is becoming apparent.

4. WHY IS GGTS NEEDED?
- ...a communications network alone is not adequate. A consult routing system which considers Command guidance, availability of resources, physicians' preferences, and medically sound consultation practices is essential to effectively route telemedicine consultations to the appropriate consultant.
BOSNIA EXPERIENCE

- "...providing a reliable back-bone communications infrastructure is not enough. More flexible and responsive network management and prioritization policies and procedures as well as end-to-end systems integration services and support are also essential."
  - Telemedicine Report: Case Study of Operation Joint Endeavor in Bosnia

GGTS Concepts

- Provide centralized transparent network management and consult routing with intelligent decision support system technology.
- Leverage existing and available military telecommunication infrastructure backed up by civilian networks to provide remote military health care providers with Telemedicine access to USA-based medical centers.
- Consultation Broker Server and Network Manager do not have to be co-located but must be integrated.

What Knowledge Does GGTS Need?

- A list of potential consultants
- A list of sites providing consultation
- A link to a network manager with feasible modes of consultation
- An interface to collect relevant information from the requestor
- A time keeping capability and
- A time-based event trigger

GGTS Proposed System Components

Real-time Knowledge-Based System Architecture

What Information is Needed for a GGTS Tele-medical Consultation?

- Modality (e.g., audio, real-time full motion, store-and-forward)
- Patient demographic data (e.g., name, date, location, age)
- Consultation specific data (e.g., requesting physician's specialty, consultation urgency, subspecialties requested, type of equipment used or available, history of present illness, and current differential diagnosis).
WHAT IS CASE-BASED REASONING?

CBR is [...] reasoning by remembering.
Luaka, 1996

A case-based reasoner solves new problems by adapting solutions that were used to solve old problems.
Riesbeck & Schank, 1989

Patient Case Base

<table>
<thead>
<tr>
<th>Patient demographics</th>
<th>Patient 1</th>
<th>Patient 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Patricia</td>
<td>John</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>04/01/1999</td>
<td>04/01/1999</td>
</tr>
<tr>
<td>Location</td>
<td>Bosnia</td>
<td>Somalia</td>
</tr>
<tr>
<td>Age</td>
<td>21</td>
<td>34</td>
</tr>
</tbody>
</table>

Consult specific data

<table>
<thead>
<tr>
<th>Requester's specialty</th>
<th>Dermatology</th>
<th>Orthopedics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty requested</td>
<td>Maxillofacial surgery</td>
<td>Internal medicine</td>
</tr>
<tr>
<td>Primary HIC code</td>
<td>802.8</td>
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Consultation record

<table>
<thead>
<tr>
<th>Media type</th>
<th>Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full motion video</td>
<td>Doc-8526</td>
</tr>
<tr>
<td>Audio</td>
<td>Doc-1239</td>
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Knowledge base entry for Doc-5991

<table>
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<tbody>
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<td>John</td>
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</tr>
<tr>
<td>Location</td>
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<tr>
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Knowledge base entry for Doc-8526

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</tr>
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<td>Location</td>
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</tr>
<tr>
<td>Age</td>
<td>34</td>
</tr>
</tbody>
</table>

Consultation Request

<table>
<thead>
<tr>
<th>Patient demographics</th>
<th>Patient 1</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Age</td>
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Consult specific data

<table>
<thead>
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<th>Dermatology</th>
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<tbody>
<tr>
<td>Specialty requested</td>
<td>Maxillofacial surgery</td>
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<td>802.8</td>
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</table>

Consultation record

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<thead>
<tr>
<th>Media type</th>
<th>Consultation</th>
</tr>
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<tbody>
<tr>
<td>Full motion video</td>
<td>Doc-8526</td>
</tr>
</tbody>
</table>

EXAMPLE TELEMEDICAL ENVIRONMENT

REQUESTER               PHYSICIANS

THIRD PARTY

Brokering service

Computer

Screening and triage

Consultant

Second opinion

Medical specialist

Telecommunications

Telediagnosis

Remote monitoring

Real-time video

Audio

Computer

Screening and triage

Consultant

Second opinion

Medical specialist

Telecommunications

Telediagnosis

Remote monitoring

Real-time video

Audio
GGTS Alternative Configurations

- Automatic (AU)
- Active Broker (AB)
- Electronic Board (EB)
- Yellow Pages (YP)

Criteria for Selecting the Best Configuration Alternative

- Optimal utilization of resources
- Maximum accessibility of service,
- Quality of care, and
- Readiness.
Evaluation of Alternative Configurations

**Desirability of Alternatives**

<table>
<thead>
<tr>
<th>Resources</th>
<th>Access to Care</th>
<th>Quality of Care</th>
<th>Readiness</th>
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<tbody>
<tr>
<td>Domains</td>
<td>• Provider</td>
<td>• Attending</td>
<td>• Individual</td>
</tr>
<tr>
<td>Funder</td>
<td>• Electronic</td>
<td>• Consultation</td>
<td>• Health Risk</td>
</tr>
<tr>
<td>Patient</td>
<td>• Electronic</td>
<td>• Outcome</td>
<td>• CINC’s Mission</td>
</tr>
</tbody>
</table>

Automatic Electronic Board Yellow Pages Active Broker

---

**PACOM Medical Bandwidth Study**

- Military bandwidth used on space available basis backed up by commercial bandwidth is most feasible solution.
- GM: Commercially-backed network.
- GGTS requires dynamic and transparent bandwidth allocation between and among military and commercial communication systems.
- GGTS requires multi-level network security.
- Customer folder requires multiple reasoning and knowledge representation schemes.
- This Technical feasible to leverage the existing robust telecommunications infrastructure at Site-K and/or Fort Bitner for providing cost-effective variable bandwidth network support for worldwide Telemedicine consultations.

---

**Automatic Alternative**

- DM: Computational Model
- ROLE of CB: Assignment of consultant to requester w/o human intervention
- OBJECTIVE: Enforce managerial constraints
- CONS: Autocratic, depends on assignment methodology
- INPUTS: profiles of consultants & sites
- list of consultants available, list of RFCs, an assignment methodology.
The Active Broker

- **DM**: Third party human
- **ROLE of CB**: Intelligently support DM
- **OBJECTIVE**: Make the assigner's behavior as efficient as possible.
- **CONS**: Assigner stress
- **INPUTS**: profiles of consultants & sites, list of RFCs, audit trail capability

Electronic Board

- **DM**: Consultants
- **ROLE of CB**: Route requests to proper consultants
- **OBJECTIVE**: Make requests available to the right people & make sure a consult happens
- **CONS**: “Best” consultant not guaranteed
- **INPUTS**: list of RFCs, routing model, real-time blackboard, assignment methodology

Yellow Pages

- **DM**: Requester
- **ROLE of CB**: Route proper consultant info to requester
- **OBJECTIVE**: Make right consultants available to requester & make sure a consult happens
- **CONS**: “Best” consultant not guaranteed
- **INPUTS**: profiles of consultants and sites, selection model, real-time blackboard, assignment methodology

Methodologies

- **Case-based Reasoning**
  A case-based reasoner solves new problems by adapting solutions that were used to solve old problems...Case-based reasoning means reasoning from prior examples.” (Riesbeck and Schank, 1989, page 25).
- **Rule Systems**
- **Classification theory**
  - Statistical classifiers
  - Neural Nets
- **Machine Learning**
Appendix 3:
May, Vargas, Gilbert, Illi, Rocca, and Jacobs, "GGTS Consult Broker," presented at the ATA Fifth Annual Meeting, Phoenix, Arizona, 2000

GGTS Consult Broker

Jerrold H. May, University of Pittsburgh
Luis G. Vargas, University of Pittsburgh
Gary R. Gilbert, University of Pittsburgh & TATRC
Orlando J. Illi, U.S. Army MC4 Program
Mitra A. Rocca, University of Pittsburgh & TATRC
William G. Jacobs, University of Pittsburgh

Structure of this merged talk

1. Why are we doing this?
2. Last year / this year
3. A flow chart for the Consult Broker
4. The Consultant Generator & interfaces
5. 6 examples from a Tdent prototype
6. A naive classifier
7. Where do we want to be next year?

Overview of GGTS Broker Process for Teleconsulting Services

Goals of this project

- **System** - to make the management of teleconsultations more efficient and more effective
- **Research** - to learn how case based reasoning can be combined with management science techniques in decision support

Last year / this year

- **Last year**: defined the scope of the problem, figured out four interface modes, and identified probable methodologies
- **This year**: worked on a teledental (Tdent) prototype using real data to see what actually works
Types of Teleconsultations

- **Type 1**: Requester will almost certainly refer patient; purpose is administrative; precise medical problem not critical
- **Type 2**: Requester will almost certainly retain patient; purpose is medical; specified problem very likely to be accurate
- **Type 3**: Requester will retain patient if routine; specified problem may be only approximate
Examples from a system based on records of the Army's TDENT system

Example 1
Type 1 TC, peacetime

GGTS Alternative Configurations

Yellow Pages Requester
Electronic Board Consultants
Automatic Computer
Active Broker Third Party

20.

YELLOW PAGES

REQUESTER

CONSULT BROKER

PHYSICIANS

THIRD PARTY

24.

Example 2
Type 1 TC, peacetime
Example 2
Type 1 TC, wartime
(numbered medical groups may have been deployed to other than their usual locations)
37.

For Examples 1 and 2, Broker needs to know

- Is the specialist associated with a fixed installation or with a deployable medical unit
- If a deployable unit, which one
- Where each deployable unit is currently located
- Geographic location (latitude, longitude) of each fixed installation and of each deployed location

38.

Example 3
Type 1 TC, wartime, special organizational rules

39.

Example 4
Type 2 TC
Exact matches in case base

Request is for a real time consult for a patient who requires CDTs D4314, D4240 and D4263

40.

Example 3
For Example 3, Broker also needs to know

- Atypical organizational structures (task forces)
- Atypical administrative rules for handling patient
- Similarity judgements for specialties and subspecialties

41.

Example 4
Exact matches in case base

42.
Example 5
Type 2 TC
No exact match in case base

Request is for a teleconsultation with endodontist for a patient who requires D3333 (internal root repair). There are no patients in the case base with that CDT code.
Derived Stimulus Configuration
Euclidean distance model

CDTs most similar to D3333
(from SPSS multidimensional scaling)

<table>
<thead>
<tr>
<th>ID</th>
<th>Location</th>
<th>D3333 (RCT, molar)</th>
<th>D3330 (RCT, Bicuspid)</th>
<th>D3230 (Pulpal Therapy, anterior)</th>
<th>D3240 (Pulpal Therapy, posterior)</th>
<th>D3221 (Pulpal Therapy, partial debridement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Hanau</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
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<td>54</td>
<td>Heidelberg</td>
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<td>2</td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Wuerzburg</td>
<td>4</td>
<td>0</td>
<td>2</td>
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<td>0</td>
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<td>0</td>
<td></td>
</tr>
</tbody>
</table>

51.

52.

53.

54.
Example 6
Type 3 TC
Uncertainty in CDT code

Requester asks for a periodontist, and specifies D4341, but isn't certain of it. By multidimensional scaling, D4355 and D4910 are similar.

<table>
<thead>
<tr>
<th>Overall performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted (row percentages)</td>
</tr>
<tr>
<td>Actual</td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Orthodontics</td>
</tr>
<tr>
<td>Periodontics</td>
</tr>
<tr>
<td>Prosthodontics</td>
</tr>
<tr>
<td>Oral Pathology</td>
</tr>
</tbody>
</table>
In the next year we want to...

- Extend the breadth of the prototype - how representative is TDENT of the general medical teleconsultation problem?
- Refine the types of teleconsultations to best match the KB&MS tools and the interfaces to the management problem, user requirements, and organizational rules
Appendix 4:
Gilbert, Illi, Baker, Brienza, Rocca; Vargas, and May, "Global Grid Telemedicine System (GGTS)," presented at the ATA Fifth Annual Meeting, Phoenix, Arizona, 2000

1. 

2. 

What Is GGTS?

The Global Grid Telemedicine System (GGTS) is a proposed Global Telemedicine Command and Control System (Zajtchuk and Zajtchuk, 2000) that will enable telemedical consultations to occur anywhere in the world, regardless of location or transportation medium.

3. 

WHY IS GGTS NEEDED?

- Historically, the military medical community has had limited access to tactical and strategic communication systems.
- Increased use of telemedicine has previously resulted in the employment of expensive, stove-piped communications.
- As global telemedicine operations are incorporated into doctrine, the need for a reliable, scalable, rapidly adaptable virtual network is becoming apparent.

4. 

BOSNIA EXPERIENCE

- "...providing a reliable back-bone communications infrastructure is not enough. More flexible and responsive network management and prioritization policies and procedures as well as end-to-end systems integration services and support are also essential."

5. 

PACOM Medical Bandwidth Study

- "ASD/HA rapidly moving to Digital CPR, but...communications plans don't match medical data movement needs"
- "could be handled if Log C2, Intel for a total picture"
- "DODA can support peacetime needs, wartime support questionable"
- "many medical systems outside firewall"
- "digital patient record could approach Giga-Bytes" (File Sizes)
- "ability to move data will be more difficult further forward"

6. 

GGTS Concepts

- Provide centralized transparent network management and priority control to provide remote military health care providers with Telemedicine access to USA-based medical centers.
- Leverage existing and available...
Army Medical Department Center & School Letter - 6 October 1998

- GGTS Feasibility study supports conclusion that global telemedicine network is feasible.
- No requirement has been formally defined
  - "telemedicine remains a vaguely defined technical capability"
  - "theater telemedicine and bandwidth requirements are not established"
- Recommends demonstrating GGTS in Joint Medical Operations Telemedicine (JMOT) and Advanced Concepts Technology Demonstration (ACTD)
  - address joint telemedicine requirements for War and Operations other than War (OOTW)
  - determine bandwidth requirements
  - assess signal/cellularity support requirements and capabilities.

GGTS Consult Broker Model Development

Army Research Laboratory
Pittsburgh, PA 15213-7685
Types of Information Needed for a GGTS Tele-medical Consultation?
- Modality (e.g., data, text, audio, images, store-and-forward, full motion video, etc.)
- Patient demographic data (e.g., name, date, ssn, sex, age, unit, location, age, etc)
- Consultation specific data (e.g., requesting physician's specialty, consultation urgency, subspecialties requested, type of equipment used or available, history of present illness, and current differential diagnosis).

What Knowledge Does GGTS Need?
Knowledge about:
- relevant information to collect from the requestor
- medical decision making and consultation
- potential consultants
- feasible modes of consultation
- policies and constraints
- network architecture, network & bandwidth management, & time-based event management and record keeping.

Criteria for Selecting the Best Configuration Alternative
- Optimal utilization of resources
- Maximum accessibility of service, Quality of care, and Readiness.

Evaluation of Alternative Configurations

Reasoning Methodologies
- Case-based Reasoning
  A case-based reasoner solves new problems by adapting solutions that were used to solve old problems. Case-based reasoning means reasoning from prior examples. (Riesbeck and Schank, 1989, page 25).
- Rule Systems
- Classification theory
  - Statistical classifiers
  - Neural Nets
  - Machine Learning

GGTS Alternative Configurations
- Automatic (AU)
- Active Broker (AB)
- Electronic Board (EB)
- Yellow Pages (YP)
Overview of GGTS Broker Service Provisioning Process for Teleconsulting Services

26.
GGTS Network Service Provisioning JMO-T ACTD Timeframe

27.
GGTS Network Service Provisioning JMO-T ACTD Timeframe

28.
Joint Communications Infrastructure Synchronization Experiments & Exercises

29.
Joint Communications Infrastructure Synchronization Experiments & Exercises

30.
Warrior Information Network-Terrestrial Proof of Concept Switch
31. Telemedicine Reference Architecture

- Software and hardware working together on an open platform (components)

33. Distributed Computerized Patient Records
- almost certainly will use web-based approach
- require other interoperability tools such as CCRA/med

35. Special Operations Medical Handbook
- Encoded Functions:
  Electronic version of SF Medical Handbook
  Electronic Medical Record
  Interactive Medical Reference Library
  Clinical Guidelines for Wilderness medicine
  Specialty Medical Knowledge Base
  Medical Sustainment training
  Focused Tele-consultation
  Internet Access

36. Alternate Communications Grids
GGTS Overview Conclusions

- Implement a network centered method to leverage access to military networks, manage bandwidth, and appropriately route telemedicine consults.

- Validate the GGTS “virtual” network architecture and infrastructure concepts for all military medical communications.

- Leverage the JMO-T ACTD to collect data on how medical networks are managed and consults are routed.
Appendix 5:
Summary of naive text classification experiments on teledental and medical data

Naive Text Classifier for Use in Teledentistry

Possibly the most difficult task in the implementation of an effective Teledentistry system is the classification of the consults of individual patients. Such classifications are, in fact, necessary in order to send patients to appropriate specialists. The immediate tasks were to observe a sample of past dental consults and to build an effective classification system that could successfully classify new dental consults.

In the real-time GGTS Consult Broker, a consult form such as Standard Form 513 is to be completed and sent through the system. In order to send the consult to the appropriate specialist, an intelligent classifier was constructed. The method that we chose to use was that of a naive classifier, which uses rules of probability and Case-Based Reasoning (CBR) to determine the likeliness of a consult being in a certain class.

The naive classifier that was implemented uses, as its input, the unordered set of words contained in the consultation report. A patient's dental problems are summed up in the description on the report. The words used in the description are the vital clues in directing the patient to a proper specialty. Using the clues along with rules of probability such as Simple Bayes', the naive classifier finds the most likely specialty out of a list of possible specialties.

In such a system, a number of past consults are to be used as a training set. From the training set, the naive
classifier constructs a "trained data-set," which holds the vital information on word/category frequencies in the past data. By using the past frequencies, the classifier is able to decide which specialties are most likely associated with new consults, which use many of the same words in their descriptions.

The actual classification algorithm is relatively straightforward, and is flexible enough to be easily altered and improved. The algorithm, in its simplest form, is summed up by the pseudo-code shown in Figure BJ-1.

| Uses a trained "data-set" to compute probabilities |
| Tests each possible category separately: |

\[
\text{SCORE for category } C, \text{ given a text-description } D = \frac{\log (\text{# of consults containing } W \text{ in class } C + 1)}{(\text{total # of consults in class } C + 2)}
\]

End of loop; increment \text{SCORE} by the probability of any arbitrary item being in class \text{C}.

Figure BJ-1

This algorithm (Figure BJ-1) utilizes a variation of the Simple Bayesian method. To compute a score for each category \text{C}, the algorithm looks at the list of words...
describing a patient $D$, and, for each word, computes the probability that the word belongs to a consult of category $C$. After all those probabilities are summed, the classifier finally adds the probability of an arbitrary item being in category $C$.

To compute these probabilities, the classifier requires a trained data set that holds information on all word/category frequencies. In order to build the trained data set, the naive classifier reads from a file that contains data from the items in its training set. Each consult in the training file includes the description (informal diagnosis) of the patient’s situation and the specialty to which the patient was later referred. The object of the classifier is to “read” the words in the description of a patient’s dental problems, and to then send the patient to an appropriate specialist, based on the specialty to which the classifier believes the patient’s diagnosis belongs. By having a connection between the words in the patient descriptions and the specialty they fall under, the classifier is able to store word frequencies for each of its respective classes. Those word frequencies, with the above algorithm, are then used to evaluate new consults, and then to classify them to their proper specialties.
<table>
<thead>
<tr>
<th>Word</th>
<th>Oral Pathology</th>
<th>Prosthodontics</th>
<th>Periodontics</th>
<th>Orthodontics</th>
<th>Oral Max/Facial Surgery</th>
<th>Endodontics</th>
</tr>
</thead>
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<td>6.45</td>
<td>0.00</td>
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<td>0.00</td>
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<td>3.07</td>
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<td>2.60</td>
<td>3.07</td>
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<td>1.30</td>
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<td>1.75</td>
</tr>
<tr>
<td>NONCONTRIBUTORY</td>
<td>11.54</td>
<td>0.00</td>
<td>1.08</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>OLD</td>
<td>11.54</td>
<td>5.43</td>
<td>16.13</td>
<td>7.79</td>
<td>22.09</td>
<td>0.00</td>
</tr>
<tr>
<td>PACK</td>
<td>11.54</td>
<td>0.00</td>
<td>0.00</td>
<td>1.30</td>
<td>0.61</td>
<td>0.00</td>
</tr>
<tr>
<td>PAIN</td>
<td>11.54</td>
<td>0.00</td>
<td>3.23</td>
<td>5.19</td>
<td>22.09</td>
<td>26.32</td>
</tr>
<tr>
<td>PALATE</td>
<td>11.54</td>
<td>1.09</td>
<td>0.00</td>
<td>3.90</td>
<td>1.84</td>
<td>0.00</td>
</tr>
<tr>
<td>POSSIBLE</td>
<td>11.54</td>
<td>9.78</td>
<td>6.45</td>
<td>7.79</td>
<td>15.34</td>
<td>22.81</td>
</tr>
<tr>
<td>RADIOGRAPHS</td>
<td>11.54</td>
<td>0.00</td>
<td>4.30</td>
<td>0.00</td>
<td>4.29</td>
<td>8.77</td>
</tr>
<tr>
<td>SHE</td>
<td>11.54</td>
<td>23.91</td>
<td>16.13</td>
<td>24.68</td>
<td>23.93</td>
<td>15.79</td>
</tr>
<tr>
<td>SLIGHT</td>
<td>11.54</td>
<td>1.09</td>
<td>0.00</td>
<td>2.60</td>
<td>6.13</td>
<td>1.75</td>
</tr>
<tr>
<td>SMOKING</td>
<td>11.54</td>
<td>0.00</td>
<td>0.00</td>
<td>1.30</td>
<td>3.07</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Figure BJ-2

Figure BJ-2 shows, for each of these specialties, the percentage of consults that contain each given word. The naive classifier takes advantage of the fact that certain words are more common in particular specialties.
Figure BJ-3 shows how the scores are calculated using the algorithm in Figure BJ-1. Punctuation such as periods and commas can either be taken into consideration or omitted. In the initial tests, we took all punctuation into consideration when classifying consults. The sum of all the words in each consult being tested were added up for each category. The classifier returns, as the predicted class, the category with the highest, or least negative, value.

Naive Classifier Testing

In order to evaluate its performance, testing was done on the naive classifier. The first step was to take the 390 available consults that were classified under the Endodontic, Periodontic, Orthodontic, and Oral Surgery specialties, and to divide them into a training-set, which would be used to build the classifier’s data-set and a test-set. It seemed appropriate to start off building an equally distributed training set, because it seems the classifier’s probabilistic nature may require an even
number of items (consults) for each specialty that it trains. As shown in Figure BJ-4, 45 consults in each of the four categories were used to build the classifier's trained data set, giving a total of 180 items in the training set. The remaining 210 items were then set aside for testing purposes.

<table>
<thead>
<tr>
<th>Specialty</th>
<th># of Items in Training Set</th>
<th># of Items Remaining for Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>45</td>
<td>118</td>
</tr>
<tr>
<td>Periodontics</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>45</td>
<td>32</td>
</tr>
<tr>
<td>Endodontics</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>180</strong></td>
<td><strong>210</strong></td>
</tr>
</tbody>
</table>

Figure BJ-4

A testing program was written to process the test-set and to test it using the naive classifier. The testing program worked by reading in a file that contained the 211 test items. The format of the file was identical to that of the file used for building the training set. Each line in the file contained the description of the patient's situation and the specialty that the patient was sent to. As each item was read in, the classifier evaluated the words in the patient description and calculated scores for each of the possible specialties. The specialty with the highest score was passed back to the testing program. If the specialty returned by the classifier matched the actual specialty of the item, the item was marked as successfully classified.

Initial tests showed that the classifier successfully classified around 70% of the items in the test-set. Cross-
validation was also used to test the accuracy of those results. For the most part, the results stayed around 70%.

While the results of the initial tests were impressive, setting aside 45 of each specialty's items would not allow for sufficient testing for every specialty. Endodontics, for example, had a total of only 57 available items, which meant only 13 at a time could be tested under the initial testing program, which used 45 of the 57 Endodontic consults for the training set. Therefore, another method of testing had to be developed.

This time, instead of separating the items into a training-set and a test-set, every available item was used to build the trained data set. This data set contained the word/class frequencies found in every available consult. As a result, the trained data set no longer had an equal number of instances for each specialty. A specialty such as Oral Max/Facial Surgery had more than double the amount of items than Endodontics. Whether or not this effected the performance of the classifier was yet to be seen.

Under this test, we also decided to add the specialties of Prosthodontics and Oral Pathology to evaluate the classifier's performance with a larger set of categories. This gave us a total of 534 consults.

Testing was again performed by reading from a file, evaluating the words in the descriptions, and then classifying items under specialties. A few changes, however, had to be made in order to run the tests under this new method. For example, only one file was now needed for building the data set and performing the test. Also, to simulate the classifier's function of evaluating new and unique consults, we had to ensure that the specific items that were being classified were not, at the time, actually
contained in the data set. Therefore, as each item was being classified, the testing program first removed that particular item from the trained data set. The method, shown in Figure BJ-5, tested every item without having to distinguish between a training-set and a test-set:

```
Pseudo-code for alternate testing method:

Read file containing all 534 consults

Build classifier's data set using the 534 items

for each line (item) in file
{
    remove all word/frequency information in 'item'
    from the trained data-set

    evaluate 'item' and return its specialty
    according to the classifier

    record the classification

    restore the original data set by once again
    adding the word/frequency information of 'item'
    to the data set
}
```

Figure BJ-5

Once this testing algorithm was implemented, the new tests were run on the data in the Endodontic, Periodontic,
Orthodontic, Oral Surgery, Prosthodontic, and Oral Pathology fields. This time, the program not only recorded successful/unsuccessful counts for each category, but it also mapped the results into an "actual vs. predicted" hash table, and produced a confusion matrix (Figure BJ-6) of the test results:

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Oral Endodontics</th>
<th>Max/Facial Surgery</th>
<th>Orthodontics</th>
<th>Periodontics</th>
<th>Prosthodontics</th>
<th>Oral Pathology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endodontics</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>12</td>
<td>68</td>
<td>24</td>
<td>0</td>
<td>24</td>
<td>35</td>
<td>163</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>5</td>
<td>0</td>
<td>58</td>
<td>0</td>
<td>12</td>
<td>2</td>
<td>77</td>
</tr>
<tr>
<td>Periodontics</td>
<td>19</td>
<td>1</td>
<td>5</td>
<td>20</td>
<td>29</td>
<td>19</td>
<td>93</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>71</td>
<td>2</td>
<td>92</td>
</tr>
<tr>
<td>Oral Pathology</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>70</td>
<td>89</td>
<td>24</td>
<td>140</td>
<td>105</td>
<td>534</td>
</tr>
</tbody>
</table>

Figure BJ-6

<table>
<thead>
<tr>
<th>Correct Classifications</th>
<th>Total Tested</th>
<th>Pct. Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endodontics</td>
<td>55</td>
<td>57</td>
</tr>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>68</td>
<td>163</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>58</td>
<td>77</td>
</tr>
<tr>
<td>Periodontics</td>
<td>20</td>
<td>93</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>71</td>
<td>92</td>
</tr>
<tr>
<td>Oral Pathology</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>534</td>
</tr>
</tbody>
</table>

Figure BJ-7

This test was able to give a better idea of the performance of the classifier. Figure BJ-7 shows that most of the specialties were classified successfully. The notable exceptions, however, were Oral Surgery, which had a success rate of only 42%, and Periodontics, which had an even lower rate of 22%. It was also interesting to see that, when the classifier made mistakes, Prosthodontics was
a frequent mistake. In fact, 29 of the Periodontic consults were classified as Prosthodontics, while only 20 of them were correctly classified as Periodontics.

While the initial results were promising, they left room for improvement. In order to possibly improve the classifier's performance, we constructed an even training-set, to balance out the probabilistic calculations for each specialty.

Because the Oral Pathology specialty had the least number of consults associated with it (52), we took 52 random consults from each specialty for use in the training-set. This enabled us to test with an even data set, which would allow for an even distribution across specialties. We then tested each of the 52 items, using the same testing method, and produced new results.

<table>
<thead>
<tr>
<th>Actual</th>
<th>Predicted</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Endodontics</td>
<td>Max/Facial</td>
<td>Orthodontics</td>
<td>Periodontics</td>
<td>Prosthodontics</td>
</tr>
<tr>
<td>Endodontics</td>
<td>48</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>0</td>
<td>45</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>1</td>
<td>9</td>
<td>37</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Periodontics</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>27</td>
<td>15</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td>35</td>
</tr>
<tr>
<td>Oral Pathology</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure BJ-8

<table>
<thead>
<tr>
<th>Correct Classifications</th>
<th>Total Tested</th>
<th>Pct. Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endodontics</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>45</td>
<td>52</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>37</td>
<td>52</td>
</tr>
<tr>
<td>Periodontics</td>
<td>27</td>
<td>52</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>35</td>
<td>52</td>
</tr>
<tr>
<td>Oral Pathology</td>
<td>44</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>236</td>
<td>312</td>
</tr>
</tbody>
</table>

Figure BJ-9
Figures BJ-8 and BJ-9 show that the evenly distributed training-set produced significantly more successful results. This has to do with the probabilities of word-frequencies being evened out for each specialty. It is interesting to note that 27 out of 52 (52%) of the Periodontics items were classified correctly under this method, while only 20 out of 93 (22%) were classified correctly with the unevenly distributed training-set.

![Table]

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endodontics</td>
<td>-4.18%</td>
</tr>
<tr>
<td>Oral Max/Facial Surgery</td>
<td>+44.82%</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>-4.17%</td>
</tr>
<tr>
<td>Periodontics</td>
<td>+30.41%</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>-9.86%</td>
</tr>
<tr>
<td>Oral-Pathology</td>
<td>-5.76%</td>
</tr>
<tr>
<td>OVERALL</td>
<td>+15.90%</td>
</tr>
</tbody>
</table>

Figure BJ-10

Figure BJ-10 shows the difference (in actual percentage values) between the results of the unevenly distributed and evenly distributed data sets. A specialty with a positive (+) difference indicates an improvement caused by the evenly distributed set. While only 2 of the 6 specialties saw improvements with the evenly distributed data set, the overall performance was a substantial 15.9% better.

Relative Scoring

In order to further evaluate and possibly improve the performance of the classifier, changes were made which allowed the classifier to keep track of the scores of each category it tested. This not only allows for further evaluation of results, but it also allows the classifier to
produce confidence levels.

Once the scores for each specialty are calculated, the classifier gives each specialty a relative score, which shows the likelihood that a patient's description falls under a specific specialty, relative to other categories. Confidence values, therefore, can be generated from these relative scores.

Tests were then run to measure the effectiveness and significance of the new relative scoring system. Distinctions were made which divided classified consults into two separate categories. A classified consult was considered "unsure" if none of the specialties had a relative score of over 10. Consults with a single dominant specialty with a relative score greater than 10 were considered "confident." The classifier was then altered to return only the dominant category for confident consults, while returning the entire list of relative scores in unsure instances.

A set of 210 Endodontic, Periodontic, Orthodontic, and Oral Max/Facial Surgery items were tested to measure how many of the items would be confidently classified, and, in turn, how many of the confidently classified items were, in fact, correctly classified. These confidence levels, if valid, improve the classifier by allowing for distinctions between definite classifications and unsure classifications that may require further evaluation.

As shown in Figure BJ-11, out of the 210 items that were tested, slightly over half of them returned just one specialty and were considered confident:

<table>
<thead>
<tr>
<th>Items Classified</th>
<th>Items Considered</th>
<th>Items Considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>210</td>
<td>109 (52%)</td>
<td>101 (48%)</td>
</tr>
</tbody>
</table>
Figure BJ-11

How accurate are the confident items? Figure BJ-12 shows that out of the 109 items considered confident, most every one was classified correctly:

<table>
<thead>
<tr>
<th>Items Considered Confident</th>
<th>Number Classified Correctly</th>
<th>Pct. Classified Correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>109</td>
<td>105</td>
<td>96%</td>
</tr>
</tbody>
</table>

Figure BJ-12

Figure BJ-13 displays a screenshot of the Consult Classifier, which allows the user to scroll through past consults or enter new consults to be classified. The relative scores of each of the categories are displayed in the top right box. In the case of Figure BJ-13, Endodontics is the obvious category. Therefore, Consult
#2420 can be classified as Endodontics with a high degree of confidence.

**SURGEON FINDER**

In order to successfully route patients to an appropriate surgeon, we developed a system that takes advantage of the hierarchical structure of the ICD9 codes.

The Surgeon Finder software we developed allows a user to enter an ICD9 code (diagnosis) in order to find a surgeon who has dealt with patients with similar or identical diagnoses. By using the data collected from two hospitals (UW and HMC), records were made for each of the 338 surgeons who had performed procedures in either hospital. These records included information such as frequencies in which surgeons saw patients with specific ICD9s.

By utilizing these records, we were able to list appropriate surgeons for the user, given a selected ICD9 code. Not only could the Surgeon Finder find surgeons who have dealt with patients with the exact same diagnoses, it could also handle cases where few or no surgeons exist with such experience. In other words, if no surgeon has ever dealt with a specific ICD9 diagnosis, the Surgeon Finder allows the user to “back up” to a more general level, and find surgeons who have dealt with patients with similar diagnoses.

The hierarchical structure of the ICD9 codes allows us to logically move up and down to either more or less specific levels of diagnoses. For example, if Patient A is diagnosed with an ICD9 code of 414.11, the user would enter the most specific version of the code. In return, the Surgeon Finder lists surgeons who have dealt with other
414.11 patients, and displays the number of times they have done so:

![Surgeon Finder](image)

**Figure BJ-14**

In this case (Figure BJ-14), no surgeons who have treated an Aneurysm (arteriovenous) of coronary vessels (414.11) are available. This raises the question of what to do in these types of cases where no exact matches exist. Our next step was to evaluate the structure of the ICD9 codes to figure out the best way to handle these cases. The ICD9 code book is structured in a hierarchical fashion, and the knowledge structure inherent in that hierarchy might be a promising way to "back up" and find surgeons at more general levels.
As shown in Figure BJ-15, the last "1" in code number 414.11 takes 414.1 to a more specific level. In other words, 414.10, 414.11, and 414.19 are all siblings under the more general grouping of 414.1 codes. Furthermore, 414.0, 414.1, 414.8, and 414.9 are siblings and are all part of the general group of 414 codes. This structure is what allows us to "back up" to less specific levels.

In order for a user to find a surgeon who is experienced with patients similar to a 414.11 patient, it is possible to move up in the tree, and find surgeons experienced with Aneurysm of heart (414.1) patients more generally:
In this case (Figure BJ-16), there are still very few surgeons who have dealt with the even more general cases of Aneurysm of heart. Therefore, the next logical step would be to move another level up in the hierarchy to look at all surgeons who have treated any 414 patients:
As displayed in Figure BJ-17, a significant number of surgeons have had experience with forms of *chronic ischemic heart disease* classified as *other* (414 codes at their base-number level). At this level, significantly more surgeons are available for selection. The Surgeon Finder, at all levels, also allows the user to see a list of ICD9 codes that a particular surgeon has dealt with.

If the user continued to move up in the ICD9 hierarchy, the Surgeon Finder would then move from the base-number level up to the next level, which is a range of base numbers under the heading, *Ischemic Heart Disease* (ICD codes 410-414). Figure BJ-18 shows the results of moving up one more level.
Surgeon Categorization

In order to route patients to appropriate surgeons, a categorization of the surgeons was required. The Surgeon Finder software was quite effective in guiding patients to surgeons who were experienced with other similar patients. However the question as to how far a patient must travel to find a qualified surgeon remains.

A helpful tool in deciding which surgeons are appropriate is surgeon categorization. The task was to separate surgeons into three groups: Specialists, who specialized in a few types of patients; Sub-specialists, who specialized in even fewer types of patients; and Generalists, who deal with many different patients with many different diagnoses.
The categorizations are based on the Hirschman-Herfindahl Index (HHI) for each surgeon. The HHI is a standard concentration measure used by economists and lawyers for quantifying the degree of monopoly in a market. The larger the value of the HHI, the more economic power is concentrated on a small number of firms. See William G. Shepherd, The Economics of Industrial Organization, Third Edition, Prentice-Hall: Englewood Cliffs, NJ, 1990, for a discussion of the HHI, alternative measures of concentration, and their use in economics. If we consider surgeons analogous to industries, and the observed ICD9s as analogous to firms in an industry, then the HHI might be a useful measure of the degree of surgeon specialization.
Figure BJ-19

Using surgeons in the place of markets and ICD9 instances in the place of firms, HHI values were calculated for each surgeon. Figure BJ-19 shows a subset of all surgeons' HHI scores.

Surgeons were then grouped into the three separate categories based on their ICD9-based HHI scores. Surgeons with HHI scores in the top 25\textsuperscript{th} percentile were considered sub-specialists. Surgeons between the 50\textsuperscript{th} and 75\textsuperscript{th} percentiles were considered specialists. All other surgeons, with HHI scores in the bottom half of the

<table>
<thead>
<tr>
<th>Surgeon</th>
<th>HHI</th>
<th># of Consults</th>
</tr>
</thead>
<tbody>
<tr>
<td>2847</td>
<td>1307.52</td>
<td>37</td>
</tr>
<tr>
<td>2852</td>
<td>393.82</td>
<td>732</td>
</tr>
<tr>
<td>2855</td>
<td>5917.97</td>
<td>32</td>
</tr>
<tr>
<td>2856</td>
<td>461.07</td>
<td>279</td>
</tr>
<tr>
<td>2865</td>
<td>1124.26</td>
<td>13</td>
</tr>
<tr>
<td>2869</td>
<td>661.16</td>
<td>22</td>
</tr>
<tr>
<td>2871</td>
<td>656.99</td>
<td>103</td>
</tr>
<tr>
<td>2924</td>
<td>340.25</td>
<td>102</td>
</tr>
<tr>
<td>2945</td>
<td>2800.00</td>
<td>5</td>
</tr>
<tr>
<td>2947</td>
<td>3333.33</td>
<td>3</td>
</tr>
<tr>
<td>2972</td>
<td>2163.05</td>
<td>39</td>
</tr>
<tr>
<td>2985</td>
<td>188.02</td>
<td>220</td>
</tr>
<tr>
<td>2994</td>
<td>453.51</td>
<td>42</td>
</tr>
<tr>
<td>3018</td>
<td>5000.00</td>
<td>2</td>
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<tr>
<td>3026</td>
<td>10000.00</td>
<td>1</td>
</tr>
<tr>
<td>3031</td>
<td>833.33</td>
<td>12</td>
</tr>
<tr>
<td>3062</td>
<td>4575.00</td>
<td>40</td>
</tr>
<tr>
<td>3114</td>
<td>10000.00</td>
<td>4</td>
</tr>
<tr>
<td>3147</td>
<td>1083.68</td>
<td>27</td>
</tr>
<tr>
<td>3148</td>
<td>341.86</td>
<td>59</td>
</tr>
<tr>
<td>3368</td>
<td>864.20</td>
<td>18</td>
</tr>
<tr>
<td>3372</td>
<td>1851.85</td>
<td>9</td>
</tr>
<tr>
<td>3375</td>
<td>2098.77</td>
<td>9</td>
</tr>
<tr>
<td>3390</td>
<td>689.06</td>
<td>76</td>
</tr>
<tr>
<td>3399</td>
<td>2500.00</td>
<td>4</td>
</tr>
</tbody>
</table>
population, were considered generalists. Figure BJ-20 shows some of the groupings.

<table>
<thead>
<tr>
<th>Surgeon</th>
<th>HHI</th>
<th># of Consults</th>
<th>Category (overall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1150</td>
<td>5243.76</td>
<td>29</td>
<td>Sub-Specialist</td>
</tr>
<tr>
<td>1339</td>
<td>1090.12</td>
<td>199</td>
<td>Specialist</td>
</tr>
<tr>
<td>1352</td>
<td>1065.76</td>
<td>21</td>
<td>Specialist</td>
</tr>
<tr>
<td>1357</td>
<td>2048.61</td>
<td>24</td>
<td>Sub-Specialist</td>
</tr>
<tr>
<td>1358</td>
<td>485.10</td>
<td>356</td>
<td>Generalist</td>
</tr>
<tr>
<td>1361</td>
<td>1155.02</td>
<td>170</td>
<td>Specialist</td>
</tr>
<tr>
<td>1479</td>
<td>1059.01</td>
<td>653</td>
<td>Specialist</td>
</tr>
<tr>
<td>1497</td>
<td>343.78</td>
<td>1015</td>
<td>Generalist</td>
</tr>
<tr>
<td>1521</td>
<td>291.11</td>
<td>1607</td>
<td>Generalist</td>
</tr>
<tr>
<td>1524</td>
<td>196.88</td>
<td>181</td>
<td>Generalist</td>
</tr>
<tr>
<td>1532</td>
<td>1083.74</td>
<td>560</td>
<td>Specialist</td>
</tr>
<tr>
<td>1635</td>
<td>239.95</td>
<td>303</td>
<td>Generalist</td>
</tr>
<tr>
<td>1686</td>
<td>1017.45</td>
<td>1452</td>
<td>Specialist</td>
</tr>
<tr>
<td>1731</td>
<td>278.77</td>
<td>698</td>
<td>Generalist</td>
</tr>
<tr>
<td>1735</td>
<td>455.81</td>
<td>897</td>
<td>Generalist</td>
</tr>
<tr>
<td>1739</td>
<td>2555.65</td>
<td>541</td>
<td>Sub-Specialist</td>
</tr>
<tr>
<td>1792</td>
<td>1117.86</td>
<td>119</td>
<td>Specialist</td>
</tr>
<tr>
<td>1797</td>
<td>1191.41</td>
<td>32</td>
<td>Specialist</td>
</tr>
<tr>
<td>1802</td>
<td>780.53</td>
<td>66</td>
<td>Specialist</td>
</tr>
<tr>
<td>1807</td>
<td>100.80</td>
<td>909</td>
<td>Generalist</td>
</tr>
<tr>
<td>1839</td>
<td>321.32</td>
<td>744</td>
<td>Generalist</td>
</tr>
<tr>
<td>2002</td>
<td>4648.53</td>
<td>21</td>
<td>Sub-Specialist</td>
</tr>
</tbody>
</table>

Figure BJ-20

After all ICD9 HHI scores were calculated and all surgeons were categorized, we further evaluated the validity of this categorization method. Lists and tables were constructed which listed surgeons who had worked at UW, HMC, or at both hospitals:
HHIs According to ICD9 Codes

<table>
<thead>
<tr>
<th>Surgeon</th>
<th>HHI</th>
<th>Category</th>
<th>HHI</th>
<th>Category</th>
<th>Match?</th>
</tr>
</thead>
<tbody>
<tr>
<td>6930</td>
<td>305.76</td>
<td>Generalist</td>
<td>307.14</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>6960</td>
<td>1280.28</td>
<td>Specialist</td>
<td>1280.28</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>6961</td>
<td>3419.80</td>
<td>Sub-Specialist</td>
<td>2396.69</td>
<td>Sub-Specialist</td>
<td>1</td>
</tr>
<tr>
<td>6983</td>
<td>598.30</td>
<td>Generalist</td>
<td>598.3</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>6995</td>
<td>200.36</td>
<td>Generalist</td>
<td>200.36</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7000</td>
<td>909.09</td>
<td>Specialist</td>
<td>1172.84</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7001</td>
<td>809.32</td>
<td>Specialist</td>
<td>809.32</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7012</td>
<td>347.16</td>
<td>Generalist</td>
<td>644.53</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7020</td>
<td>769.02</td>
<td>Specialist</td>
<td>1753.44</td>
<td>Sub-Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7030</td>
<td>1400.00</td>
<td>Specialist</td>
<td>1124.26</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7052</td>
<td>1124.26</td>
<td>Specialist</td>
<td>1124.26</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7056</td>
<td>147.12</td>
<td>Generalist</td>
<td>127.92</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7093</td>
<td>893.99</td>
<td>Specialist</td>
<td>1488</td>
<td>Sub-Specialist</td>
<td>0</td>
</tr>
<tr>
<td>7099</td>
<td>418.88</td>
<td>Generalist</td>
<td>414.88</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7163</td>
<td>588.43</td>
<td>Generalist</td>
<td>687.19</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7164</td>
<td>2789.78</td>
<td>Sub-Specialist</td>
<td>2789.78</td>
<td>Sub-Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7270</td>
<td>214.16</td>
<td>Generalist</td>
<td>769.23</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7272</td>
<td>571.66</td>
<td>Generalist</td>
<td>601.02</td>
<td>Generalist</td>
<td>0</td>
</tr>
<tr>
<td>7276</td>
<td>1984.39</td>
<td>Sub-Specialist</td>
<td>2017.06</td>
<td>Sub-Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7300</td>
<td>373.43</td>
<td>Generalist</td>
<td>1000</td>
<td>Specialist</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure BJ-21

Figure BJ-21 shows some cases where surgeons have different types of scores in different hospitals. However, in most cases, surgeons’ HHI scores were very similar in both hospitals.

Surgeon Categorization according to CPT-based HHI scores

Up to this point, we’ve calculated HHI scores and categorized surgeons based on ICD9 codes. These ICD9-based HHI calculations indicate how specialized surgeons are at treating patients with particular diagnoses. However, it could also be helpful to know how specialized surgeons are at performing particular procedures (CPTs). On one hand, we can classify surgeons according to patient problems (ICD9s); on the other hand, we can classify surgeons
according to the solutions, or the procedures (CPTs) used to treat the problems.

CPT-based HHI scores were calculated for each of the surgeons who had performed procedures at either or both hospitals (UW and HMC). Once again, the surgeons with HHI scores above the 75th percentile were considered sub-specialists. Surgeons between the 50th and 75th percentile were then considered specialists; other surgeons under the 50th percentile were then again referred to as generalists.

Tables were again made to evaluate the surgeons’ new CPT-based HHI scores. The new CPT-based tables looked very similar to the ICD9-based tables. Most of the surgeons who had performed procedures in both hospitals had similar HHI scores for each hospital. Most surgeons who were generalists in their UW practices were also generalists in their HMC practices. The same went for sub-specialists. In some cases, a surgeon would be either a generalist or a sub-specialist at one hospital, but be a specialist at the other hospital; however, the categorizations almost never jumped over the intermediate (specialist) group. Figure BJ-21 shows part of the table that was constructed.
HHIs According to CPT Codes

<table>
<thead>
<tr>
<th>Surgeon</th>
<th>HHI</th>
<th>Category</th>
<th>HHI</th>
<th>Category</th>
<th>Match?</th>
<th>Surgeon</th>
<th>HHI</th>
<th>Category</th>
<th>HHI</th>
<th>Category</th>
<th>Match?</th>
</tr>
</thead>
<tbody>
<tr>
<td>6930</td>
<td>413.47</td>
<td>Generalist</td>
<td>1211.07</td>
<td>Specialist</td>
<td>1</td>
<td>6960</td>
<td>1211.07</td>
<td>Specialist</td>
<td>1211.07</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>6961</td>
<td>776.92</td>
<td>Specialist</td>
<td>1074.38</td>
<td>Specialist</td>
<td>1</td>
<td>6983</td>
<td>902.10</td>
<td>Specialist</td>
<td>902.1</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>6995</td>
<td>621.90</td>
<td>Specialist</td>
<td>621.9</td>
<td>Specialist</td>
<td>1</td>
<td>7000</td>
<td>1322.31</td>
<td>Sub-Specialist</td>
<td>1322.31</td>
<td>Sub-Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7001</td>
<td>4127.06</td>
<td>Sub-Specialist</td>
<td>468.75</td>
<td>Generalist</td>
<td>1</td>
<td>7012</td>
<td>257.08</td>
<td>Generalist</td>
<td>257.08</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7020</td>
<td>1344.03</td>
<td>Sub-Specialist</td>
<td>1386.92</td>
<td>Sub-Specialist</td>
<td>1</td>
<td>7030</td>
<td>1200.00</td>
<td>Specialist</td>
<td>1200.00</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7052</td>
<td>2071.01</td>
<td>Sub-Specialist</td>
<td>1</td>
<td>Sub-Specialist</td>
<td>1</td>
<td>7056</td>
<td>199.53</td>
<td>Generalist</td>
<td>199.53</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7093</td>
<td>672.05</td>
<td>Specialist</td>
<td>1200.00</td>
<td>Specialist</td>
<td>1</td>
<td>7099</td>
<td>337.57</td>
<td>Generalist</td>
<td>337.57</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7163</td>
<td>514.05</td>
<td>Generalist</td>
<td>1</td>
<td>Generalist</td>
<td>1</td>
<td>7164</td>
<td>855.62</td>
<td>Specialist</td>
<td>855.62</td>
<td>Specialist</td>
<td>1</td>
</tr>
<tr>
<td>7270</td>
<td>130.78</td>
<td>Generalist</td>
<td>769.23</td>
<td>Specialist</td>
<td>1</td>
<td>7272</td>
<td>226.49</td>
<td>Generalist</td>
<td>226.49</td>
<td>Generalist</td>
<td>1</td>
</tr>
<tr>
<td>7276</td>
<td>2104.50</td>
<td>Sub-Specialist</td>
<td>1</td>
<td>Sub-Specialist</td>
<td>1</td>
<td>7300</td>
<td>294.61</td>
<td>Generalist</td>
<td>294.61</td>
<td>Generalist</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure BJ-22

Similarities and Differences between ICD9-based and CPT-based Categorizations

The next task was to find out if a surgeon who is a sub-specialist due to his ICD9 (diagnosis)-based HHI score, is also a sub-specialist due to his CPT (procedure)-based HHI score. In other words, we had to find out if there were a significant number of surgeons who specialized in a particular type of diagnosis, but performed a broad range of procedures; and vice versa.

In order to evaluate this concept, a confusion matrix was built that contained information on surgeon-classifications. It compared the surgeon-classifications decided by ICD9-based HHI scores and the surgeon-classifications decided by CPT-based HHI scores:
**HMC and UW Surgeons**

Surgeon groups (Generalist, Sub-Specialist, Specialist) based on diagnosis (ICD9s) compared to Surgeon groups based on medical procedures (CPTs)

(Surgeon groups based on HHI percentiles from both HMC and UW)

<table>
<thead>
<tr>
<th>ICD9</th>
<th>CPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Generalist</td>
</tr>
<tr>
<td>Generalist</td>
<td>104</td>
</tr>
<tr>
<td>Specialist</td>
<td>11</td>
</tr>
<tr>
<td>Sub-Specialist</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Generalist</th>
<th>Specialist</th>
<th>Sub-Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>60</td>
<td>61</td>
</tr>
</tbody>
</table>

**Figure BJ-23**

Figure BJ-23 shows that 61% of ICD9 sub-specialists are also CPT sub-specialists; also, most of the other 39% are classified as specialists. Only in 7 of the 241 cases are there surgeons with both sub-specialist and generalist classifications. This shows that there is a connection between ICD9-based classification and CPT-based classification. Similar confusion matrices were constructed that made the same distinctions for each hospital separately (Figures BJ-24 and BJ-25)

**UW Surgeons**

Surgeon groups (Generalist, Specialist, Sub-Specialist) based on diagnosis (ICD9s) compared to Surgeon groups based on medical procedures (CPTs)

(Surgeon groups based on HHI percentiles from both HMC and UW)

<table>
<thead>
<tr>
<th>ICD9</th>
<th>CPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Generalist</td>
</tr>
<tr>
<td>Generalist</td>
<td>58</td>
</tr>
<tr>
<td>Specialist</td>
<td>14</td>
</tr>
<tr>
<td>Sub-Specialist</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Generalist</th>
<th>Specialist</th>
<th>Sub-Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>76</td>
<td>54</td>
<td>46</td>
</tr>
</tbody>
</table>

**Figure BJ-24**
HMC Surgeons

Surgeon groups (Generalist, Specialist, Sub-Specialist) based on diagnosis (ICD9s) compared to Surgeon groups based on medical procedures (CPTs)

(Surgeon groups based on HHI percentiles from both HMC and UW)

<table>
<thead>
<tr>
<th>ICD9</th>
<th>CPT</th>
<th></th>
<th></th>
<th>Sub-Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Generalist</td>
<td>Specialist</td>
<td>Sub-Specialist</td>
<td></td>
</tr>
<tr>
<td>Generalist</td>
<td>61</td>
<td>8</td>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>Specialist</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>Sub-Specialist</td>
<td>0</td>
<td>8</td>
<td>15</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Generalist</th>
<th>Specialist</th>
<th>Sub-Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>46</td>
<td>21</td>
</tr>
</tbody>
</table>

Figure BJ-25

Specialization of Hospitals

Surgeon categorization also allowed us to evaluate the level of specialization in the two separate hospitals (UW and HMC):

<table>
<thead>
<tr>
<th>Groupings based on ICD9s</th>
<th>Generalists</th>
<th>Specialists</th>
<th>Sub-Specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both HMC and UW</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>HMC</td>
<td>53%</td>
<td>29%</td>
<td>18%</td>
</tr>
<tr>
<td>UW</td>
<td>38%</td>
<td>31%</td>
<td>32%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Groupings based on CPTs</th>
<th>Generalists</th>
<th>Specialists</th>
<th>Sub-Specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both HMC and UW</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>HMC</td>
<td>49%</td>
<td>35%</td>
<td>16%</td>
</tr>
<tr>
<td>UW</td>
<td>43%</td>
<td>31%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Figure BJ-26

These results (Figure BJ-26) show that more of the surgeons at UW would be considered specialists than at HMC.
UW is a tertiary care University medical center, and HMC is primarily a trauma center, so the numerical results are consistent with our expectations. Also, note that the results of ICD9-based groupings are very similar to those of CPT-based results.

**Using Surgeon-Classification in the Surgeon-Finder Software**

Now that we had developed a mechanism to assign the classifications "sub-specialist," "specialist," and "generalist," we proceeded to integrate those classifications into the Surgeon Finder program. The original Surgeon Finder program allowed the user to enter an ICD9 code, and in returned a list of surgeons who were experienced with treating that ICD9 code or ICD9 codes similar to it. The original program, however, displayed only the number of times a surgeon was referred to. It did not take into account whether or not the surgeon was specialized in that field, or whether he was simply experienced in all fields, including that field. This information could prove to be vital in situations where sub-specialists are required. Also, the information can be helpful in situations where a patient does not need a sub-specialist, and instead simply wants the closest available general surgeon.

Prior to the HHI-based categorization of surgeons, the Surgeon Finder displayed every surgeon regardless of his specialization, or lack thereof. Integrating the idea of surgeon categorization, the new Surgeon Finder allows the user to select a desired scope of surgeons:
Figure BJ-27 displays the user’s new options with the new Surgeon Finder software. Not only can the user now observe and sort surgeons based on their HHI values (degree of specialty), but the user can also choose whether to filter out certain classifications of surgeons:
Figure BJ-28 displays an instance where the user desired only sub-specialists. By having only the "Sub-Specialist" box selected, the Surgeon Finder returns only Sub-Specialists who have dealt with similar diagnoses.

Naive Classifier For Use in General Medicine (ICD9 Classifier)

The naive classifier already produced successful results in Dentistry fields. However, it had yet to been tested under more general fields of medicine. Using the statistics from the UW and HMC information, a naive classifier was constructed that classified general medical consults.
The naive ICD9 Classifier allows a user to enter ICD9 codes as well as other patient descriptions. The consult is classified by using the list of words found in the descriptions of ICD9 codes, as well as the additional text. In Figure BJ-29, an obvious Cardiovascular consult is categorized. A classification with a relative score as high as 80.75 assures that, out of the given categories, the chosen category is almost certainly the correct category. However, when the ICD9 codes and other descriptions are more ambiguous, the relative classifier scores will be much closer.
In Figure BJ-30, the classifier is given a very ambiguous diagnosis. Although the three ICD9 codes and the additional commentary are very different from each other, the ICD9 Classifier is still able to return the most likely specialty, based only on the actual words in the descriptions.

Testing on Naive Classifier in General Medicine

Tests were run in order to evaluate the performance of naive classification in general medicine.
In order to test the naive classifier’s performance in general medicine, we started by taking a subset of the 20 main CPT categories. Figure BJ-31 shows the confusion matrix for the initial test. We took 8 of the main groups with 65 or more instances, and used 35 instances of each group to build the training set. We then tested 30 other instances for each separate group.

The classifier, which works by converting each ICD9 code into its description (e.g. 414.9 => “Chronic Ischemic Heart Disease Unspecified”), yielded very promising results. Note that we used only exact matches of words, which meant we did not consider words with a common root but different suffixes to be the same.

The next step was to observe the classifier’s performance when using more than 8 of the groups, and more than 30 test cases. Since the classifier seems to work best with an evenly distributed data set, we built a model where each category had 200 instances in its training-set, and 200 instances in its testing-set. Since at least 400 items were required for each category in this test, the 15 categories with 400 or more items were selected for use.

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Audit</th>
<th>Card</th>
<th>Dig</th>
<th>Eye</th>
<th>Fem</th>
<th>Hema</th>
<th>Integ</th>
<th>Lapro</th>
<th>Male</th>
<th>Med</th>
<th>Musc</th>
<th>Nerv</th>
<th>Resp</th>
<th>Unr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory</td>
<td>176</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<td>14</td>
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<td>0</td>
<td>1</td>
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<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>154</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Nervous System</td>
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<td>0</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
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<td>5</td>
<td>169</td>
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<td>0</td>
<td>3</td>
<td>11</td>
<td>17</td>
<td>0</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>146</td>
</tr>
</tbody>
</table>

201 216 128 417 349 308 163 90 210 199 165 208 194 181 208 2981
Figures BJ-22 and BJ-23 show remarkably good results. With the exception of the Laproscopic, Integumentary, and Digestive categories, the classifier correctly identified 70% to 90% of its test items. Figure BJ-33 shows both the actual confusion matrix resulting from the test and the percentage in each actual vs. predicted category.

Again, in this test, only exact matches of words were considered. Words with common roots were still being recognized separately. Therefore, it seemed possible that the three challenging categories (Laproscopic, Integumentary, and Digestive) might work out better if the words were grouped by root, as opposed to all being treated as distinct. In order to test a model that considered some words with common roots to be equal, a classifier was built that recognized only the first $n$ letters of every word.
Figures BJ-34 and BJ-35 show the results of considering all words beginning with the same four letters to be the same. This method, which attempted to sort words by *root*, did not seem to make much difference compared to the exact *match* method. Other tests were then run using the first 5, 6, and 7 letters of words, but those made even less difference than the initial 4-letter root test. As seen in Figure BJ-36, this root method inaccurately grouped some very different words together:
Despite these obvious mistakes, the results didn't change much. The Laproscopic category improved slightly, and the overall performance was improved by 0.7%. It seems, in order to effectively group words by root, an electronic thesaurus may be required.

Testing Sub-Categories of the Cardiovascular Class

The next task was to classify more specific CPT categories. Under the each of the main CPT categories, there exist more specific sub-categories. We took the 22 sub-categories of the Cardiovascular category and ran tests to see whether or not the naive classifier could handle more specific categorizations.

The first test used every Cardiovascular sub-class with at least 20 related consults:
Figure BJ-37

Figure BJ-37 shows that the initial testing of more specific categorization had some success. In the next step, however, we wanted to try using an unevenly distributed training set, which better represented the overall distribution of the sub-categories. We randomly assigned half of the data to the training set and the rest to the test set.
This test (Figure BJ-38) actually yielded better results, perhaps due to the more realistic distribution of Cardiovascular sub-categories.

Next, we tested using a more evenly balanced training set in order to observe the difference between the two methods (even vs. uneven data-set). A training set of size 50 was used for each sub-category that contained 50 or more instances. Eighteen of the classes could be tested with this method. Figures BJ-39 and BJ-40 display the results of this test.
This method, for most sub-categories, was somewhat more effective. However, a major problem with this method was the VENO class. VENO includes about 42% of all the observations, posing a problem for the type of reasoning used in the classifier.
Again, we tried a similar test method. By using a data set of size 25, we were able to incorporate all 22 cardiovascular sub-categories.

**Table 1: Cardiovascular Sub-categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aorta-Anomalies</td>
<td>32</td>
</tr>
<tr>
<td>Art. Arterial Grafting for Coronary Artery Bypass</td>
<td>31</td>
</tr>
<tr>
<td>Embolotomy-Thrombectomy</td>
<td>31</td>
</tr>
<tr>
<td>Ligation-Other Procedures</td>
<td>51</td>
</tr>
<tr>
<td>Direct-Repair of Aneurysm-Other</td>
<td>84</td>
</tr>
<tr>
<td>Heart-Lung-Transplantation</td>
<td>91</td>
</tr>
<tr>
<td>Thoracic Aortic Aneurysm</td>
<td>66</td>
</tr>
<tr>
<td>Thoracic Endarterectomy</td>
<td>65</td>
</tr>
<tr>
<td>Inte-Intervascular Cannulization or Shunt</td>
<td>67</td>
</tr>
<tr>
<td>Bypass-Graft</td>
<td>136</td>
</tr>
<tr>
<td>Exploration</td>
<td>225</td>
</tr>
<tr>
<td>Cardiac-Values</td>
<td>507</td>
</tr>
<tr>
<td>Vascular-Injection-Procedures</td>
<td>335</td>
</tr>
<tr>
<td>Venous-Grafting-Only-For-Coronary Artery Bypass</td>
<td>45</td>
</tr>
<tr>
<td>Pacemaker-Defibrillator</td>
<td>2,386</td>
</tr>
</tbody>
</table>

**Figure BJ-41**

The results shown in Figures BJ-41 and BJ-42 were not as good as those shown in Figures BJ-39 and BJ-40. While the new test (Figures BJ-41 and BJ-42) allowed for more categories, it did not have as big of a data set as the
This shows the struggle between having enough information in the training set, and being able to assess a large number of categories.

### Testing Integumentary Sub-categories

After evaluating the performance of the naive classifier with specific Cardiovascular sub-categories, we also tried similar tests for the Integumentary class.

In these tests, we randomly split each sub-category into two separate groups - groups A and B. These divisions are shown in Figure BJ-43.

<table>
<thead>
<tr>
<th>Sub-category</th>
<th>Total</th>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>EXCISION</td>
<td>372</td>
<td>187</td>
<td>185</td>
</tr>
<tr>
<td>REPAIR-AND-OR-RECONSTRUCTION</td>
<td>232</td>
<td>113</td>
<td>119</td>
</tr>
<tr>
<td>INCISION-AND-DRAINAGE</td>
<td>227</td>
<td>110</td>
<td>117</td>
</tr>
<tr>
<td>EXCISION-DEBRIDEMENT</td>
<td>225</td>
<td>103</td>
<td>122</td>
</tr>
<tr>
<td>DESTRUCTION-BENIGN-OR-PREMALIGNANT-LESIONS</td>
<td>157</td>
<td>76</td>
<td>81</td>
</tr>
<tr>
<td>FREE-SKIN-GRAFTS</td>
<td>150</td>
<td>72</td>
<td>78</td>
</tr>
<tr>
<td>FLAPS-SKIN-AND-OR-DEEP-TISSUES</td>
<td>146</td>
<td>63</td>
<td>83</td>
</tr>
<tr>
<td>REPAIR-COMPLEX</td>
<td>137</td>
<td>77</td>
<td>60</td>
</tr>
<tr>
<td>EXCISION-BENIGN-LESIONS</td>
<td>110</td>
<td>49</td>
<td>61</td>
</tr>
<tr>
<td>ADJACENT-TISSUE-TRANSFER-OR-REARRANGEMENT</td>
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<td>52</td>
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<td>OTHER-REPAIR-PROCEDURES</td>
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<td>41</td>
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<td>22</td>
</tr>
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</tr>
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<td>16</td>
</tr>
<tr>
<td>OTHER-DESTRUCTION-PROCEDURES</td>
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<td>9</td>
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<tr>
<td>INTRODUCTION</td>
<td>17</td>
<td>7</td>
<td>10</td>
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<tr>
<td>MOHS-MICROGRAPHIC-SURGER</td>
<td>17</td>
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<tr>
<td>OTHER-BREAST-PROCEDURES</td>
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<td>8</td>
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<tr>
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<td>10</td>
<td>6</td>
</tr>
<tr>
<td>INCISION</td>
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<td>9</td>
<td>4</td>
</tr>
<tr>
<td>NAILS</td>
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<td>5</td>
</tr>
<tr>
<td>BIOPSY</td>
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<tr>
<td>REMOVAL-OF-SKIN-TAGS</td>
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<td>DESTRUCTION-MALIGNANT-LESIONS-ANY-METHOD</td>
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</table>

Figure BJ-43
Testing on the Integumentary sub-categories was then done by first using A as the training set while testing B; then by using B as the training set while testing A.
Figure BJ-44
<table>
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<th>Number correctly classified</th>
<th>Total</th>
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</tr>
<tr>
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<td>0</td>
<td>0%</td>
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<tr>
<td>D</td>
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<tr>
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<tr>
<td>I</td>
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</tr>
<tr>
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<tr>
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<td>MISCELLANEOUS</td>
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<td>22</td>
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</tr>
<tr>
<td>O</td>
<td>NAILS</td>
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<td>5</td>
<td>0%</td>
</tr>
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</tr>
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<tr>
<td>Y</td>
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</tr>
<tr>
<td>Z</td>
<td>EXCISION-DEBRIDEMENT</td>
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<td>122</td>
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</tr>
<tr>
<td>Total</td>
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<td>1177</td>
<td>41%</td>
</tr>
</tbody>
</table>

Figure BJ-45

Both tests (Figures BJ-44 and BJ-45) show that an unevenly trained data set performs quite poorly for the Integumentary categories. In order to handle this more difficult category, we used the even approach. By using 50-consult training sets for each sub-category with at least 50 instances, we built an evenly distributed data set.
Figure BJ-46

Figure BJ-46 shows that an evenly distributed training set works better for the difficult Integumentary category. The exact same test was then run, this time on the Eye & Adnexa category. Figure BJ-47 shows the number of instances of each sub-category in the Eye & Adnexa category. Eleven of its sub-categories contained 50 or more consultations. Therefore, the test was run using only those particular sub-categories.
### Eye and Adnexa sub-class counts

<table>
<thead>
<tr>
<th>Class</th>
<th>Items in Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENS</td>
<td>651</td>
</tr>
<tr>
<td>RETINAL-OR-CHOROID</td>
<td>535</td>
</tr>
<tr>
<td>VITREOUS</td>
<td>366</td>
</tr>
<tr>
<td>ANTERIOR-SCLERA</td>
<td>177</td>
</tr>
<tr>
<td>CORNEA</td>
<td>144</td>
</tr>
<tr>
<td>REMOVAL-OF-EYE</td>
<td>143</td>
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<tr>
<td>EXTRAOCULAR-MUSCLES</td>
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</tr>
<tr>
<td>EYELIDS</td>
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<tr>
<td>SCLERAL</td>
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<td>CONJUNCTIVOPLASTY</td>
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<tr>
<td>INCISION-AND-DRAINAGE</td>
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</tr>
</tbody>
</table>

**Figure BJ-47**
<table>
<thead>
<tr>
<th></th>
<th>OTHER</th>
<th>REPA</th>
<th>ORBI</th>
<th>EYEL</th>
<th>EXTR</th>
<th>REMO</th>
<th>CORN</th>
<th>ANTE</th>
<th>VITR</th>
<th>RETI</th>
<th>LENS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREDICTED</td>
<td>23</td>
<td>71</td>
<td>50</td>
<td>40</td>
<td>48</td>
<td>139</td>
<td>74</td>
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<td>OTHER-PROCEDURES</td>
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<tr>
<td>REPAIR-OF-LACERATION</td>
<td>17</td>
<td>19</td>
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<td>ORBIT</td>
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<td>EYELIDS</td>
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<td>24</td>
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<td>ANTERIOR-SCLERA</td>
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<td>86%</td>
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<tr>
<td>VITREOUS</td>
<td>169</td>
<td>314</td>
<td>54%</td>
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<td>RETINA-OR-CHOROID</td>
<td>387</td>
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<td>80%</td>
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<tr>
<td>LENS</td>
<td>539</td>
<td>601</td>
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<tr>
<td>OVERALL</td>
<td>1395</td>
<td>1840</td>
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</tbody>
</table>

**Figure BJ-48**

The results in Figure BJ-48 are much better than those in the Integumentary class (Figure BJ-47). This may be greatly due to the fact that Eye & Adnexa divisions seem more clear-cut than those of the Integumentary category.

**Naive Tree Method**

The naive classifier can only produce successful results when a significant amount of training items are available for each category in the range of categories to be classified. The classification of specific CPTs, therefore, is quite difficult, because the range of possible CPTs is so broad that, even in a very large set of data, some CPTs may be involved in very few, if any, instances. As a result, specific CPT classification is not
a good option under the current method of classification being used.

As we've already seen, the naive classifier is quite successful in sending ICD9s and other diagnoses to the 20 main CPT categories. Also, we've seen that given an ICD9 that belongs to C (one of the 20 main CPT categories), we can often successfully classify the ICD9 into the appropriate sub-category of C. Therefore, an effective solution to the specific CPT problem might lie in developing the method by which the classifier handles its levels of classes rather than in changing the naive method of the classifier. By using a hierarchical tree method, we can utilize the naive nature of the classifier at different levels of classification in order to narrow down the number of categories seen at each level.

The structure of the naive tree classifier is modeled after the hierarchical structure of the CPT code book. Under each of the 20 main CPT categories, another two mid-levels of categorization exist; and the bottom level, which consists of the actual specific CPTs, then falls under categories in one of each of the other three levels.

Denote the lowest level of the CPT hierarchy, which consists of specific CPTs, as Level 3. The level above that will be labeled Level 2, and the one above it Level 1. The top level, which consists of the 20 main CPT categories, will be referred to as Level 0. Figure BJ-49 shows this hierarchical structure of the CPT codes.
When the naive tree classifier reads in an item, it first classifies the item at the most general level (0). Let’s assume that out of the 20 main categories (Labeled A-T), the classifier first selects category ‘A’. The next step in the process would be to again classify the same item, using the categories in Level 1. However, this time, the classifier will filter out all categories that aren’t descendants of the Level 0 category, ‘A’. The classifier will then proceed down the tree and finally select from a small group of similar CPTs.

This method takes advantage of the fact that levels higher in the tree are more general, and are easier to classify. It also allows the classifier to choose from a smaller group of categories, which, as we’ve seen, improves its performance.

Testing was done on the hierarchically structured Eye and Adnexa category, which is one of the 20 main CPT categories. For testing purposes, we assumed that the classifier would have chosen Eye & Adnexa to be the Level 0 category. We then tested the performance for each level of classification:
### Figure BJ-50

<table>
<thead>
<tr>
<th></th>
<th>Ocular Adnexa</th>
<th>Eyeball</th>
<th>Posterior Segment</th>
<th>Anterior Segment</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td>Ocular Adnexa</td>
<td>78</td>
<td>13</td>
<td>2</td>
<td>4</td>
<td>97</td>
</tr>
<tr>
<td>Eyeball</td>
<td>10</td>
<td>93</td>
<td>3</td>
<td>5</td>
<td>111</td>
</tr>
<tr>
<td>Posterior Segment</td>
<td>12</td>
<td>136</td>
<td>628</td>
<td>31</td>
<td>807</td>
</tr>
<tr>
<td>Anterior Segment</td>
<td>6</td>
<td>65</td>
<td>19</td>
<td>732</td>
<td>822</td>
</tr>
<tr>
<td>TOTAL</td>
<td>106</td>
<td>307</td>
<td>652</td>
<td>772</td>
<td>1837</td>
</tr>
</tbody>
</table>

### Figure BJ-51

<table>
<thead>
<tr>
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<th>Accuracy</th>
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</thead>
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<tr>
<td>Ocular Adnexa</td>
<td>EYE AND ADNEXA &gt;&gt; OCULAR ADNEXA</td>
</tr>
<tr>
<td>Eyeball</td>
<td>EYE AND ADNEXA &gt;&gt; EYEBALL</td>
</tr>
<tr>
<td>Posterior Segment</td>
<td>EYE AND ADNEXA &gt;&gt; POSTERIOR SEGMENT</td>
</tr>
<tr>
<td>Anterior Segment</td>
<td>EYE AND ADNEXA &gt;&gt; ANTERIOR SEGMENT</td>
</tr>
</tbody>
</table>

These results, at Level 1 (Figures BJ-50 and BJ-51) were very successful. The next step in the complete CPT classification process is to classify the same text, using only the sub-specialties under the more general sub-specialty that was just selected. The classifier then continues to move down.
Appendix 6:
Code listing for Teledental Consult Broker Prototype
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;; Code for the dialog :tdent

(defun menu-files-on-click (dialog)
  (declare (ignore-if-unused dialog))
  (show-files-dialog (parent dialog))
  t)

(defun toolbar-files-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (show-files-dialog (parent dialog))
  t)

(defmethod show-files-dialog ((window :tdent))
  (let* ((dialog :tdent-files-dialog window)
         (file-list nil))
    (when (or (not dialog)
               (not (windowp dialog)))
      (setq dialog (make-files-dialog :parent window))
      (setf (tdent-files-dialog window) dialog)
      (setf file-list
            (find-widget :file-list dialog))
      (setf (range file-list)
            (directory "E:\Working Files\Army\GTS Development\TDent\Data\*.lsp")
            (move-window dialog
                         (window-to-screen-units window)
                         (make-position nil 100 nil))
    )
)
(defun menu-patients-on-click (dialog)
  (declare (ignore-if-unused dialog))
  (show-patients-dialog (parent dialog))
  t)

(defun toolbar-patients-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (show-patients-dialog (parent dialog))
  t)

(defmethod show-patients-dialog ((window tdent))
  (let* ((dialog (tdent-patients-dialog window))
          (patient-list nil))
    (when (or (not dialog)
              (not (windowp dialog)))
      (setq dialog (make-patients-dialog :parent window))
      (setf (tdent-patients-dialog window) dialog)
      (setf patient-list
           (find-widget :patient-list dialog))
      (setf (range patient-list)
            (remove 'temp-patient (list-of-instances temp-patient) :test #'equal))
      (move-window dialog
                    (window-to-screen-units window
                    (make-position
                     (- (+ (exterior-width dialog) 10) 150)
                     40))))
    (select-window dialog))

(defun menu-consults-on-click (dialog)
  (declare (ignore-if-unused dialog))
  (show-consults-dialog (parent dialog))
  t)

(defun toolbar-consults-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (show-consults-dialog (parent dialog))
  t)

(defmethod show-consults-dialog ((window tdent))
  (let* ((dialog (tdent-consults-dialog window))
          (consult-list nil))
    (when (or (not dialog)
              (not (windowp dialog)))
      (setq dialog (make-consults-dialog :parent window))
      (setf (tdent-consults-dialog window) dialog)
      (setf consult-list
           (find-widget :consult-list dialog))
      (setf (range consult-list)
            (remove 'temp-consult (list-of-instances temp-consult) :test #'equal))
      (move-window dialog
                    (window-to-screen-units window
                    (make-position
                     (- (+ (exterior-width dialog) 10) 150)
                     40))))
    (select-window dialog))

(defun menu-specialists-on-click (dialog)
  (declare (ignore-if-unused dialog))
(show-specialists-dialog (parent dialog))
(t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)

(defun toolbar-specialists-on-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (show-specialists-dialog (parent dialog))
 (t)
(defmethod show-yellow-pages-dialog ((window tdent))
  (let* ((dialog (tdent-yellow-pages-dialog window))
         (when (or (not dialog)
          (not (window dialog)))
          (setq dialog (make-yellow-pages-dialog :parent window))
          (setf (tdent-yellow-pages-dialog window) dialog)
          (move-window dialog
            (window-to-screen-units window
              (make-position
                (c+ (exterior-width dialog) 10) 1300))
          (select-window dialog))
    ))

(defmethod close :before ((window tdent) &key)
  (let ((files-dialog (tdent-files-dialog window))
         (patients-dialog (tdent-patients-dialog window))
         (consults-dialog (tdent-consults-dialog window))
         (specialists-dialog (tdent-specialists-dialog window))
         (locations-dialog (tdent-locations-dialog window))
         (yellow-pages-dialog (tdent-yellow-pages-dialog window))
         (classify-dialog (tdent-classify-dialog window)))
    (when (and (window files-dialog)
               (close files-dialog))
      (setf (tdent-files-dialog window) nil)
      (when (and (window patients-dialog)
                 (close patients-dialog))
        (setf (tdent-patients-dialog window) nil)
        (when (and (window consults-dialog)
                   (close consults-dialog))
          (setf (tdent-consults-dialog window) nil)
          (when (and (window specialists-dialog)
                     (close specialists-dialog))
            (setf (tdent-specialists-dialog window) nil)
            (when (and (window locations-dialog)
                       (close locations-dialog))
              (setf (tdent-locations-dialog window) nil)
              (when (and (window yellow-pages-dialog)
                         (close yellow-pages-dialog))
                (setf (tdent-yellow-pages-dialog window) nil)
                (when (and (window classify-dialog)
                           (close classify-dialog))
                  (setf (tdent-classify-dialog window) nil)))
      (close patient-info))
      (close consult-info))
      (close consult-info-2))
      (close specialist-info))
      (close yellow-pages-dialog))
      (close location-info))
    (close (e-board))
    (close (classify-dialog))
  )
(defun tdent-toolbar-display-selection-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let ((outline-choice nil))
    (setq outline-choice
      (dialog-field :chooser-display-dropping-outline))
    (case outline-choice
      (:patients (toolbar-patients-on-click dialog widget))
      (:consults (toolbar-consults-on-click dialog widget))
      (:specialists (toolbar-specialists-on-click dialog widget))
      (:facilities (toolbar-locations-on-click dialog widget))
     )
   )
  )
)
(defun close-tdent (dialog)
  (close (tdent)))

(defun new-consult-on-select (dialog)
  (declare (ignore-if-unused dialog))
  (select-window (consult-info-2))
  )
(defun tdent-toolbar-new-consult-button-on-click-1 (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (select-window (consult-info-2))
  )
(defun tdent-toolbar-chooser-display-dropping-outline-on-change (widget new-value old-value)
  (declare (ignore-if-unused widget new-value old-value))
  (setq range (dialog-field (tdent) :selection-list))
  (list (remove 'temp-patient (list-of-instances temp-patient) :test #'equal)))
  (setq patient-list
      ; (find-widget :selection-list 'tdent)
      (remove 'temp-patient (list-of-instances temp-patient) :test #'equal)
  )
  )
(defun tdent-toolbar-e-board-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (show-e-board-dialog (parent dialog))
  )
(defmethod show-e-board-dialog ((window tdent))
  (let* ((dialog (tdent-e-board-dialog window))
     (when (or (not dialog)
      (not (windowp dialog)))
      (setq dialog (make-e-board :parent window))
      (setf (tdent-e-board-dialog window) dialog)
     )
   (select-window dialog)
  )
)
;;; code for init.lsp

(defun string-to-symbol (the-string)
  (if (equal "" (string-trim "\(\#Space\) the-string)) nil
      (with-input-from-string (s the-string) (read s)))))

(defun explode (object)
  (mapcar #'(lambda (char) (intern (string char)))
           (internal-explode object #'+print+)))

(defun internal-explode (object printer)
  (coerce (with-output-to-string (out-strm)
           (let (("print-length" nil)
                 ("print-level" nil))
               (funcall printer object out-strm)))
           'list))

(defun implode (char-list)
  (values (intern (coerce (mapcar #'(lambda (char)
                                      (coerce char 'character))
                                     char-list)
                       'string)))))

(defun my-instancep (item)
  (let ((exploded-item (explode item)))
    (if (equal (car exploded-item) '\#)
        (let ((x (position '\# (cdr exploded-item)))
              (class-item (string-to-symbol (string (implode (subseq exploded-item 2 (- x 1)))))))
          (if (member class-item 'class-list) t nil)
              nil)))))

(defun round-float (num decimal-places)
  (setq tempnum (round (* num (expt 10 decimal-places))))
  (float (/ tempnum (expt 10 decimal-places))))

(defun make-a-class-instance (class-name instance-name)
  (eval '(seta ,instance-name (make-instance quote ,class-name))))

(defun find-the-first-blank (the-string)
  (if (not (equal the-string ""))
      (position \ " (explode the-string)))))

(defun list-to-string (the-list)
  (if (null (car the-list)) ""
      (if (null (cdr the-list)) (princ-to-string (car the-list))
       (concatenate 'string (princ-to-string (car the-list)) " " (list-to-string (cdr the-list))))))
(defun list-to-string (the-list)
  (setq newstring "")
  (dolist (word the-list)
    (setq newstring (concatenate 'string newstring (string word) " ")))
  newstring)
)

(defun string-to-list (the-string)
  (if (equal (string-trim "\(\"Space\)" the-string) "") nil
    (let ((the-blank (find-the-first-blank the-string))
      (cond ((the-blank
               (append (list (string-trim "\(\"Space\)" (subseq the-string 0 the-blank)))
                      (string-to-list (subseq the-string the-blank)))))
          (t
           (list the-string)))))))

(defun string-to-clean-list (the-string)
  (let ((clean-list NIL)
        (x 2))
    (with-input-from-string (s the-string)
      (loop while x do
        (progn
          (let ((word (read 1))
            (if (equal word 'ENDOFSELECTION)
                (setq x NIL)
                (push word clean-list) ))
          ))
    )
    (reverse clean-list)
  )
)

(defun RUBBLE-SORTER (the-list access-function pred)
  (cond (access-function
         (let* ((n (length the-list))
                 (temp nil))
           (do ((i 0 (+ i 1)))
               ((> i (- n 2)) the-list)
             (do ((j 0 (+ j 1))
                 ((> j (- n 1))
                  t)
               (let* ((x (nth i the-list))
                       (y (nth j the-list)))
                 (cond ((not (funcall pred (funcall access-function x)))
                        (funcall access-function y))
                       (t
call temp x)
                        (setf nth the-list y)
                        (setf (nth j the-list) temp))))))
         (t
          (let* ((n (length the-list))
                  (temp nil))
            )))
)
(defun generate-blank-string (string-length)
  (if (= string-length 0) nil
   (concatenate 'string "" (generate-blank-string (- string-length 1)))))

(defun eliminate-character (the-character the-string)
  (let ((char-pos (search the-character the-string)))
    (cond (char-pos
           (concatenate 'string
                         (subseq the-string 0 char-pos)
                         ""
                         (eliminate-character the-character (subseq the-string (+ 1 char-pos))))))
      (t
       the-string))))

(defun eliminate-several-characters (character-list the-string)
  (do ((i 0 (+ i 1)))
      ((> i (- (length character-list) 1)) the-string)
    (setf the-string (eliminate-character (nth i character-list) the-string))))
;;; time-functions.lsp

(in-package :common-graphics-user)

(defun universal-time-decoder (universal-time)
  (multiple-value-bind (second minute hour date month year day-of-week
            daylight-saving-time-p time-zone)
    (decode-universal-time universal-time)
    (list day-of-week month date year hour minute second time-zone daylight-saving-time-p)))

(defvar *time-zone* "")

(let ((time-info (universal-time-decoder (get-universal-time))))
  (if (nth 8 time-info) (- (nth 7 time-info) 1) (nth 7 time-info))))

(defun universal-time-from-date (the-date) ;; "03/31/1994"
  (cond ((= (length the-date) 8)
    (let* ((mm (string-to-symbol (subseq the-date 0 2)))
      (dd (string-to-symbol (subseq the-date 2 4)))
      (yyyy (string-to-symbol (subseq the-date 4))))
    (encode-universal-time 0 0 0 dd mm (if (< yyyy 1900) 1900 yyyy) "time-zone")))))

(defun universal-time-from-date-and-time (the-date the-time) ;; "03/31/1994" "0800"
  (if (null (numberp (string-to-symbol the-time)))
    (warning-msg "time")
    (cond (for (equal "" (string-trim ("\Space" the-date)))
      (equal "" (string-trim ("\Space" the-time)))
      nil)
    (let* ((mm (string-to-symbol (subseq the-date 0 2)))
      (dd (string-to-symbol (subseq the-date 2 4)))
      (yyyy (string-to-symbol (subseq the-date 4))))
    (encode-universal-time 0 0 0 dd mm yyyy "time-zone")))))

(defun date-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
    (time-dx (princ-to-string (nth 1 time-list)))
    (dd (if (= (length string-dd) 2) string-dd
      (concatenate 'string "0" string-dd)))
    (mm (if (= (length string-mm) 2) string-mm
      (concatenate 'string "0" string-mm)))
    (string-to-symbol
      (concatenate 'string dd "/" mm ")")
    (princ-to-string (nth 3 time-list)))))

(defun time-from-universal-time (universal-time)
(if (= universal-time 0)
  (let* ((all-time (universal-time-decoder universal-time))
         (string-hh (princ-to-string (nth 4 all-time)))
         (hh (if (= (length string-hh) 2) string-hh
               (concatenate 'string "0" string-hh)))
         (string-mm (princ-to-string (nth 5 all-time)))
         (mm (if (= (length string-mm) 2) string-mm
               (concatenate 'string "0" string-mm)))
         (string-seconds (princ-to-string (nth 6 all-time)))
         (seconds (if (= (length string-seconds) 2) string-seconds
                     (concatenate 'string "0" string-seconds)))
         (concatenate 'string hh " " mm " : " seconds))))

(defun minutes-from-time (the-time)
  (let* ((string-time (princ-to-string the-time))
         (if (> (length string-time) 2)
         (string-to-symbol (subseq string-time (- (length string-time) 2))))))

(defun hours-from-time (the-time)
  (let* ((string-time (princ-to-string the-time))
         (if (> (length string-time) 3) 0
         (string-to-symbol (subseq string-time 0 (- (length string-time) 2))))))

(defun or-schedule-name-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
         (mm (princ-to-string (nth 1 time-list)))
         (dd (princ-to-string (nth 2 time-list)))
         (yyyy (princ-to-string (nth 3 time-list)))
         (string-to-symbol)
         (concatenate 'string "or"
                      mm
                      (if (= (length dd) 2) dd (concatenate 'string "0" dd))
                      yyyy)
         (concatenate 'string "\"or\"
                      mm
                      (if (= (length dd) 2) dd (concatenate 'string "0" dd))
                      yyyy).txt)

(defun schedule-name-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
         (mm (princ-to-string (nth 1 time-list)))
         (dd (princ-to-string (nth 2 time-list)))
         (yyyy (princ-to-string (nth 3 time-list)))
         (string-to-symbol)
         (concatenate 'string "\"\"!
                      (if (= (length mm) 2) mm (concatenate 'string "0" mm))
                      (if (= (length dd) 2) dd (concatenate 'string "0" dd))
                      yyyy).txt)
(defun year-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
          (nth 3 time-list)))

(defun month-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
          (nth 1 time-list)))

(defun day-from-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
          (nth 2 time-list)))

(defun day-of-the-week-from-universal-time (universal-time)
  (nth 0 (universal-time-decoder universal-time)))

(defvar *date* (date-from-universal-time (get-universal-time)))

(defun eight-o-clock-in-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
          (mm (nth 1 time-list))
          (dd (nth 2 time-list))
          (yyyy (nth 3 time-list)))
    (encode-universal-time 0 8 dd mm yyyy *time-zone*)))

(defun twelve-o-clock-in-universal-time (universal-time)
  (let* ((time-list (universal-time-decoder universal-time))
          (mm (nth 1 time-list))
          (dd (nth 2 time-list))
          (yyyy (nth 3 time-list)))
    (encode-universal-time 0 0 dd mm yyyy *time-zone*)))
;;; patient-class.lsp

(in-package :common-graphics-user)

(defun patient
  ()
  (initform (quote
    (ssn (initarg :ssn
              :initform ""
              :accessor ssn))
    (lastname (initarg :lastname
                   :initform ""
                   :accessor lastname))
    (firstname (initarg :firstname
                     :initform ""
                     :accessor firstname))
    (mi (initarg :mi
                 :initform ""
                 :accessor mi))
    (age (initarg :age
                   :initform 0
                   :accessor age))
    (dob (initarg :dob
               :initform "(dd mm yyyy)"
               :accessor dob))
    (id (initarg :id
                 :initform ""
                 :accessor id))
    (sex (initarg :sex
                 :initform ""
                 :accessor sex))
    (military-status (initarg :military-status
                             :initform 0
                             :accessor military-status))
    (military-rank (initarg :military-rank
                        :initform ""
                        :accessor military-rank))
    (phone-number (initarg :phone-number
                         :initform 0
                         :accessor phone-number))
    (home-phone-number (initarg :home-phone-number
                             :initform 0
                             :accessor home-phone-number))
    (consults (initarg :consults
                      :initform ""
                      :accessor consults))))

(make-a-class-instance 'patient 'temp-patient)

(defun send-patient-info-to-file ((patient-instance patient))
  (let ((filename (concatenate 'string "E:\Working Files\Army\GCTS Development\Tdent\" (princ-to-string (get-universal-time))))
        (ssn (ssn patient-instance))
        (lastname (lastname patient-instance))
        (firstname (firstname patient-instance))
        (mi (mi patient-instance)))
    (send-patient-info-to-file (quote
                                 (ssn ssn)
                                 (lastname lastname)
                                 (firstname firstname)
                                 (mi mi))))
(dob (dob patient-instance))
(sex (sex patient-instance))
(military-status (military-status patient-instance))
(military-rank (military-rank patient-instance))
(phone-number (phone-number patient-instance))
(home-phone-number (home-phone-number patient-instance))
(chief-complaints (chief-complaints patient-instance))
(history (history patient-instance))
(exam-findings (exam-findings patient-instance))
(provisional-diagnosis (provisional-diagnosis patient-instance))
(referring-military-rank (referring-military-rank patient-instance))
(referring-lastname (referring-lastname patient-instance))
(referring-firstname (referring-firstname patient-instance))
(referring-location (referring-location patient-instance))
(date-of-request (date-of-request patient-instance))
(images (images patient-instance))
(specialty (specialty patient-instance))
(diagnostic-codes (diagnostic-codes patient-instance))
(procedure-codes (procedure-codes patient-instance))
(explanation-of-specialty (explanation-of-specialty patient-instance))
(explanation-of-diagnostic-codes (explanation-of-diagnostic-codes patient-instance))
(explanation-of-procedure-codes (explanation-of-procedure-codes patient-instance))
(recommended-consultants (recommended-consultants patient-instance))
(explanation-of-recommended-consultants (explanation-of-recommended-consultants patient-instance))
(diagnosis (diagnosis patient-instance))
(suggested-treatment (suggested-treatment patient-instance))
(specialist-rank (specialist-rank patient-instance))
(specialist-lastname (specialist-lastname patient-instance))
(specialist-firstname (specialist-firstname patient-instance))
(specialist-location (specialist-location patient-instance))
(date-of-visit-by-specialist (date-of-visit-by-specialist patient-instance))
(temp-stream (make-string-output-stream))

(with-open-file
(temp-stream filename
::direction :output
::if-exists :overwrite
::if-does-not-exist :create)

(cprint
(list
 ssn :: 0
 lastname
 firstname
 mi
do
 sex :: 5
 military-status
 military-rank
 phone-number
 home-phone-number
 chief-complaints :: 10
 history
 exam-findings
 provisional-diagnosis
 referring-military-rank
 referring-lastname :: 15
 referring-firstname
 referring-location
 date-of-request
 images
 specialty :: 20
 diagnostic-codes
 procedure-codes
 explanation-of-specialty
 explanation-of-diagnostic-codes
 explanation-of-procedure-codes :: 25
 recommended-consultants)
(defun create-patient-instance (info-list)
  (let* ((age (string-trim "(#Space)" (nth 1 info-list)))
         (dob (if (equal age "") "" (princ-to-string (- (year-from-universal-time (get-universal-time))
                       (string-to-symbol age))))
         (id (nth 0 info-list))
         (sex (nth 2 info-list))
         (military-status (nth 3 info-list))
         (military-rank (nth 4 info-list))
         (referring-location (nth 5 info-list))
         (chief-complaints (nth 6 info-list))
         (history (nth 7 info-list))
         (exam-findings (nth 8 info-list))
         (provisional-diagnosis (nth 14 info-list))
         (date-of-request (nth 15 info-list))
         (diagnosis (nth 17 info-list))
         (suggested-treatment (nth 18 info-list))
         (diagnostic-codes (list (nth 25 info-list) (nth 26 info-list))
         (procedure-codes (list (nth 19 info-list) (nth 21 info-list))
         (speciality (nth 29 info-list))
         (explanation-of-diagnostic-codes
          (list-to-string (mapcar #'(lambda (x) (concatenate 'string
                       x " "
                       (gethash x icd9-hash-table))))
         (explanation-of-procedure-codes
          (list-to-string (mapcar #'(lambda (x) (concatenate 'string
                       x " "
                       (gethash (string-to-symbol x cdt-hash-table))))
         (recommended-consultants (nth 25 info-list))
         (specialist-id (nth 10 info-list))
         (specialist-rank (nth 10 info-list))
         (specialist-lastname (nth 30 info-list))
         (specialist-firstname (nth 32 info-list))
         (specialist-location (nth 35 info-list))
         (date-of-visit-by-specialist (nth 36 info-list))
         (first-name (concatenate 'string
                       "fn" id))
         (last-name (concatenate 'string
                       "ln" id))
         (mi (string (mi-number-to-letter (string-to-symbol (subseq id 0 1)))))))
  (patient-name-string (concatenate 'string
                       first-name
                       mi " ")))
(cond ((my-instancep (string-to-symbol patient-name-string)))
  (set (ssn (eval (string-to-symbol patient-name-string))) ssn)
  (set (lastname (eval (string-to-symbol patient-name-string))) #nn)
  (set (firstname (eval (string-to-symbol patient-name-string))) firstname)
  (set (mil (eval (string-to-symbol patient-name-string))) mil)
  (set (id (eval (string-to-symbol patient-name-string))) id)
  (set (age (eval (string-to-symbol patient-name-string))) age)
  (set (dob (eval (string-to-symbol patient-name-string))) dob)
  (set (sex (eval (string-to-symbol patient-name-string))) sex)
  (set (military-status (eval (string-to-symbol patient-name-string))) military-status)
  (set (military-rank (eval (string-to-symbol patient-name-string))) military-rank)
  (set (phone-number (eval (string-to-symbol patient-name-string))) phone-number)
  (set (home-phone-number (eval (string-to-symbol patient-name-string))) home-phone-number)
  (set (chief-complaints (eval (string-to-symbol patient-name-string))) chief-complaints)
  (set (history (eval (string-to-symbol patient-name-string))) history)
  (set (provisional-diagnosis (eval (string-to-symbol patient-name-string))) provisional-diagnosis)
  (set (referring-military-rank (eval (string-to-symbol patient-name-string))) referring-military-rank)
  (set (referring-lastname (eval (string-to-symbol patient-name-string))) referring-lastname)
  (set (referring-id (eval (string-to-symbol patient-name-string))) referring-id)
  (set (referring-firstname (eval (string-to-symbol patient-name-string))) referring-firstname)
  (set (referring-location (eval (string-to-symbol patient-name-string))) referring-location)
  (set (date-of-request (eval (string-to-symbol patient-name-string))) date-of-request)
  (set (images (eval (string-to-symbol patient-name-string))) images)
  (set (specialty (eval (string-to-symbol patient-name-string))) specialty)
  (set (procedure-codes (eval (string-to-symbol patient-name-string))) procedure-codes)
  (set (explanation-of-specialty (eval (string-to-symbol patient-name-string))) explanation-of-specialty)
  (set (diagnostic-codes (eval (string-to-symbol patient-name-string))) diagnostic-codes)
  (set (procedure-codes (eval (string-to-symbol patient-name-string))) procedure-codes)
  (set (explanation-of-diagnostic-codes (eval (string-to-symbol patient-name-string))) explanation-of-diagnostic-codes)
  (set (recommended-consultants (eval (string-to-symbol patient-name-string))) recommended-consultants)
  (set (explanation-of-recommended-consultants (eval (string-to-symbol patient-name-string)))
       explanation-of-recommended-consultants)
  (set (diagnosis (eval (string-to-symbol patient-name-string))) diagnosis)
  (set (suggested-treatment (eval (string-to-symbol patient-name-string))) suggested-treatment)
  (set (specialist-id (eval (string-to-symbol patient-name-string))) specialist-id)
  (set (specialist-rank (eval (string-to-symbol patient-name-string))) specialist-rank)
  (set (specialist-lastname (eval (string-to-symbol patient-name-string))) specialist-lastname)
  (set (specialist-firstname (eval (string-to-symbol patient-name-string))) specialist-firstname)
  (set (specialist-location (eval (string-to-symbol patient-name-string))) specialist-location)
  (set (date-of-visit (eval (string-to-symbol patient-name-string))) date-of-visit)
  (set (printname (eval (string-to-symbol patient-name-string))) printname)
  (set (make-a-class-instance 'patient (string-to-symbol patient-name-string)) patient-name-string))

(set (ssn (eval (string-to-symbol patient-name-string))) ssn)
(set (lastname (eval (string-to-symbol patient-name-string))) lastname)
(set (firstname (eval (string-to-symbol patient-name-string))) firstname)
(set (mil (eval (string-to-symbol patient-name-string))) mil)
(set (id (eval (string-to-symbol patient-name-string))) id)
(set (age (eval (string-to-symbol patient-name-string))) age)
(set (dob (eval (string-to-symbol patient-name-string))) dob)
(set (sex (eval (string-to-symbol patient-name-string))) sex)
(set (military-status (eval (string-to-symbol patient-name-string))) military-status)
(set (military-rank (eval (string-to-symbol patient-name-string))) military-rank)
(set (phone-number (eval (string-to-symbol patient-name-string))) phone-number)
(set (home-phone-number (eval (string-to-symbol patient-name-string))) home-phone-number)
(set (chief-complaints (eval (string-to-symbol patient-name-string))) chief-complaints)
(set (history (eval (string-to-symbol patient-name-string))) history)
(set (provisional-diagnosis (eval (string-to-symbol patient-name-string))) provisional-diagnosis)
(set (referring-military-rank (eval (string-to-symbol patient-name-string))) referring-military-rank)
(set (referring-lastname (eval (string-to-symbol patient-name-string))) referring-lastname)
(setf (referring-id (eval (string-to-symbol patient-name-string))) referring-id)
(setq (referring-firstname (eval (string-to-symbol patient-name-string))) referring-firstname)
(setq (referring-location (eval (string-to-symbol patient-name-string))) referring-location)
(setq (date-of-request (eval (string-to-symbol patient-name-string))) date-of-request)
(setq (images (eval (string-to-symbol patient-name-string))) images)
(setq (specialty (eval (string-to-symbol patient-name-string))) specialty)
(setq (diagnostic-codes (eval (string-to-symbol patient-name-string))) diagnostic-codes)
(setq (procedure-codes (eval (string-to-symbol patient-name-string))) procedure-codes)
(setq (explanation-of-diagnostic-codes (eval (string-to-symbol patient-name-string))) explanation-of-diagnostic-codes)
(setq (explanation-of-procedure-codes (eval (string-to-symbol patient-name-string))) explanation-of-procedure-codes)
(setq (recommended-consultants (eval (string-to-symbol patient-name-string))) recommended-consultants)
(setq (explanation-of-recommended-consultants (eval (string-to-symbol patient-name-string))) explanation-of-recommended-consultants)
(setq (suggested-treatment (eval (string-to-symbol patient-name-string))) suggested-treatment)
(setq (specialist-id (eval (string-to-symbol patient-name-string))) specialist-id)
(setq (specialist-rank (eval (string-to-symbol patient-name-string))) specialist-rank)
(setq (specialist-lastname (eval (string-to-symbol patient-name-string))) specialist-lastname)
(setq (specialist-firstname (eval (string-to-symbol patient-name-string))) specialist-firstname)
(setq (specialist-location (eval (string-to-symbol patient-name-string))) specialist-location)
(setq (date-of-visit-by-specialist (eval (string-to-symbol patient-name-string))) date-of-visit-by-specialist)

#: (setf (printname (eval (string-to-symbol patient-name-string))) patient-name-string))

(defun ni-number-to-letter (xx)
  (case xx
    (1 'a)
    (2 'b)
    (3 'c)
    (4 'd)
    (5 'e)
    (6 'f)
    (7 'g)
    (8 'h)
    (9 'i)
    (10 'j)
    (11 'k)
    (12 'l)
    (13 'm)
    (14 'n)
    (15 'o)

(defmethod age-calculation ((patient-instance patient))
  (let* ((dob (dob patient-instance))
         (request-date (request-date patient-instance))
         (request-date-universal-time (universal-time-from-date request-date))
         (- (year-from-universal-time request-date-universal-time)
            (year-from-universal-time dob-universal-time)))

  (case xx
    (1 'a)
    (2 'b)
    (3 'c)
    (4 'd)
    (5 'e)
    (6 'f)
    (7 'g)
    (8 'h)
    (9 'i)
    (10 'j)
    (11 'k)
    (12 'l)
    (13 'm)
    (14 'n)
    (15 'o)
;;; consult-class.lsp

(in-package :common-graphics-user)

(defclass consult-request ()
  (consult-number :initarg :consult-number
    :initform ""
    :accessor consult-number)
  (printname :initarg :printname
    :initform ""
    :accessor printname)
  (list-of-instances :initarg :list-of-instances
    :initform '()
    :accessor list-of-instances
    :allocation :class)
  (patient-id :initarg :patient-id
    :initform ""
    :accessor patient-id)
  (patient-name :initarg :patient-name
    :initform ""
    :accessor patient-name)
  (urgency :initarg :urgency
    :initform ""
    :accessor urgency)
  (modality :initarg :modality
    :initform '(3)
    :accessor modality)

;;; chief complaints and findings
  (chief-complaints :initarg :chief-complaints
    :initform ""
    :accessor chief-complaints)
  (history :initarg :history
    :initform ""
    :accessor history)
  (exam-findings :initarg :exam-findings
    :initform ""
    :accessor exam-findings)
  (provisional-diagnosis :initarg :provisional-diagnosis
    :initform ""
    :accessor provisional-diagnosis)

;;; referring dentist information
  (referring-military-rank :initarg :referring-military-rank
    :initform ""
    :accessor referring-military-rank)
  (referring-id :initarg :referring-id
    :initform ""
    :accessor referring-id)
  (referring-firstname :initarg :referring-firstname
    :initform ""
    :accessor referring-firstname)
  (referring-lastname :initarg :referring-lastname
    :initform ""
    :accessor referring-lastname)
  (referring-location :initarg :referring-location
    :initform ""
    :accessor referring-location)
  (date-of-request :initarg :date-of-request
    :initform ""
    :accessor date-of-request)

;;; images
;;; Module 2 fills in the next three slots
(specialty:initarg:specialty
 :initform '() :accessor specialty)
(diagnostic-codes:initarg:diagnostic-codes ;; ICD-9, CDTs
 :initform '() :accessor diagnostic-codes)
(procedure-codes:initarg:procedure-codes ;; CDTs or CPTs
 :initform '() :accessor procedure-codes)
(explanation-of-specialty:initarg:explanation-of-specialty
 :initform '() :accessor explanation-of-specialty)
(explanation-of-diagnostic-codes:initarg:explanation-of-diagnostic-codes ;; ICD-9, CDTs
 :initform '() :accessor explanation-of-diagnostic-codes)
(explanation-of-procedure-codes:initarg:explanation-of-procedure-codes ;; CDTs or CPTs
 :initform '() :accessor explanation-of-procedure-codes)

;;; Module 3
(recommended-consultants:initarg:recommended-consultants
 :initform '() :accessor recommended-consultants)
(explanation-of-recommended-consultants:initarg:explanation-of-recommended-consultants
 :initform '() :accessor explanation-of-recommended-consultants)

;;; consultation report
(diagnosis:initarg:diagnosis
 :initform '() :accessor diagnosis)
(suggested-treatment:initarg:suggested-treatment
 :initform '() :accessor suggested-treatment)

;;; specialist information
(specialist-id:initarg:specialist-id
 :initform '() :accessor specialist-id)
(specialist-rank:initarg:specialist-rank
 :initform '() :accessor specialist-rank)
(specialist-firstname:initarg:specialist-firstname
 :initform '() :accessor specialist-firstname)
(specialist-lastname:initarg:specialist-lastname
 :initform '() :accessor specialist-lastname)
(specialist-location:initarg:specialist-location
 :initform '() :accessor specialist-location)
(date-of-visit-by-specialist:initarg:date-of-visit-by-specialist
 :initform '() :accessor date-of-visit-by-specialist)
(make-a-class-instance 'consult-request 'temp-consult)

(let* ((patient-id (nth 0 info-list))
        (age (string-trim '(#\Space) (nth 1 info-list)))
        (dob (if (equal age "") "" (princ-to-string (- (year-from-universal-time (get-universal-time)) (string-to-symbol age))))
        (sex (nth 2 info-list))
        (military-status (nth 3 info-list))
        (military-rank (nth 4 info-list))
        (specialist-location (nth 5 info-list))
        (referring-location (nth 6 info-list))
        (specialist-rank (nth 7 info-list))
        (consult-id-string (concatenate 'string "c" consult-id))
        (consult-id (nth 8 info-list))
        (chief-complaints (nth 11 info-list))
        (history (nth 12 info-list))
        (exam-findings (nth 13 info-list))
        (provisional-diagnosis (nth 14 info-list))
        (date-of-request (nth 15 info-list))
        (diagnosis (nth 17 info-list))
        (suggested-treatment (nth 18 info-list))
        (diagnostic-codes (list (nth 25 info-list) (nth 27 info-list)))
        (procedure-codes (list (nth 19 info-list) (nth 21 info-list) (nth 23 info-list)))
        (specialty (nth 29 info-list))
        (explanation-of-diagnostic-codes
         (list-to-string (mapcar '#(lambda (x) (concatenate 'string x " ") (gethash x icd9-hash-table))
         diagnostic-codes))
        (explanation-of-procedure-codes
         (list-to-string (mapcar '#(lambda (x) (concatenate 'string x " ") (gethash (string-to-symbol x) cdt-hash-table))
         procedure-codes))
        ; (recommended-consultants (nth 25 info-list))
        ; (explanation-of-recommended-consultants (nth 26 info-list))
        ; (specialist-lastname (nth 30 info-list)) ; ; ; ; 30
        ; (specialist-firstname (nth 31 info-list))
        (date-of-visit-by-specialist (nth 16 info-list))
        (specialty (nth 29 info-list))
        (consult-id (concatenate 'string "fn" patient-id))
        (lastname (concatenate 'string "ln" patient-id))
        (mi (string (m-number-to-letter (string-to-symbol (subseq patient-id 0 1)))))
        (patient-name-string (concatenate 'string firstname "." mi "." lastname)))}
(cond ((member (string-to-symbol consult-id-string) (list-of-instances temp-consult) :test #'equal)
  (cond ((member (string-to-symbol patient-name-string) (list-of-instances temp-patient) :test #'equal)
    (progn
      (eval `(setf (consult-number , (string-to-symbol consult-id-string)), ,consult-id))
      (eval `(setf (patient-id , (string-to-symbol consult-id-string)), ,patient-id))
      (eval `(setf (patient-name , (string-to-symbol consult-id-string)), ,patient-name-string))
      (setf (lastname (eval (string-to-symbol patient-name-string))), ,lastname)
      (setf (firstname (eval (string-to-symbol patient-name-string))), ,firstname)
      (setf (mid (eval (string-to-symbol patient-name-string))), ,mid)
      (setf (id (eval (string-to-symbol patient-name-string))), ,id)
      (setf (sex (eval (string-to-symbol patient-name-string))), ,sex)
      (setf (age (eval (string-to-symbol patient-name-string))), ,age)
      (setf (dob (eval (string-to-symbol patient-name-string))), ,dob)
      (setf (military-status (eval (string-to-symbol patient-name-string))), ,military-status)
      (setf (phone-number (eval (string-to-symbol patient-name-string))), ,phone-number)
      (setf (home-phone-number (eval (string-to-symbol patient-name-string))), ,home-phone-number)
      ;; consult info
      (setf (chief-complaints (eval (string-to-symbol consult-id-string))), ,chief-complaints)
      (setf (exam-findings (eval (string-to-symbol consult-id-string))), ,exam-findings)
      (setf (history (eval (string-to-symbol consult-id-string))), ,history)
      (setf (provisional-diagnosis (eval (string-to-symbol consult-id-string))), ,provisional-diagnosis)
      (setf (referring-military-rank (eval (string-to-symbol consult-id-string))), ,referring-military-rank)
      (setf (referring-lastname (eval (string-to-symbol consult-id-string))), ,referring-lastname)
      (setf (referring-firstname (eval (string-to-symbol consult-id-string))), ,referring-firstname)
      (setf (referring-location (eval (string-to-symbol consult-id-string))), ,referring-location)
      (setf (date-of-request (eval (string-to-symbol consult-id-string))), ,date-of-request)
      (setf (images (eval (string-to-symbol consult-id-string))), ,images)
      (setf (specialty (eval (string-to-symbol consult-id-string))), ,specialty)
      (setf (diagnostic-codes (eval (string-to-symbol consult-id-string))), ,diagnostic-codes)
      (setf (procedure-codes (eval (string-to-symbol consult-id-string))), ,procedure-codes)
      (setf (explanation-of-specialty (eval (string-to-symbol consult-id-string))), ,explanation-of-specialty)
      (setf (explanation-of-diagnostic-codes (eval (string-to-symbol consult-id-string))), ,explanation-of-diagnostic-codes)
      (setf (explanation-of-procedure-codes (eval (string-to-symbol consult-id-string))), ,explanation-of-procedure-codes)
      (setf (recommended-consultants (eval (string-to-symbol consult-id-string))), ,recommended-consultants)
      (setf (date-of-visit-by-specialist (eval (string-to-symbol consult-id-string))), ,date-of-visit-by-specialist)
      (remove-duplicates
        (append (list consult-id-string) (consults (eval (string-to-symbol patient-name-string))))
        :test #'equal)
      )
    )
    )))
  )
)
(setf (diagnostic-codes (eval (string-to-symbol consult-id-string))) diagnostic-codes)
(setf (procedure-codes (eval (string-to-symbol consult-id-string))) procedure-codes)
(setf (explanation-of-specialty (eval (string-to-symbol consult-id-string))) explanation-of-specialty)
(setf (explanation-of-diagnostic-codes (eval (string-to-symbol consult-id-string))) explanation-of-diagnostic-codes)
(setf (recommendation-consultants (eval (string-to-symbol consult-id-string))) recommendation-consultants)
(setf (explanation-of-recommended-consultants (eval (string-to-symbol consult-id-string))) explanation-of-recommended-consultants)
(setf (diagnosis (eval (string-to-symbol consult-id-string))) diagnosis)
(setf (suggested-treatment (eval (string-to-symbol consult-id-string))) suggested-treatment)
(setf (specialist-id (eval (string-to-symbol consult-id-string))) specialist-id)
(setf (specialist-rank (eval (string-to-symbol consult-id-string))) specialist-rank)
(setf (specialist-firstname (eval (string-to-symbol consult-id-string))) specialist-firstname)
(setf (specialist-lastname (eval (string-to-symbol consult-id-string))) specialist-lastname)
(setf (specialist-location (eval (string-to-symbol consult-id-string))) specialist-location)
(setf (date-of-visit-by-specialist (eval (string-to-symbol consult-id-string))) date-of-visit-by-specialist)
(setf (consults (eval (string-to-symbol patient-name-string)))
  (remove-duplicates
    (append (list consult-id-string) (consults (eval (string-to-symbol patient-name-string))))))

(test #=equal)

;;; create a patient
(setf (make-a-class-instance 'patient (string-to-symbol patient-name-string))
  (eval (setf (consult-id-number (string-to-symbol consult-id-string))) consult-id))
(setf (setf (patient-id (string-to-symbol consult-id-string))) patient-id)
(setf (setf (patient-name (string-to-symbol consult-id-string))) patient-name-string))
(setf (ssn (eval (string-to-symbol patient-name-string))) ssn)
(setf (setf (first-name (string-to-symbol patient-name-string))) first-name)
(setf (setf (last-name (string-to-symbol patient-name-string))) last-name)
(setf (setf (patient-address (string-to-symbol patient-name-string))) patient-address)
(setf (setf (patient-city (string-to-symbol patient-name-string))) patient-city)
(setf (setf (patient-state (string-to-symbol patient-name-string))) patient-state)
(setf (setf (patient-phone (string-to-symbol patient-name-string))) patient-phone)
(setf (setf (patient-email (string-to-symbol patient-name-string))) patient-email)
(setf (setf (patient-url (string-to-symbol patient-name-string))) patient-url)
(setf (setf (patient-military-status (string-to-symbol patient-name-string))) military-status)
(setf (setf (military-rank (string-to-symbol patient-name-string))) military-rank)

;;; consult info
(setf (setf (chief-complaints (string-to-symbol consult-id-string))) chief-complaints)
(setf (setf (examination-findings (string-to-symbol consult-id-string))) examination-findings)
(setf (setf (history (string-to-symbol consult-id-string))) history)
(setf (setf (provisional-diagnosis (string-to-symbol consult-id-string))) provisional-diagnosis)
(setf (setf (referring-military-rank (string-to-symbol consult-id-string))) referring-military-rank)
(setf (setf (referring-firstname (string-to-symbol consult-id-string))) referring-firstname)
(setf (setf (referring-lastname (string-to-symbol consult-id-string))) referring-lastname)
(setf (setf (reference-id (string-to-symbol consult-id-string))) reference-id)
(setf (setf (reference-location (string-to-symbol consult-id-string))) reference-location)
(setf (setf (date-of-request (string-to-symbol consult-id-string))) date-of-request)
(setf (setf (images (string-to-symbol consult-id-string))) images)
(setf (setf (specialty (string-to-symbol consult-id-string))) specialty)
(setf (setf (diagnostic-codes (string-to-symbol consult-id-string))) diagnostic-codes)
(setf (setf (procedure-codes (string-to-symbol consult-id-string))) procedure-codes)
(setf (setf (explanation-of-diagnostic-codes (string-to-symbol consult-id-string))) explanation-of-diagnostic-codes)
(setf (setf (explanation-of-procedure-codes (string-to-symbol consult-id-string))) explanation-of-procedure-codes)
(setf (setf (recommended-consultants (string-to-symbol consult-id-string))) recommended-consultants)
(setf (setf (explanation-of-recommended-consultants (string-to-symbol consult-id-string))) explanation-of-recommended-consultants)
(setf (setf (diagnosis (string-to-symbol consult-id-string))) diagnosis)
(setf (setf (suggested-treatment (string-to-symbol consult-id-string))) suggested-treatment)
(setf (setf (specialist-id (string-to-symbol consult-id-string))) specialist-id)
(setf (setf (specialist-rank (string-to-symbol consult-id-string))) specialist-rank)
(setf (setf (specialist-firstname (string-to-symbol consult-id-string))) specialist-firstname)
(setf (setf (specialist-lastname (string-to-symbol consult-id-string))) specialist-lastname)
(setf (setf (specialist-location (string-to-symbol consult-id-string))) specialist-location)
(setf (setf (date-of-visit-by-specialist (string-to-symbol consult-id-string))) date-of-visit-by-specialist)
(setf (setf (consults (string-to-symbol patient-name-string)))
  (remove-duplicates
    (append (list consult-id-string) (consults (eval (string-to-symbol patient-name-string))))))

(test #=equal)
(in-package :common-graphics-user)

(setq cdt-hash-table (make-hash-table :size 10000 :test 'equal))

(setf (gethash '0099 CDT-HASH-TABLE)  "unspecified diagnostic procedure, by report.")
(setf (gethash '0010 CDT-HASH-TABLE)  "histopathologic examinations.")
(setf (gethash '0012 CDT-HASH-TABLE)  "periodic oral evaluation.")
(setf (gethash '0012 CDT-HASH-TABLE)  "periodic oral evaluation.")
(setf (gethash '0014 CDT-HASH-TABLE)  "limited oral evaluation - problem focused.")
(setf (gethash '0015 CDT-HASH-TABLE)  "comprehensive oral evaluation.")
(setf (gethash '0016 CDT-HASH-TABLE)  "detailed and extensive oral evaluation - problem focused, by report.")
(setf (gethash '0017 CDT-HASH-TABLE)  "Re-evaluation-limited, problem focused (Established patient; not post-operative visit).")
(setf (gethash '0020 CDT-HASH-TABLE)  "intraoral - complete series (including bitewings).")
(setf (gethash '0020 CDT-HASH-TABLE)  "intraoral - periapical first film.")
(setf (gethash '0023 CDT-HASH-TABLE)  "intraoral - periapical each additional film.")
(setf (gethash '0024 CDT-HASH-TABLE)  "intraoral - occlusal film.")
(setf (gethash '0026 CDT-HASH-TABLE)  "extraoral - each additional film.")
(setf (gethash '0027 CDT-HASH-TABLE)  "bitewing - single film.")
(setf (gethash '0028 CDT-HASH-TABLE)  "bitewings - two films.")
(setf (gethash '0027 CDT-HASH-TABLE)  "bitewings - four films.")
(setf (gethash '0027 CDT-HASH-TABLE)  "vertical bitewings-7 to 8 films.")
(setf (gethash '0029 CDT-HASH-TABLE)  "posterior-anterior or lateral skull and facial bone survey film.")
(setf (gethash '0030 CDT-HASH-TABLE)  "sialography.")
(setf (gethash '0032 CDT-HASH-TABLE)  "temporomandibular joint arthrogram, including injection.")
(setf (gethash '0033 CDT-HASH-TABLE)  "other temporomandibular joint films, by report.")
(setf (gethash '0033 CDT-HASH-TABLE)  "tomographic survey.")
(setf (gethash '0033 CDT-HASH-TABLE)  "panoramic film.")
(setf (gethash '0034 CDT-HASH-TABLE)  "cephalometric film.")
(setf (gethash '0035 CDT-HASH-TABLE)  "oral/facial images (includes intra and extraoral images).")
(setf (gethash '0041 CDT-HASH-TABLE)  "bacteriologic studies for determination of pathologic agents.")
(setf (gethash '0042 CDT-HASH-TABLE)  "caries susceptibility tests.")
(setf (gethash '0046 CDT-HASH-TABLE)  "pulp vitality tests.")
(setf (gethash '0047 CDT-HASH-TABLE)  "diagnostic casts.")
(setf (gethash '0047 CDT-HASH-TABLE)  "accession of tissue, gross examination, preparation and transmission of written report.")
(setf (gethash '0047 CDT-HASH-TABLE)  "accession of tissue, gross and microscopic examination, preparation and transmission of written report.")
(setf (gethash '0048 CDT-HASH-TABLE)  "processing and interpretation of cytologic smears, including the preparation and.")
(setf (gethash '0050 CDT-HASH-TABLE)  "histopathologic examinations.")
(setf (gethash '0052 CDT-HASH-TABLE)  "other oral pathology procedures, by report.")
(setf (gethash '0099 CDT-HASH-TABLE)  "unspecified diagnostic procedure, by report.")
(setf (gethash '0110 CDT-HASH-TABLE)  "prophylaxis - adult.")
(SETF (GETHASH 'DS381 CDT-HASH-TABLE) "tissue conditioning, mandibular.")
(SETF (GETHASH 'DS380 CDT-HASH-TABLE) "overdenture - complete, by report")
(SETF (GETHASH 'DS381 CDT-HASH-TABLE) "overdenture - partial, by report")
(SETF (GETHASH 'DS382 CDT-HASH-TABLE) "precision attachment, by report")
(SETF (GETHASH 'DS387 CDT-HASH-TABLE) "replacement of replaceable part of semi-precision or precision attachment (male or female component)."
(SETF (GETHASH 'DS499 CDT-HASH-TABLE) "unspecified removable prosthodontic procedure, by report")
(SETF (GETHASH 'DS911 CDT-HASH-TABLE) "facial moulage (sectional)."
(SETF (GETHASH 'DS912 CDT-HASH-TABLE) "facial moulage (complete)."
(SETF (GETHASH 'DS913 CDT-HASH-TABLE) "nasal prosthesis."
(SETF (GETHASH 'DS914 CDT-HASH-TABLE) "auricular prosthesis."
(SETF (GETHASH 'DS915 CDT-HASH-TABLE) "orbital prosthesis."
(SETF (GETHASH 'DS916 CDT-HASH-TABLE) "ocular prosthesis."
(SETF (GETHASH 'DS919 CDT-HASH-TABLE) "facial prosthesis."
(SETF (GETHASH 'DS922 CDT-HASH-TABLE) "nasal septal prosthesis."
(SETF (GETHASH 'DS923 CDT-HASH-TABLE) "ocular prosthesis, interim."
(SETF (GETHASH 'DS924 CDT-HASH-TABLE) "cranial prosthesis."
(SETF (GETHASH 'DS925 CDT-HASH-TABLE) "facial augmentation implant prosthesis."
(SETF (GETHASH 'DS926 CDT-HASH-TABLE) "nasal prosthesis, replacement."
(SETF (GETHASH 'DS927 CDT-HASH-TABLE) "auricular prosthesis, replacement."
(SETF (GETHASH 'DS928 CDT-HASH-TABLE) "orbital prosthesis, replacement."
(SETF (GETHASH 'DS929 CDT-HASH-TABLE) "facial prosthesis, replacement."
(SETF (GETHASH 'DS930 CDT-HASH-TABLE) "obturateur prosthesis, surgical."
(SETF (GETHASH 'DS933 CDT-HASH-TABLE) "obturateur prosthesis, definitive."
(SETF (GETHASH 'DS933 CDT-HASH-TABLE) "obturateur prosthesis, modification."
(SETF (GETHASH 'DS934 CDT-HASH-TABLE) "mandibular resection prosthesis with guide flange."
(SETF (GETHASH 'DS935 CDT-HASH-TABLE) "mandibular resection prosthesis without guide flange."
(SETF (GETHASH 'DS936 CDT-HASH-TABLE) "obturateur prosthesis, interim."
(SETF (GETHASH 'DS937 CDT-HASH-TABLE) "trismus appliance (not for TMJ treatment)."
(SETF (GETHASH 'DS938 CDT-HASH-TABLE) "feeding aid."
(SETF (GETHASH 'DS932 CDT-HASH-TABLE) "speech aid prosthesis, pediatric."
(SETF (GETHASH 'DS933 CDT-HASH-TABLE) "speech aid prosthesis, adult."
(SETF (GETHASH 'DS934 CDT-HASH-TABLE) "palatal augmentation prosthesis."
(SETF (GETHASH 'DS935 CDT-HASH-TABLE) "palatal lift prosthesis, definitive."
(SETF (GETHASH 'DS945 CDT-HASH-TABLE) "palatal lift prosthesis, interim."
(SETF (GETHASH 'DS949 CDT-HASH-TABLE) "palatal lift prosthesis, modification."
(SETF (GETHASH 'DS950 CDT-HASH-TABLE) "speech aid prosthesis, modification."
(SETF (GETHASH 'DS951 CDT-HASH-TABLE) "surgical stent."
(SETF (GETHASH 'DS952 CDT-HASH-TABLE) "radiation carrier."
(SETF (GETHASH 'DS953 CDT-HASH-TABLE) "radiation shield."
(SETF (GETHASH 'DS954 CDT-HASH-TABLE) "radiation cone locator."
(SETF (GETHASH 'DS956 CDT-HASH-TABLE) "fluoride gel carrier."
(SETF (GETHASH 'DS957 CDT-HASH-TABLE) "commissure splint."
(SETF (GETHASH 'DS958 CDT-HASH-TABLE) "surgical splint."
(SETF (GETHASH 'DS959 CDT-HASH-TABLE) "unspecified maxillofacial prosthesis, by report."
(SETF (GETHASH 'DG010 CDT-HASH-TABLE)
"surgical placement of implant body: endosteal implant."

- "abutment placement or substitution: endosteal implant."

- "surgical placement: eposteal implant."

- "implant supported fixed denture for completely edentulous arch."

- "implant supported crown."
"pontic - cast predominantly base metal.")
(SETF (GETHASH '06212 CT-HASH-TABLE) "pontic - cast noble metal.")
(SETF (GETHASH '06240 CT-HASH-TABLE) "pontic - porcelain fused to high noble metal.")
(SETF (GETHASH '06241 CT-HASH-TABLE) "pontic - porcelain fused to predominantly base metal.")
(SETF (GETHASH '06242 CT-HASH-TABLE) "pontic - porcelain fused to noble metal.")
(SETF (GETHASH '06245 CT-HASH-TABLE) "pontic - porcelain/ceramic.")
(SETF (GETHASH '06250 CT-HASH-TABLE) "pontic - resin with high noble metal.")
(SETF (GETHASH '06251 CT-HASH-TABLE) "pontic - resin with predominantly base metal.")
(SETF (GETHASH '06252 CT-HASH-TABLE) "pontic - resin with noble metal.")
(SETF (GETHASH '06319 CT-HASH-TABLE) "inlay/onlay - porcelain/ceramic.")
(SETF (GETHASH '06320 CT-HASH-TABLE) "inlay - metallic - three or more surfaces.")
(SETF (GETHASH '06330 CT-HASH-TABLE) "inlay - metallic - two surfaces.")
(SETF (GETHASH '06343 CT-HASH-TABLE) "onlay - metallic - three surfaces.")
(SETF (GETHASH '06344 CT-HASH-TABLE) "onlay - metallic - four or more surfaces.")
(SETF (GETHASH '06345 CT-HASH-TABLE) "retainer - cast metal for resin bonded fixed prosthesis.")
(SETF (GETHASH '06348 CT-HASH-TABLE) "retainer - porcelain/ceramic for resin bonded fixed prosthesis.")
(SETF (GETHASH '06720 CT-HASH-TABLE) "crown - resin with high noble metal.")
(SETF (GETHASH '06721 CT-HASH-TABLE) "crown - resin with predominantly base metal.")
(SETF (GETHASH '06722 CT-HASH-TABLE) "crown - resin with high noble metal.")
(SETF (GETHASH '06740 CT-HASH-TABLE) "crown - porcelain/ceramic.")
(SETF (GETHASH '06750 CT-HASH-TABLE) "crown - porcelain fused to high noble metal.")
(SETF (GETHASH '06751 CT-HASH-TABLE) "crown - porcelain fused to predominantly base metal.")
(SETF (GETHASH '06752 CT-HASH-TABLE) "crown - porcelain fused to noble metal.")
(SETF (GETHASH '06780 CT-HASH-TABLE) "crown - 3/4 cast high noble metal.")
(SETF (GETHASH '06781 CT-HASH-TABLE) "crown - 3/4 cast predominantly based metal.")
(SETF (GETHASH '06782 CT-HASH-TABLE) "crown - 3/4 cast noble metal.")
(SETF (GETHASH '06783 CT-HASH-TABLE) "crown - 3/4 porcelain/ceramic.")
(SETF (GETHASH '06790 CT-HASH-TABLE) "crown - full cast high noble metal.")
(SETF (GETHASH '06791 CT-HASH-TABLE) "crown - full cast predominantly base metal.")
(SETF (GETHASH '06792 CT-HASH-TABLE) "crown - full cast noble metal.")
(SETF (GETHASH '06920 CT-HASH-TABLE) "connector bar.")
(SETF (GETHASH '06930 CT-HASH-TABLE) "recrent fixed partial denture.")
(SETF (GETHASH '06940 CT-HASH-TABLE) "stress breaker.")
(SETF (GETHASH '06950 CT-HASH-TABLE) "precision attachment.")
(SETF (GETHASH '06970 CT-HASH-TABLE) "cast post and core in addition to fixed partial denture retainer.")
(SETF (GETHASH '06971 CT-HASH-TABLE) "cast post as part of fixed partial denture retainer.")
(SETF (GETHASH '06972 CT-HASH-TABLE) "prefabricated post and core in addition to fixed partial denture retainer.")
(SETF (GETHASH '06973 CT-HASH-TABLE) "core build up for retainer, including any pins.")
(SETF (GETHASH '06975 CT-HASH-TABLE) "coping - metal.")
(SETF (GETHASH '06976 CT-HASH-TABLE) "coping - metal.")
"each additional cast post - same tooth."

(SETF (GETHASH 'D6977 CDT-HASH-TABLE)
  "each additional prefabricated post - same tooth.")

(SETF (GETHASH 'D6980 CDT-HASH-TABLE)
  "fixed partial denture repair, by report."

(SETF (GETHASH 'D6999 CDT-HASH-TABLE)
  "unspecified, fixed prosthodontic procedure, by report."

(SETF (GETHASH 'D7210 CDT-HASH-TABLE) 'single tooth."

(SETF (GETHASH 'D7120 CDT-HASH-TABLE) "each additional tooth."

(SETF (GETHASH 'D7130 CDT-HASH-TABLE) "root removal - exposed roots."

(SETF (GETHASH 'D7230 CDT-HASH-TABLE) "surgical removal of erupted tooth requiring elevation of mucoperiosteal flap and removal of bone and/or section of tooth."

(SETF (GETHASH 'D7220 CDT-HASH-TABLE) "removal of impacted tooth - soft tissue.""

(SETF (GETHASH 'D7230 CDT-HASH-TABLE) "removal of impacted tooth - partially bony.""

(SETF (GETHASH 'D7240 CDT-HASH-TABLE) "removal of impacted tooth - completely bony.""

(SETF (GETHASH 'D7241 CDT-HASH-TABLE) "removal of impacted tooth - completely bony, with unusual surgical complications.""

(SETF (GETHASH 'D7250 CDT-HASH-TABLE) "surgical removal of residual tooth roots (cutting procedure)."

(SETF (GETHASH 'D7260 CDT-HASH-TABLE) "oronasal fistula closure."

(SETF (GETHASH 'D7270 CDT-HASH-TABLE) "tooth reimplantation and/or stabilization of accidentally avulsed or displaced tooth and/or alveolus.""

(SETF (GETHASH 'D7272 CDT-HASH-TABLE) "tooth transplantation (includes reimplantation from one site to another and splinting and/or stabilization)."

(SETF (GETHASH 'D7280 CDT-HASH-TABLE) "surgical exposure of impacted or unerupted tooth for orthodontic reasons (including orthodontic attachments)."

(SETF (GETHASH 'D7281 CDT-HASH-TABLE) "surgical exposure of impacted or unerupted tooth to aid eruption."

(SETF (GETHASH 'DENSE CDT-HASH-TABLE) NEL)

(SETF (GETHASH 'D7285 CDT-HASH-TABLE) "biopsy of oral tissue - hard (bone, tooth)."

(SETF (GETHASH 'D7286 CDT-HASH-TABLE) "biopsy of oral tissue - soft (all others)."

(SETF (GETHASH 'D7285 CDT-HASH-TABLE) "biopsy of oral tissue - hard (bone, tooth)."

(SETF (GETHASH 'D7286 CDT-HASH-TABLE) "biopsy of oral tissue - soft (all others)."

(SETF (GETHASH 'D7290 CDT-HASH-TABLE) "surgical repositioning of teeth."

(SETF (GETHASH 'D7291 CDT-HASH-TABLE) "transseptal fibration, by report."

(SETF (GETHASH 'D7310 CDT-HASH-TABLE) "alveoplasty in conjunction with extractions - per quadrant."

(SETF (GETHASH 'D7320 CDT-HASH-TABLE) "alveoplasty not in conjunction with extractions - per quadrant."

(SETF (GETHASH 'D7340 CDT-HASH-TABLE) "vestibuloplasty - ridge extension (secondary epithelialization)."

(SETF (GETHASH 'D7350 CDT-HASH-TABLE) "vestibuloplasty - ridge extension (including soft tissue grafts, muscle reattachment, revision of soft tissue attachment and management of hypertrophied and hyperplastic tissue)."

(SETF (GETHASH 'D7410 CDT-HASH-TABLE) "radical excision - lesion diameter up to 1.25 cm."

(SETF (GETHASH 'D7420 CDT-HASH-TABLE) "radical excision - lesion diameter greater than 1.25 cm."

(SETF (GETHASH 'D7430 CDT-HASH-TABLE) "excision of benign tumor - lesion diameter up to 1.25 cm."

(SETF (GETHASH 'D7431 CDT-HASH-TABLE) "excision of benign tumor - lesion diameter greater than 1.25 cm."

(SETF (GETHASH 'D7440 CDT-HASH-TABLE) "excision of malignant tumor - lesion diameter up to 1.25 cm."

(SETF (GETHASH 'D7441 CDT-HASH-TABLE) "excision of malignant tumor - lesion diameter greater than 1.25 cm."

(SETF (GETHASH 'D7450 CDT-HASH-TABLE)
"removal of odontogenic cyst or tumor - lesion diameter up to 1.25 cm."

(SETF (GETHAM '07451 CDT-HASH-TABLE)
"removal of odontogenic cyst or tumor - lesion diameter greater than 1.25 cm."

(SETF (GETHAM '07460 CDT-HASH-TABLE)
"removal of nonodontogenic cyst or tumor - lesion diameter up to 1.25 cm."

(SETF (GETHAM '07461 CDT-HASH-TABLE)
"removal of nonodontogenic cyst or tumor - lesion diameter greater than 1.25 cm."

(SETF (GETHAM '07465 CDT-HASH-TABLE)
"destruction of lesion(s) by physical or chemical method, by report."

(SETF (GETHAM '07471 CDT-HASH-TABLE)
"removal of exostosis - per site."

(SETF (GETHAM '07480 CDT-HASH-TABLE)
"partial ostectomy (guttering or saucierization)."

(SETF (GETHAM '07490 CDT-HASH-TABLE)
"radical resection of mandible with bone graft."

(SETF (GETHAM '07510 CDT-HASH-TABLE)
"incision and drainage of abscess - intraoral soft tissue."

(SETF (GETHAM '07520 CDT-HASH-TABLE)
"incision and drainage of abscess - extraoral soft tissue."

(SETF (GETHAM '07530 CDT-HASH-TABLE)
"removal of foreign body, skin, or subcutaneous alveolar tissue."

(SETF (GETHAM '07540 CDT-HASH-TABLE)
"removal of reaction producing foreign bodies, musculoskeletal system."

(SETF (GETHAM '07550 CDT-HASH-TABLE)
"sequestration for osteomyelitis."

(SETF (GETHAM '07560 CDT-HASH-TABLE)
"maxillary sinusotomy for removal of tooth fragment or foreign body."

(SETF (GETHAM '07610 CDT-HASH-TABLE)
"maxilla - open reduction (teeth immobilized, if present)."

(SETF (GETHAM '07620 CDT-HASH-TABLE)
"maxilla - closed reduction (teeth immobilized, if present)."

(SETF (GETHAM '07630 CDT-HASH-TABLE)
"mandible - open reduction (teeth immobilized, if present)."

(SETF (GETHAM '07640 CDT-HASH-TABLE)
"mandible - closed reduction (teeth immobilized, if present)."

(SETF (GETHAM '07650 CDT-HASH-TABLE)
"malar and/or zygomatic arch - open reduction."

(SETF (GETHAM '07660 CDT-HASH-TABLE)
"malar and/or zygomatic arch - closed reduction."

(SETF (GETHAM '07670 CDT-HASH-TABLE)
"alveolus - stabilization of teeth, closed reduction splinting."

(SETF (GETHAM '07680 CDT-HASH-TABLE)
"alveolus - stabilization of teeth, complicated reduction and multiple surgical approaches."

(SETF (GETHAM '07710 CDT-HASH-TABLE)
"maxilla open reduction."

(SETF (GETHAM '07720 CDT-HASH-TABLE)
"maxilla - closed reduction."

(SETF (GETHAM '07730 CDT-HASH-TABLE)
"mandible - open reduction."

(SETF (GETHAM '07740 CDT-HASH-TABLE)
"mandible - closed reduction."

(SETF (GETHAM '07750 CDT-HASH-TABLE)
"malar and/or zygomatic arch - open reduction."

(SETF (GETHAM '07760 CDT-HASH-TABLE)
"malar and/or zygomatic arch - closed reduction."

(SETF (GETHAM '07770 CDT-HASH-TABLE)
"alveolus - stabilization of teeth, open reduction splinting."

(SETF (GETHAM '07780 CDT-HASH-TABLE)
"alveolus - stabilization of teeth, complicated reduction with fixation and multiple surgical approaches."

(SETF (GETHAM '07810. CDT-HASH-TABLE)
"open reduction of dislocation."

(SETF (GETHAM '07820 CDT-HASH-TABLE)
"closed reduction of dislocation."

(SETF (GETHAM '07830 CDT-HASH-TABLE)
"manipulation under anesthesia."

(SETF (GETHAM '07840 CDT-HASH-TABLE)
"condylectomy."

(SETF (GETHAM '07850 CDT-HASH-TABLE)
"surgical disectomy, with/without implant."

(SETF (GETHAM '07852 CDT-HASH-TABLE)
"disc repair."

(SETF (GETHAM '07854 CDT-HASH-TABLE)
"synovectomy."

(SETF (GETHAM '07856 CDT-HASH-TABLE)
"synostomy."

(SETF (GETHAM '07858 CDT-HASH-TABLE)
"joint reconstruction."
"office visit - after regularly scheduled hours.")

(SETF (GETHASH '09610 CDT-HASH-TABLE)
  "therapeutic drug injection, by report."
)
(SETF (GETHASH '09630 CDT-HASH-TABLE)
  "other drugs and/or medicaments, by report."
)
(SETF (GETHASH '09910 CDT-HASH-TABLE)
  "application of desensitizing medicament."
)
(SETF (GETHASH '09911 CDT-HASH-TABLE)
  "application of desensitizing resin for cervical and/or root surface, per tooth."
)
(SETF (GETHASH '09920 CDT-HASH-TABLE)
  "behavior management, by report."
)
(SETF (GETHASH '09930 CDT-HASH-TABLE)
  "treatment of complications (post-surgical) - unusual circumstances, by report."
)
(SETF (GETHASH '09940 CDT-HASH-TABLE)
  "occlusal guard, by report."
)
(SETF (GETHASH '09941 CDT-HASH-TABLE)
  "fabrication of athletic mouthguard."
)
(SETF (GETHASH '09950 CDT-HASH-TABLE)
  "occlusion analysis - mounted case."
)
(SETF (GETHASH '09951 CDT-HASH-TABLE)
  "occlusal adjustment - limited."
)
(SETF (GETHASH '09952 CDT-HASH-TABLE)
  "occlusal adjustment - complete."
)
(SETF (GETHASH '09970 CDT-HASH-TABLE)
  "enamel microabrasion."
)
(SETF (GETHASH '09971 CDT-HASH-TABLE)
  "odontooplasty 1 - 2 teeth; includes removal of enamel projections."
)
(SETF (GETHASH '09972 CDT-HASH-TABLE)
  "external bleaching - per arch."
)
(SETF (GETHASH '09973 CDT-HASH-TABLE)
  "external bleaching - per tooth."
)
(SETF (GETHASH '09974 CDT-HASH-TABLE)
  "internal bleaching - per tooth."
)
(SETF (GETHASH '09999 CDT-HASH-TABLE)
  "unspecified adjucctive procedure, by report."
)
Diarrhea of presumed infectious origin

(SETF GETMASH "010" ICD9-HASH-TABLE) "Primary tuberculous infection"
(SETF GETMASH "010.0" ICD9-HASH-TABLE) "Primary tuberculous infection"
(SETF GETMASH "010.1" ICD9-HASH-TABLE) "Tuberculous pleurisy in primary progressive tuberculosis"
(SETF GETMASH "010.8" ICD9-HASH-TABLE) "Other primary progressive tuberculosis"
(SETF GETMASH "010.9" ICD9-HASH-TABLE) "Other tuberculous infection, unspecified"
(SETF GETMASH "011" ICD9-HASH-TABLE) "Pulmonary tuberculosis"
(SETF GETMASH "011.0" ICD9-HASH-TABLE) "Tuberculosis of lung, infiltrative"
(SETF GETMASH "011.1" ICD9-HASH-TABLE) "Tuberculosis of lung, nodular"
(SETF GETMASH "011.2" ICD9-HASH-TABLE) "Tuberculosis of lung with cavitation"
(SETF GETMASH "011.3" ICD9-HASH-TABLE) "Tuberculosis of bronchi"
(SETF GETMASH "011.4" ICD9-HASH-TABLE) "Tuberculous fibrosis of lung"
(SETF GETMASH "011.5" ICD9-HASH-TABLE) "Tuberculous bronchiectasis"
(SETF GETMASH "011.6" ICD9-HASH-TABLE) "Tuberculous pneumonia [any form]"
(SETF GETMASH "011.7" ICD9-HASH-TABLE) "Tuberculous pneumothorax"
(SETF GETMASH "011.8" ICD9-HASH-TABLE) "Other specified pulmonary tuberculosis"
(SETF GETMASH "011.9" ICD9-HASH-TABLE) "Pulmonary tuberculosis, unspecified"
(SETF GETMASH "012" ICD9-HASH-TABLE) "Other respiratory tuberculosis"
(SETF GETMASH "012.0" ICD9-HASH-TABLE) "Tuberculous pleurisy"
(SETF GETMASH "012.1" ICD9-HASH-TABLE) "Tuberculosis of intrathoracic lymph nodes"
(SETF GETMASH "012.2" ICD9-HASH-TABLE) "Isolated tracheal or bronchial tuberculosis"
(SETF GETMASH "012.3" ICD9-HASH-TABLE) "Tuberculous laryngitis"
(SETF GETMASH "012.8" ICD9-HASH-TABLE) "Other specified respiratory tuberculosis"
(SETF GETMASH "013" ICD9-HASH-TABLE) "Tuberculosis of meninges and central nervous system"
(SETF GETMASH "013.0" ICD9-HASH-TABLE) "Tuberculous meningitis"
(SETF GETMASH "013.1" ICD9-HASH-TABLE) "Tuberculoma of meninges"
(SETF GETMASH "013.2" ICD9-HASH-TABLE) "Tuberculoma of brain"
(SETF GETMASH "013.3" ICD9-HASH-TABLE) "Tuberculous abscess of brain"
(SETF GETMASH "013.4" ICD9-HASH-TABLE) "Tuberculoma of spinal cord"
(SETF GETMASH "013.5" ICD9-HASH-TABLE) "Tuberculous abscess of spinal cord"
(SETF GETMASH "013.6" ICD9-HASH-TABLE) "Tuberculous encephalitis or myelitis"
(SETF GETMASH "013.8" ICD9-HASH-TABLE) "Other specified tuberculosis of central nervous system"
(SETF GETMASH "013.9" ICD9-HASH-TABLE) "Unspecified tuberculosis of central nervous system"
(SETF GETMASH "014" ICD9-HASH-TABLE) "Tuberculosis of intestines, peritoneum, and mesenteric glands"
(SETF GETMASH "014.0" ICD9-HASH-TABLE) "Tuberculous peritonitis"
(SETF GETMASH "014.8" ICD9-HASH-TABLE) "Other"
(SETF GETMASH "015" ICD9-HASH-TABLE) "Tuberculosis of bones and joints"
(SETF GETMASH "015.0" ICD9-HASH-TABLE) "Vertebral column"
(SETF GETMASH "015.1" ICD9-HASH-TABLE) "Hip"
(SETF GETMASH "015.2" ICD9-HASH-TABLE) "Knee"
(SETF GETMASH "015.5" ICD9-HASH-TABLE) "Limb bones"
(SETF GETMASH "015.6" ICD9-HASH-TABLE) "Maxilla"
(SETF GETMASH "015.7" ICD9-HASH-TABLE) "Other specified bone"
(SETF GETMASH "015.8" ICD9-HASH-TABLE) "Other specified joint"
(SETF GETMASH "015.9" ICD9-HASH-TABLE) "Tuberculosis of unspecified bones and joints"
(SETF GETMASH "016" ICD9-HASH-TABLE) "Tuberculosis of genitourinary system"
"Other specified meningococcal infections")

(SETF GETHASH "036.81" IC9D-HASH-TABLE) "Meningococcal optic neuritis")

(SETF GETHASH "036.82" IC9D-HASH-TABLE) "Meningococcal arthropathy")

(SETF GETHASH "036.89" IC9D-HASH-TABLE) "Other")

(SETF GETHASH "036.9" IC9D-HASH-TABLE) "Meningococcal infection, unspecified")

(SETF GETHASH "037" IC9D-HASH-TABLE) "Tetanus")

(SETF GETHASH "038" IC9D-HASH-TABLE) "Septicemia")

(SETF GETHASH "038.0" IC9D-HASH-TABLE) "Streptococcal septicemia")

(SETF GETHASH "038.1" IC9D-HASH-TABLE) "Staphylococcal septicemia")

(SETF GETHASH "038.10" IC9D-HASH-TABLE) "Staphylococcal septicemia, unspecified")

(SETF GETHASH "038.11" IC9D-HASH-TABLE) "Staphylococcus aureus septicemia")

(SETF GETHASH "038.19" IC9D-HASH-TABLE) "Other staphylococcal septicemia")

(SETF GETHASH "038.2" IC9D-HASH-TABLE) "Pneumococcal septicemia [Streptococcus pneumoniae septicemia"]

(SETF GETHASH "038.3" IC9D-HASH-TABLE) "Septicemia due to anaerobes")

(SETF GETHASH "038.4" IC9D-HASH-TABLE) "Septicemia due to other gram-negative organisms")

(SETF GETHASH "038.40" IC9D-HASH-TABLE) "Gran-negative organism, unspecified")

(SETF GETHASH "038.41" IC9D-HASH-TABLE) "Hemophilus influenzae [H. influenzae"]

(SETF GETHASH "038.42" IC9D-HASH-TABLE) "Escherichia coli [E. coli]")

(SETF GETHASH "038.43" IC9D-HASH-TABLE) "Pseudomonas")

(SETF GETHASH "038.44" IC9D-HASH-TABLE) "Serratia")

(SETF GETHASH "038.49" IC9D-HASH-TABLE) "Other")

(SETF GETHASH "038.8" IC9D-HASH-TABLE) "Other specified septicemias")

(SETF GETHASH "038.9" IC9D-HASH-TABLE) "Unspecified septicemia")

(SETF GETHASH "039" IC9D-HASH-TABLE) "Actinomycotic infections")

(SETF GETHASH "039.0" IC9D-HASH-TABLE) "Cutaneous")

(SETF GETHASH "039.1" IC9D-HASH-TABLE) "Pulmonary")

(SETF GETHASH "039.2" IC9D-HASH-TABLE) "Abdominal")

(SETF GETHASH "039.3" IC9D-HASH-TABLE) "Cervicofacial")

(SETF GETHASH "039.4" IC9D-HASH-TABLE) "Malaria foot")

(SETF GETHASH "039.8" IC9D-HASH-TABLE) "Of other specific sites")

(SETF GETHASH "039.9" IC9D-HASH-TABLE) "Of unspecified site")

(SETF GETHASH "040" IC9D-HASH-TABLE) "Other bacterial diseases")

(SETF GETHASH "040.0" IC9D-HASH-TABLE) "Gas gangrene")

(SETF GETHASH "040.1" IC9D-HASH-TABLE) "Rhinoscleroma")

(SETF GETHASH "040.2" IC9D-HASH-TABLE) "Whipple's disease")

(SETF GETHASH "040.3" IC9D-HASH-TABLE) "Necrobacillosis")

(SETF GETHASH "040.8" IC9D-HASH-TABLE) "Other specified bacterial diseases")

(SETF GETHASH "040.81" IC9D-HASH-TABLE) "Tropical pyomyositis")

(SETF GETHASH "040.89" IC9D-HASH-TABLE) "Other")

(SETF GETHASH "041" IC9D-HASH-TABLE) "Bacterial infection in conditions classified elsewhere and of unspecified site")

(SETF GETHASH "041.0" IC9D-HASH-TABLE) "Streptococcus")

(SETF GETHASH "041.00" IC9D-HASH-TABLE) "Streptococcus, unspecified")

(SETF GETHASH "041.01" IC9D-HASH-TABLE) "Group A")

(SETF GETHASH "041.02" IC9D-HASH-TABLE) "Group B")

(SETF GETHASH "041.03" IC9D-HASH-TABLE) "Group C")

(SETF GETHASH "041.05" IC9D-HASH-TABLE) "Group C")

(SETF GETHASH "041.09" IC9D-HASH-TABLE) "Other Streptococcus")

(SETF GETHASH "041.1" IC9D-HASH-TABLE) "Staphylococcus")

(SETF GETHASH "041.10" IC9D-HASH-TABLE) "Staphylococcus, unspecified")

(SETF GETHASH "041.11" IC9D-HASH-TABLE) "Staphylococcus aureus")

(SETF GETHASH "041.19" IC9D-HASH-TABLE) "Other Staphylococcus")

(SETF GETHASH "041.2" IC9D-HASH-TABLE) "Pneumococcus")

(SETF GETHASH "041.3" IC9D-HASH-TABLE) "Friedlander's bacillus")

(SETF GETHASH "041.4" IC9D-HASH-TABLE) "Escherichia coli [E.coli]")

(SETF GETHASH "041.5" IC9D-HASH-TABLE) "Hemophilus influenzae [H. influenzae")]"
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<td>&quot;Proteus (mirabilis) (morganii)&quot;)</td>
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<td>&quot;Other specified bacterial infections&quot;)</td>
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<td>&quot;Human immunodeficiency virus (HIV) disease&quot;)</td>
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<td>&quot;Acute poliomyelitis&quot;)</td>
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<td>&quot;Acute paralytic poliomyelitis specified as bulbar&quot;)</td>
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<td>&quot;Acute poliomyelitis with other paralysis&quot;)</td>
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<td>&quot;Acute poliomyelitis, unspecified&quot;)</td>
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<td>SETF</td>
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<td>&quot;Slow virus infection of central nervous system&quot;)</td>
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<td>&quot;Progressive multifocal leukoencephalopathy&quot;)</td>
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<td>&quot;Other specified slow virus infection of central nervous system&quot;)</td>
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<td>&quot;Other specified viral meningitis&quot;)</td>
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<td>&quot;Other non-Arthropod-borne viral diseases of central nervous system&quot;)</td>
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<td>&quot;Lymphocytic choriomeningitis&quot;)</td>
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<td>&quot;Cowpox and paravaccinia&quot;)</td>
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<td>&quot;Cowpox&quot;)</td>
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<td>&quot;Pseudocowpox&quot;)</td>
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<td>&quot;Contagious pustular dermatitis&quot;)</td>
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<td>&quot;Paravaccinia, unspecified&quot;)</td>
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"Crimean hemorrhagic fever [CF Congo virus]")

(SETF GETHASH "065.1" IC9-HASH-TABLE) "Omsk hemorrhagic fever")

(SETF GETHASH "065.2" IC9-HASH-TABLE) "Kyasanur Forest disease")

(SETF GETHASH "065.3" IC9-HASH-TABLE) "Other tick-borne hemorrhagic fever")

(SETF GETHASH "065.4" IC9-HASH-TABLE) "Mosquito-borne hemorrhagic fever")

(SETF GETHASH "065.5" IC9-HASH-TABLE) "Other specified arthropod-borne hemorrhagic fever")

(SETF GETHASH "065.6" IC9-HASH-TABLE) "Arthropod-borne hemorrhagic fever, unspecified")

(SETF GETHASH "066" IC9-HASH-TABLE) "Other arthropod-borne viral diseases")

(SETF GETHASH "066.0" IC9-HASH-TABLE) "Phlebotomus fever")

(SETF GETHASH "066.1" IC9-HASH-TABLE) "Tick-borne fever")

(SETF GETHASH "066.2" IC9-HASH-TABLE) "Venezuelan equine fever")

(SETF GETHASH "066.3" IC9-HASH-TABLE) "Other mosquito-borne fever")

(SETF GETHASH "066.4" IC9-HASH-TABLE) "Other specified arthropod-borne viral diseases")

(SETF GETHASH "066.5" IC9-HASH-TABLE) "Arthropod-borne viral disease, unspecified")

(SETF GETHASH "070" IC9-HASH-TABLE) "Viral hepatitis")

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(SETF GETHASH "070.1" IC9-HASH-TABLE) "Viral hepatitis A without mention of hepatic coma")

(SETF GETHASH "070.2" IC9-HASH-TABLE) "Viral hepatitis B with hepatic coma")

(SETF GETHASH "070.3" IC9-HASH-TABLE) "Viral hepatitis B without mention of hepatic coma")

(SETF GETHASH "070.4" IC9-HASH-TABLE) "Other specified viral hepatitis with hepatic coma")

(SETF GETHASH "070.41" IC9-HASH-TABLE) "Acute or unspecified hepatitis C with hepatic coma")

(SETF GETHASH "070.42" IC9-HASH-TABLE) "Hepatitis delta without mention of active hepatitis B disease with hepatic coma")

(SETF GETHASH "070.43" IC9-HASH-TABLE) "Hepatitis E with hepatic coma")

(SETF GETHASH "070.44" IC9-HASH-TABLE) "Chronic hepatitis C with hepatic coma")

(SETF GETHASH "070.49" IC9-HASH-TABLE) "Other specified viral hepatitis with hepatic coma")

(SETF GETHASH "070.5" IC9-HASH-TABLE) "Other specified viral hepatitis without mention of hepatic coma")

(SETF GETHASH "070.51" IC9-HASH-TABLE) "Acute or unspecified hepatitis C without mention of hepatic coma")

(SETF GETHASH "070.52" IC9-HASH-TABLE) "Hepatitis delta without mention of active hepatitis B disease or hepatic coma")

(SETF GETHASH "070.53" IC9-HASH-TABLE) "Hepatitis E without mention of hepatic coma")

(SETF GETHASH "070.54" IC9-HASH-TABLE) "Chronic hepatitis C without mention of hepatic coma")

(SETF GETHASH "070.59" IC9-HASH-TABLE) "Other specified viral hepatitis with mention of hepatic coma")

(SETF GETHASH "070.6" IC9-HASH-TABLE) "Unspecified viral hepatitis with hepatic coma")

(SETF GETHASH "070.61" IC9-HASH-TABLE) "Viral hepatitis without mention of hepatic coma")

(SETF GETHASH "070.62" IC9-HASH-TABLE) "Mumps")

(SETF GETHASH "072.0" IC9-HASH-TABLE) "Mumps orrthritis")

(SETF GETHASH "072.1" IC9-HASH-TABLE) "Mumps meningitis")

(SETF GETHASH "072.2" IC9-HASH-TABLE) "Mumps encephalitis")

(SETF GETHASH "072.3" IC9-HASH-TABLE) "Mumps pancreatitis")

(SETF GETHASH "072.7" IC9-HASH-TABLE) "Mumps with other specified complications")
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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>072.1</td>
<td>Mumps hepatitis</td>
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<td>072.2</td>
<td>Mumps polyneuropathy</td>
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<td>072.3</td>
<td>Other</td>
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<td>072.8</td>
<td>Mumps with unspecified complication</td>
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<td>072.9</td>
<td>Mumps without mention of complication</td>
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<td>073.0</td>
<td>Otitis externa</td>
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<td>073.1</td>
<td>Otitis media</td>
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<td>073.2</td>
<td>Otitis interna</td>
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<tr>
<td>073.3</td>
<td>Other specified complications</td>
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<td>Specific diseases due to Coxsackie virus</td>
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<td>074.1</td>
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<td>Coxsackie carditis</td>
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<td>074.3</td>
<td>Coxsackie myocarditis</td>
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<td>074.4</td>
<td>Hand, foot, and mouth disease</td>
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<td>074.5</td>
<td>Other specified diseases due to Coxsackie virus</td>
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<td>Infectious mononucleosis</td>
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<td>Active stage</td>
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<td>Trachoma, unspecified</td>
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<td>Other diseases of conjunctiva due to viruses and Chlamydia</td>
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<td>Inclusion conjunctivitis</td>
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<td>Epidemic keratoconjunctivitis</td>
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<td>Pharyngoconjunctival fever</td>
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<td>Other adenoviral conjunctivitis</td>
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<td>077.7</td>
<td>Epidemic hemorrhagic conjunctivitis</td>
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<td>077.8</td>
<td>Other viral conjunctivitis</td>
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<td>077.9</td>
<td>Other diseases of conjunctiva due to viruses and Chlamydia</td>
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<td>078.0</td>
<td>Hollolium contagiosum</td>
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<td>Viral warts</td>
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<td>Foot and mouth disease</td>
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<td>Cy Venomoloviral disease</td>
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<td>Hemorrhagic nephroso nephritis</td>
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<td>Arenaviral hemorrhagic fever</td>
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<td>Other specified diseases due to viruses and Chlamydia</td>
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<td>078.81</td>
<td>Epidemic vertigo</td>
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<td>078.82</td>
<td>Epidemic vomiting syndrome</td>
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<td>078.88</td>
<td>Other specified diseases due to Chlamydia</td>
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<tr>
<td>078.89</td>
<td>Other specified diseases due to viruses</td>
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(GETHASH "079" ICD9-HASH-TABLE)
"Viral and chlamydial infection in conditions classified elsewhere and of unspecified site"

(GETHASH "079.0" ICD9-HASH-TABLE) "Adenovirus"
(GETHASH "079.1" ICD9-HASH-TABLE) "ECHO virus"
(GETHASH "079.2" ICD9-HASH-TABLE) "Coxsackie virus"
(GETHASH "079.3" ICD9-HASH-TABLE) "Rhinovirus"
(GETHASH "079.4" ICD9-HASH-TABLE) "Human papilloma virus"
(GETHASH "079.5" ICD9-HASH-TABLE) "Retrovirus"
(GETHASH "079.50" ICD9-HASH-TABLE) "Retrovirus, unspecified"
(GETHASH "079.51" ICD9-HASH-TABLE) "Human T-cell lymphotrophic virus, type I [HTLV-I]"
(GETHASH "079.52" ICD9-HASH-TABLE) "Human T-cell lymphotrophic virus, type II [HTLV-II]"
(GETHASH "079.53" ICD9-HASH-TABLE) "Human immunodeficiency virus, type 2 [HIV-2]"
(GETHASH "079.59" ICD9-HASH-TABLE) "Other specified retrovirus"
(GETHASH "079.6" ICD9-HASH-TABLE) "Respiratory syncytial virus (RSV)"
(GETHASH "079.68" ICD9-HASH-TABLE) "Other specified viral and chlamydial infections"
(GETHASH "079.81" ICD9-HASH-TABLE) "Hantavirus"
(GETHASH "079.88" ICD9-HASH-TABLE) "Other specified chlamydial infection"
(GETHASH "079.89" ICD9-HASH-TABLE) "Other specified viral infection"
(GETHASH "079.9" ICD9-HASH-TABLE) "Unspecified viral and chlamydial infections"
(GETHASH "079.98" ICD9-HASH-TABLE) "Unspecified chlamydial infection"
(GETHASH "079.99" ICD9-HASH-TABLE) "Unspecified viral infection"
(GETHASH "080" ICD9-HASH-TABLE) "Louse-borne [epidemic] typhus"
(GETHASH "081" ICD9-HASH-TABLE) "Other typhus"
(GETHASH "081.0" ICD9-HASH-TABLE) "Murine [endemic] typhus"
(GETHASH "081.1" ICD9-HASH-TABLE) "Brill's disease"
(GETHASH "081.2" ICD9-HASH-TABLE) "Scrub typhus"
(GETHASH "081.3" ICD9-HASH-TABLE) "Typhus, unspecified"
(GETHASH "082" ICD9-HASH-TABLE) "Tick-borne rickettsioses"
(GETHASH "082.0" ICD9-HASH-TABLE) "Tick-borne rickettsioses"
(GETHASH "082.01" ICD9-HASH-TABLE) "Boutonneuse fever"
(GETHASH "082.02" ICD9-HASH-TABLE) "North Asian tick fever"
(GETHASH "082.03" ICD9-HASH-TABLE) "Other specified tick-borne rickettsioses"
(GETHASH "082.9" ICD9-HASH-TABLE) "Tick-borne rickettsioses, unspecified"
(GETHASH "083" ICD9-HASH-TABLE) "Other rickettsioses"
(GETHASH "083.0" ICD9-HASH-TABLE) "Q fever"
(GETHASH "083.01" ICD9-HASH-TABLE) "Trench fever"
(GETHASH "083.02" ICD9-HASH-TABLE) "Rickettsialpox"
(GETHASH "083.03" ICD9-HASH-TABLE) "Other unspecified rickettsioses"
(GETHASH "083.3" ICD9-HASH-TABLE) "Rickettsioses, unspecified"
(GETHASH "084" ICD9-HASH-TABLE) "Malaria"
(GETHASH "084.0" ICD9-HASH-TABLE) "Falciparum malaria [malignant tertian]"
(GETHASH "084.1" ICD9-HASH-TABLE) "Vivax malaria [benign tertian]"
(GETHASH "084.2" ICD9-HASH-TABLE) "Quartan malaria"
(GETHASH "084.3" ICD9-HASH-TABLE) "Ovale malaria"
(GETHASH "084.4" ICD9-HASH-TABLE) "Other malaria"
(GETHASH "084.5" ICD9-HASH-TABLE) "Mixed malaria"
(GETHASH "084.8" ICD9-HASH-TABLE) "Malaria, unspecified"
(GETHASH "084.9" ICD9-HASH-TABLE) "Induced malaria"
(GETHASH "084.98" ICD9-HASH-TABLE) "Blackwater fever"
(GETHASH "084.99" ICD9-HASH-TABLE) "Other pernicious complications of malaria"
(GETHASH "085" ICD9-HASH-TABLE) "Leishmaniasis"
(GETHASH "085.0" ICD9-HASH-TABLE) "Visceral [kala-azar]"
(SETF (GETNASH "'091.50" ICD9-HASH-TABLE) "Syphilitic uveitis, unspecified")
(SETF (GETNASH "'091.32" ICD9-HASH-TABLE) "Syphilitic iridocyclitis (secondary)")
(SETF (GETNASH "'091.60" ICD9-HASH-TABLE) "Secondary syphilis of viscera and bone")
(SETF (GETNASH "'091.81" ICD9-HASH-TABLE) "Secondary syphilitic peritonitis")
(SETF (GETNASH "'091.52" ICD9-HASH-TABLE) "Secondary syphilitic hepatitis")
(SETF (GETNASH "'091.60" ICD9-HASH-TABLE) "Other viscera")
(SETF (GETNASH "'091.77" ICD9-HASH-TABLE) "Secondary syphilis, relapse")
(SETF (GETNASH "'091.88" ICD9-HASH-TABLE) "Other forms of secondary syphilis")
(SETF (GETNASH "'091.81" ICD9-HASH-TABLE) "Syphilis alopeca")
(SETF (GETNASH "'091.82" ICD9-HASH-TABLE) "Syphilitic alopecia")
(SETF (GETNASH "'091.90" ICD9-HASH-TABLE) "Unspecified secondary syphilis")
(SETF (GETNASH "'092.99" ICD9-HASH-TABLE) "Early syphilis, latent, relapse after treatment")
(SETF (GETNASH "'093.00" ICD9-HASH-TABLE) "Cardiovascular syphilis")
(SETF (GETNASH "'093.11" ICD9-HASH-TABLE) "Syphilitic aortitis")
(SETF (GETNASH "'093.20" ICD9-HASH-TABLE) "Aneurysm of aorta, specified as syphilitic")
(SETF (GETNASH "'093.22" ICD9-HASH-TABLE) "Syphilitic endocarditis")
(SETF (GETNASH "'093.20" ICD9-HASH-TABLE) "Valve, unspecified")
(SETF (GETNASH "'093.24" ICD9-HASH-TABLE) "Tricuspid valve")
(SETF (GETNASH "'093.24" ICD9-HASH-TABLE) "Pulmonary valve")
(SETF (GETNASH "'093.50" ICD9-HASH-TABLE) "Other specified cardiovascular syphilis")
(SETF (GETNASH "'093.81" ICD9-HASH-TABLE) "Syphilitic pericarditis")
(SETF (GETNASH "'093.82" ICD9-HASH-TABLE) "Syphilitic myocarditis")
(SETF (GETNASH "'093.80" ICD9-HASH-TABLE) "Other")
(SETF (GETNASH "'093.90" ICD9-HASH-TABLE) "Cardiovascular syphilis, unspecified")
(SETF (GETNASH "'094.00" ICD9-HASH-TABLE) "Tabes dorsalis")
(SETF (GETNASH "'094.10" ICD9-HASH-TABLE) "General paralyis")
(SETF (GETNASH "'094.22" ICD9-HASH-TABLE) "Syphilitic meningitis")
(SETF (GETNASH "'094.32" ICD9-HASH-TABLE) "Asymptomatic neurosyphilis")
(SETF (GETNASH "'094.80" ICD9-HASH-TABLE) "Syphilitic meningoencephalitis")
(SETF (GETNASH "'094.82" ICD9-HASH-TABLE) "Syphilitic meningitis")
(SETF (GETNASH "'094.83" ICD9-HASH-TABLE) "Syphilitic disseminated retinochoroiditis")
(SETF (GETNASH "'094.84" ICD9-HASH-TABLE) "Syphilitic optic atrophy")
(SETF (GETNASH "'094.85" ICD9-HASH-TABLE) "Syphilitic retrolubal neuritis")
(SETF (GETNASH "'094.86" ICD9-HASH-TABLE) "Syphilitic acoustic neuritis")
(SETF (GETNASH "'094.87" ICD9-HASH-TABLE) "Syphilitic ruptured cerebral aneurysm")
(SETF (GETNASH "'094.90" ICD9-HASH-TABLE) "Syphilitic optic atrophy")
(SETF (GETNASH "'095.00" ICD9-HASH-TABLE) "Syphilitic meningitis")
(SETF (GETNASH "'095.10" ICD9-HASH-TABLE) "Syphilis of lung")
(SETF (GETNASH "'095.20" ICD9-HASH-TABLE) "Syphilis of liver")
(SETF (GETNASH "'095.30" ICD9-HASH-TABLE) "Syphilis of bone")
(SETF (GETNASH "'095.40" ICD9-HASH-TABLE) "Syphilis of nerve")
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(SETF (GETNASH "'095.60" ICD9-HASH-TABLE) "Syphilis of mouth")
(SETF (GETNASH "'095.70" ICD9-HASH-TABLE) "Syphilis of heart")
(SETF (GETNASH "'095.80" ICD9-HASH-TABLE) "Syphilis of muscle")
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(SETF (GETNASH "'096.10" ICD9-HASH-TABLE) "Syphilis of bone")
(SETF (GETNASH "'096.20" ICD9-HASH-TABLE) "Syphilis of heart")
(SETF (GETNASH "'096.30" ICD9-HASH-TABLE) "Syphilis of muscle")
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(SETF (GETNASH "'097.70" ICD9-HASH-TABLE) "Syphilis of nerve")
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(SETF (GETHASH "095.5" ICD9-HASH-TABLE) "Syphilis of bone")
(SETF (GETHASH "095.6" ICD9-HASH-TABLE) "Syphilis of muscle")
(SETF (GETHASH "095.7" ICD9-HASH-TABLE) "Syphilis of synovium, tendon, and bursa")
(SETF (GETHASH "095.8" ICD9-HASH-TABLE) "Other specified forms of late symptomatic syphilis")
(SETF (GETHASH "096" ICD9-HASH-TABLE) "Late syphilis, latent")
(SETF (GETHASH "097.0" ICD9-HASH-TABLE) "Other and unspecified syphilis")
(SETF (GETHASH "097.1" ICD9-HASH-TABLE) "Latent syphilis, unspecified")
(SETF (GETHASH "097.9" ICD9-HASH-TABLE) "Syphilis, unspecified")
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(SETF (GETHASH "098.1" ICD9-HASH-TABLE) "Acute, of upper genitourinary tract")
(SETF (GETHASH "098.10" ICD9-HASH-TABLE) "Gonococcal infection (acute) of upper genitourinary tract, site unspecified")
(SETF (GETHASH "098.11" ICD9-HASH-TABLE) "Gonococcal cystitis (acute)")
(SETF (GETHASH "098.12" ICD9-HASH-TABLE) "Gonococcal prostatitis (acute)")
(SETF (GETHASH "098.13" ICD9-HASH-TABLE) "Gonococcal epididymo-orchitis (acute)")
(SETF (GETHASH "098.14" ICD9-HASH-TABLE) "Gonococcal seminal vesiculitis (acute)")
(SETF (GETHASH "098.15" ICD9-HASH-TABLE) "Gonococcal cervicitis (acute)")
(SETF (GETHASH "098.16" ICD9-HASH-TABLE) "Gonococcal endometritis (acute)")
(SETF (GETHASH "098.17" ICD9-HASH-TABLE) "Gonococcal salpingitis, specified as acute")
(SETF (GETHASH "098.19" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "098.2" ICD9-HASH-TABLE) "Chronic, of lower genitourinary tract")
(SETF (GETHASH "098.3" ICD9-HASH-TABLE) "Chronic, of upper genitourinary tract")
(SETF (GETHASH "098.30" ICD9-HASH-TABLE) "Chronic gonococcal infection of upper genitourinary tract, site unspecified")
(SETF (GETHASH "098.31" ICD9-HASH-TABLE) "Gonococcal cystitis, chronic")
(SETF (GETHASH "098.32" ICD9-HASH-TABLE) "Gonococcal prostatitis, chronic")
(SETF (GETHASH "098.33" ICD9-HASH-TABLE) "Gonococcal epididymo-orchitis, chronic")
(SETF (GETHASH "098.34" ICD9-HASH-TABLE) "Gonococcal seminal vesiculitis, chronic")
(SETF (GETHASH "098.35" ICD9-HASH-TABLE) "Gonococcal cervicitis, chronic")
(SETF (GETHASH "098.36" ICD9-HASH-TABLE) "Gonococcal endometritis, chronic")
(SETF (GETHASH "098.37" ICD9-HASH-TABLE) "Gonococcal salpingitis (chronic)")
(SETF (GETHASH "098.39" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "098.4" ICD9-HASH-TABLE) "Gonococcal infection of eye")
(SETF (GETHASH "098.40" ICD9-HASH-TABLE) "Gonococcal conjunctivitis (neonatorum)")
(SETF (GETHASH "098.41" ICD9-HASH-TABLE) "Gonococcal iridocyclitis")
(SETF (GETHASH "098.42" ICD9-HASH-TABLE) "Gonococcal endophthalmitis")
(SETF (GETHASH "098.43" ICD9-HASH-TABLE) "Gonococcal keratitis")
(SETF (GETHASH "098.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "098.5" ICD9-HASH-TABLE) "Gonococcal infection of joint")
(SETF (GETHASH "098.50" ICD9-HASH-TABLE) "Gonococcal arthritis")
(SETF (GETHASH "098.51" ICD9-HASH-TABLE) "Gonococcal synovitis and tenosynovitis")
(SETF (GETHASH "098.52" ICD9-HASH-TABLE) "Gonococcal bursitis")
(SETF (GETHASH "098.53" ICD9-HASH-TABLE) "Gonococcal spondylitis")
(SETF (GETHASH "098.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "098.6" ICD9-HASH-TABLE) "Gonococcal infection of pharynx")
(SETF (GETHASH "098.7" ICD9-HASH-TABLE) "Gonococcal infection of anus and rectum")
(SETF (GETHASH "098.8" ICD9-HASH-TABLE) "Gonococcal infection of other specified sites")
(SETF (GETHASH "098.81" ICD9-HASH-TABLE) "Gonococcal keratosis (blennorrhagica)")
(SETF (GETHASH "098.82" ICD9-HASH-TABLE) "Gonococcal meningitis")
(SETF (GETHASH "098.83" ICD9-HASH-TABLE) "Gonococcal pericarditis")
(SETF (GETHASH "098.84" ICD9-HASH-TABLE) "Gonococcal endocarditis")
(SETF (GETHASH "098.85" ICD9-HASH-TABLE) "Other gonococcal heart disease")
(SETF (GETHASH "098.86" ICD9-HASH-TABLE) "Gonococcal peritonitis")
(SETF (GETHASH "098.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "099" ICD9-HASH-TABLE) "Other venereal diseases")
(SETF (GETHASH "099.0" ICD9-HASH-TABLE) "Chancroid")
(SETF (GETHASH "099.1" ICD9-HASH-TABLE) "Lymphogranuloma venereum")
(SETF (GETHASH "099.2" ICD9-HASH-TABLE) "Granuloma inguinale")
(SETF (GETHASH "099.3" ICD9-HASH-TABLE) "Reiter's disease")
(SETF (GETHASH "099.4" ICD9-HASH-TABLE) "Other nongonococcal urethritis (NGU)")
(SETF (GETHASH "099.40" ICD9-HASH-TABLE) "Unspecified")
(SETF (GETHASH "099.41" ICD9-HASH-TABLE) "Chlamydia trachomatis")
(SETF (GETHASH "099.49" ICD9-HASH-TABLE) "Other specified organism")
(SETF (GETHASH "099.50" ICD9-HASH-TABLE) "Unspecified site")
(SETF (GETHASH "099.51" ICD9-HASH-TABLE) "Pharynx")
(SETF (GETHASH "099.52" ICD9-HASH-TABLE) "Anus and rectum")
(SETF (GETHASH "099.53" ICD9-HASH-TABLE) "Lower genitourinary sites")
(SETF (GETHASH "099.54" ICD9-HASH-TABLE) "Other genitourinary sites")
(SETF (GETHASH "099.55" ICD9-HASH-TABLE) "Unspecified genital urinary site")
(SETF (GETHASH "099.56" ICD9-HASH-TABLE) "Peritonem")
(SETF (GETHASH "099.59" ICD9-HASH-TABLE) "Other specified site")
(SETF (GETHASH "099.6" ICD9-HASH-TABLE) "Other specified venereal diseases")
(SETF (GETHASH "099.60" ICD9-HASH-TABLE) "Venereal disease, unspecified")
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(SETF (GETHASH "100.0" ICD9-HASH-TABLE) "Leptospirosisicterohemorrhagica")
(SETF (GETHASH "100.8" ICD9-HASH-TABLE) "Other specified leptospiral infections")
(SETF (GETHASH "100.81" ICD9-HASH-TABLE) "Leptospiral meningitis (aseptic)")
(SETF (GETHASH "100.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "100.9" ICD9-HASH-TABLE) "Leptospirosis, unspecified")
(SETF (GETHASH "101" ICD9-HASH-TABLE) "Vincent's angina")
(SETF (GETHASH "102" ICD9-HASH-TABLE) "Yaws")
(SETF (GETHASH "102.0" ICD9-HASH-TABLE) "Initial lesions")
(SETF (GETHASH "102.1" ICD9-HASH-TABLE) "Multiple papillomata and wet crab yaws")
(SETF (GETHASH "102.2" ICD9-HASH-TABLE) "Other early skin lesions")
(SETF (GETHASH "102.3" ICD9-HASH-TABLE) "Hyperkeratosis")
(SETF (GETHASH "102.4" ICD9-HASH-TABLE) "Gummat and ulcers")
(SETF (GETHASH "102.5" ICD9-HASH-TABLE) "Gangosa")
(SETF (GETHASH "102.6" ICD9-HASH-TABLE) "Bone and joint lesions")
(SETF (GETHASH "102.7" ICD9-HASH-TABLE) "Other manifestations")
(SETF (GETHASH "102.8" ICD9-HASH-TABLE) "Latent yaws")
(SETF (GETHASH "102.9" ICD9-HASH-TABLE) "Yaws, unspecified")
(SETF (GETHASH "103" ICD9-HASH-TABLE) "Pinta")
(SETF (GETHASH "103.0" ICD9-HASH-TABLE) "Primary lesions")
(SETF (GETHASH "103.1" ICD9-HASH-TABLE) "Intermediate lesions")
(SETF (GETHASH "103.2" ICD9-HASH-TABLE) "Late lesions")
(GETHASH "117" ICD9-HASH-TABLE) "Other mycoses"
(GETHASH "117.0" ICD9-HASH-TABLE) "Histoplasmosis"
(GETHASH "117.1" ICD9-HASH-TABLE) "Sporotrichosis"
(GETHASH "117.2" ICD9-HASH-TABLE) "Cromoblastomycosis"
(GETHASH "117.3" ICD9-HASH-TABLE) "Aspergillosis"
(GETHASH "117.4" ICD9-HASH-TABLE) "Mycotic mycoses"
(GETHASH "117.5" ICD9-HASH-TABLE) "Cryptococcosis"
(GETHASH "117.6" ICD9-HASH-TABLE) "Allescheriosis" [Petriellidiosis]
(GETHASH "117.7" ICD9-HASH-TABLE) "Zygomycosis [Phycomycosis or Mucormycosis]"
(GETHASH "117.8" ICD9-HASH-TABLE) "Infection by dematiaceous fungi [Phaeohyphomycosis]")
(GETHASH "117.9" ICD9-HASH-TABLE) "Other and unspecified mycoses"
(GETHASH "118" ICD9-HASH-TABLE) "Opportunisttic mycoses"
(GETHASH "120" ICD9-HASH-TABLE) "Schistosomiasis [bilharziasis]"
(GETHASH "120.0" ICD9-HASH-TABLE) "Schistosoma haematobium"
(GETHASH "120.1" ICD9-HASH-TABLE) "Schistosoma mansoni"
(GETHASH "120.2" ICD9-HASH-TABLE) "Schistosoma japonicum"
(GETHASH "120.3" ICD9-HASH-TABLE) "Cutaneous"
(GETHASH "120.4" ICD9-HASH-TABLE) "Other specified schistosomiasis"
(GETHASH "120.9" ICD9-HASH-TABLE) "Schistosomiasis, unspecified"
(GETHASH "121" ICD9-HASH-TABLE) "Other trematode infections"
(GETHASH "121.0" ICD9-HASH-TABLE) "Ostertagiasis"
(GETHASH "121.1" ICD9-HASH-TABLE) "Clonorchiasis"
(GETHASH "121.2" ICD9-HASH-TABLE) "Paragonimiasis"
(GETHASH "121.3" ICD9-HASH-TABLE) "Fascioliasis"
(GETHASH "121.4" ICD9-HASH-TABLE) "Fascioloplasias"
(GETHASH "121.5" ICD9-HASH-TABLE) "Metagonimiasis"
(GETHASH "121.6" ICD9-HASH-TABLE) "Heterophylasias"
(GETHASH "121.8" ICD9-HASH-TABLE) "Other specified trematode infections"
(GETHASH "121.9" ICD9-HASH-TABLE) "Trematode infection, unspecified"
(GETHASH "122" ICD9-HASH-TABLE) "Echinococcosis"
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(GETHASH "122.1" ICD9-HASH-TABLE) "Echinococcus granulosus infection of lung"
(GETHASH "122.2" ICD9-HASH-TABLE) "Echinococcus granulosus infection of thyroid"
(GETHASH "122.3" ICD9-HASH-TABLE) "Echinococcus granulosus infection, other"
(GETHASH "122.4" ICD9-HASH-TABLE) "Echinococcus granulosus infection, unspecified"
(GETHASH "122.5" ICD9-HASH-TABLE) "Echinococcus multilocularis infection of liver"
(GETHASH "122.6" ICD9-HASH-TABLE) "Echinococcus multilocularis infection, other"
(GETHASH "122.7" ICD9-HASH-TABLE) "Echinococcus multilocularis infection, unspecified"
(GETHASH "122.8" ICD9-HASH-TABLE) "Echinococcosis, unspecified, of liver"
(GETHASH "122.9" ICD9-HASH-TABLE) "Echinococcosis, other and unspecified"
(GETHASH "123" ICD9-HASH-TABLE) "Other cestode infection"
(GETHASH "123.0" ICD9-HASH-TABLE) "Taenia solium infection, intestinal form"
(GETHASH "123.1" ICD9-HASH-TABLE) "Cysticercosis"
(GETHASH "123.2" ICD9-HASH-TABLE) "Taenia saginata infection"
(GETHASH "123.3" ICD9-HASH-TABLE) "Echinococcus, unspecified"
(GETHASH "123.4" ICD9-HASH-TABLE) "Diphyllobothriasis, intestinal"
(GETHASH "123.5" ICD9-HASH-TABLE) "Sparganosis [larval diphyllobothriasis]"
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<td>&quot;140.4&quot;</td>
<td>Lower lip, inner aspect</td>
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<td>&quot;140.5&quot;</td>
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<td>&quot;140.6&quot;</td>
<td>Commissure of lip</td>
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<td>&quot;140.8&quot;</td>
<td>Other sites of lip</td>
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<tr>
<td>&quot;141.0&quot;</td>
<td>Malignant neoplasm of tongue</td>
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<td>Tip and lateral border of tongue</td>
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<td>&quot;141.3&quot;</td>
<td>Ventral surface of tongue</td>
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<td>&quot;141.4&quot;</td>
<td>Anterior two-thirds of tongue, part unspecified</td>
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<td>&quot;141.5&quot;</td>
<td>Junctional zone</td>
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<tr>
<td>&quot;141.6&quot;</td>
<td>Lingual tonsil</td>
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<td>&quot;141.9&quot;</td>
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<td>Other major salivary glands</td>
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<td>&quot;143.2&quot;</td>
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<td>&quot;143.8&quot;</td>
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<td>&quot;144&quot;</td>
<td>Malignant neoplasm of floor of mouth</td>
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<td>&quot;144.1&quot;</td>
<td>Lateral portion</td>
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<td>Floor of mouth, part unspecified</td>
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<td>&quot;145&quot;</td>
<td>Malignant neoplasm of other and unspecified parts of mouth</td>
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<td>Soft palate</td>
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<td>&quot;145.4&quot;</td>
<td>uvula</td>
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<td>Retromolar area</td>
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<td>Other specified parts of mouth</td>
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<td>&quot;145.9&quot;</td>
<td>Mouth, unspecified</td>
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<tr>
<td>&quot;146&quot;</td>
<td>Malignant neoplasm of oropharynx</td>
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<tr>
<td>&quot;146.0&quot;</td>
<td>Tonsil</td>
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<td>&quot;146.1&quot;</td>
<td>Tonsillar fossa</td>
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<td>&quot;146.2&quot;</td>
<td>Tonsillar pillars (anterior) (posterior)</td>
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<td>&quot;146.3&quot;</td>
<td>Vallecula</td>
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<td>Junctional region</td>
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<td>&quot;146.6&quot;</td>
<td>Lateral wall of oropharynx</td>
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<td>&quot;146.7&quot;</td>
<td>Posterior wall of oropharynx</td>
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<tr>
<td>&quot;146.8&quot;</td>
<td>Other specified sites of oropharynx</td>
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<tr>
<td>&quot;146.9&quot;</td>
<td>Oropharynx, unspecified</td>
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(SETF (GETHASH "147.2" IC9D-HASH-TABLE) "Lateral wall")
(SETF (GETHASH "147.3" IC9D-HASH-TABLE) "Anterior wall")
(SETF (GETHASH "147.8" IC9D-HASH-TABLE) "Other specified sites of nasopharynx")
(SETF (GETHASH "147.9" IC9D-HASH-TABLE) "Nasopharynx, unspecified")
(SETF (GETHASH "148" IC9D-HASH-TABLE) "Malignant neoplasm of hypopharynx")
(SETF (GETHASH "148.0" IC9D-HASH-TABLE) "Postcriroid region")
(SETF (GETHASH "148.1" IC9D-HASH-TABLE) "Pyriform sinus")
(SETF (GETHASH "148.2" IC9D-HASH-TABLE) "Aryepiglottic fold, hypopharyngeal aspect")
(SETF (GETHASH "148.3" IC9D-HASH-TABLE) "Posterior hypopharyngeal wall")
(SETF (GETHASH "148.8" IC9D-HASH-TABLE) "Other specified sites of hypopharynx")
(SETF (GETHASH "148.9" IC9D-HASH-TABLE) "Hypopharynx, unspecified")
(SETF (GETHASH "149.0" IC9D-HASH-TABLE) "Malignant neoplasm of oesophagus")
(SETF (GETHASH "150.0" IC9D-HASH-TABLE) "Cervical esophagus")
(SETF (GETHASH "150.1" IC9D-HASH-TABLE) "Thoracic esophagus")
(SETF (GETHASH "150.2" IC9D-HASH-TABLE) "Abdominal esophagus")
(SETF (GETHASH "150.3" IC9D-HASH-TABLE) "Upper third of esophagus")
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(SETF (GETHASH "150.8" IC9D-HASH-TABLE) "Other specified part")
(SETF (GETHASH "150.9" IC9D-HASH-TABLE) "Esophagus, unspecified")
(SETF (GETHASH "151" IC9D-HASH-TABLE) "Malignant neoplasm of stomach")
(SETF (GETHASH "151.0" IC9D-HASH-TABLE) "Cardia")
(SETF (GETHASH "151.1" IC9D-HASH-TABLE) "Pylorus")
(SETF (GETHASH "151.2" IC9D-HASH-TABLE) "Pyloric antrum")
(SETF (GETHASH "151.3" IC9D-HASH-TABLE) "Fundus of stomach")
(SETF (GETHASH "151.4" IC9D-HASH-TABLE) "Body of stomach")
(SETF (GETHASH "151.5" IC9D-HASH-TABLE) "Lesser curvature, unspecified")
(SETF (GETHASH "151.6" IC9D-HASH-TABLE) "Greater curvature, unspecified")
(SETF (GETHASH "151.8" IC9D-HASH-TABLE) "Other specified sites of stomach")
(SETF (GETHASH "151.9" IC9D-HASH-TABLE) "Stomach, unspecified")
(SETF (GETHASH "152" IC9D-HASH-TABLE) "Malignant neoplasm of small intestine, including duodenum")
(SETF (GETHASH "152.0" IC9D-HASH-TABLE) "Duodenum")
(SETF (GETHASH "152.1" IC9D-HASH-TABLE) "Jejunum")
(SETF (GETHASH "152.2" IC9D-HASH-TABLE) "Ileum")
(SETF (GETHASH "152.3" IC9D-HASH-TABLE) "Meckel's diverticulum")
(SETF (GETHASH "152.8" IC9D-HASH-TABLE) "Other specified sites of small intestine")
(SETF (GETHASH "152.9" IC9D-HASH-TABLE) "Small intestine, unspecified")
(SETF (GETHASH "153" IC9D-HASH-TABLE) "Malignant neoplasm of colon")
(SETF (GETHASH "153.0" IC9D-HASH-TABLE) "Hepatic flexure")
(SETF (GETHASH "153.1" IC9D-HASH-TABLE) "Transverse colon")
(SETF (GETHASH "153.2" IC9D-HASH-TABLE) "Descending colon")
(SETF (GETHASH "153.3" IC9D-HASH-TABLE) "Sigmoid colon")
(SETF (GETHASH "153.4" IC9D-HASH-TABLE) "Cecum")
(SETF (GETHASH "153.5" IC9D-HASH-TABLE) "Appendix")
(SETF (GETHASH "153.6" IC9D-HASH-TABLE) "Ascending colon")
(SETF (GETHASH "153.7" IC9D-HASH-TABLE) "Splenic flexure")
(SETF (GETHASH "153.8" IC9D-HASH-TABLE) "Other specified sites of large intestine")
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<td>162.0</td>
<td>Trachea</td>
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<td>162.2</td>
<td>Main bronchus</td>
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<td>162.3</td>
<td>Upper lobe, bronchus or lung</td>
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<tr>
<td>162.4</td>
<td>Middle lobe, bronchus or lung</td>
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<td>162.8</td>
<td>Other parts of bronchus or lung</td>
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<td>162.9</td>
<td>Bronchus and lung, unspecified</td>
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<td>Parietal pleura</td>
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<td>163.2</td>
<td>Visceral pleura</td>
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<td>163.8</td>
<td>Other specified sites of pleura</td>
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<td>163.9</td>
<td>Pleura, unspecified</td>
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<tr>
<td>164.0</td>
<td>Malignant neoplasm of thymus, heart, and mediastinum</td>
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<td>Thymus</td>
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<td>164.2</td>
<td>Heart</td>
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<td>164.3</td>
<td>Anterior mediastinum</td>
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<td>Other</td>
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<td>164.9</td>
<td>Mediastinum, part unspecified</td>
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<tr>
<td>165</td>
<td>Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs</td>
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<tr>
<td>165.0</td>
<td>Upper respiratory tract, part unspecified</td>
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<td>165.8</td>
<td>Other</td>
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<tr>
<td>165.9</td>
<td>Ill-defined sites within the respiratory system</td>
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<tr>
<td>170</td>
<td>Malignant neoplasm of bone and articular cartilage</td>
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<tr>
<td>170.0</td>
<td>Bones of skull and face, except mandible</td>
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<tr>
<td>170.1</td>
<td>Mandible</td>
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<td>170.2</td>
<td>Vertebral column, excluding sacrum and coccyx</td>
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<tr>
<td>170.3</td>
<td>Ribs, sternum, and clavicle</td>
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<tr>
<td>170.4</td>
<td>Mandible</td>
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<tr>
<td>170.5</td>
<td>Short bones of upper limb</td>
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<td>170.6</td>
<td>Pelvic bones, sacrum, and coccyx</td>
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<td>170.7</td>
<td>Long bones of lower limb</td>
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<td>170.8</td>
<td>Short bones of lower limb</td>
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<td>170.9</td>
<td>Bone and articular cartilage, site unspecified</td>
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<td>171</td>
<td>Malignant neoplasm of connective and other soft tissue</td>
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<td>171.0</td>
<td>Head, face, and neck</td>
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<td>171.2</td>
<td>Upper limb, including shoulder</td>
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<td>171.3</td>
<td>Lower limb, including hip</td>
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<td>171.4</td>
<td>Thorax</td>
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<td>Pelvis</td>
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<td>171.7</td>
<td>Trunk, unspecified</td>
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<td>171.8</td>
<td>Ear and external auditory canal</td>
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<td>171.9</td>
<td>Other specified sites of connective and other soft tissue</td>
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<td>Malignant melanoma of skin</td>
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<td>172.0</td>
<td>Lip</td>
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<td>172.1</td>
<td>Eyelid, including canthus</td>
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<tr>
<td>172.2</td>
<td>Ear and external auditory canal</td>
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"Other and unspecified parts of face"
(SETF GETHASH "172.4" IC9D-HASH-TABLE) "Scalp and neck"
(SETF GETHASH "172.5" IC9D-HASH-TABLE) "Trunk, except scrotum"
(SETF GETHASH "172.6" IC9D-HASH-TABLE) "Upper limb, including shoulder"
(SETF GETHASH "172.7" IC9D-HASH-TABLE) "Lower limb, including hip"
(SETF GETHASH "172.8" IC9D-HASH-TABLE) "Other specified sites of skin"
(SETF GETHASH "173" IC9D-HASH-TABLE) "Malignant neoplasm of skin"
(SETF GETHASH "173.0" IC9D-HASH-TABLE) "Skin of lip"
(SETF GETHASH "173.1" IC9D-HASH-TABLE) "Eyelid, including canthus"
(SETF GETHASH "173.2" IC9D-HASH-TABLE) "Skin of ear and external auditory canal"
(SETF GETHASH "173.3" IC9D-HASH-TABLE) "Malignant neoplasm of skin"
(SETF GETHASH "173.4" IC9D-HASH-TABLE) "Scalp and skin of neck"
(SETF GETHASH "173.5" IC9D-HASH-TABLE) "Skin of trunk, except scrotum"
(SETF GETHASH "173.6" IC9D-HASH-TABLE) "Skin of upper limb, including shoulder"
(SETF GETHASH "173.7" IC9D-HASH-TABLE) "Skin of lower limb, including hip"
(SETF GETHASH "173.8" IC9D-HASH-TABLE) "Other specified sites of skin"
(SETF GETHASH "173.9" IC9D-HASH-TABLE) "Skin, site unspecified"
(SETF GETHASH "174" IC9D-HASH-TABLE) "Malignant neoplasm of female breast"
(SETF GETHASH "174.0" IC9D-HASH-TABLE) "Nipple and areola"
(SETF GETHASH "174.1" IC9D-HASH-TABLE) "Central portion"
(SETF GETHASH "174.2" IC9D-HASH-TABLE) "Upper-inner quadrant"
(SETF GETHASH "174.3" IC9D-HASH-TABLE) "Lower-inner quadrant"
(SETF GETHASH "174.4" IC9D-HASH-TABLE) "Upper-outer quadrant"
(SETF GETHASH "174.5" IC9D-HASH-TABLE) "Lower-outer quadrant"
(SETF GETHASH "174.6" IC9D-HASH-TABLE) "Axillary tail"
(SETF GETHASH "174.8" IC9D-HASH-TABLE) "Other specified sites of female breast"
(SETF GETHASH "174.9" IC9D-HASH-TABLE) "Breast (female), unspecified"
(SETF GETHASH "175" IC9D-HASH-TABLE) "Malignant neoplasm of male breast"
(SETF GETHASH "175.0" IC9D-HASH-TABLE) "Nipple and areola"
(SETF GETHASH "175.9" IC9D-HASH-TABLE) "Other and unspecified sites of male breast"
(SETF GETHASH "176" IC9D-HASH-TABLE) "Kaposi's sarcoma"
(SETF GETHASH "176.0" IC9D-HASH-TABLE) "Skin"
(SETF GETHASH "176.1" IC9D-HASH-TABLE) "Soft tissue"
(SETF GETHASH "176.2" IC9D-HASH-TABLE) "Palate"
(SETF GETHASH "176.3" IC9D-HASH-TABLE) "Gastrointestinal sites"
(SETF GETHASH "176.4" IC9D-HASH-TABLE) "Lung"
(SETF GETHASH "176.5" IC9D-HASH-TABLE) "Lymph nodes"
(SETF GETHASH "176.8" IC9D-HASH-TABLE) "Other specified sites"
(SETF GETHASH "176.9" IC9D-HASH-TABLE) "Unspecified"
(SETF GETHASH "179" IC9D-HASH-TABLE) "Malignant neoplasm of uterus, part unspecified"
(SETF GETHASH "180" IC9D-HASH-TABLE) "Malignant neoplasm of cervix uteri"
(SETF GETHASH "180.0" IC9D-HASH-TABLE) "Endocervix"
(SETF GETHASH "180.1" IC9D-HASH-TABLE) "Exocervix"
(SETF GETHASH "180.8" IC9D-HASH-TABLE) "Other specified sites of cervix"
(SETF GETHASH "180.9" IC9D-HASH-TABLE) "Cervix uteri, unspecified"
(SETF GETHASH "181" IC9D-HASH-TABLE) "Malignant neoplasm of placenta"
(SETF GETHASH "182" IC9D-HASH-TABLE) "Malignant neoplasm of body of uterus"
(SETF GETHASH "182.0" IC9D-HASH-TABLE) "Corpus uteri, except isthmus"
(SETF GETHASH "182.1" IC9D-HASH-TABLE) "Isthmus"
(SETF GETHASH "182.8" IC9D-HASH-TABLE) "Other specified sites of body of uterus"
(SETF GETHASH "183" IC9D-HASH-TABLE) "Malignant neoplasm of body of uterus"
(SETF (GETHASH "190.3" IC99-HASH-TABLE) "Conjunctiva")
(SETF (GETHASH "190.4" IC99-HASH-TABLE) "Cornea")
(SETF (GETHASH "190.5" IC99-HASH-TABLE) "Retina")
(SETF (GETHASH "190.6" IC99-HASH-TABLE) "Choroid")
(SETF (GETHASH "190.7" IC99-HASH-TABLE) "Lacrimal duct")
(SETF (GETHASH "190.8" IC99-HASH-TABLE) "Other specified sites of eye")
(SETF (GETHASH "190.9" IC99-HASH-TABLE) "Eye, part unspecified")
(SETF (GETHASH "191.1" IC99-HASH-TABLE) "Malignant neoplasm of brain")
(SETF (GETHASH "191.0" IC99-HASH-TABLE) "Cerebrum, except lobes and ventricles")
(SETF (GETHASH "191.11" IC99-HASH-TABLE) "Frontal lobe")
(SETF (GETHASH "191.12" IC99-HASH-TABLE) "Temporal lobe")
(SETF (GETHASH "191.13" IC99-HASH-TABLE) "Parietal lobe")
(SETF (GETHASH "191.14" IC99-HASH-TABLE) "Occipital lobe")
(SETF (GETHASH "191.5" IC99-HASH-TABLE) "Ventricles")
(SETF (GETHASH "191.6" IC99-HASH-TABLE) "Cerebellum"
       "Malignant neoplasm of other and unspecified parts of nervous system")
(SETF (GETHASH "191.7" IC99-HASH-TABLE) "Brain stem")
(SETF (GETHASH "191.8" IC99-HASH-TABLE) "Other parts of brain")
(SETF (GETHASH "191.9" IC99-HASH-TABLE) "Brain, unspecified")
(SETF (GETHASH "192" IC99-HASH-TABLE) "Malignant neoplasm of other and unspecified parts of nervous system")
(SETF (GETHASH "192.0" IC99-HASH-TABLE) "Cranial nerves")
(SETF (GETHASH "192.1" IC99-HASH-TABLE) "Cerebral meninges")
(SETF (GETHASH "192.2" IC99-HASH-TABLE) "Spinal cord")
(SETF (GETHASH "192.3" IC99-HASH-TABLE) "Spinal meninges")
(SETF (GETHASH "192.4" IC99-HASH-TABLE) "Other specified sites of nervous system")
(SETF (GETHASH "192.0" IC99-HASH-TABLE) "Nervous system, part unspecified")
(SETF (GETHASH "193" IC99-HASH-TABLE) "Malignant neoplasm of thyroid gland")
(SETF (GETHASH "194" IC99-HASH-TABLE) "Malignant neoplasm of other endocrine glands and related structures")
(SETF (GETHASH "194.0" IC99-HASH-TABLE) "Adrenal gland")
(SETF (GETHASH "194.1" IC99-HASH-TABLE) "Parathyroid gland")
(SETF (GETHASH "194.10" IC99-HASH-TABLE) "Pituitary gland and craniohypophyseal duct")
(SETF (GETHASH "194.2" IC99-HASH-TABLE) "Pineal gland")
(SETF (GETHASH "194.3" IC99-HASH-TABLE) "Carotid body")
(SETF (GETHASH "194.4" IC99-HASH-TABLE) "Aortic body and other paraganglia")
(SETF (GETHASH "194.5" IC99-HASH-TABLE) "Other")
(SETF (GETHASH "194.9" IC99-HASH-TABLE) "Endocrine gland, site unspecified")
(SETF (GETHASH "195" IC99-HASH-TABLE) "Malignant neoplasm of other and ill-defined sites")
(SETF (GETHASH "195.0" IC99-HASH-TABLE) "Head, face, and neck")
(SETF (GETHASH "195.1" IC99-HASH-TABLE) "Thorax")
(SETF (GETHASH "195.2" IC99-HASH-TABLE) "Abdomen")
(SETF (GETHASH "195.3" IC99-HASH-TABLE) "Pelvis")
(SETF (GETHASH "195.4" IC99-HASH-TABLE) "Upper limb")
(SETF (GETHASH "195.5" IC99-HASH-TABLE) "Lower limb")
(SETF (GETHASH "195.6" IC99-HASH-TABLE) "Other specified sites")
(SETF (GETHASH "196" IC99-HASH-TABLE) "Secondary and unspecified malignant neoplasm of lymph nodes")
(SETF (GETHASH "196.0" IC99-HASH-TABLE) "Lymph nodes of head, face, and neck")
(SETF (GETHASH "196.1" IC99-HASH-TABLE) "Intrathoracic lymph nodes")
(SETF (GETHASH "196.2" IC99-HASH-TABLE) "Intra-abdominal lymph nodes")
(SETF (GETHASH "196.3" IC99-HASH-TABLE) "Lymph nodes of axilla and upper limb")
(SETF (GETHASH "196.5" IC99-HASH-TABLE) "Lymph nodes of inguinal region and lower limb")
(SETF (GETHASH "196.6" IC99-HASH-TABLE) "Intrapelvic lymph nodes")
(SETF (GETHASH "196.8" IC99-HASH-TABLE) "Lymph nodes of multiple sites")
(SETF (GETHASH "196.9" IC99-HASH-TABLE) "Site unspecified")
(SETF (GETHASH "244.2" ICD9-HASH-TABLE) "Iodine hypothyroidism")
(SETF (GETHASH "244.3" ICD9-HASH-TABLE) "Other iatrogenic hypothyroidism")
(SETF (GETHASH "244.8" ICD9-HASH-TABLE) "Other specified acquired hypothyroidism")
(SETF (GETHASH "244.9" ICD9-HASH-TABLE) "Unspecified hypothyroidism")
(SETF (GETHASH "245" ICD9-HASH-TABLE) "Thyroiditis")
(SETF (GETHASH "245.0" ICD9-HASH-TABLE) "Acute thyroiditis")
(SETF (GETHASH "245.1" ICD9-HASH-TABLE) "Subacute thyroiditis")
(SETF (GETHASH "245.2" ICD9-HASH-TABLE) "Chronic lymphocytic thyroiditis")
(SETF (GETHASH "245.3" ICD9-HASH-TABLE) "Chronic fibrous thyroiditis")
(SETF (GETHASH "245.4" ICD9-HASH-TABLE) "Iatrogenic thyroiditis")
(SETF (GETHASH "245.8" ICD9-HASH-TABLE) "Other and unspecified chronic thyroiditis")
(SETF (GETHASH "245.9" ICD9-HASH-TABLE) "Thyroiditis, unspecified")
(SETF (GETHASH "246" ICD9-HASH-TABLE) "Other disorders of thyroid")
(SETF (GETHASH "246.0" ICD9-HASH-TABLE) "Disorders of thyrocalcitonin secretion")
(SETF (GETHASH "246.1" ICD9-HASH-TABLE) "Dysrhythmogenic goiter")
(SETF (GETHASH "246.2" ICD9-HASH-TABLE) "Cyst of thyroid")
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(SETF (GETHASH "250.2" ICD9-HASH-TABLE) "Diabetes with hyperosmolarity")
(SETF (GETHASH "250.3" ICD9-HASH-TABLE) "Diabetes with other coma")
(SETF (GETHASH "250.4" ICD9-HASH-TABLE) "Diabetes with renal manifestations")
(SETF (GETHASH "250.5" ICD9-HASH-TABLE) "Diabetes with ophthalmic manifestations")
(SETF (GETHASH "250.6" ICD9-HASH-TABLE) "Diabetes with neurological manifestations")
(SETF (GETHASH "250.7" ICD9-HASH-TABLE) "Diabetes with peripheral circulatory disorders")
(SETF (GETHASH "250.8" ICD9-HASH-TABLE) "Diabetes with other specified manifestations")
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(SETF (GETHASH "251.0" ICD9-HASH-TABLE) "Hypoglycemic coma")
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(SETF (GETHASH "251.8" ICD9-HASH-TABLE) "Other specified disorders of pancreatic internal secretion")
(SETF (GETHASH "252" ICD9-HASH-TABLE) "Disorders of parathyroid gland")
(SETF (GETHASH "252.0" ICD9-HASH-TABLE) "Hyperparathyroidism")
(SETF (GETHASH "252.1" ICD9-HASH-TABLE) "Hypoparathyroidism")
(SETF (GETHASH "252.8" ICD9-HASH-TABLE) "Other specified disorders of parathyroid gland")
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(SETF (GETHASH "253.2" ICD9-HASH-TABLE) "Panhypopituitarism"

(SETF (GETHASH "253.3" ICD9-HASH-TABLE) "Pituitary dwarfism"

(SETF (GETHASH "253.4" ICD9-HASH-TABLE) "Other anterior pituitary disorders"

(SETF (GETHASH "253.5" ICD9-HASH-TABLE) "Diabetes insipidus"

(SETF (GETHASH "253.6" ICD9-HASH-TABLE) "Other disorders of neurohypophysis"

(SETF (GETHASH "253.7" ICD9-HASH-TABLE) "Iatrogenic pituitary disorders"

(SETF (GETHASH "253.8" ICD9-HASH-TABLE) "Other disorders of the pituitary and other syndromes of diencephalohypophyseal origin"

(SETF (GETHASH "253.9" ICD9-HASH-TABLE) "Unspecified"

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(SETF (GETHASH "254.1" ICD9-HASH-TABLE) "Abscess of thymus"

(SETF (GETHASH "254.2" ICD9-HASH-TABLE) "Other specified diseases of thymus gland"

(SETF (GETHASH "254.3" ICD9-HASH-TABLE) "Unspecified disease of thymus gland"

(SETF (GETHASH "255" ICD9-HASH-TABLE) "Disorders of adrenal glands"

(SETF (GETHASH "255.0" ICD9-HASH-TABLE) "Cushing's syndrome"

(SETF (GETHASH "255.1" ICD9-HASH-TABLE) "Hyperaldosteronism"

(SETF (GETHASH "255.2" ICD9-HASH-TABLE) "Adrenogenital disorders"

(SETF (GETHASH "255.3" ICD9-HASH-TABLE) "Other corticoadrenal overactivity"

(SETF (GETHASH "255.4" ICD9-HASH-TABLE) "Corticoadrenal insufficiency"

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(SETF (GETHASH "255.6" ICD9-HASH-TABLE) "Medulladrenal hyperfunction"

(SETF (GETHASH "255.7" ICD9-HASH-TABLE) "Other specified disorders of adrenal glands"

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(SETF (GETHASH "256" ICD9-HASH-TABLE) "Ovarian dysfunction"

(SETF (GETHASH "256.0" ICD9-HASH-TABLE) "Hyperestrogenism"

(SETF (GETHASH "256.1" ICD9-HASH-TABLE) "Other ovarian hyperfunction"

(SETF (GETHASH "256.2" ICD9-HASH-TABLE) "Postablative ovarian failure"

(SETF (GETHASH "256.3" ICD9-HASH-TABLE) "Other ovarian failure"

(SETF (GETHASH "256.4" ICD9-HASH-TABLE) "Polycystic ovaries"

(SETF (GETHASH "256.5" ICD9-HASH-TABLE) "Other ovarian dysfunction"

(SETF (GETHASH "256.6" ICD9-HASH-TABLE) "Unspecified ovarian dysfunction"

(SETF (GETHASH "257" ICD9-HASH-TABLE) "Testicular dysfunction"

(SETF (GETHASH "257.0" ICD9-HASH-TABLE) "Testicular hyperfunction"

(SETF (GETHASH "257.1" ICD9-HASH-TABLE) "Postablative testicular hypofunction"

(SETF (GETHASH "257.2" ICD9-HASH-TABLE) "Other testicular hypofunction"

(SETF (GETHASH "257.3" ICD9-HASH-TABLE) "Other testicular dysfunction"

(SETF (GETHASH "257.4" ICD9-HASH-TABLE) "Unspecified testicular dysfunction"

(SETF (GETHASH "258" ICD9-HASH-TABLE) "Polyglandular dysfunction and related disorders"

(SETF (GETHASH "258.0" ICD9-HASH-TABLE) "Polyglandular activity in multiple endocrine adenomatosis"

(SETF (GETHASH "258.1" ICD9-HASH-TABLE) "Other combinations of endocrine dysfunction"

(SETF (GETHASH "258.2" ICD9-HASH-TABLE) "Other specified polyglandular dysfunction"

(SETF (GETHASH "258.3" ICD9-HASH-TABLE) "Polyglandular dysfunction, unspecified"

(SETF (GETHASH "259" ICD9-HASH-TABLE) "Other endocrine disorders"
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(SETF GETHASH "281.4" ICD9-HASH-TABLE) "Protein-deficiency anemia"

(SETF GETHASH "281.8" ICD9-HASH-TABLE) "Anemia associated with other specified nutritional deficiency"

(SETF GETHASH "281.9" ICD9-HASH-TABLE) "Unspecified deficiency anemia"

(SETF GETHASH "282" ICD9-HASH-TABLE) "Hereditary hemolytic anemias"

(SETF GETHASH "282.0" ICD9-HASH-TABLE) "Hereditary spherocytosis"

(SETF GETHASH "282.1" ICD9-HASH-TABLE) "Hereditary elliptocytosis"

(SETF GETHASH "282.2" ICD9-HASH-TABLE) "Anemias due to disorders of glutathione metabolism"

(SETF GETHASH "282.3" ICD9-HASH-TABLE) "Other hemolytic anemias due to enzyme deficiency"

(SETF GETHASH "282.4" ICD9-HASH-TABLE) "Thalassemias"

(SETF GETHASH "282.5" ICD9-HASH-TABLE) "Sickle-cell trait"

(SETF GETHASH "282.6" ICD9-HASH-TABLE) "Sickle-cell anemia"

(SETF GETHASH "282.60" ICD9-HASH-TABLE) "Sickle-cell anemia, unspecified"

(SETF GETHASH "282.6L" ICD9-HASH-TABLE) "Hb-S disease without mention of crisis"

(SETF GETHASH "282.62" ICD9-HASH-TABLE) "Hb-S disease with mention of crisis"

(SETF GETHASH "282.63" ICD9-HASH-TABLE) "Sickle-cell/Hb-C disease"

(SETF GETHASH "282.69" ICD9-HASH-TABLE) "Other"

(SETF GETHASH "282.7" ICD9-HASH-TABLE) "Other hemoglobinopathies"

(SETF GETHASH "282.8" ICD9-HASH-TABLE) "Other specified hereditary hemolytic anemias"

(SETF GETHASH "282.9" ICD9-HASH-TABLE) "Hereditary hemolytic anemia, unspecified"

(SETF GETHASH "283" ICD9-HASH-TABLE) "Acquired hemolytic anemias"

(SETF GETHASH "283.0" ICD9-HASH-TABLE) "Autoimmune hemolytic anemias"

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(SETF GETHASH "283.10" ICD9-HASH-TABLE) "Non-autoimmune hemolytic anemia, unspecified"

(SETF GETHASH "283.11" ICD9-HASH-TABLE) "Hemolytic-uremic syndrome"

(SETF GETHASH "283.19" ICD9-HASH-TABLE) "Other non-autoimmune hemolytic anemias"

(SETF GETHASH "283.2" ICD9-HASH-TABLE) "Hemoglobinuria due to hemolysis from external causes"

(SETF GETHASH "283.9" ICD9-HASH-TABLE) "Acquired hemolytic anemia, unspecified"

(SETF GETHASH "284" ICD9-HASH-TABLE) "Aplastic anemia"

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(SETF GETHASH "285" ICD9-HASH-TABLE) "Other and unspecified anemias"

(SETF GETHASH "285.0" ICD9-HASH-TABLE) "Sideroblastic anemia"

(SETF GETHASH "285.1" ICD9-HASH-TABLE) "Acute posthemorrhagic anemia"

(SETF GETHASH "285.8" ICD9-HASH-TABLE) "Other specified anemias"

(SETF GETHASH "285.9" ICD9-HASH-TABLE) "Anemia, unspecified"

(SETF GETHASH "286" ICD9-HASH-TABLE) "Coagulation defects"

(SETF GETHASH "286.0" ICD9-HASH-TABLE) "Congenital factor VIII disorder"

(SETF GETHASH "286.1" ICD9-HASH-TABLE) "Congenital factor IX disorder"

(SETF GETHASH "286.2" ICD9-HASH-TABLE) "Congenital factor XI deficiency"

(SETF GETHASH "286.3" ICD9-HASH-TABLE) "Congenital deficiency of other clotting factors"

(SETF GETHASH "286.4" ICD9-HASH-TABLE) "von Willebrand's disease"

(SETF GETHASH "286.5" ICD9-HASH-TABLE) "Hemorrhagic disorder due to circulating anticoagulants"

(SETF GETHASH "286.6" ICD9-HASH-TABLE) "Defibrination syndrome"

(SETF GETHASH "286.7" ICD9-HASH-TABLE) "Acquired coagulation factor deficiency"
(SETF (GETHASH "286.9" ICD9-HASH-TABLE) "Other and unspecified coagulation defects")
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(SETF (GETHASH "287.0" ICD9-HASH-TABLE) "Allergic purpura")
(SETF (GETHASH "287.1" ICD9-HASH-TABLE) "Qualitative platelet defects")
(SETF (GETHASH "287.2" ICD9-HASH-TABLE) "Other nonthrombocytopenic purpuras")
(SETF (GETHASH "287.3" ICD9-HASH-TABLE) "Primary thrombocytopenia")
(SETF (GETHASH "287.4" ICD9-HASH-TABLE) "Secondary thrombocytopenia")
(SETF (GETHASH "287.5" ICD9-HASH-TABLE) "Thrombocytopenia, unspecified")
(SETF (GETHASH "287.8" ICD9-HASH-TABLE) "Other specified hemorrhagic conditions")
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(SETF (GETHASH "288" ICD9-HASH-TABLE) "Diseases of white blood cells")
(SETF (GETHASH "288.0" ICD9-HASH-TABLE) "Agranulocytosis")
(SETF (GETHASH "288.1" ICD9-HASH-TABLE) "Functional disorders of polymorphonuclear neutrophils")
(SETF (GETHASH "288.2" ICD9-HASH-TABLE) "Genetic anomalies of leukocytes")
(SETF (GETHASH "288.3" ICD9-HASH-TABLE) "Eosinophilia")
(SETF (GETHASH "288.8" ICD9-HASH-TABLE) "Other specified disease of white blood cells")
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(SETF (GETHASH "289" ICD9-HASH-TABLE) "Other diseases of blood and blood-forming organs")
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(SETF (GETHASH "289.1" ICD9-HASH-TABLE) "Chronic lymphadenitis")
(SETF (GETHASH "289.2" ICD9-HASH-TABLE) "Nonspecific mesenteric lymphadenitis")
(SETF (GETHASH "289.3" ICD9-HASH-TABLE) "Lymphadenitis, unspecified, except mesenteric")
(SETF (GETHASH "289.4" ICD9-HASH-TABLE) "Hypersplenism")
(SETF (GETHASH "289.5" ICD9-HASH-TABLE) "Other diseases of spleen")
(SETF (GETHASH "289.9" ICD9-HASH-TABLE) "Disease of spleen, unspecified")
(SETF (GETHASH "289.51" ICD9-HASH-TABLE) "Chronic congestive splenomegaly")
(SETF (GETHASH "289.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "289.6" ICD9-HASH-TABLE) "Familial polycythemia")
(SETF (GETHASH "289.7" ICD9-HASH-TABLE) "Methemoglobinemia")
(SETF (GETHASH "289.8" ICD9-HASH-TABLE) "Other specified diseases of blood and blood-forming organs")
(SETF (GETHASH "289.9" ICD9-HASH-TABLE) "Unspecified diseases of blood and blood-forming organs")
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(SETF (GETHASH "290.11" ICD9-HASH-TABLE) "Presenile dementia with delirium")
(SETF (GETHASH "290.12" ICD9-HASH-TABLE) "Presenile dementia with delusional features")
(SETF (GETHASH "290.13" ICD9-HASH-TABLE) "Presenile dementia with depressive features")
(SETF (GETHASH "290.2" ICD9-HASH-TABLE) "Senile dementia with delusional or depressive features")
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(SETF (GETHASH "298.9" ICD9-HASH-TABLE) "Unspecified psychosis")
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(SETF (GETHASH "299.0" ICD9-HASH-TABLE) "Infantile autism")
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<td>335.2</td>
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“Syringomyelia and syringobulbia”)

(SETF (GETHASH "336.1" ICD9-HASH-TABLE) "Vascular myelopathies")

(SETF (GETHASH "336.2" ICD9-HASH-TABLE) "Subacute combined degeneration of spinal cord in diseases classified elsewhere")

(SETF (GETHASH "336.3" ICD9-HASH-TABLE) "Myelopathy in other diseases classified elsewhere")

(SETF (GETHASH "336.4" ICD9-HASH-TABLE) "Unspecified disease of spinal cord")

(SETF (GETHASH "337" ICD9-HASH-TABLE) "Disorders of the autonomic nervous system")

(SETF (GETHASH "337.0" ICD9-HASH-TABLE) "Idiopathic peripheral autonomic neuropathy")

(SETF (GETHASH "337.1" ICD9-HASH-TABLE) "Peripheral autonomic neuropathy in disorders classified elsewhere")

(SETF (GETHASH "337.2" ICD9-HASH-TABLE) "Reflex sympathetic dystrophy")

(SETF (GETHASH "337.20" ICD9-HASH-TABLE) "Reflex sympathetic dystrophy, unspecified")

(SETF (GETHASH "337.22" ICD9-HASH-TABLE) "Reflex sympathetic dystrophy of the upper limb")

(SETF (GETHASH "337.29" ICD9-HASH-TABLE) "Reflex sympathetic dystrophy of other specified site")

(SETF (GETHASH "337.3" ICD9-HASH-TABLE) "Unspecified disorder of autonomic nervous system")

(SETF (GETHASH "337.4" ICD9-HASH-TABLE) "Multiple sclerosis")

(SETF (GETHASH "337.5" ICD9-HASH-TABLE) "Other demyelinating diseases of central nervous system")

(SETF (GETHASH "337.6" ICD9-HASH-TABLE) "Neuromyelitis optica")

(SETF (GETHASH "337.7" ICD9-HASH-TABLE) "Schilder's disease")

(SETF (GETHASH "337.8" ICD9-HASH-TABLE) "Other demyelinating diseases of central nervous system")

(SETF (GETHASH "337.9" ICD9-HASH-TABLE) "Demyelinating disease of central nervous system, unspecified")

(SETF (GETHASH "342" ICD9-HASH-TABLE) "Hemiplegia and hemiparesis")

(SETF (GETHASH "342.0" ICD9-HASH-TABLE) "Flaccid hemiplegia")

(SETF (GETHASH "342.1" ICD9-HASH-TABLE) "Spastic hemiplegia")

(SETF (GETHASH "342.2" ICD9-HASH-TABLE) "Hemiplegia, unspecified")

(SETF (GETHASH "342.9" ICD9-HASH-TABLE) "Other specified hemiplegia")

(SETF (GETHASH "343" ICD9-HASH-TABLE) "Infantile cerebral palsy")

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(SETF (GETHASH "343.1" ICD9-HASH-TABLE) "Hemiplegic")

(SETF (GETHASH "343.2" ICD9-HASH-TABLE) "Quadriplegic")

(SETF (GETHASH "343.3" ICD9-HASH-TABLE) "Monoplegic")

(SETF (GETHASH "343.4" ICD9-HASH-TABLE) "Infantile hemiplegia")

(SETF (GETHASH "343.7" ICD9-HASH-TABLE) "Other specified infantile cerebral palsy")

(SETF (GETHASH "343.9" ICD9-HASH-TABLE) "Infantile cerebral palsy, unspecified")

(SETF (GETHASH "344" ICD9-HASH-TABLE) "Other paralytic syndromes")

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(SETF (GETHASH "344.02" ICD9-HASH-TABLE) "CI-C4, incomplete")

(SETF (GETHASH "344.03" ICD9-HASH-TABLE) "CS-C7, complete")

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(SETF (GETHASH "344.09" ICD9-HASH-TABLE) "Other")

(SETF (GETHASH "344.1" ICD9-HASH-TABLE) "Paraplegia")

(SETF (GETHASH "344.2" ICD9-HASH-TABLE) "Paraplegia of upper limbs")

(SETF (GETHASH "344.3" ICD9-HASH-TABLE) "Paraplegia of lower limb")

(SETF (GETHASH "344.30" ICD9-HASH-TABLE) "Affecting unspecified side")

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(SETF (GETHASH "344.32" ICD9-HASH-TABLE) "Affecting nondominant side")

(SETF (GETHASH "344.4" ICD9-HASH-TABLE) "Monoplegia of upper limb")
(SETF (GETHASH "350.8" ICD9-HASH-TABLE) "Other specified trigeminal nerve disorders")
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(SETF (GETHASH "352" ICD9-HASH-TABLE) "Disorders of other cranial nerves")
(SETF (GETHASH "352.0" ICD9-HASH-TABLE) "Disorders of olfactory [Ist] nerve")
(SETF (GETHASH "352.1" ICD9-HASH-TABLE) "Glossopharyngeal neuralgia")
(SETF (GETHASH "352.2" ICD9-HASH-TABLE) "Disorders of glossopharyngeal [9th] nerve")
(SETF (GETHASH "352.3" ICD9-HASH-TABLE) "Disorders of pneumogastric [10th] nerve")
(SETF (GETHASH "352.4" ICD9-HASH-TABLE) "Disorders of accessory [11th] nerve")
(SETF (GETHASH "352.5" ICD9-HASH-TABLE) "Disorders of hypoglossal [12th] nerve")
(SETF (GETHASH "352.6" ICD9-HASH-TABLE) "Multiple cranial nerve palsies")
(SETF (GETHASH "352.9" ICD9-HASH-TABLE) "Unspecified disorder of cranial nerves")
(SETF (GETHASH "353" ICD9-HASH-TABLE) "Nerve root and plexus disorders")
(SETF (GETHASH "353.0" ICD9-HASH-TABLE) "Brachial plexus lesions")
(SETF (GETHASH "353.1" ICD9-HASH-TABLE) "Lumbosacral plexus lesions")
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(SETF (GETHASH "353.3" ICD9-HASH-TABLE) "Thoracic root lesions, not elsewhere classified")
(SETF (GETHASH "353.4" ICD9-HASH-TABLE) "Lumbosacral nerve lesions, not elsewhere classified")
(SETF (GETHASH "353.5" ICD9-HASH-TABLE) "Neuralgic amyotrophy")
(SETF (GETHASH "353.6" ICD9-HASH-TABLE) "Phantom limb (syndrome)")
(SETF (GETHASH "353.8" ICD9-HASH-TABLE) "Other nerve root and plexus disorders")
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(SETF (GETHASH "354" ICD9-HASH-TABLE) "Mononeuritis of upper limb and mononeuritis multiplex")
(SETF (GETHASH "354.0" ICD9-HASH-TABLE) "Carpal tunnel syndrome")
(SETF (GETHASH "354.1" ICD9-HASH-TABLE) "Other lesion of median nerve")
(SETF (GETHASH "354.2" ICD9-HASH-TABLE) "Lesion of ulnar nerve")
(SETF (GETHASH "354.3" ICD9-HASH-TABLE) "Lesion of radial nerve")
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(SETF (GETHASH "355" ICD9-HASH-TABLE) "Mononeuritis of lower limb")
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(SETF (GETHASH "355.2" ICD9-HASH-TABLE) "Other lesion of femoral nerve")
(SETF (GETHASH "355.3" ICD9-HASH-TABLE) "Lesion of lateral popliteal nerve")
(SETF (GETHASH "355.4" ICD9-HASH-TABLE) "Lesion of medial popliteal nerve")
(SETF (GETHASH "355.5" ICD9-HASH-TABLE) "Tarsal tunnel syndrome")
(SETF (GETHASH "355.6" ICD9-HASH-TABLE) "Lesion of plantar nerve")
(SETF (GETHASH "355.7" ICD9-HASH-TABLE) "Other mononeuritis of lower limb")
1. **Vitreous abscess**
2. **Other endophthalmitis**
3. **Sympathetic uveitis**
4. **Panuveitis**
5. **Parasitic endophthalmitis NOS**
6. **Ophtalmia nodosa**
7. **Other**
8. **Degenerative disorders of globe**
9. **Degenerative disorder of globe, unspecified**
10. **Progressive high (degenerative) myopia**
11. **Siderosis**
12. **Other metallosis**
13. **Other**
14. **Hypotony of eye**
15. **Hypotony, unspecified**
16. **Primary hypotony**
17. **Ocular fistula causing hypotony**
18. **Hypotony associated with other ocular disorders**
19. **Flat anterior chamber**
20. **Degenerated conditions of globe**
21. **Degenerated globe or eye, unspecified**
22. **Blind hypotensive eye**
23. **Blind hypertensive eye**
24. **Hemophthalmos, except current injury**
25. **Leucocoria**
26. **Retained (old) intraocular foreign body, magnetic**
27. **Foreign body, magnetic, intraocular, unspecified**
28. **Foreign body, magnetic, in anterior chamber**
29. **Foreign body, magnetic, in iris or ciliary body**
30. **Foreign body, magnetic, in lens**
31. **Foreign body, magnetic, in vitreous**
32. **Foreign body, magnetic, in posterior wall**
33. **Foreign body, magnetic, in other or multiple sites**
34. **Retained (old) intraocular foreign body, nonmagnetic**
35. **Foreign body, intraocular, unspecified**
36. **Foreign body in anterior chamber**
37. **Foreign body in iris or ciliary body**
38. **Foreign body in iris or ciliary body**
39. **Foreign body in lens**
40. **Foreign body in vitreous**
41. **Foreign body in posterior wall**
42. **Foreign body in other or multiple sites**
43. **Other disorders of globe**
44. **Luxation of globe**
(SETF (GETHASH "360.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "360.9" ICD9-HASH-TABLE) "Unspecified disorder of globe")
(SETF (GETHASH "361" ICD9-HASH-TABLE) "Retinal detachments and defects")
(SETF (GETHASH "361.0" ICD9-HASH-TABLE) "Retinal detachment with retinal defect")
(SETF (GETHASH "361.00" ICD9-HASH-TABLE) "Retinal detachment with retinal defect, unspecified")
(SETF (GETHASH "361.01" ICD9-HASH-TABLE) "Recent detachment, partial, with single defect")
(SETF (GETHASH "361.02" ICD9-HASH-TABLE) "Recent detachment, partial, with multiple defects")
(SETF (GETHASH "361.03" ICD9-HASH-TABLE) "Recent detachment, partial, with giant tear")
(SETF (GETHASH "361.04" ICD9-HASH-TABLE) "Recent detachment, partial, with retinal dialysis")
(SETF (GETHASH "361.05" ICD9-HASH-TABLE) "Recent detachment, total or subtotal")
(SETF (GETHASH "361.06" ICD9-HASH-TABLE) "Old detachment, partial")
(SETF (GETHASH "361.07" ICD9-HASH-TABLE) "Old detachment, total or subtotal")
(SETF (GETHASH "361.1" ICD9-HASH-TABLE) "Retinoschisis and retinal cysts")
(SETF (GETHASH "361.10" ICD9-HASH-TABLE) "Retinoschisis, unspecified")
(SETF (GETHASH "361.11" ICD9-HASH-TABLE) "Flat retinoschisis")
(SETF (GETHASH "361.12" ICD9-HASH-TABLE) "Bullous retinoschisis")
(SETF (GETHASH "361.13" ICD9-HASH-TABLE) "Primary retinal cysts")
(SETF (GETHASH "361.14" ICD9-HASH-TABLE) "Secondary retinal cysts")
(SETF (GETHASH "361.19" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "361.2" ICD9-HASH-TABLE) "Serous retinal detachment")
(SETF (GETHASH "361.3" ICD9-HASH-TABLE) "Retinal defects without detachment")
(SETF (GETHASH "361.30" ICD9-HASH-TABLE) "Retinal defect, unspecified")
(SETF (GETHASH "361.31" ICD9-HASH-TABLE) "Round hole of retina without detachment")
(SETF (GETHASH "361.32" ICD9-HASH-TABLE) "Horseshoe tear of retina without detachment")
(SETF (GETHASH "361.33" ICD9-HASH-TABLE) "Multiple defects of retina without detachment")
(SETF (GETHASH "361.8" ICD9-HASH-TABLE) "Other forms of retinal detachment")
(SETF (GETHASH "361.81" ICD9-HASH-TABLE) "Traction detachment of retina")
(SETF (GETHASH "361.89" ICD9-HASH-TABLE) "Other")
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(SETF (GETHASH "362" ICD9-HASH-TABLE) "Other retinal disorders")
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(SETF (GETHASH "362.01" ICD9-HASH-TABLE) "Background diabetic retinopathy")
(SETF (GETHASH "362.02" ICD9-HASH-TABLE) "Proliferative diabetic retinopathy")
(SETF (GETHASH "362.1" ICD9-HASH-TABLE) "Other background retinopathy and retinal vascular changes")
(SETF (GETHASH "362.10" ICD9-HASH-TABLE) "Background retinopathy, unspecified")
(SETF (GETHASH "362.11" ICD9-HASH-TABLE) "Hypertensive retinopathy")
(SETF (GETHASH "362.12" ICD9-HASH-TABLE) "Exudative retinopathy")
(SETF (GETHASH "362.13" ICD9-HASH-TABLE) "Changes in vascular appearance")
(SETF (GETHASH "362.14" ICD9-HASH-TABLE) "Retinal microaneurysms (NOS")
(SETF (GETHASH "362.15" ICD9-HASH-TABLE) "Retinal telangiectasis")
(SETF (GETHASH "362.16" ICD9-HASH-TABLE) "Retinal neovascularization (NOS")
(SETF (GETHASH "362.17" ICD9-HASH-TABLE) "Other intraretinal microvascular abnormalities")
(SETF (GETHASH "362.18" ICD9-HASH-TABLE) "Retinal vasculitis")
"Dystrophies primarily involving the retinal pigment epithelium")

(SETF (GETHASS "362.77" ICD-9-HASH-TABLE)
"Dystrophies primarily involving Bruch's membrane")
(SETF (GETHASS "362.8" ICD-9-HASH-TABLE) "Other retinal disorders")
(SETF (GETHASS "362.81" ICD-9-HASH-TABLE) "Retinal hemorrhage")
(SETF (GETHASS "362.82" ICD-9-HASH-TABLE)
"Retinal exudates and deposits")
(SETF (GETHASS "362.83" ICD-9-HASH-TABLE) "Retinal edema")
(SETF (GETHASS "362.84" ICD-9-HASH-TABLE) "Retinal ischemia")
(SETF (GETHASS "362.85" ICD-9-HASH-TABLE)
"Retinal nerve fiber bundle defects")
(SETF (GETHASS "362.89" ICD-9-HASH-TABLE) "Other retinal disorders")
(SETF (GETHASS "362.9" ICD-9-HASH-TABLE) "Unspecified retinal disorder")
(SETF (GETHASS "363" ICD-9-HASH-TABLE)
"Chorioretinal inflammations, scars, and other disorders of choroid")
(SETF (GETHASS "363.0" ICD-9-HASH-TABLE)
"Focal chorioretinitis and focal retinochoroiditis")
(SETF (GETHASS "363.00" ICD-9-HASH-TABLE)
"Focal chorioretinitis, unspecified")
(SETF (GETHASS "363.01" ICD-9-HASH-TABLE)
"Focal choroiditis and chorioretinitis, juxtapapillary")
(SETF (GETHASS "363.04" ICD-9-HASH-TABLE)
"Focal choroiditis and chorioretinitis, peripheral")
(SETF (GETHASS "363.05" ICD-9-HASH-TABLE)
"Focal retinitis and retinochoroiditis, juxtapapillary")
(SETF (GETHASS "363.06" ICD-9-HASH-TABLE)
"Focal retinitis and retinochoroiditis, macular or paramacular")
(SETF (GETHASS "363.07" ICD-9-HASH-TABLE)
"Focal retinitis and retinochoroiditis of other posterior pole")
(SETF (GETHASS "363.08" ICD-9-HASH-TABLE)
"Focal retinitis and retinochoroiditis, peripheral")
(SETF (GETHASS "363.1" ICD-9-HASH-TABLE)
"Disseminated chorioretinitis and disseminated retinochoroiditis")
(SETF (GETHASS "363.10" ICD-9-HASH-TABLE)
"Disseminated chorioretinitis, unspecified")
(SETF (GETHASS "363.11" ICD-9-HASH-TABLE)
"Disseminated choroiditis and chorioretinitis, posterior pole")
(SETF (GETHASS "363.12" ICD-9-HASH-TABLE)
"Disseminated choroiditis and chorioretinitis, peripheral")
(SETF (GETHASS "363.13" ICD-9-HASH-TABLE)
"Disseminated choroiditis and chorioretinitis, generalized")
(SETF (GETHASS "363.14" ICD-9-HASH-TABLE)
"Disseminated retinitis and retinochoroiditis, metastatic")
(SETF (GETHASS "363.15" ICD-9-HASH-TABLE)
"Disseminated retinitis and retinochoroiditis, pigment epitheliopathy")
(SETF (GETHASS "363.16" ICD-9-HASH-TABLE)
"Disseminated retinitis and retinochoroiditis, unspecified")
(SETF (GETHASS "363.20" ICD-9-HASH-TABLE)
"Other and unspecified forms of chorioretinitis and retinochoroiditis")
(SETF (GETHASS "363.22" ICD-9-HASH-TABLE) "Pars planitis")
(SETF (GETHASS "363.23" ICD-9-HASH-TABLE) "Harada's disease")
(SETF (GETHASS "363.3" ICD-9-HASH-TABLE) "Chorioretinal scars")
(SETF (GETHASS "363.30" ICD-9-HASH-TABLE)
"Chorioretinal scar, unspecified")
(SETF (GETHASS "363.31" ICD-9-HASH-TABLE) "Solar retinopathy")
(SETF (GETHASS "363.32" ICD-9-HASH-TABLE) "Other macular scars")
(SETF (GETHASS "363.33" ICD-9-HASH-TABLE)
"Other scars of posterior pole")
(SETF (GETHASS "363.34" ICD-9-HASH-TABLE) "Peripheral scars")
(SETF (GETHASS "363.35" ICD-9-HASH-TABLE) "Disseminated scars")
(SETF (GETHASS "363.4" ICD-9-HASH-TABLE) "Choroidal degenerations")
(SETF (GETHASS "363.40" ICD-9-HASH-TABLE)
"Choroidal degeneration, unspecified")
(SETF (GETHASS "363.41" ICD-9-HASH-TABLE) "Senile atrophy of choroid")
(SETF (GETHASS "363.42" ICD-9-HASH-TABLE)
"Diffuse secondary atrophy of choroid"

(SETF (GETHASH "363.45" ICD9-HASH-TABLE) "Angioid streaks of choroid")

(SETF (GETHASH "363.5" ICD9-HASH-TABLE) "Hereditary choroidal dystrophies")

(SETF (GETHASH "363.50" ICD9-HASH-TABLE) "Hereditary choroidal dystrophy or atrophy, unspecified")

(SETF (GETHASH "363.53" ICD9-HASH-TABLE) "Circumpapillary dystrophy of choroid, partial")

(SETF (GETHASH "363.52" ICD9-HASH-TABLE) "Circumpapillary dystrophy of choroid, total")

(SETF (GETHASH "363.51" ICD9-HASH-TABLE) "Central dystrophy of choroid, partial")

(SETF (GETHASH "363.54" ICD9-HASH-TABLE) "Central choroidal atrophy, total")

(SETF (GETHASH "363.55" ICD9-HASH-TABLE) "Choroideremia")

(SETF (GETHASH "363.56" ICD9-HASH-TABLE) "Other diffuse or generalized dystrophy, partial")

(SETF (GETHASH "363.57" ICD9-HASH-TABLE) "Other diffuse or generalized dystrophy, total")

(SETF (GETHASH "363.6" ICD9-HASH-TABLE) "Choroidal hemorrhage and rupture")

(SETF (GETHASH "363.61" ICD9-HASH-TABLE) "Choroidal hemorrhage, unspecified")

(SETF (GETHASH "363.62" ICD9-HASH-TABLE) "Expulsive choroidal hemorrhage")

(SETF (GETHASH "363.63" ICD9-HASH-TABLE) "Choroidal rupture")

(SETF (GETHASH "363.7" ICD9-HASH-TABLE) "Choroidal detachment")

(SETF (GETHASH "363.70" ICD9-HASH-TABLE) "Choroidal detachment, unspecified")

(SETF (GETHASH "363.71" ICD9-HASH-TABLE) "Serous choroidal detachment")

(SETF (GETHASH "363.72" ICD9-HASH-TABLE) "Hemorrhagic choroidal detachment")

(SETF (GETHASH "363.8" ICD9-HASH-TABLE) "Other disorders of choroid")

(SETF (GETHASH "363.9" ICD9-HASH-TABLE) "Unspecified disorder of choroid")

(SETF (GETHASH "364.0" ICD9-HASH-TABLE) "Disorders of iris and ciliary body")

(SETF (GETHASH "364.00" ICD9-HASH-TABLE) "Acute and subacute iridocyclitis")

(SETF (GETHASH "364.01" ICD9-HASH-TABLE) "Primary iridocyclitis")

(SETF (GETHASH "364.02" ICD9-HASH-TABLE) "Recurrent iridocyclitis")

(SETF (GETHASH "364.03" ICD9-HASH-TABLE) "Secondary iridocyclitis, infectious")

(SETF (GETHASH "364.04" ICD9-HASH-TABLE) "Secondary iridocyclitis, noninfectious")

(SETF (GETHASH "364.05" ICD9-HASH-TABLE) "Hypopyon")

(SETF (GETHASH "364.1" ICD9-HASH-TABLE) "Chronic iridocyclitis")

(SETF (GETHASH "364.10" ICD9-HASH-TABLE) "Chronic iridocyclitis, unspecified")

(SETF (GETHASH "364.11" ICD9-HASH-TABLE) "Chronic iridocyclitis in diseases classified elsewhere")

(SETF (GETHASH "364.2" ICD9-HASH-TABLE) "Certain types of iridocyclitis")

(SETF (GETHASH "364.21" ICD9-HASH-TABLE) "Fuchs heterochromic cyclitis")

(SETF (GETHASH "364.22" ICD9-HASH-TABLE) "Glaucomatocyclitic crises")

(SETF (GETHASH "364.23" ICD9-HASH-TABLE) "Lens-induced iridocyclitis")

(SETF (GETHASH "364.24" ICD9-HASH-TABLE) "Vogt-Koyanagi syndrome")

(SETF (GETHASH "364.3" ICD9-HASH-TABLE) "Unspecified iridocyclitis")

(SETF (GETHASH "364.4" ICD9-HASH-TABLE) "Vascular disorders of iris and ciliary body")

(SETF (GETHASH "364.41" ICD9-HASH-TABLE) "Hyphema")

(SETF (GETHASH "364.42" ICD9-HASH-TABLE) "Rubeosis iridis")

(SETF (GETHASH "364.5" ICD9-HASH-TABLE) "Iris neovascularization")
"Degenerations of iris and ciliary body")

(SETF (GETHASH "'364.52" ICD9-HASH-TABLE) "Essential or progressive iris atrophy")

(SETF (GETHASH "'364.52" ICD9-HASH-TABLE) "Iridoschisis")

(SETF (GETHASH "'364.33" ICD9-HASH-TABLE) "Pigmentary iris degeneration")

(SETF (GETHASH "'364.54" ICD9-HASH-TABLE) "Degeneration of pupillary margin")

(SETF (GETHASH "'364.55" ICD9-HASH-TABLE) "Miotics cysts of pupillary margin")

(SETF (GETHASH "'364.56" ICD9-HASH-TABLE) "Degenerative changes of chamber angle")

(SETF (GETHASH "'364.57" ICD9-HASH-TABLE) "Degenerative changes of ciliary body")

(SETF (GETHASH "'364.59" ICD9-HASH-TABLE) "Other iris atrophy")

(SETF (GETHASH "'364.6" ICD9-HASH-TABLE) "Cysts of iris, ciliary body, and anterior chamber")

(SETF (GETHASH "'364.60" ICD9-HASH-TABLE) "Idiopathic cysts")

(SETF (GETHASH "'364.61" ICD9-HASH-TABLE) "Implantation cysts")

(SETF (GETHASH "'364.62" ICD9-HASH-TABLE) "Exudative cysts of iris or anterior chamber")

(SETF (GETHASH "'364.63" ICD9-HASH-TABLE) "Primary cyst of pars plana")

(SETF (GETHASH "'364.64" ICD9-HASH-TABLE) "Exudative cyst of pars plana")

(SETF (GETHASH "'364.7" ICD9-HASH-TABLE) "Adhesions and disruptions of iris and ciliary body")

(SETF (GETHASH "'364.70" ICD9-HASH-TABLE) "Adhesions of iris, unspecified")

(SETF (GETHASH "'364.71" ICD9-HASH-TABLE) "Posterior synechiae")

(SETF (GETHASH "'364.72" ICD9-HASH-TABLE) "Anterior synechiae")

(SETF (GETHASH "'364.73" ICD9-HASH-TABLE) "Goniosynechiae")

(SETF (GETHASH "'364.74" ICD9-HASH-TABLE) "Pupillary membranes")

(SETF (GETHASH "'364.75" ICD9-HASH-TABLE) "Pupillary abnormalities")

(SETF (GETHASH "'364.76" ICD9-HASH-TABLE) "Tridodialysis")

(SETF (GETHASH "'364.77" ICD9-HASH-TABLE) "Recession of chamber angle")

(SETF (GETHASH "'364.8" ICD9-HASH-TABLE) "Other disorders of iris and ciliary body")

(SETF (GETHASH "'364.9" ICD9-HASH-TABLE) "Unspecified disorder of iris and ciliary body")

(SETF (GETHASH "'365" ICD9-HASH-TABLE) "Glaucoma")

(SETF (GETHASH "'365.0" ICD9-HASH-TABLE) "Glaucoma")

(SETF (GETHASH "'365.00" ICD9-HASH-TABLE) "Glaucoma, unspecified")

(SETF (GETHASH "'365.01" ICD9-HASH-TABLE) "Open angle with border line findings")

(SETF (GETHASH "'365.02" ICD9-HASH-TABLE) "Anatomical narrow angle")

(SETF (GETHASH "'365.03" ICD9-HASH-TABLE) "Steroid responders")

(SETF (GETHASH "'365.04" ICD9-HASH-TABLE) "Ocular hypertension")

(SETF (GETHASH "'365.1" ICD9-HASH-TABLE) "Open angle glaucoma")

(SETF (GETHASH "'365.10" ICD9-HASH-TABLE) "Open angle glaucoma, unspecified")

(SETF (GETHASH "'365.11" ICD9-HASH-TABLE) "Primary open angle glaucoma")

(SETF (GETHASH "'365.12" ICD9-HASH-TABLE) "Low tension glaucoma")

(SETF (GETHASH "'365.13" ICD9-HASH-TABLE) "Pigmentary glaucoma")

(SETF (GETHASH "'365.14" ICD9-HASH-TABLE) "Glaucoma of childhood")

(SETF (GETHASH "'365.15" ICD9-HASH-TABLE) "Residual stage of open angle glaucoma")

(SETF (GETHASH "'365.2" ICD9-HASH-TABLE) "Primary angle closure glaucoma")

(SETF (GETHASH "'365.3" ICD9-HASH-TABLE) "Primary angle closure glaucoma, unspecified")

(SETF (GETHASH "'365.21" ICD9-HASH-TABLE) "Intermittent angle closure glaucoma")

(SETF (GETHASH "'365.22" ICD9-HASH-TABLE) "Acute angle closure glaucoma")

(SETF (GETHASH "'365.23" ICD9-HASH-TABLE) "Chronic angle closure glaucoma")

(SETF (GETHASH "'365.24" ICD9-HASH-TABLE) "Residual stage of angle closure glaucoma")
(SETF (GETHASH "366.17" ICD9-HASH-TABLE) "Total or mature cataract")
(SETF (GETHASH "366.18" ICD9-HASH-TABLE) "Hypermature cataract")
(SETF (GETHASH "366.19" ICD9-HASH-TABLE) "Other and combined forms of senile cataract")
(SETF (GETHASH "366.22" ICD9-HASH-TABLE) "Traumatic cataract")
(SETF (GETHASH "366.20" ICD9-HASH-TABLE) "Traumatic cataract, unspecified")
(SETF (GETHASH "366.28" ICD9-HASH-TABLE) "Localized traumatic opacities")
(SETF (GETHASH "366.26" ICD9-HASH-TABLE) "Total traumatic cataract")
(SETF (GETHASH "366.23" ICD9-HASH-TABLE) "Partially resolved traumatic cataract")
(SETF (GETHASH "366.3" ICD9-HASH-TABLE) "Cataract secondary to ocular disorders")
(SETF (GETHASH "366.30" ICD9-HASH-TABLE) "Cataract complicated, unspecified")
(SETF (GETHASH "366.31" ICD9-HASH-TABLE) "Cataract in inflammatory disorders")
(SETF (GETHASH "366.33" ICD9-HASH-TABLE) "Cataract with neovascularization")
(SETF (GETHASH "366.34" ICD9-HASH-TABLE) "Cataract in degenerative disorders")
(SETF (GETHASH "366.38" ICD9-HASH-TABLE) "Cataract associated with other disorders")
(SETF (GETHASH "366.41" ICD9-HASH-TABLE) "Diabetic cataract")
(SETF (GETHASH "366.42" ICD9-HASH-TABLE) "Tetanic cataract")
(SETF (GETHASH "366.43" ICD9-HASH-TABLE) "Myotonic cataract")
(SETF (GETHASH "366.44" ICD9-HASH-TABLE) "Cataract associated with other syndromes")
(SETF (GETHASH "366.45" ICD9-HASH-TABLE) "Toxic cataract")
(SETF (GETHASH "366.46" ICD9-HASH-TABLE) "Cataract associated with radiation and other physical influences")
(SETF (GETHASH "366.5" ICD9-HASH-TABLE) "After-cataract")
(SETF (GETHASH "366.20" ICD9-HASH-TABLE) "After-cataract, unspecified")
(SETF (GETHASH "366.51" ICD9-HASH-TABLE) "Soemmering's ring")
(SETF (GETHASH "366.52" ICD9-HASH-TABLE) "Other after-cataract, not obscuring vision")
(SETF (GETHASH "366.53" ICD9-HASH-TABLE) "After-cataract. obscuring vision")
(SETF (GETHASH "366.6" ICD9-HASH-TABLE) "Unclassified cataract")
(SETF (GETHASH "366.7" ICD9-HASH-TABLE) "Disorders of refraction and accommodation")
(SETF (GETHASH "367.0" ICD9-HASH-TABLE) "Hypermetropia")
(SETF (GETHASH "367.1" ICD9-HASH-TABLE) "Myopia")
(SETF (GETHASH "367.2" ICD9-HASH-TABLE) "Astigmatism")
(SETF (GETHASH "367.20" ICD9-HASH-TABLE) "Astigmatism, unspecified")
(SETF (GETHASH "367.21" ICD9-HASH-TABLE) "Regular astigmatism")
(SETF (GETHASH "367.22" ICD9-HASH-TABLE) "Irregular astigmatism")
(SETF (GETHASH "367.3" ICD9-HASH-TABLE) "Anisometropia and aniseikonia")
(SETF (GETHASH "367.31" ICD9-HASH-TABLE) "Anisometropia")
(SETF (GETHASH "367.32" ICD9-HASH-TABLE) "Aniseikonia")
(SETF (GETHASH "367.4" ICD9-HASH-TABLE) "Presbyopia")
(SETF (GETHASH "367.5" ICD9-HASH-TABLE) "Disorders of accommodation")
(SETF (GETHASH "367.31" ICD9-HASH-TABLE) "Paresis of accommodation")
(SETF (GETHASH "367.32" ICD9-HASH-TABLE) "Paralytic strabismus")
(SETF (GETHASH "367.53" ICD9-HASH-TABLE) "Total or complete internal ophthalmoplegia")
(SETF (GETHASH "367.3" ICD9-HASH-TABLE) "Spasm of accommodation")
(SETF (GETHASH "367.8" ICD9-HASH-TABLE) "Other disorders of refraction and accommodation")
(SETF (GETHASH "367.81" ICD9-HASH-TABLE) "Transitent refractive change")
(SETF (GETHASH "367.85" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "368" ICD9-HASH-TABLE) "Visual disturbances")
(SETF (GETHASH "368.0" ICD9-HASH-TABLE) "Amblyopia ex anopsia")
"One eye: total impairment; other eye: normal vision"

(SETF GETHASH "369.63" ICD9-HASH-TABLE)
"One eye: near-total impairment; other eye: not specified"

(SETF GETHASH "369.65" ICD9-HASH-TABLE)
"One eye: near-total impairment; other eye: near-normal vision"

(SETF GETHASH "369.66" ICD9-HASH-TABLE)
"One eye: near-total impairment; other eye: normal vision"

(SETF GETHASH "369.67" ICD9-HASH-TABLE)
"One eye: profound impairment; other eye: not specified"

(SETF GETHASH "369.68" ICD9-HASH-TABLE)
"One eye: profound impairment; other eye: near-normal vision"

(SETF GETHASH "369.69" ICD9-HASH-TABLE)
"One eye: profound impairment; other eye: normal vision"

(SETF GETHASH "369.7" ICD9-HASH-TABLE)
"Moderate or severe impairment, one eye"

(SETF GETHASH "369.71" ICD9-HASH-TABLE)
"Impairment level not further specified"

(SETF GETHASH "369.72" ICD9-HASH-TABLE)
"One eye: severe impairment; other eye: not specified"

(SETF GETHASH "369.73" ICD9-HASH-TABLE)
"One eye: severe impairment; other eye: near-normal vision"

(SETF GETHASH "369.74" ICD9-HASH-TABLE)
"One eye: severe impairment; other eye: normal vision"

(SETF GETHASH "369.75" ICD9-HASH-TABLE)
"One eye: moderate impairment; other eye: near-normal vision"

(SETF GETHASH "369.76" ICD9-HASH-TABLE)
"One eye: moderate impairment; other eye: normal vision"

(SETF GETHASH "369.8" ICD9-HASH-TABLE)
"Unqualified visual loss, one eye"

(SETF GETHASH "369.9" ICD9-HASH-TABLE)
"Unspecified visual loss"

(SETF GETHASH "370" ICD9-HASH-TABLE)
"Keratitis"

(SETF GETHASH "370.0" ICD9-HASH-TABLE)
"Corneal ulcer"

(SETF GETHASH "370.00" ICD9-HASH-TABLE)
"Corneal ulcer, unspecified"

(SETF GETHASH "370.01" ICD9-HASH-TABLE)
"Marginal corneal ulcer"

(SETF GETHASH "370.02" ICD9-HASH-TABLE)
"Ring corneal ulcer"

(SETF GETHASH "370.03" ICD9-HASH-TABLE)
"Central corneal ulcer"

(SETF GETHASH "370.04" ICD9-HASH-TABLE)
"Hypopyon ulcer"

(SETF GETHASH "370.05" ICD9-HASH-TABLE)
"Mycotic corneal ulcer"

(SETF GETHASH "370.06" ICD9-HASH-TABLE)
"Perforated corneal ulcer"

(SETF GETHASH "370.07" ICD9-HASH-TABLE)
"Moore's ulcer"

(SETF GETHASH "370.2" ICD9-HASH-TABLE)
"Superficial keratitis without conjunctivitis"

(SETF GETHASH "370.20" ICD9-HASH-TABLE)
"Superficial keratitis, unspecified"

(SETF GETHASH "370.21" ICD9-HASH-TABLE)
"Punctate keratitis"

(SETF GETHASH "370.22" ICD9-HASH-TABLE)
"Macular keratitis"

(SETF GETHASH "370.23" ICD9-HASH-TABLE)
"Filamentary keratitis"

(SETF GETHASH "370.24" ICD9-HASH-TABLE)
"Photokeratitis"

(SETF GETHASH "370.3" ICD9-HASH-TABLE)
"Certain types of keratoconjunctivitis"

(SETF GETHASH "370.31" ICD9-HASH-TABLE)
"Phlyctenular keratoconjunctivitis"

(SETF GETHASH "370.32" ICD9-HASH-TABLE)
"Limbar and corneal involvement in vernal conjunctivitis"

(SETF GETHASH "370.33" ICD9-HASH-TABLE)
"Keratoconjunctivitis sicca, not specified as Sjgren's"

(SETF GETHASH "370.34" ICD9-HASH-TABLE)
"Exposure keratoconjunctivitis"

(SETF GETHASH "370.35" ICD9-HASH-TABLE)
"Neurotrophic keratoconjunctivitis"

(SETF GETHASH "370.4" ICD9-HASH-TABLE)
"Other and unspecified keratoconjunctivitis"

(SETF GETHASH "370.40" ICD9-HASH-TABLE)
"Keratoconjunctivitis, unspecified"
(SETF (GETHASH "370.44" CD9-HASH-TABLE) "Keratitis or keratoconjunctivitis in exanthema")
(SETF (GETHASH "370.49" CD9-HASH-TABLE) "Other")
(SETF (GETHASH "370.5" CD9-HASH-TABLE) "Interstitial and deep keratitis")
(SETF (GETHASH "370.50" CD9-HASH-TABLE) "Interstitial keratitis, unspecified")
(SETF (GETHASH "370.52" CD9-HASH-TABLE) "Diffuse interstitial keratitis")
(SETF (GETHASH "370.54" CD9-HASH-TABLE) "Sclerosing keratitis")
(SETF (GETHASH "370.55" CD9-HASH-TABLE) "Corneal abscess")
(SETF (GETHASH "370.59" CD9-HASH-TABLE) "Other")
(SETF (GETHASH "370.6" CD9-HASH-TABLE) "Corneal neovascularization")
(SETF (GETHASH "370.60" CD9-HASH-TABLE) "Corneal neovascularization, unspecified")
(SETF (GETHASH "370.61" CD9-HASH-TABLE) "Localized vasculization of cornea")
(SETF (GETHASH "370.62" CD9-HASH-TABLE) "Pannus (corneal")
(SETF (GETHASH "370.63" CD9-HASH-TABLE) "Deep vasculization of cornea")
(SETF (GETHASH "370.64" CD9-HASH-TABLE) "Ghost vessels (corneal")
(SETF (GETHASH "370.7" CD9-HASH-TABLE) "Unspecified keratitis")
(SETF (GETHASH "371" CD9-HASH-TABLE) "Corneal pigmentations and deposits")
(SETF (GETHASH "371.0" CD9-HASH-TABLE) "Corneal scars and opacities")
(SETF (GETHASH "371.00" CD9-HASH-TABLE) "Corneal opacity, unspecified")
(SETF (GETHASH "371.01" CD9-HASH-TABLE) "Minor opacity of cornea")
(SETF (GETHASH "371.02" CD9-HASH-TABLE) "Peripheral opacity of cornea")
(SETF (GETHASH "371.03" CD9-HASH-TABLE) "Central opacity of cornea")
(SETF (GETHASH "371.04" CD9-HASH-TABLE) "Adherent leucoma")
(SETF (GETHASH "371.05" CD9-HASH-TABLE) "Phthihical cornea")
(SETF (GETHASH "371.12" CD9-HASH-TABLE) "Corneal pigmentations and deposits")
(SETF (GETHASH "371.10" CD9-HASH-TABLE) "Corneal deposit, unspecified")
(SETF (GETHASH "371.11" CD9-HASH-TABLE) "Anterior pigmentations")
(SETF (GETHASH "371.12" CD9-HASH-TABLE) "Stromal pigmentations")
(SETF (GETHASH "371.13" CD9-HASH-TABLE) "Posterior pigmentations")
(SETF (GETHASH "371.14" CD9-HASH-TABLE) "Kayser-Fleischer ring")
(SETF (GETHASH "371.15" CD9-HASH-TABLE) "Corneal deposit, unspecified")
(SETF (GETHASH "371.16" CD9-HASH-TABLE) "Argentous deposits")
(SETF (GETHASH "371.2" CD9-HASH-TABLE) "Corneal edema")
(SETF (GETHASH "371.20" CD9-HASH-TABLE) "Corneal edema, unspecified")
(SETF (GETHASH "371.21" CD9-HASH-TABLE) "Idiopathic corneal edema")
(SETF (GETHASH "371.22" CD9-HASH-TABLE) "Secondary corneal edema")
(SETF (GETHASH "371.23" CD9-HASH-TABLE) "Bullous keratopathy")
(SETF (GETHASH "371.24" CD9-HASH-TABLE) "Corneal edema due to wearing of contact lenses")
(SETF (GETHASH "371.3" CD9-HASH-TABLE) "Changes of corneal membrane")
(SETF (GETHASH "371.30" CD9-HASH-TABLE) "Corneal membrane change, unspecified")
(SETF (GETHASH "371.31" CD9-HASH-TABLE) "Folds and rupture of Bowman's membrane")
(SETF (GETHASH "371.32" CD9-HASH-TABLE) "Folds in Descemet's membrane")
(SETF (GETHASH "371.33" CD9-HASH-TABLE) "Rupture in Descemet's membrane")
(SETF (GETHASH "371.4" CD9-HASH-TABLE) "Corneal degenerations")
(SETF (GETHASH "371.40" CD9-HASH-TABLE) "Corneal degeneration, unspecified")
(SETF (GETHASH "371.41" CD9-HASH-TABLE) "Senile corneal changes")
(SETF (GETHASH "371.42" CD9-HASH-TABLE) "Recurrent erosion of cornea")
(SETF (GETHASH "371.43" CD9-HASH-TABLE) "Band-shaped keratopathy")
(SETF (GETHASH "371.44" CD9-HASH-TABLE) "Other calcereous degenerations of cornea")
(SETF (GETHASH "371.45" CD9-HASH-TABLE) "Keratomalacia NOS")
Acute inflammation of orbit, unspecified

Chronic inflammatory disorders of orbit

Parasitic infestation of orbit

Endocrine exophthalmos

Thyrotoxic exophthalmos

Exophthalmic ophthalmoplegia

Other exophthalmic conditions

Exophthalmos, unspecified

Constant exophthalmos

Orbital hemorrhage

Orbital edema or congestion

Intermittent exophthalmos

Pulsating exophthalmos

Lateral displacement of globe

Deformity of orbit

Hypertelorism of orbit

Exostosis of orbit

Local deformities due to bone disease

Orbital deformities associated with craniofacial deformities

Atrophy of orbit

Enlargement of orbit

Defect due to trauma or surgery

Enophthalmos

Enophthalmos, unspecified as to cause

Enophthalmos due to atrophy of orbital tissue

Enophthalmos due to trauma or surgery

Retained (old) foreign body following penetrating wound of orbit

Other orbital disorders

Orbital cysts

Myopathy of extraocular muscles

Other

Unspecified disorder of orbit

Disorders of optic nerve and visual pathways

Papilledema

Papilledema, unspecified

Papilledema associated with increased intracranial pressure

Papilledema associated with decreased ocular pressure

Papilledema associated with retinal disorder

Foster-Kennedy syndrome

Optic atrophy

Optic atrophy, unspecified
<table>
<thead>
<tr>
<th>ICD-9-CM Code</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>377.11</td>
<td>Primary optic atrophy</td>
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<td>377.12</td>
<td>Postinflammatory optic atrophy</td>
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<tr>
<td>377.13</td>
<td>Optic atrophy associated with retinal dystrophies</td>
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<tr>
<td>377.14</td>
<td>Glaucomatous atrophy (cupping) of optic disc</td>
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<tr>
<td>377.15</td>
<td>Partial optic atrophy</td>
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<tr>
<td>377.16</td>
<td>Hereditary optic atrophy</td>
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<tr>
<td>377.2</td>
<td>Other disorders of optic disc</td>
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<tr>
<td>377.21</td>
<td>Drusen of optic disc</td>
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<tr>
<td>377.22</td>
<td>Crater-like holes of optic disc</td>
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<tr>
<td>377.23</td>
<td>Coloboma of optic disc</td>
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<td>377.24</td>
<td>Pseudopapilledema</td>
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<td>377.3</td>
<td>Optic neuritis</td>
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<td>Optic neuritis, unspecified</td>
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<tr>
<td>377.31</td>
<td>Optic papillitis</td>
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<td>377.32</td>
<td>Retrobulbar neuritis (acute)</td>
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<td>377.33</td>
<td>Nutritional optic neuropathy</td>
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<td>377.34</td>
<td>Toxic optic neuropathy</td>
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<td>Other</td>
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<td>Other disorders of optic nerve</td>
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<td>Ischemic optic neuropathy</td>
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<td>Hemorrhage in optic nerve sheaths</td>
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<td>Other</td>
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<td>377.5</td>
<td>Disorders of optic chiasm</td>
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<tr>
<td>377.51</td>
<td>Associated with pituitary neoplasms and disorders</td>
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<td>377.52</td>
<td>Associated with other neoplasms</td>
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<td>377.53</td>
<td>Associated with vascular disorders</td>
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<td>377.54</td>
<td>Associated with inflammatory disorders</td>
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<td>Disorders of other visual pathways</td>
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<td>377.61</td>
<td>Associated with neoplasms</td>
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<td>377.62</td>
<td>Associated with vascular disorders</td>
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<td>Associated with inflammatory disorders</td>
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<td>Disorders of visual cortex</td>
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<td>Associated with neoplasms</td>
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<td>377.72</td>
<td>Associated with vascular disorders</td>
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<td>Associated with inflammatory disorders</td>
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<td>377.74</td>
<td>Cortical blindness</td>
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<td>377.75</td>
<td>Unspecified disorder of optic nerve and visual pathways</td>
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<td>378</td>
<td>Strabismus and other disorders of binocular eye movements</td>
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<tr>
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<td>Esotropia</td>
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<td>Esotropia, unspecified</td>
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<tr>
<td>378.01</td>
<td>Monocular esotropia</td>
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<td>378.02</td>
<td>Monocular esotropia with A pattern</td>
</tr>
<tr>
<td>378.03</td>
<td>Esotropia with V pattern</td>
</tr>
<tr>
<td>378.04</td>
<td>Monocular esotropia with V pattern</td>
</tr>
<tr>
<td>378.05</td>
<td>Alternating esotropia</td>
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<tr>
<td>378.06</td>
<td>Esotropia with other noncomitances</td>
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"Alternating esotropia with A pattern"

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(SETF GETHASH "378.52" ICD9-HASH-TABLE) "Third or oculomotor nerve palsy, total"

(SETF GETHASH "378.53" ICD9-HASH-TABLE) "Fourth or trochlear nerve palsy"

(SETF GETHASH "378.54" ICD9-HASH-TABLE) "Sixth or abducens nerve palsy"

(SETF GETHASH "378.55" ICD9-HASH-TABLE) "External ophthalmoplegia"

(SETF GETHASH "378.56" ICD9-HASH-TABLE) "Total ophthalmoplegia"

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(SETF (GETHASH "378.84" ICD9-HASH-TABLE) "Convergence excess or spasm")
(SETF (GETHASH "378.85" ICD9-HASH-TABLE) "Anomalies of divergence")
(SETF (GETHASH "378.86" ICD9-HASH-TABLE) "Internuclear ophthalmoplegia")
(SETF (GETHASH "378.87" ICD9-HASH-TABLE) "Other dissociated deviation of eye movements")
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(SETF (GETHASH "379.25" ICD9-HASH-TABLE) "Vitreous membranes and strands")
(SETF (GETHASH "379.26" ICD9-HASH-TABLE) "Vitreous prolapse")
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"Abnormal pupillary function, unspecified")
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(SETF (GETHASH "379.43" ICD9-HASH-TABLE) "Mydriasis (persistent), not due to mydriatics")
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(SETF (GETHASH "379.46" ICD9-HASH-TABLE) "Tonic pupillary reaction")
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(SETF (GETHASH "379.53" ICD9-HASH-TABLE) "Visual deprivation nystagmus")
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(SETF (GETHASH "379.58" ICD9-HASH-TABLE) "Deficiencies of smooth pursuit movements")
(SETF (GETHASH "379.59" ICD9-HASH-TABLE) "Other irregularities of eye movements")
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(SETF (GETHASH "379.92" ICD9-HASH-TABLE) "Swelling or mass of eye")
(SETF (GETHASH "379.93" ICD9-HASH-TABLE) "Redness or discharge of eye")
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(SETF (GETHASH "381.04" ICD9-HASH-TABLE) "Acute allergic mucoid otitis media")
(SETF (GETHASH "381.05" ICD9-HASH-TABLE) "Acute allergic sanguinous otitis media")
(SETF (GETHASH "381.1" ICD9-HASH-TABLE) "Chronic serous otitis media")
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(SETF (GETHASH "381.29" ICD9-HASH-TABLE) "Other")
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(SETF (GETHASH "381.52" ICD9-HASH-TABLE) "Chronic Eustachian salpingitis")
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(SETF (GETHASH "381.63" ICD9-HASH-TABLE) "Extrinsic cartilagenous obstruction of Eustachian tube")
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"Dysfunction of Eustachian tube"

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(SETF (GETHASH "382.00" ICD9-HASH-TABLE) "Acute suppurative otitis media without spontaneous rupture of ear drum")
(SETF (GETHASH "382.01" ICD9-HASH-TABLE) "Acute suppurative otitis media with spontaneous rupture of ear drum")
(SETF (GETHASH "382.1" ICD9-HASH-TABLE) "Chronic tubotympanic suppurative otitis media")
(SETF (GETHASH "382.2" ICD9-HASH-TABLE) "Chronic atticotympanic suppurative otitis media")
(SETF (GETHASH "382.3" ICD9-HASH-TABLE) "Unspecified chronic suppurative otitis media")
(SETF (GETHASH "382.4" ICD9-HASH-TABLE) "Unspecified suppurative otitis media")
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(SETF (GETHASH "383.00" ICD9-HASH-TABLE) "Acute mastoiditis without complications")
(SETF (GETHASH "383.01" ICD9-HASH-TABLE) "Acute mastoiditis with other complications")
(SETF (GETHASH "383.1" ICD9-HASH-TABLE) "Chronic mastoiditis")
(SETF (GETHASH "383.2" ICD9-HASH-TABLE) "Petroitis")
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(SETF (GETHASH "383.31" ICD9-HASH-TABLE) "Mucosal cyst of postmastoidectomy cavity")
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<td>&quot;Serous labyrinthitis&quot;</td>
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<td>&quot;Circumscribed labyrinthitis&quot;</td>
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<td>&quot;Loss of labyrinthine reactivity, bilateral&quot;</td>
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<td>&quot;Otosclerosis involving oval window, oblitervative&quot;</td>
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<td>Other acute rheumatic heart disease</td>
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<td>Chronic rheumatic heart disease</td>
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<td>Diseases of mitral valve</td>
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<td>Mitral stenosis</td>
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<td>Other and unspecified mitral valve</td>
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<td>Rheumatic aortic insufficiency</td>
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<td>Other and unspecified aortic valve</td>
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<td>Diseases of mitral and aortic valves</td>
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<td>Mitral valve stenosis and aortic valve stenosis</td>
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<td>Mitral valve insufficiency and aortic valve insufficiency</td>
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<td>Multiple involvement of mitral and aortic valves</td>
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<td>Mitral and aortic valve diseases, unspecified</td>
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<td>Diseases of other endocardial structures</td>
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<td>Diseases of tricuspid valve</td>
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<td>Other rheumatic heart disease</td>
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<td>Other heart failure (congestive)</td>
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<td>Essential hypertension</td>
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<td>Malignant hypertension</td>
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"Of coronary vessels")
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(SETF GETHASH "427.3" ICD9-HASH-TABLE) "Atrial fibrillation and flutter"
(SETF GETHASH "427.31" ICD9-HASH-TABLE) "Atrial fibrillation"
(SETF GETHASH "427.32" ICD9-HASH-TABLE) "Atrial flutter"
(SETF GETHASH "427.4" ICD9-HASH-TABLE) "Ventricular fibrillation and flutter"
(SETF GETHASH "427.41" ICD9-HASH-TABLE) "Ventricular fibrillation"
(SETF GETHASH "427.42" ICD9-HASH-TABLE) "Ventricular flutter"
(SETF GETHASH "427.5" ICD9-HASH-TABLE) "Cardiac arrest"
(SETF GETHASH "427.6" ICD9-HASH-TABLE) "Premature beats"
(SETF GETHASH "427.60" ICD9-HASH-TABLE) "Premature beats, unspecified"
(SETF GETHASH "427.62" ICD9-HASH-TABLE) "Supraventricular premature beats"
(SETF GETHASH "427.69" ICD9-HASH-TABLE) "Other"
(SETF GETHASH "427.8" ICD9-HASH-TABLE) "Other specified cardiac dysrhythmias"
(SETF GETHASH "427.81" ICD9-HASH-TABLE) "Sinoatrial node dysfunction"
(SETF GETHASH "427.89" ICD9-HASH-TABLE) "Other"
(SETF GETHASH "427.9" ICD9-HASH-TABLE) "Cardiac dysrhythmia, unspecified"
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(SETF GETHASH "428.0" ICD9-HASH-TABLE) "Congestive heart failure"
(SETF GETHASH "428.1" ICD9-HASH-TABLE) "Left heart failure"
(SETF GETHASH "428.9" ICD9-HASH-TABLE) "Heart failure, unspecified"
(SETF GETHASH "429" ICD9-HASH-TABLE) "Ill-defined descriptions and complications of heart disease"
(SETF GETHASH "429.0" ICD9-HASH-TABLE) "Myocarditis, unspecified"
(SETF GETHASH "429.1" ICD9-HASH-TABLE) "Myocardial degeneration"
(SETF GETHASH "429.2" ICD9-HASH-TABLE) "Cardiovascular disease, unspecified"
(SETF GETHASH "429.3" ICD9-HASH-TABLE) "Cardiomyopathy"
(SETF GETHASH "429.4" ICD9-HASH-TABLE) "Functional disturbances following cardiac surgery"
(SETF GETHASH "429.5" ICD9-HASH-TABLE) "Rupture of chordae tendineae"
(SETF GETHASH "429.6" ICD9-HASH-TABLE) "Rupture of papillary muscle"
(SETF GETHASH "429.7" ICD9-HASH-TABLE) "Certain sequelae of myocardial infarction, not elsewhere classified"
(SETF GETHASH "429.71" ICD9-HASH-TABLE) "Acquired cardiac septal defect"
(SETF GETHASH "429.79" ICD9-HASH-TABLE) "Other"
(SETF GETHASH "429.8" ICD9-HASH-TABLE) "Other ill-defined heart diseases"
(SETF GETHASH "429.81" ICD9-HASH-TABLE) "Other disorders of papillary muscle"
(SETF GETHASH "429.82" ICD9-HASH-TABLE) "Hypokinetic heart disease"
(SETF GETHASH "429.89" ICD9-HASH-TABLE) "Other"
(SETF GETHASH "429.9" ICD9-HASH-TABLE) "Heart disease, unspecified"
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(SETF GETHASH "431" ICD9-HASH-TABLE) "Intracerebral hemorrhage"
(SETF GETHASH "432" ICD9-HASH-TABLE) "Other and unspecified intracranial hemorrhage"
(SETF GETHASH "432.0" ICD9-HASH-TABLE) "Nontraumatic extradural hemorrhage"
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(SETF (GETHASH "438.52" ICD9-HASH-TABLE) "Other paralytic syndrome affecting nondominant side")

(SETF (GETHASH "438.8" ICD9-HASH-TABLE) "Other late effects of cerebrovascular disease")

(SETF (GETHASH "438.81" ICD9-HASH-TABLE) "Apraxia")

(SETF (GETHASH "438.82" ICD9-HASH-TABLE) "Dysphagia")

(SETF (GETHASH "438.89" ICD9-HASH-TABLE) "Other late effects of cerebrovascular disease")

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(SETF (GETHASH "440.22" ICD9-HASH-TABLE) "Atherosclerosis of the extremities with rest pain")

(SETF (GETHASH "440.23" ICD9-HASH-TABLE) "Atherosclerosis of the extremities with ulceration")

(SETF (GETHASH "440.24" ICD9-HASH-TABLE) "Atherosclerosis of the extremities with gangrene")

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(SETF (GETHASH "440.32" ICD9-HASH-TABLE) "Of nonautologous vein bypass graft")

(SETF (GETHASH "440.8" ICD9-HASH-TABLE) "Of other specified arteries")

(SETF (GETHASH "440.9" ICD9-HASH-TABLE) "Generalized and unspecified atherosclerosis")

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(SETF (GETHASH "441.00" ICD9-HASH-TABLE) "Dissection of aorta")

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(SETF (GETHASH "441.02" ICD9-HASH-TABLE) "Thoracic")

(SETF (GETHASH "441.03" ICD9-HASH-TABLE) "Abdominal")

(SETF (GETHASH "441.03" ICD9-HASH-TABLE) "Thoracoabdominal")

(SETF (GETHASH "441.1" ICD9-HASH-TABLE) "Thoracic aneurysm, ruptured")

(SETF (GETHASH "441.2" ICD9-HASH-TABLE) "Abdominal aneurysm without mention of rupture")

(SETF (GETHASH "441.3" ICD9-HASH-TABLE) "Abdominal aneurysm, ruptured")

(SETF (GETHASH "441.4" ICD9-HASH-TABLE) "Aortic aneurysm without mention of rupture")

(SETF (GETHASH "441.5" ICD9-HASH-TABLE) "Aortic aneurysm of unspecified site, ruptured")

(SETF (GETHASH "441.6" ICD9-HASH-TABLE) "Thoracoabdominal aneurysm, ruptured")

(SETF (GETHASH "441.7" ICD9-HASH-TABLE) "Thoracoabdominal aneurysm, ruptured")
(SETF (GETHASH "447.8" ICD9-HASH-TABLE) "Other specified disorders of arteries and arterioles")
(SETF (GETHASH "447.9" ICD9-HASH-TABLE) "Unspecified disorders of arteries and arterioles")
(SETF (GETHASH "448" ICD9-HASH-TABLE) "Disease of capillaries")
(SETF (GETHASH "448.0" ICD9-HASH-TABLE) "Venous obstruction")
(SETF (GETHASH "448.1" ICD9-HASH-TABLE) "Venous, non-neoplastic")
(SETF (GETHASH "448.9" ICD9-HASH-TABLE) "Other and unspecified capillary diseases")
(SETF (GETHASH "451" ICD9-HASH-TABLE) "Phlebitis and thrombophlebitis")
(SETF (GETHASH "451.0" ICD9-HASH-TABLE) "Of superficial vessels of lower extremities")
(SETF (GETHASH "451.1" ICD9-HASH-TABLE) "Of deep vessels of lower extremities")
(SETF (GETHASH "451.11" ICD9-HASH-TABLE) "Femoral vein (deep) (superficially)")
(SETF (GETHASH "451.19" ICD9-HASH-TABLE) "Other")
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(SETF (GETHASH "451.84" ICD9-HASH-TABLE) "Of upper extremities, unspecified")
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(SETF (GETHASH "453.1" ICD9-HASH-TABLE) "Thrombophlebitis migrans")
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(SETF (GETHASH "454.9" ICD9-HASH-TABLE) "Without mention of ulcer or inflammation")
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(SETF (GETHASH "455.1" ICD9-HASH-TABLE) "Internal thrombosed hemorrhoids")
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Acute without mention of hemorrhage or perforation

Chronic or unspecified with hemorrhage

Chronic or unspecified with perforation

Chronic or unspecified with hemorrhage and perforation

Chronic without mention of hemorrhage or perforation

Unspecified as acute or chronic, without mention of hemorrhage or perforation

Duodenal ulcer

Acute with hemorrhage

Acute with perforation

Acute with hemorrhage and perforation

Acute without mention of hemorrhage or perforation

Chronic or unspecified with hemorrhage

Chronic or unspecified with perforation

Chronic or unspecified with hemorrhage and perforation

Chronic without mention of hemorrhage or perforation

Unspecified as acute or chronic, without mention of hemorrhage or perforation

Peptic ulcer, site unspecified

Acute with perforation

Acute with hemorrhage and perforation

Acute without mention of hemorrhage and perforation

Chronic or unspecified with hemorrhage

Chronic or unspecified with perforation

Chronic or unspecified with hemorrhage and perforation

Chronic without mention of hemorrhage or perforation

Unspecified as acute or chronic, without mention of hemorrhage or perforation

Gastrojejunal ulcer

Acute with hemorrhage

Acute with perforation

Acute with hemorrhage and perforation

Acute without mention of hemorrhage or perforation

Chronic or unspecified with hemorrhage

Chronic or unspecified with perforation

Chronic or unspecified with hemorrhage and perforation

Chronic without mention of hemorrhage or perforation

Unspecified as acute or chronic, without mention of hemorrhage or perforation

Gastritis and duodenitis

Acute gastritis

Atrophic gastritis

Gastric mucosal hypertrophy
(SETF (GETHASH ""515.3" ICD9-HASH-TABLE) "Alcoholic gastritis")
(SETF (GETHASH ""515.4" ICD9-HASH-TABLE) "Other specified gastritis")
(SETF (GETHASH ""515.5" ICD9-HASH-TABLE) "Unspecified gastritis and gastroduodenitis")
(SETF (GETHASH ""515.6" ICD9-HASH-TABLE) "Duodenitis")
(SETF (GETHASH ""516" ICD9-HASH-TABLE) "Disorders of function of stomach")
(SETF (GETHASH ""516.0" ICD9-HASH-TABLE) "Achlorhydria")
(SETF (GETHASH ""516.1" ICD9-HASH-TABLE) "Acute dilatation of stomach")
(SETF (GETHASH ""516.2" ICD9-HASH-TABLE) "Persistent vomiting")
(SETF (GETHASH ""516.3" ICD9-HASH-TABLE) "Gastroparesis")
(SETF (GETHASH ""516.8" ICD9-HASH-TABLE) "Duodenitis and other specified disorders of function of stomach")
(SETF (GETHASH ""516.9" ICD9-HASH-TABLE) "Unspecified functional disorder of stomach")
(SETF (GETHASH ""517" ICD9-HASH-TABLE) "Other disorders of stomach and duodenum")
(SETF (GETHASH ""517.0" ICD9-HASH-TABLE) "Acquired hypertrophic pyloric stenosis")
(SETF (GETHASH ""517.1" ICD9-HASH-TABLE) "Gastric diverticulum")
(SETF (GETHASH ""517.2" ICD9-HASH-TABLE) "Chronic duodenal ulcer")
(SETF (GETHASH ""517.3" ICD9-HASH-TABLE) "Other obstruction of duodenum")
(SETF (GETHASH ""517.4" ICD9-HASH-TABLE) "Fistula of stomach or duodenum")
(SETF (GETHASH ""517.5" ICD9-HASH-TABLE) "Gastroptosis")
(SETF (GETHASH ""517.6" ICD9-HASH-TABLE) "Hourglass stricture or stenosis of stomach")
(SETF (GETHASH ""517.7" ICD9-HASH-TABLE) "Other specified disorders of stomach and duodenum")
(SETF (GETHASH ""517.8" ICD9-HASH-TABLE) "Pylorospasm")
(SETF (GETHASH ""517.81" ICD9-HASH-TABLE) "Angiodysplasia of stomach and duodenum without mention of hemorrhage")
(SETF (GETHASH ""517.83" ICD9-HASH-TABLE) "Angiodysplasia of stomach and duodenum with hemorrhage")
(SETF (GETHASH ""517.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH ""517.9" ICD9-HASH-TABLE) "Unspecified disorder of stomach and duodenum")
(SETF (GETHASH ""518" ICD9-HASH-TABLE) "Acute appendicitis")
(SETF (GETHASH ""518.0" ICD9-HASH-TABLE) "With generalized peritonitis")
(SETF (GETHASH ""518.1" ICD9-HASH-TABLE) "With peritoneal abscess")
(SETF (GETHASH ""518.9" ICD9-HASH-TABLE) "Without mention of peritonitis")
(SETF (GETHASH ""519" ICD9-HASH-TABLE) "Appendicitis, unqualified")
(SETF (GETHASH ""520" ICD9-HASH-TABLE) "Other appendicitis")
(SETF (GETHASH ""521" ICD9-HASH-TABLE) "Other diseases of appendix")
(SETF (GETHASH ""523" ICD9-HASH-TABLE) "Hyperplasia of appendix (lymphoid")
(SETF (GETHASH ""524.9" ICD9-HASH-TABLE) "Other and unspecified diseases of appendix")
(SETF (GETHASH ""550" ICD9-HASH-TABLE) "Inguinal hernia")
(SETF (GETHASH ""550.0" ICD9-HASH-TABLE) "Inguinal hernia, with gangrene")
(SETF (GETHASH ""550.1" ICD9-HASH-TABLE) "Inguinal hernia, with obstruction, without mention of gangrene")
(SETF (GETHASH ""550.2" ICD9-HASH-TABLE) "Inguinal hernia, without mention of obstruction or gangrene")
(SETF (GETHASH ""551" ICD9-HASH-TABLE) "Hernia of abdominal cavity, with gangrene")
(SETF (GETHASH ""551.0" ICD9-HASH-TABLE) "Femoral hernia with gangrene")
(SETF (GETHASH ""552.01" ICD9-HASH-TABLE) "Unilateral or unspecified (not specified as recurrent")
(SETF (GETHASH ""552.02" ICD9-HASH-TABLE) "Unilateral or unspecified, recurrent")
(SETF (GETHASH ""552.03" ICD9-HASH-TABLE) "Bilateral, not specified as recurrent")
(SETF (GETHASH ""552.04" ICD9-HASH-TABLE) "Bilateral, recurrent")
"Unspecified disorder of intestine"

(SETF (GETHASH "570" ICD9-HASH-TABLE)
  "Acute and subacute necrosis of liver")
(SETF (GETHASH "571" ICD9-HASH-TABLE)
  "Chronic liver disease and cirrhosis")
(SETF (GETHASH "571.0" ICD9-HASH-TABLE) "Alcoholic fatty liver")
(SETF (GETHASH "571.1" ICD9-HASH-TABLE) "Acute alcoholic hepatitis")
(SETF (GETHASH "571.2" ICD9-HASH-TABLE) "Alcoholic cirrhosis of liver")
(SETF (GETHASH "571.3" ICD9-HASH-TABLE)
  "Alcoholic liver damage, unspecified")
(SETF (GETHASH "571.4" ICD9-HASH-TABLE) "Chronic hepatitis")
(SETF (GETHASH "571.40" ICD9-HASH-TABLE)
  "Chronic hepatitis, unspecified")
(SETF (GETHASH "571.41" ICD9-HASH-TABLE) "Chronic persistent hepatitis")
(SETF (GETHASH "571.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "571.5" ICD9-HASH-TABLE)
  "Cirrhosis of liver without mention of alcohol")
(SETF (GETHASH "571.6" ICD9-HASH-TABLE) "Biliary cirrhosis")
(SETF (GETHASH "571.8" ICD9-HASH-TABLE)
  "Other chronic non-alcoholic liver disease")
(SETF (GETHASH "571.9" ICD9-HASH-TABLE)
  "Unspecified chronic liver disease without mention of alcohol")
(SETF (GETHASH "572" ICD9-HASH-TABLE)
  "Liver abscess and sequelae of chronic liver disease")
(SETF (GETHASH "572.0" ICD9-HASH-TABLE) "Abscess of liver")
(SETF (GETHASH "572.1" ICD9-HASH-TABLE) "Portal pyemia")
(SETF (GETHASH "572.2" ICD9-HASH-TABLE) "Hepatic coma")
(SETF (GETHASH "572.3" ICD9-HASH-TABLE) "Portal hypertension")
(SETF (GETHASH "572.4" ICD9-HASH-TABLE) "Hepatorenal syndrome")
(SETF (GETHASH "572.6" ICD9-HASH-TABLE) "Other sequelae of chronic liver disease")
(SETF (GETHASH "573" ICD9-HASH-TABLE) "Other disorders of liver")
(SETF (GETHASH "573.0" ICD9-HASH-TABLE)
  "Chronic passive congestion of liver")
(SETF (GETHASH "573.2" ICD9-HASH-TABLE)
  "Hepatitis in viral diseases classified elsewhere")
(SETF (GETHASH "573.3" ICD9-HASH-TABLE) "Hepatitis, unspecified")
(SETF (GETHASH "573.4" ICD9-HASH-TABLE) "Hepatic infarction")
(SETF (GETHASH "573.8" ICD9-HASH-TABLE) "Other specified disorders of liver")
(SETF (GETHASH "573.9" ICD9-HASH-TABLE) "Unspecified disorder of liver")
(SETF (GETHASH "574" ICD9-HASH-TABLE) "Cholelithiasis")
(SETF (GETHASH "574.0" ICD9-HASH-TABLE)
  "Calculous of gallbladder with acute cholecystitis")
(SETF (GETHASH "574.1" ICD9-HASH-TABLE) "Calculous of gallbladder with other cholecystitis")
(SETF (GETHASH "574.2" ICD9-HASH-TABLE)
  "Calculous of gallbladder without mention of cholecystitis")
(SETF (GETHASH "574.3" ICD9-HASH-TABLE) "Calculous of bile duct with acute cholecystitis")
(SETF (GETHASH "574.4" ICD9-HASH-TABLE)
  "Calculous of bile duct with other cholecystitis")
(SETF (GETHASH "574.5" ICD9-HASH-TABLE)
  "Calculous of bile duct without mention of cholecystitis")
(SETF (GETHASH "574.6" ICD9-HASH-TABLE)
  "Calculous of gallbladder and bile duct with acute cholecystitis")
(SETF (GETHASH "574.7" ICD9-HASH-TABLE)
  "Calculous of gallbladder and bile duct with other cholecystitis")
(SETF (GETHASH "574.8" ICD9-HASH-TABLE)
  "Calculous of gallbladder and bile duct without mention of cholecystitis")
(SETF (GETHASH "574.9" ICD9-HASH-TABLE)
  "Calculous of gallbladder and bile duct with acute and chronic cholecystitis")
(SETF (GETHASH "575" ICD9-HASH-TABLE) "Other disorders of gallbladder")
(SETF (GETHASH "575.0" ICD9-HASH-TABLE) "Acute cholecystitis")
"With lesion of proliferative glomerulonephritis"
(SETF GETHASH "'581.1' ICD9-HASH-TABLE) "With lesion of membranous glomerulonephritis"
(SETF GETHASH "'581.2' ICD9-HASH-TABLE) "With lesion of membranoproliferative glomerulonephritis"
(SETF GETHASH "'581.3' ICD9-HASH-TABLE) "With lesion of minimal change glomerulonephritis"
(SETF GETHASH "'581.8' ICD9-HASH-TABLE) "With other specified pathological lesion in kidney"
(SETF GETHASH "'581.82' ICD9-HASH-TABLE) "Nephrotic syndrome in diseases classified elsewhere"
(SETF GETHASH "'581.89' ICD9-HASH-TABLE) "Other"
(SETF GETHASH "'581.9' ICD9-HASH-TABLE) "Nephrotic syndrome with unspecified pathological lesion in kidney"
(SETF GETHASH "'582' ICD9-HASH-TABLE) "Chronic glomerulonephritis"
(SETF GETHASH "'582.0' ICD9-HASH-TABLE) "With lesion of proliferative glomerulonephritis"
(SETF GETHASH "'582.1' ICD9-HASH-TABLE) "With lesion of membranous glomerulonephritis"
(SETF GETHASH "'582.2' ICD9-HASH-TABLE) "With lesion of membranoproliferative glomerulonephritis"
(SETF GETHASH "'582.4' ICD9-HASH-TABLE) "With lesion of rapidly progressive glomerulonephritis"
(SETF GETHASH "'582.8' ICD9-HASH-TABLE) "With other specified pathological lesion in kidney"
(SETF GETHASH "'582.81' ICD9-HASH-TABLE) "Chronic glomerulonephritis in diseases classified elsewhere"
(SETF GETHASH "'582.89' ICD9-HASH-TABLE) "Other"
(SETF GETHASH "'582.9' ICD9-HASH-TABLE) "Chronic glomerulonephritis with unspecified pathological lesion in kidney"
(SETF GETHASH "'583' ICD9-HASH-TABLE) "Nephritis and nephropathy, not specified as acute or chronic"
(SETF GETHASH "'583.0' ICD9-HASH-TABLE) "With lesion of proliferative glomerulonephritis"
(SETF GETHASH "'583.1' ICD9-HASH-TABLE) "With lesion of membranous glomerulonephritis"
(SETF GETHASH "'583.2' ICD9-HASH-TABLE) "With lesion of membranoproliferative glomerulonephritis"
(SETF GETHASH "'583.4' ICD9-HASH-TABLE) "With lesion of rapidly progressive glomerulonephritis"
(SETF GETHASH "'583.6' ICD9-HASH-TABLE) "With lesion of renal cortical necrosis"
(SETF GETHASH "'583.7' ICD9-HASH-TABLE) "With lesion of renal medullary necrosis"
(SETF GETHASH "'583.8' ICD9-HASH-TABLE) "With other specified pathological lesion in kidney"
(SETF GETHASH "'583.81' ICD9-HASH-TABLE) "Nephritis and nephropathy, not specified as acute or chronic, in diseases classified elsewhere"
(SETF GETHASH "'583.89' ICD9-HASH-TABLE) "Other"
(SETF GETHASH "'583.9' ICD9-HASH-TABLE) "With unspecified pathological lesion in kidney"
(SETF GETHASH "'584' ICD9-HASH-TABLE) "Acute renal failure"
(SETF GETHASH "'584.5' ICD9-HASH-TABLE) "With lesion of tubular necrosis"
(SETF GETHASH "'584.6' ICD9-HASH-TABLE) "With lesion of renal cortical necrosis"
(SETF GETHASH "'584.7' ICD9-HASH-TABLE) "With lesion of renal medullary [papillary] necrosis"
(SETF GETHASH "'584.8' ICD9-HASH-TABLE) "With other specified pathological lesion in kidney"
(SETF GETHASH "'584.9' ICD9-HASH-TABLE) "Acute renal failure, unspecified"
(SETF GETHASH "'585' ICD9-HASH-TABLE) "Chronic renal failure"
(SETF GETHASH "'586' ICD9-HASH-TABLE) "Renal failure, unspecified"
(SETF GETHASH "'587' ICD9-HASH-TABLE) "Renal sclerosis, unspecified"
(SETF GETHASH "'588' ICD9-HASH-TABLE) "Renal failure, unspecified"
"Disorders resulting from impaired renal function")
(SETF (GETHASH "588.0" ICD9-HASH-TABLE) "Renal osteodystrophy")
(SETF (GETHASH "588.1" ICD9-HASH-TABLE) "Nephrogenic diabetes insipidus")
(SETF (GETHASH "588.8" ICD9-HASH-TABLE) "Other specified disorders resulting from impaired renal function")
(SETF (GETHASH "588.9" ICD9-HASH-TABLE) "Unspecified disorder resulting from impaired renal function")
(SETF (GETHASH "589" ICD9-HASH-TABLE) "Small kidney of unknown cause")
(SETF (GETHASH "589.0" ICD9-HASH-TABLE) "Unilateral small kidney")
(SETF (GETHASH "589.1" ICD9-HASH-TABLE) "Bilateral small kidneys")
(SETF (GETHASH "589.9" ICD9-HASH-TABLE) "Small kidney, unspecified")
(SETF (GETHASH "590" ICD9-HASH-TABLE) "Infections of kidney")
(SETF (GETHASH "590.0" ICD9-HASH-TABLE) "Chronic pyelonephritis")
(SETF (GETHASH "590.00" ICD9-HASH-TABLE) "Without lesion of renal medullary necrosis")
(SETF (GETHASH "590.01" ICD9-HASH-TABLE) "With lesion of renal medullary necrosis")
(SETF (GETHASH "590.1" ICD9-HASH-TABLE) "Acute pyelonephritis")
(SETF (GETHASH "590.10" ICD9-HASH-TABLE) "Without lesion of renal medullary necrosis")
(SETF (GETHASH "590.11" ICD9-HASH-TABLE) "With lesion of renal medullary necrosis")
(SETF (GETHASH "590.2" ICD9-HASH-TABLE) "Renal and perinephric abscess")
(SETF (GETHASH "590.3" ICD9-HASH-TABLE) "Pyeloureteritis cystica")
(SETF (GETHASH "590.8" ICD9-HASH-TABLE) "Other pyelonephritis or pyonephrosis, not specified as acute or chronic")
(SETF (GETHASH "590.80" ICD9-HASH-TABLE) "Pyelonephritis, unspecified")
(SETF (GETHASH "590.81" ICD9-HASH-TABLE) "Pyelitis or pyelonephritis in diseases classified elsewhere")
(SETF (GETHASH "590.9" ICD9-HASH-TABLE) "Infection of kidney, unspecified")
(SETF (GETHASH "591" ICD9-HASH-TABLE) "Hydronephrosis")
(SETF (GETHASH "592" ICD9-HASH-TABLE) "Calcus of kidney and ureter")
(SETF (GETHASH "592.0" ICD9-HASH-TABLE) "Calcus of kidney")
(SETF (GETHASH "592.1" ICD9-HASH-TABLE) "Calcus of ureter")
(SETF (GETHASH "592.9" ICD9-HASH-TABLE) "Urinary calculus, unspecified")
(SETF (GETHASH "593" ICD9-HASH-TABLE) "Other disorders of kidney and ureter")
(SETF (GETHASH "593.0" ICD9-HASH-TABLE) "Nephroptosis")
(SETF (GETHASH "593.1" ICD9-HASH-TABLE) "Hypertrophy of kidney")
(SETF (GETHASH "593.2" ICD9-HASH-TABLE) "Cyst of kidney, acquired")
(SETF (GETHASH "593.3" ICD9-HASH-TABLE) "Stricture or stenosing of ureter")
(SETF (GETHASH "593.4" ICD9-HASH-TABLE) "Other ureteric obstruction")
(SETF (GETHASH "593.5" ICD9-HASH-TABLE) "Hydrourerter")
(SETF (GETHASH "593.6" ICD9-HASH-TABLE) "Postural proteinuria")
(SETF (GETHASH "593.7" ICD9-HASH-TABLE) "Vesicoureteral reflux")
(SETF (GETHASH "593.70" ICD9-HASH-TABLE) "Unspecified or without reflux nephropathy")
(SETF (GETHASH "593.71" ICD9-HASH-TABLE) "With reflux nephropathy, unilateral")
(SETF (GETHASH "593.72" ICD9-HASH-TABLE) "With reflux nephropathy, bilateral")
(SETF (GETHASH "593.73" ICD9-HASH-TABLE) "With reflux nephropathy NOS")
(SETF (GETHASH "593.8" ICD9-HASH-TABLE) "Other specified disorders of kidney and ureter")
(SETF (GETHASH "593.81" ICD9-HASH-TABLE) "Vascular disorders of kidney")
(SETF (GETHASH "593.82" ICD9-HASH-TABLE) "Ureteral fistula")
(SETF (GETHASH "593.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "593.9" ICD9-HASH-TABLE) "Unspecified disorder of kidney and ureter")
(SETF (GETHASH "594" ICD9-HASH-TABLE) "Calcus of lower urinary tract")
(SETF (GETHASH "594.0" ICD9-HASH-TABLE) "Calcus in diverticulum of bladder")
(SETF (GETHASH "594.1" ICD9-HASH-TABLE) "Other calculus in bladder")
(SETF (GETHASH "599.1" ICD9-HASH-TABLE) "Urethral fistula")
(SETF (GETHASH "599.2" ICD9-HASH-TABLE) "Urethral diverticulum")
(SETF (GETHASH "599.3" ICD9-HASH-TABLE) "Urethral caruncle")
(SETF (GETHASH "599.4" ICD9-HASH-TABLE) "Urethral false passage")
(SETF (GETHASH "599.5" ICD9-HASH-TABLE) "Prolapsed urethral mucosa")
(SETF (GETHASH "599.6" ICD9-HASH-TABLE) "Urinary obstruction, unspecified")
(SETF (GETHASH "599.7" ICD9-HASH-TABLE) "Hematuria")
(SETF (GETHASH "599.8" ICD9-HASH-TABLE) "Other specified disorders of urethra and urinary tract")
(SETF (GETHASH "599.9" ICD9-HASH-TABLE) "Urethral hyperemia")
(SETF (GETHASH "599.10" ICD9-HASH-TABLE) "Intrinsic (urethral) sphincter deficiency [UD]")
(SETF (GETHASH "599.11" ICD9-HASH-TABLE) "Urethral instability")
(SETF (GETHASH "599.12" ICD9-HASH-TABLE) "Other specified disorders of urethra")
(SETF (GETHASH "599.13" ICD9-HASH-TABLE) "Other specified disorders of urinary tract")
(SETF (GETHASH "599.14" ICD9-HASH-TABLE) "Unspecified disorder of urethra and urinary tract")
(SETF (GETHASH "600.1" ICD9-HASH-TABLE) "Hyperplasia of prostate")
(SETF (GETHASH "601.0" ICD9-HASH-TABLE) "Inflammatory diseases of prostate")
(SETF (GETHASH "601.1" ICD9-HASH-TABLE) "Acute prostatitis")
(SETF (GETHASH "601.2" ICD9-HASH-TABLE) "Chronic prostatitis")
(SETF (GETHASH "601.3" ICD9-HASH-TABLE) "Abscess of prostate")
(SETF (GETHASH "601.4" ICD9-HASH-TABLE) "Prostatocystitis")
(SETF (GETHASH "601.8" ICD9-HASH-TABLE) "Prostatitis in diseases classified elsewhere")
(SETF (GETHASH "601.9" ICD9-HASH-TABLE) "Other specified inflammatory diseases of prostate")
(SETF (GETHASH "602.0" ICD9-HASH-TABLE) "Other disorders of prostate")
(SETF (GETHASH "602.1" ICD9-HASH-TABLE) "Calculus of prostate")
(SETF (GETHASH "602.2" ICD9-HASH-TABLE) "Atrophy of prostate")
(SETF (GETHASH "602.3" ICD9-HASH-TABLE) "Compensation or hemorrhage of prostate")
(SETF (GETHASH "602.4" ICD9-HASH-TABLE) "Other specified disorders of prostate")
(SETF (GETHASH "602.5" ICD9-HASH-TABLE) "Unspecified disorder of prostate")
(SETF (GETHASH "602.6" ICD9-HASH-TABLE) "Hydrocele")
(SETF (GETHASH "602.7" ICD9-HASH-TABLE) "Encysted hydrocele")
(SETF (GETHASH "602.8" ICD9-HASH-TABLE) "Infected hydrocele")
(SETF (GETHASH "602.9" ICD9-HASH-TABLE) "Other specified types of hydrocele")
(SETF (GETHASH "603.0" ICD9-HASH-TABLE) "Hydrocele, unspecified")
(SETF (GETHASH "603.1" ICD9-HASH-TABLE) "Orchitis and epididymitis")
(SETF (GETHASH "603.2" ICD9-HASH-TABLE) "Orchitis, epididymitis, and epididymo-orchitis, with abscess")
(SETF (GETHASH "603.3" ICD9-HASH-TABLE) "Other orchitis, epididymitis, and epididymo-orchitis, without mention of abscess")
(SETF (GETHASH "603.4" ICD9-HASH-TABLE) "Orchitis and epididymitis, unspecified")
(SETF (GETHASH "603.5" ICD9-HASH-TABLE) "Orchitis and epididymitis in diseases classified elsewhere")
(SETF (GETHASH "603.6" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "603.7" ICD9-HASH-TABLE) "Redundant prepuce and phimosis")
(SETF (GETHASH "603.8" ICD9-HASH-TABLE) "Infertility, male")
(SETF (GETHASH "603.9" ICD9-HASH-TABLE) "Azoospermia")
(SETF (GETHASH "603.10" ICD9-HASH-TABLE) "Oligospermia")
(SETF (GETHASH "603.11" ICD9-HASH-TABLE) "Infertility due to extratesticular causes")
(SETF (GETHASH "604.0" ICD9-HASH-TABLE) "Male infertility, unspecified")
(SETF (GETHASH "604.1" ICD9-HASH-TABLE) "Disorders of penis")
(SETF (GETHASH "604.2" ICD9-HASH-TABLE) "Leukoplakia of penis")
(SETF (GETHASH "618.4" ICD9-HASH-TABLE)
"Uterovaginal prolapse, unspecified")
(SETF (GETHASH "618.5" ICD9-HASH-TABLE)
"Prolapse of vaginal vault after hysterectomy")
(SETF (GETHASH "618.6" ICD9-HASH-TABLE)
"Vaginal enterocele, congenital or acquired")
(SETF (GETHASH "618.7" ICD9-HASH-TABLE)
"Old laceration of muscles of pelvic floor")
(SETF (GETHASH "618.8" ICD9-HASH-TABLE)
"Other specified genital prolapse")
(SETF (GETHASH "618.9" ICD9-HASH-TABLE)
"Unspecified genital prolapse")
(SETF (GETHASH "519" ICD9-HASH-TABLE)
"Fistula involving female genital tract")
(SETF (GETHASH "519.0" ICD9-HASH-TABLE)
"Urinary-genital tract fistula, female")
(SETF (GETHASH "519.1" ICD9-HASH-TABLE)
"Digestive-genital tract fistula, female")
(SETF (GETHASH "519.2" ICD9-HASH-TABLE)
"Genital tract-skin fistula, female")
(SETF (GETHASH "519.3" ICD9-HASH-TABLE)
"Unspecified fistula involving female genital tract")
(SETF (GETHASH "520" ICD9-HASH-TABLE)
"Noninflammatory disorders of ovary, fallopian tube, and broad ligament")
(SETF (GETHASH "520.0" ICD9-HASH-TABLE)
"Follicular cyst of ovary")
(SETF (GETHASH "520.1" ICD9-HASH-TABLE)
"Corpus luteum cyst or hematoma")
(SETF (GETHASH "520.2" ICD9-HASH-TABLE)
"Other and unspecified ovarian cyst")
(SETF (GETHASH "520.3" ICD9-HASH-TABLE)
"Acquired atrophy of ovary and fallopian tube")
(SETF (GETHASH "520.4" ICD9-HASH-TABLE)
"Prolapse or hernia of ovary and fallopian tube")
(SETF (GETHASH "520.5" ICD9-HASH-TABLE)
"Torsion of ovary, ovarian pedicle, or fallopian tube")
(SETF (GETHASH "520.6" ICD9-HASH-TABLE)
"Broad ligament laceration syndrome")
(SETF (GETHASH "520.7" ICD9-HASH-TABLE)
"Hematoma of broad ligament")
(SETF (GETHASH "520.8" ICD9-HASH-TABLE)
"Other noninflammatory disorders of ovary, fallopian tube, and broad ligament")
(SETF (GETHASH "520.9" ICD9-HASH-TABLE)
"Unspecified noninflammatory disorder of ovary, fallopian tube, and broad ligament")
(SETF (GETHASH "621" ICD9-HASH-TABLE)
"Disorders of uterus, not elsewhere classified")
(SETF (GETHASH "621.0" ICD9-HASH-TABLE)
"Poly of corpus uteri")
(SETF (GETHASH "621.1" ICD9-HASH-TABLE)
"Chronic subinvolution of uterus")
(SETF (GETHASH "621.2" ICD9-HASH-TABLE)
"Hypertrophy of uterus")
(SETF (GETHASH "621.3" ICD9-HASH-TABLE)
"Endometrial cystic hyperplasia")
(SETF (GETHASH "621.4" ICD9-HASH-TABLE)
"Hematometra")
(SETF (GETHASH "621.5" ICD9-HASH-TABLE)
"Intruterine synechiae")
(SETF (GETHASH "621.6" ICD9-HASH-TABLE)
"Malposition of uterus")
(SETF (GETHASH "621.7" ICD9-HASH-TABLE)
"Chronic inversion of uterus")
(SETF (GETHASH "621.8" ICD9-HASH-TABLE)
"Other specified disorders of uterus, not elsewhere classified")
(SETF (GETHASH "621.9" ICD9-HASH-TABLE)
"Unspecified disorder of uterus")
(SETF (GETHASH "622" ICD9-HASH-TABLE)
"Noninflammatory disorders of cervix")
(SETF (GETHASH "622.0" ICD9-HASH-TABLE)
"Erosion and ectropion of cervix")
(SETF (GETHASH "622.1" ICD9-HASH-TABLE)
"Dysplasia of cervix (uteri")
(SETF (GETHASH "622.2" ICD9-HASH-TABLE)
"Leukoplakia of cervix (uteri")
(SETF (GETHASH "622.3" ICD9-HASH-TABLE)
"Old laceration of cervix")
(SETF (GETHASH "626.8" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "626.9" ICD9-HASH-TABLE) "Unspecified")
(SETF (GETHASH "627" ICD9-HASH-TABLE) "Menopausal and postmenopausal disorders")
(SETF (GETHASH "627.0" ICD9-HASH-TABLE) "Prenopausal menorrhagia")
(SETF (GETHASH "627.1" ICD9-HASH-TABLE) "Postmenopausal bleeding")
(SETF (GETHASH "627.2" ICD9-HASH-TABLE) "Menopausal or female climacteric states")
(SETF (GETHASH "627.3" ICD9-HASH-TABLE) "Postmenopausal atrophic vaginitis")
(SETF (GETHASH "627.4" ICD9-HASH-TABLE) "States associated with artificial menopause")
(SETF (GETHASH "627.8" ICD9-HASH-TABLE) "Other specified menopausal and postmenopausal disorders")
(SETF (GETHASH "627.9" ICD9-HASH-TABLE) "Unspecified menopausal and postmenopausal disorder")
(SETF (GETHASH "628" ICD9-HASH-TABLE) "Infertility, female")
(SETF (GETHASH "628.0" ICD9-HASH-TABLE) "Associated with anovulation")
(SETF (GETHASH "628.1" ICD9-HASH-TABLE) "Of pituitary-hypothalamic origin")
(SETF (GETHASH "628.2" ICD9-HASH-TABLE) "Of tubal origin")
(SETF (GETHASH "628.3" ICD9-HASH-TABLE) "Of uterine origin")
(SETF (GETHASH "628.4" ICD9-HASH-TABLE) "Of cervical or vaginal origin")
(SETF (GETHASH "628.8" ICD9-HASH-TABLE) "Of other specified origin")
(SETF (GETHASH "628.9" ICD9-HASH-TABLE) "Of unspecified origin")
(SETF (GETHASH "629" ICD9-HASH-TABLE) "Other disorders of female genital organs")
(SETF (GETHASH "629.0" ICD9-HASH-TABLE) "Hematocoele, female, not elsewhere classified")
(SETF (GETHASH "629.1" ICD9-HASH-TABLE) "Hydrocele, canal of Nuck")
(SETF (GETHASH "629.8" ICD9-HASH-TABLE) "Other specified disorders of female genital organs")
(SETF (GETHASH "629.9" ICD9-HASH-TABLE) "Unspecified disorder of female genital organs")
(SETF (GETHASH "630" ICD9-HASH-TABLE) "Hydatidiform mole")
(SETF (GETHASH "631" ICD9-HASH-TABLE) "Other abnormal product of conception")
(SETF (GETHASH "632" ICD9-HASH-TABLE) "Missed abortion")
(SETF (GETHASH "633" ICD9-HASH-TABLE) "Ectopic pregnancy")
(SETF (GETHASH "633.0" ICD9-HASH-TABLE) "Abdominal pregnancy")
(SETF (GETHASH "633.1" ICD9-HASH-TABLE) "Tubal pregnancy")
(SETF (GETHASH "633.2" ICD9-HASH-TABLE) "Ovarian pregnancy")
(SETF (GETHASH "633.8" ICD9-HASH-TABLE) "Other ectopic pregnancy")
(SETF (GETHASH "633.9" ICD9-HASH-TABLE) "Unspecified ectopic pregnancy")
(SETF (GETHASH "634" ICD9-HASH-TABLE) "Spontaneous abortion")
(SETF (GETHASH "634.0" ICD9-HASH-TABLE) "Complicated by genital tract and pelvic infection")
(SETF (GETHASH "634.1" ICD9-HASH-TABLE) "Complicated by delayed or excessive hemorrhage")
(SETF (GETHASH "634.2" ICD9-HASH-TABLE) "Complicated by damage to pelvic organs or tissues")
(SETF (GETHASH "634.3" ICD9-HASH-TABLE) "Complicated by renal failure")
(SETF (GETHASH "634.4" ICD9-HASH-TABLE) "Complicated by metabolic disorder")
(SETF (GETHASH "634.5" ICD9-HASH-TABLE) "Complicated by shock")
(SETF (GETHASH "634.6" ICD9-HASH-TABLE) "Complicated by embolism")
(SETF (GETHASH "634.7" ICD9-HASH-TABLE) "With other specified complications")
(SETF (GETHASH "634.8" ICD9-HASH-TABLE) "With unspecified complication")
(SETF (GETHASH "634.9" ICD9-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "635" ICD9-HASH-TABLE) "Legally induced abortion")
(SETF (GETHASH "635.0" ICD9-HASH-TABLE) "Complicated by genital tract and pelvic infection")
(SETF (GETHASH "635.1" ICD9-HASH-TABLE) "Complicated by delayed or excessive hemorrhage")
(SETF (GETHASH "635.2" ICD9-MASH-TABLE) "Complicated by damage to pelvic organs or tissues")
(SETF (GETHASH "635.3" ICD9-MASH-TABLE) "Complicated by renal failure")
(SETF (GETHASH "635.4" ICD9-MASH-TABLE) "Complicated by metabolic disorder")
(SETF (GETHASH "635.5" ICD9-MASH-TABLE) "Complicated by shock")
(SETF (GETHASH "635.6" ICD9-MASH-TABLE) "Complicated by embolism")
(SETF (GETHASH "635.7" ICD9-MASH-TABLE) "With other specified complications")
(SETF (GETHASH "635.8" ICD9-MASH-TABLE) "With unspecified complication")
(SETF (GETHASH "635.9" ICD9-MASH-TABLE) "Without mention of complication")
(SETF (GETHASH "636" ICD9-MASH-TABLE) "Illegally induced abortion")
(SETF (GETHASH "636.0" ICD9-MASH-TABLE) "Complicated by genital tract and pelvic infection")
(SETF (GETHASH "636.1" ICD9-MASH-TABLE) "Complicated by delayed or excessive hemorrhage")
(SETF (GETHASH "636.2" ICD9-MASH-TABLE) "Complicated by damage to pelvic organs or tissues")
(SETF (GETHASH "636.3" ICD9-MASH-TABLE) "Complicated by renal failure")
(SETF (GETHASH "636.4" ICD9-MASH-TABLE) "Complicated by metabolic disorder")
(SETF (GETHASH "636.5" ICD9-MASH-TABLE) "Complicated by shock")
(SETF (GETHASH "636.6" ICD9-MASH-TABLE) "Complicated by embolism")
(SETF (GETHASH "636.7" ICD9-MASH-TABLE) "With other specified complications")
(SETF (GETHASH "636.8" ICD9-MASH-TABLE) "With unspecified complication")
(SETF (GETHASH "636.9" ICD9-MASH-TABLE) "Without mention of complication")
(SETF (GETHASH "637" ICD9-MASH-TABLE) "Complicated by genital tract and pelvic infection")
(SETF (GETHASH "637.1" ICD9-MASH-TABLE) "Complicated by delayed or excessive hemorrhage")
(SETF (GETHASH "637.2" ICD9-MASH-TABLE) "Complicated by damage to pelvic organs or tissues")
(SETF (GETHASH "637.3" ICD9-MASH-TABLE) "Complicated by renal failure")
(SETF (GETHASH "637.4" ICD9-MASH-TABLE) "Complicated by metabolic disorder")
(SETF (GETHASH "637.5" ICD9-MASH-TABLE) "Complicated by shock")
(SETF (GETHASH "637.6" ICD9-MASH-TABLE) "Complicated by embolism")
(SETF (GETHASH "637.7" ICD9-MASH-TABLE) "With other specified complications")
(SETF (GETHASH "637.8" ICD9-MASH-TABLE) "With unspecified complication")
(SETF (GETHASH "637.9" ICD9-MASH-TABLE) "Without mention of complication")
(SETF (GETHASH "638" ICD9-MASH-TABLE) "Failed attempted abortion")
(SETF (GETHASH "638.0" ICD9-MASH-TABLE) "Complicated by genital tract and pelvic infection")
(SETF (GETHASH "638.1" ICD9-MASH-TABLE) "Complicated by delayed or excessive hemorrhage")
(SETF (GETHASH "638.2" ICD9-MASH-TABLE) "Complicated by damage to pelvic organs or tissues")
(SETF (GETHASH "638.3" ICD9-MASH-TABLE) "Complicated by renal failure")
(SETF (GETHASH "638.4" ICD9-MASH-TABLE) "Complicated by metabolic disorder")
(SETF (GETHASH "638.5" ICD9-MASH-TABLE) "Complicated by shock")
(SETF (GETHASH "638.6" ICD9-MASH-TABLE) "Complicated by embolism")
(SETF (GETHASH "638.7" ICD9-MASH-TABLE) "With other specified complications")
(SETF (GETHASH "638.8" ICD9-MASH-TABLE) "With unspecified complication")
(SETF (GETHASH "638.9" ICD9-MASH-TABLE) "Without mention of complication")
(SETF (GETHASH "639" ICD9-MASH-TABLE) "Complications following abortion and ectopic and molar pregnancies")
(SETF (GETHASH "639.0" ICD9-MASH-TABLE) "Complicated by delayed or excessive hemorrhage")
"Genital tract and pelvic infection"

(SETF (GETHASH "639.1" ICD9-HASH-TABLE)
  "Delayed or excessive hemorrhage")

(SETF (GETHASH "639.2" ICD9-HASH-TABLE)
  "Damage to pelvic organs and tissues")

(SETF (GETHASH "639.3" ICD9-HASH-TABLE)
  "Renal failure")

(SETF (GETHASH "639.4" ICD9-HASH-TABLE)
  "Metabolic disorders")

(SETF (GETHASH "639.5" ICD9-HASH-TABLE)
  "Shock")

(SETF (GETHASH "639.6" ICD9-HASH-TABLE)
  "Embolism")

(SETF (GETHASH "639.8" ICD9-HASH-TABLE)
  "Other specified complications following abortion or ectopic and molar pregnancy")

(SETF (GETHASH "639.9" ICD9-HASH-TABLE)
  "Unspecified complication following abortion or ectopic and molar pregnancy")

(SETF (GETHASH "640" ICD9-HASH-TABLE)
  "Hemorrhage in early pregnancy")

(SETF (GETHASH "640.0" ICD9-HASH-TABLE)
  "Threatened abortion")

(SETF (GETHASH "640.8" ICD9-HASH-TABLE)
  "Other specified hemorrhage in early pregnancy")

(SETF (GETHASH "640.9" ICD9-HASH-TABLE)
  "Unspecified hemorrhage in early pregnancy")

(SETF (GETHASH "641" ICD9-HASH-TABLE)
  "Antepartum hemorrhage, abruptio placenta, and placenta previa")

(SETF (GETHASH "641.0" ICD9-HASH-TABLE)
  "Placenta previa without hemorrhage")

(SETF (GETHASH "641.1" ICD9-HASH-TABLE)
  "Hemorrhage from placenta previa")

(SETF (GETHASH "641.2" ICD9-HASH-TABLE)
  "Premature separation of placenta")

(SETF (GETHASH "641.3" ICD9-HASH-TABLE)
  "Antepartum hemorrhage associated with coagulation defects")

(SETF (GETHASH "641.8" ICD9-HASH-TABLE)
  "Other antepartum hemorrhage")

(SETF (GETHASH "641.9" ICD9-HASH-TABLE)
  "Unspecified antepartum hemorrhage")

(SETF (GETHASH "642" ICD9-HASH-TABLE)
  "Hypertension complicating pregnancy, childbirth, and the puerperium")

(SETF (GETHASH "642.0" ICD9-HASH-TABLE)
  "Benign essential hypertension complicating pregnancy, childbirth, and the puerperium")

(SETF (GETHASH "642.1" ICD9-HASH-TABLE)
  "Hypertension secondary to renal disease, complicating pregnancy, childbirth, and the puerperium")

(SETF (GETHASH "642.2" ICD9-HASH-TABLE)
  "Other pre-existing hypertension complicating pregnancy, childbirth, and the puerperium")

(SETF (GETHASH "642.3" ICD9-HASH-TABLE)
  "Transient hypertension of pregnancy")

(SETF (GETHASH "642.4" ICD9-HASH-TABLE)
  "Mild or unspecified pre-eclampsia")

(SETF (GETHASH "642.5" ICD9-HASH-TABLE)
  "Severe pre-eclampsia")

(SETF (GETHASH "642.6" ICD9-HASH-TABLE)
  "Eclampsia")

(SETF (GETHASH "642.7" ICD9-HASH-TABLE)
  "Pre-eclampsia or eclampsia superimposed on pre-existing hypertension")

(SETF (GETHASH "642.9" ICD9-HASH-TABLE)
  "Unspecified hypertension complicating pregnancy, childbirth, or the puerperium")

(SETF (GETHASH "643" ICD9-HASH-TABLE)
  "Excessive vomiting in pregnancy")

(SETF (GETHASH "643.0" ICD9-HASH-TABLE)
  "Mild hyperemesis gravidarum")

(SETF (GETHASH "643.1" ICD9-HASH-TABLE)
  "Hyperemesis gravidarum with metabolic disturbance")

(SETF (GETHASH "643.2" ICD9-HASH-TABLE)
  "Late vomiting of pregnancy")

(SETF (GETHASH "643.8" ICD9-HASH-TABLE)
  "Other vomiting complicating pregnancy")

(SETF (GETHASH "643.9" ICD9-HASH-TABLE)
  "Unspecified vomiting of pregnancy")

(SETF (GETHASH "644" ICD9-HASH-TABLE)
  "Early or threatened labor")

(SETF (GETHASH "644.0" ICD9-HASH-TABLE)
  "Threatened premature labor")

(SETF (GETHASH "644.1" ICD9-HASH-TABLE)
  "Other threatened labor")

(SETF (GETHASH "644.2" ICD9-HASH-TABLE)
  "Early onset of delivery")

(SETF (GETHASH "645" ICD9-HASH-TABLE)
  "Prolonged pregnancy")

(SETF (GETHASH "646" ICD9-HASH-TABLE)
  "Other complications of pregnancy, not elsewhere classified")
(SETF (GETHASH "646.0" ICDS-HASH-TABLE) "Papillary cyst of the thyroid")
(SETF (GETHASH "646.1" ICDS-HASH-TABLE) "Edema or excessive weight gain in pregnancy, without mention of hypertension")
(SETF (GETHASH "646.2" ICDS-HASH-TABLE) "Unspecified renal disease in pregnancy, without mention of hypertension")
(SETF (GETHASH "646.3" ICDS-HASH-TABLE) "Habitual aborter")
(SETF (GETHASH "646.4" ICDS-HASH-TABLE) "Peripheral neuritis in pregnancy")
(SETF (GETHASH "646.5" ICDS-HASH-TABLE) "Asymptomatic bacteriuria in pregnancy")
(SETF (GETHASH "646.6" ICDS-HASH-TABLE) "Infections of genitourinary tract in pregnancy")
(SETF (GETHASH "646.7" ICDS-HASH-TABLE) "Liver disorders in pregnancy")
(SETF (GETHASH "646.8" ICDS-HASH-TABLE) "Other specified complications of pregnancy")
(SETF (GETHASH "646.9" ICDS-HASH-TABLE) "Unspecified complication of pregnancy")
(SETF (GETHASH "647" ICDS-HASH-TABLE) "Infectious and parasitic conditions in the mother classifiable elsewhere, but complicating pregnancy, childbirth, or the puerperium")
(SETF (GETHASH "647.0" ICDS-HASH-TABLE) "Syphilis")
(SETF (GETHASH "647.1" ICDS-HASH-TABLE) " Gonorrhoea")
(SETF (GETHASH "647.2" ICDS-HASH-TABLE) " Other venereal diseases")
(SETF (GETHASH "647.3" ICDS-HASH-TABLE) " Tuberculosis")
(SETF (GETHASH "647.4" ICDS-HASH-TABLE) " Malaria")
(SETF (GETHASH "647.5" ICDS-HASH-TABLE) " Rubella")
(SETF (GETHASH "647.6" ICDS-HASH-TABLE) " Other viral diseases")
(SETF (GETHASH "647.7" ICDS-HASH-TABLE) " Other specified infectious and parasitic diseases")
(SETF (GETHASH "647.8" ICDS-HASH-TABLE) " Unspecified infection or infestation")
(SETF (GETHASH "648" ICDS-HASH-TABLE) " Other current conditions in the mother classifiable elsewhere, but complicating pregnancy, childbirth, or the puerperium")
(SETF (GETHASH "648.0" ICDS-HASH-TABLE) " Diabetes mellitus")
(SETF (GETHASH "648.1" ICDS-HASH-TABLE) " Thyroid dysfunction")
(SETF (GETHASH "648.2" ICDS-HASH-TABLE) " Anaemia")
(SETF (GETHASH "648.3" ICDS-HASH-TABLE) " Drug dependence")
(SETF (GETHASH "648.4" ICDS-HASH-TABLE) " Mental disorders")
(SETF (GETHASH "648.5" ICDS-HASH-TABLE) " Congenital cardiovascular disorders")
(SETF (GETHASH "648.6" ICDS-HASH-TABLE) " Bone and joint disorders of back, pelvis, and lower limbs")
(SETF (GETHASH "648.7" ICDS-HASH-TABLE) " Abnormal glucose tolerance")
(SETF (GETHASH "648.8" ICDS-HASH-TABLE) " Other current conditions classifiable elsewhere")
(SETF (GETHASH "650" ICDS-HASH-TABLE) " Normal delivery ")
(SETF (GETHASH "651" ICDS-HASH-TABLE) " Multiple gestation")
(SETF (GETHASH "651.0" ICDS-HASH-TABLE) " Triplet pregnancy")
(SETF (GETHASH "651.1" ICDS-HASH-TABLE) " Quadruplet pregnancy")
(SETF (GETHASH "651.2" ICDS-HASH-TABLE) " Twin pregnancy with fetal loss and retention of one fetus")
(SETF (GETHASH "651.3" ICDS-HASH-TABLE) " Triplet pregnancy with fetal loss and retention of one or more fetus(es)")
(SETF (GETHASH "651.4" ICDS-HASH-TABLE) " Quadruplet pregnancy with fetal loss and retention of one or more fetus(es)")
(SETF (GETHASH "651.5" ICDS-HASH-TABLE) " Other multiple pregnancy with fetal loss and retention of one or more fetus(es)")
(SETF (GETHASH "651.6" ICDS-HASH-TABLE) " Unspecified multiple gestation")
(SETF (GETHASH "652" ICDS-HASH-TABLE) " Malpresentation and malpresentation of fetus")
(SETF (GETHASH "652.0" ICDS-HASH-TABLE) " Unstable lie")
(SETF (GETHASH "652.1" ICDS-HASH-TABLE) " Twin pregnancy with fetal loss and retention of one fetus")
"Breech or other malpresentation successfully converted to cephalic presentation"

(SETF (GETTEXT "652.2" ICD9-HASH-TABLE) "Breech presentation without mention of version")

(SETF (GETTEXT "652.3" ICD9-HASH-TABLE) "Transverse or oblique presentation")

(SETF (GETTEXT "652.4" ICD9-HASH-TABLE) "Face or brow presentation")

(SETF (GETTEXT "652.5" ICD9-HASH-TABLE) "Head at term")

(SETF (GETTEXT "652.6" ICD9-HASH-TABLE) "Multiple gestation with malpresentation of one fetus or more")

(SETF (GETTEXT "652.7" ICD9-HASH-TABLE) "Prolapsed arm")

(SETF (GETTEXT "652.8" ICD9-HASH-TABLE) "Other specified malposition or malpresentation")

(SETF (GETTEXT "652.9" ICD9-HASH-TABLE) "Unspecified malposition or malpresentation")

(SETF (GETTEXT "653" ICD9-HASH-TABLE) "Disproportion")

(SETF (GETTEXT "653.0" ICD9-HASH-TABLE) "Major abnormality of bony pelvis, not further specified")

(SETF (GETTEXT "653.1" ICD9-HASH-TABLE) "Generally contracted pelvis")

(SETF (GETTEXT "653.2" ICD9-HASH-TABLE) "Inlet contraction of pelvis")

(SETF (GETTEXT "653.3" ICD9-HASH-TABLE) "Outlet contraction of pelvis")

(SETF (GETTEXT "653.4" ICD9-HASH-TABLE) "Fetopelvic disproportion")

(SETF (GETTEXT "653.5" ICD9-HASH-TABLE) "Unusually large fetus causing disproportion")

(SETF (GETTEXT "653.6" ICD9-HASH-TABLE) "Hydrocephalic fetus causing disproportion")

(SETF (GETTEXT "653.7" ICD9-HASH-TABLE) "Other fetal abnormality causing disproportion")

(SETF (GETTEXT "653.8" ICD9-HASH-TABLE) "Disproportion of other origin")

(SETF (GETTEXT "653.9" ICD9-HASH-TABLE) "Unspecified disproportion")

(SETF (GETTEXT "654" ICD9-HASH-TABLE) "Abnormality of organs and soft tissues of pelvis")

(SETF (GETTEXT "654.0" ICD9-HASH-TABLE) "Congenital abnormalities of uterus")

(SETF (GETTEXT "654.1" ICD9-HASH-TABLE) "Tumors of body of uterus")

(SETF (GETTEXT "654.2" ICD9-HASH-TABLE) "Previous cesarean delivery")

(SETF (GETTEXT "654.3" ICD9-HASH-TABLE) "Retroverted and incarcerated gravid uterus")

(SETF (GETTEXT "654.4" ICD9-HASH-TABLE) "Other abnormalities in shape or position of gravid uterus and of neighboring structures")

(SETF (GETTEXT "654.5" ICD9-HASH-TABLE) "Cervical incompetence")

(SETF (GETTEXT "654.6" ICD9-HASH-TABLE) "Other congenital or acquired abnormality of cervix")

(SETF (GETTEXT "654.7" ICD9-HASH-TABLE) "Congenital or acquired abnormality of vagina")

(SETF (GETTEXT "654.8" ICD9-HASH-TABLE) "Congenital or acquired abnormality of vulva")

(SETF (GETTEXT "654.9" ICD9-HASH-TABLE) "Other and unspecified")

(SETF (GETTEXT "655" ICD9-HASH-TABLE) "Known or suspected fetal abnormality affecting management of mother")

(SETF (GETTEXT "655.0" ICD9-HASH-TABLE) "Central nervous system malformation in fetus")

(SETF (GETTEXT "655.1" ICD9-HASH-TABLE) "Chromosomal abnormality in fetus")

(SETF (GETTEXT "655.2" ICD9-HASH-TABLE) "Heredity disease in family possibly affecting fetus")

(SETF (GETTEXT "655.3" ICD9-HASH-TABLE) "Suspected damage to fetus from viral disease in the mother")

(SETF (GETTEXT "655.4" ICD9-HASH-TABLE) "Suspected damage to fetus from other disease in the mother")

(SETF (GETTEXT "655.5" ICD9-HASH-TABLE) "Suspected damage to fetus from drugs")

(SETF (GETTEXT "655.6" ICD9-HASH-TABLE) "Suspected damage to fetus from radiation")

(SETF (GETTEXT "655.7" ICD9-HASH-TABLE) "Decreased fetal movements")

(SETF (GETTEXT "655.8" ICD9-HASH-TABLE) "Other known or suspected fetal abnormality, not elsewhere classified")
"Other and unspecified uterine inertia")
(SETF (GETHASH "661.3" ICD9-HASH-TABLE) "Precipitate labor")
(SETF (GETHASH "661.4" ICD9-HASH-TABLE) "Hypertonic, incoordinate, or prolonged uterine contractions")
(SETF (GETHASH "661.8" ICD9-HASH-TABLE) "Unspecified abnormality of labor")
(SETF (GETHASH "662" ICD9-HASH-TABLE) "Long labor")
(SETF (GETHASH "662.0" ICD9-HASH-TABLE) "Prolonged first stage")
(SETF (GETHASH "662.1" ICD9-HASH-TABLE) "Prolonged labor, unspecified")
(SETF (GETHASH "662.2" ICD9-HASH-TABLE) "Prolonged second stage")
(SETF (GETHASH "662.3" ICD9-HASH-TABLE) "Delayed delivery of second twin, triplet, etc.")
(SETF (GETHASH "663" ICD9-HASH-TABLE) "Unilateral cord complications")
(SETF (GETHASH "663.0" ICD9-HASH-TABLE) "Prolapse of cord")
(SETF (GETHASH "663.1" ICD9-HASH-TABLE) "Cord around neck, with compression")
(SETF (GETHASH "663.2" ICD9-HASH-TABLE) "Other and unspecified cord entanglement, with compression")
(SETF (GETHASH "663.3" ICD9-HASH-TABLE) "Other and unspecified cord entanglement, without mention of compression")
(SETF (GETHASH "663.4" ICD9-HASH-TABLE) "Short cord")
(SETF (GETHASH "663.5" ICD9-HASH-TABLE) "Vasa previa")
(SETF (GETHASH "663.6" ICD9-HASH-TABLE) "Vascular lesions of cord")
(SETF (GETHASH "663.8" ICD9-HASH-TABLE) "Other umbilical cord complications")
(SETF (GETHASH "663.9" ICD9-HASH-TABLE) "Unspecified umbilical cord complication")
(SETF (GETHASH "664" ICD9-HASH-TABLE) "Trauma to perineum and vulva during delivery")
(SETF (GETHASH "664.0" ICD9-HASH-TABLE) "First-degree perineal laceration")
(SETF (GETHASH "664.1" ICD9-HASH-TABLE) "Second-degree perineal laceration")
(SETF (GETHASH "664.2" ICD9-HASH-TABLE) "Third-degree perineal laceration")
(SETF (GETHASH "664.3" ICD9-HASH-TABLE) "Fourth-degree perineal laceration")
(SETF (GETHASH "664.4" ICD9-HASH-TABLE) "Unspecified perineal laceration")
(SETF (GETHASH "664.5" ICD9-HASH-TABLE) "Vulval and perineal hematoma")
(SETF (GETHASH "664.8" ICD9-HASH-TABLE) "Other specified trauma to perineum and vulva")
(SETF (GETHASH "664.9" ICD9-HASH-TABLE) "Unspecified trauma to perineum and vulva")
(SETF (GETHASH "665" ICD9-HASH-TABLE) "Other obstetrical trauma")
(SETF (GETHASH "665.0" ICD9-HASH-TABLE) "Rupture of uterus before onset of labor")
(SETF (GETHASH "665.1" ICD9-HASH-TABLE) "Rupture of uterus during labor")
(SETF (GETHASH "665.2" ICD9-HASH-TABLE) "Inversion of uterus")
(SETF (GETHASH "665.3" ICD9-HASH-TABLE) "Laceration of cervix")
(SETF (GETHASH "665.4" ICD9-HASH-TABLE) "High vaginal laceration")
(SETF (GETHASH "665.5" ICD9-HASH-TABLE) "Other injury to pelvic organs")
(SETF (GETHASH "665.6" ICD9-HASH-TABLE) "Damage to pelvic joints and ligaments")
(SETF (GETHASH "665.7" ICD9-HASH-TABLE) "Pelvic hematoma")
(SETF (GETHASH "665.8" ICD9-HASH-TABLE) "Other specified obstetrical trauma")
(SETF (GETHASH "665.9" ICD9-HASH-TABLE) "Unspecified obstetrical trauma")
(SETF (GETHASH "666" ICD9-HASH-TABLE) "Postpartum hemorrhage")
(SETF (GETHASH "666.0" ICD9-HASH-TABLE) "Third-stage hemorrhage")
(SETF (GETHASH "666.1" ICD9-HASH-TABLE) "Other immediate postpartum hemorrhage")
(SETF (GETHASH "666.2" ICD9-HASH-TABLE) "Delayed and secondary postpartum hemorrhage")
(SETF (GETHASH "682.7" ICD9-HASH-TABLE) "Foot, except toes")
(SETF (GETHASH "682.8" ICD9-HASH-TABLE) "Other specified sites")
(SETF (GETHASH "682.9" ICD9-HASH-TABLE) "Unspecified site")
(SETF (GETHASH "683" ICD9-HASH-TABLE) "Acute lymphadenitis")
(SETF (GETHASH "684" ICD9-HASH-TABLE) "Impetigo")
(SETF (GETHASH "685" ICD9-HASH-TABLE) "Pilonidal cyst")
(SETF (GETHASH "685.0" ICD9-HASH-TABLE) "With abscess")
(SETF (GETHASH "685.1" ICD9-HASH-TABLE) "Without mention of abscess")
(SETF (GETHASH "686" ICD9-HASH-TABLE) "Other local infections of skin and subcutaneous tissue")
(SETF (GETHASH "686.0" ICD9-HASH-TABLE) "Pyoderma")
(SETF (GETHASH "686.00" ICD9-HASH-TABLE) "Pyoderma unspecified")
(SETF (GETHASH "686.02" ICD9-HASH-TABLE) "Pyoderma gangrenosum")
(SETF (GETHASH "686.1" ICD9-HASH-TABLE) "Pyogenic granuloma")
(SETF (GETHASH "686.8" ICD9-HASH-TABLE) "Other specified local infections of skin and subcutaneous tissue")
(SETF (GETHASH "686.9" ICD9-HASH-TABLE) "Unspecified local infection of skin and subcutaneous tissue")
(SETF (GETHASH "690" ICD9-HASH-TABLE) "Erythematous dermatosis")
(SETF (GETHASH "690.1" ICD9-HASH-TABLE) "Seborrheic dermatitis")
(SETF (GETHASH "690.10" ICD9-HASH-TABLE) "Seborrheic dermatitis, unspecified")
(SETF (GETHASH "690.11" ICD9-HASH-TABLE) "Seborrhea capitis")
(SETF (GETHASH "690.12" ICD9-HASH-TABLE) "Seborrheic infantile dermatitis")
(SETF (GETHASH "690.18" ICD9-HASH-TABLE) "Other seborrheic dermatitis")
(SETF (GETHASH "690.8" ICD9-HASH-TABLE) "Other erythematous dermatosis")
(SETF (GETHASH "691" ICD9-HASH-TABLE) "Atopic dermatitis and related conditions")
(SETF (GETHASH "691.0" ICD9-HASH-TABLE) "Diaper or napkin rash")
(SETF (GETHASH "691.8" ICD9-HASH-TABLE) "Other atopic dermatitis and related conditions")
(SETF (GETHASH "692" ICD9-HASH-TABLE) "Contact dermatitis and other eczema")
(SETF (GETHASH "692.0" ICD9-HASH-TABLE) "Due to detergents")
(SETF (GETHASH "692.1" ICD9-HASH-TABLE) "Due to oils and greases")
(SETF (GETHASH "692.2" ICD9-HASH-TABLE) "Due to solvents")
(SETF (GETHASH "692.3" ICD9-HASH-TABLE) "Due to drugs and medicines in contact with skin")
(SETF (GETHASH "692.4" ICD9-HASH-TABLE) "Due to other chemical products")
(SETF (GETHASH "692.5" ICD9-HASH-TABLE) "Due to food in contact with skin")
(SETF (GETHASH "692.6" ICD9-HASH-TABLE) "Due to plants [except food]")
(SETF (GETHASH "692.7" ICD9-HASH-TABLE) "Due to solar radiation")
(SETF (GETHASH "692.70" ICD9-HASH-TABLE) "Unspecified dermatitis due to sun")
(SETF (GETHASH "692.71" ICD9-HASH-TABLE) "Sunburn")
(SETF (GETHASH "692.72" ICD9-HASH-TABLE) "Actinic keratosis")
(SETF (GETHASH "692.73" ICD9-HASH-TABLE) "Actinic reticuloid and actinic granuloma")
(SETF (GETHASH "692.74" ICD9-HASH-TABLE) "Other chronic dermatitis due to solar radiation")
(SETF (GETHASH "692.79" ICD9-HASH-TABLE) "Other dermatitis due to solar radiation")
(SETF (GETHASH "692.8" ICD9-HASH-TABLE) "Due to other specified agents")
(SETF (GETHASH "692.81" ICD9-HASH-TABLE) "Dermatitis due to cosmetics")
(SETF (GETHASH "692.82" ICD9-HASH-TABLE) "Dermatitis due to other radiation")
(SETF (GETHASH "692.83" ICD9-HASH-TABLE) "Dermatitis due to metals")
(SETF (GETHASH "692.85" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "692.9" ICD9-HASH-TABLE) "Unspecified cause")
(SETF (GETHASH "693" ICD9-HASH-TABLE) "Dermatitis due to substances taken internally")
(SETF (GETHASH "701.1" ICD9-HASH-TABLE) "Keratoderma, acquired")
(SETF (GETHASH "701.2" ICD9-HASH-TABLE) "Acquired acanthosis nigricans")
(SETF (GETHASH "701.3" ICD9-HASH-TABLE) "Striae atrophicae")
(SETF (GETHASH "701.4" ICD9-HASH-TABLE) "Keloid scar")
(SETF (GETHASH "701.5" ICD9-HASH-TABLE) "Other abnormal granulation tissue")
(SETF (GETHASH "701.8" ICD9-HASH-TABLE) "Other specified hypertrophic and atrophic conditions of skin")
(SETF (GETHASH "701.9" ICD9-HASH-TABLE) "Unspecified hypertrophic atrophic conditions of skin")
(SETF (GETHASH "702" ICD9-HASH-TABLE) "Other dermatoses")
(SETF (GETHASH "702.0" ICD9-HASH-TABLE) "Actinic keratosis")
(SETF (GETHASH "702.1" ICD9-HASH-TABLE) "Seborrheic keratosis")
(SETF (GETHASH "702.11" ICD9-HASH-TABLE) "Inflamed seborrheic keratosis")
(SETF (GETHASH "702.10" ICD9-HASH-TABLE) "Other seborrheic keratosis")
(SETF (GETHASH "702.8" ICD9-HASH-TABLE) "Other specified dermatoses")
(SETF (GETHASH "703" ICD9-HASH-TABLE) "Diseases of nail")
(SETF (GETHASH "703.0" ICD9-HASH-TABLE) "Ingrowing nail")
(SETF (GETHASH "703.8" ICD9-HASH-TABLE) "Other specified diseases of nail")
(SETF (GETHASH "703.9" ICD9-HASH-TABLE) "Unspecified disease of nail")
(SETF (GETHASH "704" ICD9-HASH-TABLE) "Diseases of hair and hair follicles")
(SETF (GETHASH "704.0" ICD9-HASH-TABLE) "Alopecia")
(SETF (GETHASH "704.00" ICD9-HASH-TABLE) "Alopecia, unspecified")
(SETF (GETHASH "704.01" ICD9-HASH-TABLE) "Alopecia areata")
(SETF (GETHASH "704.02" ICD9-HASH-TABLE) "Telogen effluvium")
(SETF (GETHASH "704.09" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "704.1" ICD9-HASH-TABLE) "Hirsutism")
(SETF (GETHASH "704.2" ICD9-HASH-TABLE) "Abnormalities of the hair")
(SETF (GETHASH "704.3" ICD9-HASH-TABLE) "Variations in hair color")
(SETF (GETHASH "704.8" ICD9-HASH-TABLE) "Other specified diseases of hair and hair follicles")
(SETF (GETHASH "704.9" ICD9-HASH-TABLE) "Unspecified disease of hair and hair follicles")
(SETF (GETHASH "705" ICD9-HASH-TABLE) "Disorders of sweat glands")
(SETF (GETHASH "705.0" ICD9-HASH-TABLE) "Atherosis")
(SETF (GETHASH "705.1" ICD9-HASH-TABLE) "Prickly heat")
(SETF (GETHASH "705.8" ICD9-HASH-TABLE) "Other specified disorders of sweat glands")
(SETF (GETHASH "705.81" ICD9-HASH-TABLE) "Dishidrosis")
(SETF (GETHASH "705.82" ICD9-HASH-TABLE) "Fox-Fordyce disease")
(SETF (GETHASH "705.83" ICD9-HASH-TABLE) "Hidradenitis")
(SETF (GETHASH "705.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "705.9" ICD9-HASH-TABLE) "Unspecified disorder of sweat glands")
(SETF (GETHASH "706" ICD9-HASH-TABLE) "Diseases of sebaceous glands")
(SETF (GETHASH "706.0" ICD9-HASH-TABLE) "Acne varioliformis")
(SETF (GETHASH "706.1" ICD9-HASH-TABLE) "Other acne")
(SETF (GETHASH "706.2" ICD9-HASH-TABLE) "Sebaceous cyst")
(SETF (GETHASH "706.3" ICD9-HASH-TABLE) "Seborrhea")
(SETF (GETHASH "706.8" ICD9-HASH-TABLE) "Other specified diseases of sebaceous glands")
(SETF (GETHASH "706.9" ICD9-HASH-TABLE) "Unspecified disease of sebaceous glands")
(SETF (GETHASH "707" ICD9-HASH-TABLE) "Chronic ulcer of skin")
(SETF (GETHASH "707.0" ICD9-HASH-TABLE) "Decubitus ulcer")
(SETF (GETHASH "707.1" ICD9-HASH-TABLE) "Ulcer of lower limbs, except decubitus")
(SETF (GETHASH "707.8" ICD9-HASH-TABLE) "Chronic ulcer of other specified sites")
(SETF (GETHASH "707.9" ICD9-HASH-TABLE) "Chronic ulcer of unspecified site")
(SETF (GETHASH "708" ICD9-HASH-TABLE) "Urticaria")
(SETF (GETHASH "708.0" ICD9-HASH-TABLE) "Allergic urticaria")
(SETF (GETHASH "'708.1" ICD9-HASH-TABLE) "Idiopathic urticaria")
(SETF (GETHASH "'708.2" ICD9-HASH-TABLE) "Urticaria due to cold and heat")
(SETF (GETHASH "'708.3" ICD9-HASH-TABLE) "Dermatographic urticaria")
(SETF (GETHASH "'708.4" ICD9-HASH-TABLE) "Vibratory urticaria")
(SETF (GETHASH "'708.5" ICD9-HASH-TABLE) "Cholinergic urticaria")
(SETF (GETHASH "'708.8" ICD9-HASH-TABLE) "Other specified urticaria")
(SETF (GETHASH "'708.9" ICD9-HASH-TABLE) "Urticaria, unspecified")
(SETF (GETHASH "'709" ICD9-HASH-TABLE) "Other disorders of skin and subcutaneous tissue")
(SETF (GETHASH "'709.0" ICD9-HASH-TABLE) "Dyschromia")
(SETF (GETHASH "'709.00" ICD9-HASH-TABLE) "Dyschromia, unspecified")
(SETF (GETHASH "'709.02" ICD9-HASH-TABLE) "Vitiligo")
(SETF (GETHASH "'709.09" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "'709.1" ICD9-HASH-TABLE) "Vascular disorders of skin")
(SETF (GETHASH "'709.2" ICD9-HASH-TABLE) "Scar conditions and fibrosis of skin")
(SETF (GETHASH "'709.3" ICD9-HASH-TABLE) "Degenerative skin disorders")
(SETF (GETHASH "'709.4" ICD9-HASH-TABLE) "Foreign body granuloma of skin and subcutaneous tissue")
(SETF (GETHASH "'709.8" ICD9-HASH-TABLE) "Other specified disorders of skin")
(SETF (GETHASH "'709.9" ICD9-HASH-TABLE) "Unspecified disorder of skin and subcutaneous tissue")
(SETF (GETHASH "'710" ICD9-HASH-TABLE) "Diffuse diseases of connective tissue")
(SETF (GETHASH "'710.0" ICD9-HASH-TABLE) "Systemic lupus erythematosus")
(SETF (GETHASH "'710.1" ICD9-HASH-TABLE) "Systemic sclerosis")
(SETF (GETHASH "'710.2" ICD9-HASH-TABLE) "Sicca syndrome")
(SETF (GETHASH "'710.3" ICD9-HASH-TABLE) "Dermatomyositis")
(SETF (GETHASH "'710.4" ICD9-HASH-TABLE) "Polyarthritis")
(SETF (GETHASH "'710.5" ICD9-HASH-TABLE) "Eosinophilia myalgia syndrome")
(SETF (GETHASH "'710.8" ICD9-HASH-TABLE) "Other specified diffuse diseases of connective tissue")
(SETF (GETHASH "'710.9" ICD9-HASH-TABLE) "Unspecified diffuse connective tissue disease")
(SETF (GETHASH "'711" ICD9-HASH-TABLE) "Arthropathy associated with infections")
(SETF (GETHASH "'711.0" ICD9-HASH-TABLE) "Pyogenic arthritis")
(SETF (GETHASH "'711.1" ICD9-HASH-TABLE) "Arthropathy associated with Reiter's disease and nonspecific urethritis")
(SETF (GETHASH "'711.2" ICD9-HASH-TABLE) "Arthropathy in Behcet's syndrome")
(SETF (GETHASH "'711.3" ICD9-HASH-TABLE) "Postgrenneteric arthropathy")
(SETF (GETHASH "'711.5" ICD9-HASH-TABLE) "Arthropathy associated with other viral diseases")
(SETF (GETHASH "'711.6" ICD9-HASH-TABLE) "Arthropathy associated with mycoses")
(SETF (GETHASH "'711.7" ICD9-HASH-TABLE) "Arthropathy associated with helminthiasis")
(SETF (GETHASH "'711.8" ICD9-HASH-TABLE) "Arthropathy associated with other infectious and parasitic diseases")
(SETF (GETHASH "'711.9" ICD9-HASH-TABLE) "Unspecified infective arthropitis")
(SETF (GETHASH "'712" ICD9-HASH-TABLE) "Crystal arthropathies")
(SETF (GETHASH "'712.1" ICD9-HASH-TABLE) "Chondrocalcinosis due to calcium phosphate crystals")
(SETF (GETHASH "'712.2" ICD9-HASH-TABLE) "Chondrocalcinosis due to pyrophosphate crystals")
(SETF (GETHASH "'712.3" ICD9-HASH-TABLE) "Chondrocalcinosis, unspecified")
(SETF (GETHASH "'712.8" ICD9-HASH-TABLE) "Other specified crystal arthropathies")
(SETF (GETHASH "'712.9" ICD9-HASH-TABLE) "Unspecified crystal arthropathy")
(SETF (GETHASH "'713" ICD9-HASH-TABLE) "Other specified arthropathy")
"Arthropathy associated with other disorders classified elsewhere")

(SETF (GETMASH "'713.0" ICD9-HASH-TABLE)
"Arthropathy associated with other endocrine and metabolic disorders")

(SETF (GETMASH "'713.1" ICD9-HASH-TABLE)
"Arthropathy associated with gastrointestinal conditions other than infections")

(SETF (GETMASH "'713.2" ICD9-HASH-TABLE)
"Arthropathy associated with hematological disorders")

(SETF (GETMASH "'713.3" ICD9-HASH-TABLE)
"Arthropathy associated with dermatological disorders")

(SETF (GETMASH "'713.4" ICD9-HASH-TABLE)
"Arthropathy associated with respiratory disorders")

(SETF (GETMASH "'713.5" ICD9-HASH-TABLE)
"Arthropathy associated with neurological disorders")

(SETF (GETMASH "'713.6" ICD9-HASH-TABLE)
"Arthropathy associated with hypersensitivity reaction")

(SETF (GETMASH "'713.7" ICD9-HASH-TABLE)
"Other general diseases with articular involvement")

(SETF (GETMASH "'713.8" ICD9-HASH-TABLE)
"Arthropathy associated with other conditions classifiable elsewhere")

(SETF (GETMASH "'714" ICD9-HASH-TABLE)
"Rheumatoid arthritis and other inflammatory polyarthropathies")

(SETF (GETMASH "'714.0" ICD9-HASH-TABLE)
"Rheumatoid arthritis")

(SETF (GETMASH "'714.1" ICD9-HASH-TABLE)
"Felty's syndrome")

(SETF (GETMASH "'714.2" ICD9-HASH-TABLE)
"Other rheumatoid arthritis with visceral or systemic involvement")

(SETF (GETMASH "'714.3" ICD9-HASH-TABLE)
"Juvenile chronic polyarthritis")

(SETF (GETMASH "'714.30" ICD9-HASH-TABLE)
"Polyarticular juvenile rheumatoid arthritis, chronic or unspecified")

(SETF (GETMASH "'714.31" ICD9-HASH-TABLE)
"Polyarticular juvenile rheumatoid arthritis, acute")

(SETF (GETMASH "'714.32" ICD9-HASH-TABLE)
"Pauciartricular juvenile rheumatoid arthritis")

(SETF (GETMASH "'714.33" ICD9-HASH-TABLE)
"Monoarticular juvenile rheumatoid arthritis")

(SETF (GETMASH "'714.4" ICD9-HASH-TABLE)
"Chronic post-rheumatic arthropathy")

(SETF (GETMASH "'714.8" ICD9-HASH-TABLE)
"Other specified inflammatory polyarthropathies")

(SETF (GETMASH "'714.81" ICD9-HASH-TABLE)
"Rheumatoid lung")

(SETF (GETMASH "'714.89" ICD9-HASH-TABLE)
"Other")

(SETF (GETMASH "'714.9" ICD9-HASH-TABLE)
"Unspecified inflammatory polyarthropathy")

(SETF (GETMASH "'715" ICD9-HASH-TABLE)
"Osteoarthrosis and allied disorders")

(SETF (GETMASH "'715.0" ICD9-HASH-TABLE)
"Osteoarthrosis, generalized")

(SETF (GETMASH "'715.1" ICD9-HASH-TABLE)
"Osteoarthrosis, localized, primary")

(SETF (GETMASH "'715.2" ICD9-HASH-TABLE)
"Osteoarthrosis, localized, secondary")

(SETF (GETMASH "'715.3" ICD9-HASH-TABLE)
"Osteoarthrosis, localized, not specified whether primary or secondary")

(SETF (GETMASH "'715.8" ICD9-HASH-TABLE)
"Osteoarthrosis involving, or with mention of more than one site, but not specified as generalized")

(SETF (GETMASH "'715.9" ICD9-HASH-TABLE)
"Osteoarthrosis, unspecified whether generalized or localized")

(SETF (GETMASH "'716" ICD9-HASH-TABLE)
"Other and unspecified arthropathies")

(SETF (GETMASH "'716.0" ICD9-HASH-TABLE)
"Kaschin-Beck disease")

(SETF (GETMASH "'716.1" ICD9-HASH-TABLE)
"Traumatic arthropathy")

(SETF (GETMASH "'716.2" ICD9-HASH-TABLE)
"Allergic arthritis")

(SETF (GETMASH "'716.3" ICD9-HASH-TABLE)
"Climacteric arthritis")

(SETF (GETMASH "'716.4" ICD9-HASH-TABLE)
"Transient arthropathy")

(SETF (GETMASH "'716.5" ICD9-HASH-TABLE)
"Unspecified polyarthropathy or polyarthritis")

(SETF (GETMASH "'716.6" ICD9-HASH-TABLE)
"Unspecified monoarthritis")
(SETF (GETHASH "719.7" ICD9-HASH-TABLE) "Difficulty in walking")
(SETF (GETHASH "719.8" ICD9-HASH-TABLE) "Other specified disorders of joint")
(SETF (GETHASH "719.9" ICD9-HASH-TABLE) "Unspecified disorder of joint")
(SETF (GETHASH "720.0" ICD9-HASH-TABLE) "Ankylosing spondylitis and other inflammatory spondyloarthropathies")
(SETF (GETHASH "720.1" ICD9-HASH-TABLE) "Spinal enthesopathy")
(SETF (GETHASH "720.2" ICD9-HASH-TABLE) "Sacroiliitis, not elsewhere classified")
(SETF (GETHASH "720.8" ICD9-HASH-TABLE) "Other inflammatory spondyloarthropathies")
(SETF (GETHASH "720.9" ICD9-HASH-TABLE) "Inflammatory spondyloarthropathies in diseases classified elsewhere")
(SETF (GETHASH "721.0" ICD9-HASH-TABLE) "Cervical spondylosis without myelopathy")
(SETF (GETHASH "721.1" ICD9-HASH-TABLE) "Cervical spondylosis with myelopathy")
(SETF (GETHASH "721.2" ICD9-HASH-TABLE) "Thoracic spondylosis without myelopathy")
(SETF (GETHASH "721.3" ICD9-HASH-TABLE) "Lumbosacral spondylosis without myelopathy")
(SETF (GETHASH "721.4" ICD9-HASH-TABLE) "Thoracic or lumbar spondylosis with myelopathy")
(SETF (GETHASH "721.5" ICD9-HASH-TABLE) "Lumbar region")
(SETF (GETHASH "721.6" ICD9-HASH-TABLE) "Kissing spine")
(SETF (GETHASH "721.7" ICD9-HASH-TABLE) "Ankylosing vertebral hyperostosis")
(SETF (GETHASH "721.8" ICD9-HASH-TABLE) "Traumatic spondylosis")
(SETF (GETHASH "721.9" ICD9-HASH-TABLE) "Other allied disorders of spine")
(SETF (GETHASH "722.0" ICD9-HASH-TABLE) "Spondylosis of unspecified site")
(SETF (GETHASH "722.1" ICD9-HASH-TABLE) "Without mention of myelopathy")
(SETF (GETHASH "722.2" ICD9-HASH-TABLE) "With myelopathy")
(SETF (GETHASH "722.3" ICD9-HASH-TABLE) "Intervertebral disc disorders")
(SETF (GETHASH "722.4" ICD9-HASH-TABLE) "Displacement of cervical intervertebral disc without myelopathy")
(SETF (GETHASH "722.5" ICD9-HASH-TABLE) "Displacement of thoracic or lumbar intervertebral disc without myelopathy")
(SETF (GETHASH "722.10" ICD9-HASH-TABLE) "Lumbar intervertebral disc without myelopathy")
(SETF (GETHASH "722.11" ICD9-HASH-TABLE) "Thoracic intervertebral disc without myelopathy")
(SETF (GETHASH "722.12" ICD9-HASH-TABLE) "Displacement of intervertebral disc, site unspecified, without myelopathy")
(SETF (GETHASH "722.3" ICD9-HASH-TABLE) "Schmorl's nodes")
(SETF (GETHASH "722.20" ICD9-HASH-TABLE) "Unspecified region")
(SETF (GETHASH "722.21" ICD9-HASH-TABLE) "Thoracic region")
(SETF (GETHASH "722.32" ICD9-HASH-TABLE) "Lumbar region")
(SETF (GETHASH "722.33" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "722.4" ICD9-HASH-TABLE) "Degeneration of cervical intervertebral disc")
(SETF (GETHASH "722.5" ICD9-HASH-TABLE) "Degeneration of thoracic or lumbar intervertebral disc")
(SETF (GETHASH "722.51" ICD9-HASH-TABLE) "Thoracic or thoracolumbar intervertebral disc")
(SETF (GETHASH "722.52" ICD9-HASH-TABLE) "Lumbar or lumbosacral intervertebral disc")
(SETF (GETHASH "722.0" IC9D-HASH-TABLE) 
"Degeneration of intervertebral disc, site unspecified")
(SETF (GETHASH "722.1" IC9D-HASH-TABLE) 
"Degeneration of intervertebral disc, with myelopathy")
(SETF (GETHASH "722.70" IC9D-HASH-TABLE) 
"Degeneration of intervertebral disc, site unspecified")
(SETF (GETHASH "722.10" IC9D-HASH-TABLE) 
"Unspecified region")
(SETF (GETHASH "722.71" IC9D-HASH-TABLE) 
"Cervical region")
(SETF (GETHASH "722.72" IC9D-HASH-TABLE) 
"Thoracic region")
(SETF (GETHASH "722.73" IC9D-HASH-TABLE) 
"Lumbar region")
(SETF (GETHASH "722.8" IC9D-HASH-TABLE) 
"Postlaminectomy syndrome")
(SETF (GETHASH "722.80" IC9D-HASH-TABLE) 
"Unspecified region")
(SETF (GETHASH "722.81" IC9D-HASH-TABLE) 
"Cervical region")
(SETF (GETHASH "722.82" IC9D-HASH-TABLE) 
"Thoracic region")
(SETF (GETHASH "722.83" IC9D-HASH-TABLE) 
"Lumbar region")
(SETF (GETHASH "722.9" IC9D-HASH-TABLE) 
"Other and unspecified disc disorder")
(SETF (GETHASH "722.90" IC9D-HASH-TABLE) 
"Unspecified region")
(SETF (GETHASH "722.91" IC9D-HASH-TABLE) 
"Cervical region")
(SETF (GETHASH "722.92" IC9D-HASH-TABLE) 
"Thoracic region")
(SETF (GETHASH "722.93" IC9D-HASH-TABLE) 
"Lumbar region")
(SETF (GETHASH "722.94" IC9D-HASH-TABLE) 
"Other disorders of cervical region")
(SETF (GETHASH "722.0" IC9D-HASH-TABLE) 
"Spinal stenosis of cervical region")
(SETF (GETHASH "723.1" IC9D-HASH-TABLE) 
"Cervicalgia")
(SETF (GETHASH "723.2" IC9D-HASH-TABLE) 
"Cervicocranial syndrome")
(SETF (GETHASH "723.3" IC9D-HASH-TABLE) 
"Cervicothoracic syndrome (diffuse")
(SETF (GETHASH "723.4" IC9D-HASH-TABLE) 
"Brachial neuritis or radiculitis NOS")
(SETF (GETHASH "723.5" IC9D-HASH-TABLE) 
"Torticollis, unspecified")
(SETF (GETHASH "723.6" IC9D-HASH-TABLE) 
"Radiculitis specified as affecting neck")
(SETF (GETHASH "723.7" IC9D-HASH-TABLE) 
"Ossification of posterior longitudinal ligament in cervical region")
(SETF (GETHASH "723.8" IC9D-HASH-TABLE) 
"Other syndromes affecting cervical region")
(SETF (GETHASH "723.9" IC9D-HASH-TABLE) 
"Unspecified musculoskeletal disorders and symptoms referable to neck")
(SETF (GETHASH "724" IC9D-HASH-TABLE) 
"Other and unspecified disorders or back")
(SETF (GETHASH "724.0" IC9D-HASH-TABLE) 
"Spinal stenosis, other than cervical")
(SETF (GETHASH "724.00" IC9D-HASH-TABLE) 
"Spinal stenosis, unspecified region")
(SETF (GETHASH "724.01" IC9D-HASH-TABLE) 
"Thoracic region")
(SETF (GETHASH "724.02" IC9D-HASH-TABLE) 
"Lumbar region")
(SETF (GETHASH "724.03" IC9D-HASH-TABLE) 
"Other")
(SETF (GETHASH "724.05" IC9D-HASH-TABLE) 
"Backache")
(SETF (GETHASH "724.08" IC9D-HASH-TABLE) 
"Disorders of sacrum")
(SETF (GETHASH "724.07" IC9D-HASH-TABLE) 
"Disorders of coccyx")
(SETF (GETHASH "724.40" IC9D-HASH-TABLE) 
"Thoracic or intervertebral disc or radiculitis, unspecified")
(SETF (GETHASH "724.5" IC9D-HASH-TABLE) 
"Backache, unspecified")
(SETF (GETHASH "724.6" IC9D-HASH-TABLE) 
"Disorders of sacrum")
(SETF (GETHASH "724.7" IC9D-HASH-TABLE) 
"Disorders of coccyx")
(SETF (GETHASH "724.70" IC9D-HASH-TABLE) 
"Disorders of coccyx")
(SETF (GETHASH "724.9" IC9D-HASH-TABLE) 
"Hypermobility of coccyx")
(SETF (GETHASH "724.90" IC9D-HASH-TABLE) 
"Other")
(SETF (GETHASH "724.91" IC9D-HASH-TABLE) 
"Other symptoms referable to back")
(SETF (GETHASH "725" IC9D-HASH-TABLE) 
"Other unspecified back disorders")
(SETF (GETHASH "725" IC9D-HASH-TABLE) 
"Polymyalgia rheumatica")
(SETF (GETHASH "726" IC9D-HASH-TABLE) 
"Peripheral enthesopathies and allied syndromes")
"Nontraumatic slipped upper femoral epiphysis"

(SETF (GETHASH "732.3" ICD9-HASH-TABLE) "Juvenile osteochondrosis of upper extremity")

(SETF (GETHASH "732.4" ICD9-HASH-TABLE) "Juvenile osteochondrosis of lower extremity, excluding foot")

(SETF (GETHASH "732.5" ICD9-HASH-TABLE) "Juvenile osteochondrosis of foot")

(SETF (GETHASH "732.6" ICD9-HASH-TABLE) "Other juvenile osteochondrosis")

(SETF (GETHASH "732.7" ICD9-HASH-TABLE) "Osteochondritis dissecans")

(SETF (GETHASH "732.8" ICD9-HASH-TABLE) "Other specified forms of osteochondropathy")

(SETF (GETHASH "732.9" ICD9-HASH-TABLE) "Unspecified osteochondropathy")

(SETF (GETHASH "733" ICD9-HASH-TABLE) "Other disorders of bone and cartilage")

(SETF (GETHASH "733.0" ICD9-HASH-TABLE) "Osteoporosis")

(SETF (GETHASH "733.00" ICD9-HASH-TABLE) "Osteoporosis, unspecified")

(SETF (GETHASH "733.01" ICD9-HASH-TABLE) "Severe osteoporosis")

(SETF (GETHASH "733.02" ICD9-HASH-TABLE) "Idiopathic osteoporosis")

(SETF (GETHASH "733.03" ICD9-HASH-TABLE) "Disuse osteoporosis")

(SETF (GETHASH "733.09" ICD9-HASH-TABLE) "Other")

(SETF (GETHASH "733.1" ICD9-HASH-TABLE) "Pathologic fracture")

(SETF (GETHASH "733.10" ICD9-HASH-TABLE) "Pathologic fracture, unspecified site")

(SETF (GETHASH "733.11" ICD9-HASH-TABLE) "Pathologic fracture of humerus")

(SETF (GETHASH "733.12" ICD9-HASH-TABLE) "Pathologic fracture of distal radius and ulna")

(SETF (GETHASH "733.13" ICD9-HASH-TABLE) "Pathologic fracture of vertebrae")

(SETF (GETHASH "733.14" ICD9-HASH-TABLE) "Pathologic fracture of neck of femur")

(SETF (GETHASH "733.15" ICD9-HASH-TABLE) "Pathologic fracture of other specified part of femur")

(SETF (GETHASH "733.16" ICD9-HASH-TABLE) "Pathologic fracture of tibia and fibula")

(SETF (GETHASH "733.19" ICD9-HASH-TABLE) "Pathologic fracture of other specified site")

(SETF (GETHASH "733.2" ICD9-HASH-TABLE) "Cyst of bone")

(SETF (GETHASH "733.20" ICD9-HASH-TABLE) "Cyst of bone (localized), unspecified")

(SETF (GETHASH "733.21" ICD9-HASH-TABLE) "Solitary bone cyst")

(SETF (GETHASH "733.22" ICD9-HASH-TABLE) "Aneurysmal bone cyst")

(SETF (GETHASH "733.29" ICD9-HASH-TABLE) "Other")

(SETF (GETHASH "733.3" ICD9-HASH-TABLE) "Hyperostosis of skull")

(SETF (GETHASH "733.4" ICD9-HASH-TABLE) "Aseptic necrosis of bone")

(SETF (GETHASH "733.40" ICD9-HASH-TABLE) "Aseptic necrosis of bone, site unspecified")

(SETF (GETHASH "733.41" ICD9-HASH-TABLE) "Head of humerus")

(SETF (GETHASH "733.42" ICD9-HASH-TABLE) "Head and neck of femur")

(SETF (GETHASH "733.43" ICD9-HASH-TABLE) "Medial femoral condyle")

(SETF (GETHASH "733.44" ICD9-HASH-TABLE) "Talus")

(SETF (GETHASH "733.49" ICD9-HASH-TABLE) "Other")

(SETF (GETHASH "733.5" ICD9-HASH-TABLE) "Osteitis condensans")

(SETF (GETHASH "733.6" ICD9-HASH-TABLE) "Fiebre's disease")

(SETF (GETHASH "733.7" ICD9-HASH-TABLE) "Aloneurodystrophy")

(SETF (GETHASH "733.8" ICD9-HASH-TABLE) "Malunion and nonunion of fracture")

(SETF (GETHASH "733.81" ICD9-HASH-TABLE) "Malunion of fracture")

(SETF (GETHASH "733.82" ICD9-HASH-TABLE) "Nonunion of fracture")

(SETF (GETHASH "733.89" ICD9-HASH-TABLE) "Other and unspecified disorders of bone and cartilage")

(SETF (GETHASH "733.90" ICD9-HASH-TABLE) "Disorder of bone and cartilage, unspecified")

(SETF (GETHASH "733.91" ICD9-HASH-TABLE) "Arrest of bone development or growth")
(SETF (GETHASH "743.46" ICD9-HASH-TABLE) "Other specified anomalies of irís and ciliary body")
(SETF (GETHASH "743.47" ICD9-HASH-TABLE) "Specified anomalies of sclera")
(SETF (GETHASH "743.48" ICD9-HASH-TABLE) "Multiple and combined anomalies of anterior segment")
(SETF (GETHASH "743.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "743.5" ICD9-HASH-TABLE) "Congenital anomalies of posterior segment")
(SETF (GETHASH "743.51" ICD9-HASH-TABLE) "Vitreous anomalies")
(SETF (GETHASH "743.52" ICD9-HASH-TABLE) "Fundus coloboma")
(SETF (GETHASH "743.53" ICD9-HASH-TABLE) "Chorioretinal degeneration, congenital")
(SETF (GETHASH "743.54" ICD9-HASH-TABLE) "Congenital folds and cysts of posterior segment")
(SETF (GETHASH "743.55" ICD9-HASH-TABLE) "Congenital macular changes")
(SETF (GETHASH "743.56" ICD9-HASH-TABLE) "Other retinal changes, congenital")
(SETF (GETHASH "743.57" ICD9-HASH-TABLE) "Specified anomalies of optic disc")
(SETF (GETHASH "743.58" ICD9-HASH-TABLE) "Vascular anomalies")
(SETF (GETHASH "743.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "743.6" ICD9-HASH-TABLE) "Congenital anomalies of eyelids, lacrimal system, and orbit")
(SETF (GETHASH "743.61" ICD9-HASH-TABLE) "Congenital ptosis")
(SETF (GETHASH "743.62" ICD9-HASH-TABLE) "Congenital deformities of eyelids")
(SETF (GETHASH "743.63" ICD9-HASH-TABLE) "Other specified congenital anomalies of eyelids")
(SETF (GETHASH "743.64" ICD9-HASH-TABLE) "Specified congenital anomalies of lacrimal gland")
(SETF (GETHASH "743.65" ICD9-HASH-TABLE) "Specified congenital anomalies of lacrimal passages")
(SETF (GETHASH "743.66" ICD9-HASH-TABLE) "Specified congenital anomalies of orbit")
(SETF (GETHASH "743.69" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "743.8" ICD9-HASH-TABLE) "Other specified anomalies of eye")
(SETF (GETHASH "743.9" ICD9-HASH-TABLE) "Unspecified anomaly of eye")
(SETF (GETHASH "744" ICD9-HASH-TABLE) "Congenital anomalies of ear, face, and neck")
(SETF (GETHASH "744.0" ICD9-HASH-TABLE) "Anomalies of ear causing impairment of hearing")
(SETF (GETHASH "744.00" ICD9-HASH-TABLE) "Unspecified anomaly of ear with impairment of hearing")
(SETF (GETHASH "744.01" ICD9-HASH-TABLE) "Absence of external ear")
(SETF (GETHASH "744.02" ICD9-HASH-TABLE) "Other anomalies of external ear with impairment of hearing")
(SETF (GETHASH "744.03" ICD9-HASH-TABLE) "Anomaly of middle ear, except ossicles")
(SETF (GETHASH "744.04" ICD9-HASH-TABLE) "Anomalies of ear ossicles")
(SETF (GETHASH "744.05" ICD9-HASH-TABLE) "Anomalies of inner ear")
(SETF (GETHASH "744.09" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "744.1" ICD9-HASH-TABLE) "Accessory auricle")
(SETF (GETHASH "744.2" ICD9-HASH-TABLE) "Other specified anomalies of ear")
(SETF (GETHASH "744.21" ICD9-HASH-TABLE) "Absence of ear lobe, congenital")
(SETF (GETHASH "744.22" ICD9-HASH-TABLE) "Macrotia")
(SETF (GETHASH "744.23" ICD9-HASH-TABLE) "Microtia")
(SETF (GETHASH "744.24" ICD9-HASH-TABLE) "Specified anomalies of Eustachian tube")
(SETF (GETHASH "744.29" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "744.3" ICD9-HASH-TABLE) "Unspecified anomaly of ear")
(SETF (GETHASH "744.4" ICD9-HASH-TABLE) "Branchial cleft cyst or fistula; preauricular sinus")
"Congenital anomalies of urinary system"

(SETF (GETHASH "751.0" ICD9-HASH-TABLE) "Renal agenesis and dysgenesis")
(SETF (GETHASH "751.1" ICD9-HASH-TABLE) "Cystic kidney disease")
(SETF (GETHASH "751.10" ICD9-HASH-TABLE) "Cystic kidney disease, unspecified")
(SETF (GETHASH "751.11" ICD9-HASH-TABLE) "Congenital single renal cyst")
(SETF (GETHASH "751.12" ICD9-HASH-TABLE) "Poly cystic kidney, unspecified type")
(SETF (GETHASH "751.13" ICD9-HASH-TABLE) "Poly cystic kidney, autosomal dominant")
(SETF (GETHASH "751.14" ICD9-HASH-TABLE) "Poly cystic kidney, autosomal recessive")
(SETF (GETHASH "751.15" ICD9-HASH-TABLE) "Renal dysplasia")
(SETF (GETHASH "751.16" ICD9-HASH-TABLE) "Medullary cystic kidney")
(SETF (GETHASH "751.17" ICD9-HASH-TABLE) "Medullary sponge kidney")
(SETF (GETHASH "751.19" ICD9-HASH-TABLE) "Other specified cystic kidney disease")
(SETF (GETHASH "751.2" ICD9-HASH-TABLE) "Obstructive defects of renal pelvis and ureter")
(SETF (GETHASH "751.20" ICD9-HASH-TABLE) "Obstructive defect of renal pelvis and ureter")
(SETF (GETHASH "751.21" ICD9-HASH-TABLE) "Congenital obstruction of ureteropelvic junction")
(SETF (GETHASH "751.22" ICD9-HASH-TABLE) "Congenital obstruction of urerterovesical junction")
(SETF (GETHASH "751.23" ICD9-HASH-TABLE) "Congenital ureterocele")
(SETF (GETHASH "751.29" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "751.3" ICD9-HASH-TABLE) "Other specified anomalies of kidney")
(SETF (GETHASH "751.4" ICD9-HASH-TABLE) "Other specified anomalies of ureter")
(SETF (GETHASH "751.5" ICD9-HASH-TABLE) "Exstrophy of urinary bladder")
(SETF (GETHASH "751.6" ICD9-HASH-TABLE) "Atresia and stenosis of urethra and bladder neck")
(SETF (GETHASH "751.7" ICD9-HASH-TABLE) "Anomalies of urachus")
(SETF (GETHASH "751.8" ICD9-HASH-TABLE) "Other specified anomalies of bladder and urethra")
(SETF (GETHASH "751.9" ICD9-HASH-TABLE) "Unspecified anomaly of urinary system")
(SETF (GETHASH "754.0" ICD9-HASH-TABLE) "Certain congenital musculoskeletal deformities")
(SETF (GETHASH "754.1" ICD9-HASH-TABLE) "Of skull, face, and jaw")
(SETF (GETHASH "754.2" ICD9-HASH-TABLE) "Of sternocleidomastoid muscle")
(SETF (GETHASH "754.3" ICD9-HASH-TABLE) "Of spine")
(SETF (GETHASH "754.4" ICD9-HASH-TABLE) "Congenital dislocation of hip")
(SETF (GETHASH "754.30" ICD9-HASH-TABLE) "Congenital dislocation of hip, unilateral")
(SETF (GETHASH "754.31" ICD9-HASH-TABLE) "Congenital dislocation of hip, bilateral")
(SETF (GETHASH "754.32" ICD9-HASH-TABLE) "Congenital subluxation of hip, unilateral")
(SETF (GETHASH "754.33" ICD9-HASH-TABLE) "Congenital subluxation of hip, bilateral")
(SETF (GETHASH "754.34" ICD9-HASH-TABLE) "Congenital subluxation of hip, bilateral")
(SETF (GETHASH "754.35" ICD9-HASH-TABLE) "Congenital dislocation of one hip with subluxation of other hip")
(SETF (GETHASH "754.4" ICD9-HASH-TABLE) "Congenital genu recurvatum and bowing of long bones of leg")
(SETF (GETHASH "754.40" ICD9-HASH-TABLE) "Genu recurvatum")
(SETF (GETHASH "754.41" ICD9-HASH-TABLE) "Congenital dislocation of knee (with genu recurvatum")
(SETF (GETHASH "754.42" ICD9-HASH-TABLE) "Congenital bowing of femur")
(SETF (GETHASH "754.43" ICD9-HASH-TABLE) "Congenital bowing of tibia and fibula")
(SETF (GETHASH "754.44" ICD9-HASH-TABLE) "Congenital bowing of unspecified long bones of leg")
(SETF (GETHASH "754.5" ICD9-HASH-TABLE) "Varus deformities of feet")
(SETF (GETHASH "754.50" ICD9-HASH-TABLE) "Talipes varus")
(SETF (GETHASH "754.52" ICD9-HASH-TABLE) "Talipes equinovarus")
(SETF (GETHASH "754.52" ICD9-HASH-TABLE) "Metatarsus primus varus")
(SETF (GETHASH "754.53" ICD9-HASH-TABLE) "Metatarsus varus")
(SETF (GETHASH "754.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "754.6" ICD9-HASH-TABLE) "Valgus deformity of feet")
(SETF (GETHASH "754.60" ICD9-HASH-TABLE) "Talipes valgus")
(SETF (GETHASH "754.61" ICD9-HASH-TABLE) "Congenital pes planus")
(SETF (GETHASH "754.62" ICD9-HASH-TABLE) "Talipes calcaneovalgus")
(SETF (GETHASH "754.7" ICD9-HASH-TABLE) "Other deformities of feet")
(SETF (GETHASH "754.70" ICD9-HASH-TABLE) "Talipes, unspecified")
(SETF (GETHASH "754.71" ICD9-HASH-TABLE) "Talipes cavus")
(SETF (GETHASH "754.79" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "754.8" ICD9-HASH-TABLE) "Other specified nonteratogenic anomalies")
(SETF (GETHASH "754.81" ICD9-HASH-TABLE) "Pectus excavatum")
(SETF (GETHASH "754.82" ICD9-HASH-TABLE) "Pectus carinatum")
(SETF (GETHASH "754.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "755" ICD9-HASH-TABLE) "Other congenital anomalies of limbs")
(SETF (GETHASH "755.0" ICD9-HASH-TABLE) "Polydactyly")
(SETF (GETHASH "755.00" ICD9-HASH-TABLE) "Polydactyly, unspecified digits")
(SETF (GETHASH "755.01" ICD9-HASH-TABLE) "Of fingers")
(SETF (GETHASH "755.02" ICD9-HASH-TABLE) "Of toes")
(SETF (GETHASH "755.1" ICD9-HASH-TABLE) "Syndactyly")
(SETF (GETHASH "755.10" ICD9-HASH-TABLE) "Of multiple and unspecified sites")
(SETF (GETHASH "755.11" ICD9-HASH-TABLE) "Of fingers without fusion of bone")
(SETF (GETHASH "755.12" ICD9-HASH-TABLE) "Of fingers with fusion of bone")
(SETF (GETHASH "755.13" ICD9-HASH-TABLE) "Of toes without fusion of bone")
(SETF (GETHASH "755.14" ICD9-HASH-TABLE) "Of toes with fusion of bone")
(SETF (GETHASH "755.2" ICD9-HASH-TABLE) "Reduction deformity of upper limb")
(SETF (GETHASH "755.20" ICD9-HASH-TABLE) "Unspecified reduction deformity of upper limb")
(SETF (GETHASH "755.21" ICD9-HASH-TABLE) "Transverse deficiency of upper limb")
(SETF (GETHASH "755.22" ICD9-HASH-TABLE) "Transverse deficiency of upper limb, NEC")
(SETF (GETHASH "755.23" ICD9-HASH-TABLE) "Longitudinal deficiency, combined, involving humerus, radius, and ulna (complete or incomplete")
(SETF (GETHASH "755.24" ICD9-HASH-TABLE) "Longitudinal deficiency of upper limb")
(SETF (GETHASH "755.25" ICD9-HASH-TABLE) "Longitudinal deficiency, humeral, complete or partial (with or without distal deficiencies, incomplete")
(SETF (GETHASH "755.26" ICD9-HASH-TABLE) "Longitudinal deficiency, radiaulnar, complete or partial (with or without distal deficiencies, incomplete")
(SETF (GETHASH "755.27" ICD9-HASH-TABLE) "Longitudinal deficiency, ulnar, complete or partial (with or without distal deficiencies, incomplete")
(SETF (GETHASH "755.28" ICD9-HASH-TABLE) "Longitudinal deficiency, carpals or metacarpals, complete or partial (with or without incomplete phalangeal deficiency")
(SETF (GETHASH "755.29" ICD9-HASH-TABLE) "Longitudinal deficiency, phalanges, complete or partial")
(SETF (GETHASH "755.3" ICD9-HASH-TABLE) "Reduction deformities of lower limb")
(SETF (GETHASH "755.30" ICD9-HASH-TABLE) "Unspecified reduction deformity of lower limb")
(SETF (GETHASH "755.31" ICD9-HASH-TABLE) "Transverse deficiency of lower limb")
(SETF (GETHASH "755.32" ICD9-HASH-TABLE) "Transverse deficiency of lower limb, NEC")
(SETF (GETHASH "755.33" ICD9-HASH-TABLE) "Longitudinal deficiency of lower limb")
"Longitudinal deficiency, combined, involving femur, tibia, and fibula (complete or incomplete)"

(SETF (CEGAH "755.34" ICD9-HASH-TABLE)
"Longitudinal deficiency, femoral, complete or partial (with or without distal deficiencies, incomplete)"

(SETF (CEGAH "755.35" ICD9-HASH-TABLE)
"Longitudinal deficiency, tibiofibular, complete or partial (with or without distal deficiencies, incomplete)"

(SETF (CEGAH "755.36" ICD9-HASH-TABLE)
"Longitudinal deficiency, tibia, complete or partial (with or without distal deficiencies, incomplete)"

(SETF (CEGAH "755.37" ICD9-HASH-TABLE)
"Longitudinal deficiency, fibular, complete or partial (with or without distal deficiencies, incomplete)"

(SETF (CEGAH "755.38" ICD9-HASH-TABLE)
"Longitudinal deficiency, tarsals or metatarsals, complete or partial (with or without incomplete phalangeal deficiency)"

(SETF (CEGAH "755.39" ICD9-HASH-TABLE)
"Longitudinal deficiency, phalanges, complete or partial"

(SETF (CEGAH "755.4" ICD9-HASH-TABLE)
"Reduction deformities, unspecified limb"

(SETF (CEGAH "755.5" ICD9-HASH-TABLE)
"Other anomalies of upper limb, including shoulder girdle"

(SETF (CEGAH "755.50" ICD9-HASH-TABLE)
"Unspecified anomaly of upper limb"

(SETF (CEGAH "755.51" ICD9-HASH-TABLE)
"Congenital deformity of clavicle"

(SETF (CEGAH "755.52" ICD9-HASH-TABLE)
"Congenital elevation of scapula"

(SETF (CEGAH "755.53" ICD9-HASH-TABLE) "Radioulnar synostosis"

(SETF (CEGAH "755.54" ICD9-HASH-TABLE) "Madelung's deformity"

(SETF (CEGAH "755.55" ICD9-HASH-TABLE) "Acrocephalosyndactyly"

(SETF (CEGAH "755.56" ICD9-HASH-TABLE) "Accessory carpal bone"

(SETF (CEGAH "755.57" ICD9-HASH-TABLE) "Macrodactyly (fingers)"

(SETF (CEGAH "755.58" ICD9-HASH-TABLE) "Left hand, congenital"

(SETF (CEGAH "755.59" ICD9-HASH-TABLE) "Other"

(SETF (CEGAH "755.6" ICD9-HASH-TABLE)
"Other anomalies of lower limb, including pelvic girdle"

(SETF (CEGAH "755.60" ICD9-HASH-TABLE)
"Unspecified anomaly of lower limb"

(SETF (CEGAH "755.61" ICD9-HASH-TABLE) "Coxa valga, congenital"

(SETF (CEGAH "755.62" ICD9-HASH-TABLE) "Coxa vara, congenital"

(SETF (CEGAH "755.63" ICD9-HASH-TABLE)
"Other congenital deformity of hip (joint)"

(SETF (CEGAH "755.64" ICD9-HASH-TABLE)
"Congenital deformity of knee (joint)"

(SETF (CEGAH "755.65" ICD9-HASH-TABLE) "Macrodactyly of toes"

(SETF (CEGAH "755.66" ICD9-HASH-TABLE) "Other anomalies of toes"

(SETF (CEGAH "755.67" ICD9-HASH-TABLE) "Anomalies of foot, NEC"

(SETF (CEGAH "755.68" ICD9-HASH-TABLE) "Other"

(SETF (CEGAH "755.69" ICD9-HASH-TABLE)
"Other specified anomalies of unspecified limb"

(SETF (CEGAH "755.7" ICD9-HASH-TABLE)
"Unspecified anomaly of unspecified limb"

(SETF (CEGAH "755.8" ICD9-HASH-TABLE)
"Other congenital musculoskeletal anomalies"

(SETF (CEGAH "755.9" ICD9-HASH-TABLE)
"Anomalies of skull and face bones"

(SETF (CEGAH "755.1" ICD9-HASH-TABLE) "Anomalies of spine"

(SETF (CEGAH "755.10" ICD9-HASH-TABLE)
"Anomaly of spine, unspecified"

(SETF (CEGAH "755.11" ICD9-HASH-TABLE) "Spondyloysis, lumbar spinal region"

(SETF (CEGAH "755.12" ICD9-HASH-TABLE) "Spondylolisthesis"

(SETF (CEGAH "755.13" ICD9-HASH-TABLE)
"Absence of vertebra, congenital"

(SETF (CEGAH "755.14" ICD9-HASH-TABLE) "Hemivertebra"

(SETF (CEGAH "755.15" ICD9-HASH-TABLE)
"Fusion of spine [vertebra], congenital"

(SETF (CEGAH "755.16" ICD9-HASH-TABLE) "Klippel-Feil syndrome"

(SETF (CEGAH "755.17" ICD9-HASH-TABLE) "Spina bifida occulta"

(SETF (CEGAH "755.19" ICD9-HASH-TABLE) "Other"
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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>&quot;756.2&quot;</td>
<td>Cervical rib</td>
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<tr>
<td>&quot;756.3&quot;</td>
<td>&quot;Other anomalies of ribs and sternum&quot;</td>
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<tr>
<td>&quot;756.4&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Chondrodystrophy)</td>
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<td>&quot;ICD9-HASH-TABLE&quot; (Polyostotic fibrous dysplasia of bone)</td>
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<td>&quot;756.82&quot;</td>
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<tr>
<td>&quot;757.1&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Ichthyosis congenita)</td>
</tr>
<tr>
<td>&quot;757.2&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Dermatoglyphic anomalies)</td>
</tr>
<tr>
<td>&quot;757.3&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other specified anomalies of skin)</td>
</tr>
<tr>
<td>&quot;757.31&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Congenital ectodermal dysplasia)</td>
</tr>
<tr>
<td>&quot;757.32&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Vascular hamartomas)</td>
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<tr>
<td>&quot;757.33&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Congenital pigmented anomalies of skin)</td>
</tr>
<tr>
<td>&quot;757.39&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other)</td>
</tr>
<tr>
<td>&quot;757.4&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (&quot;Specified anomalies of hair&quot;)</td>
</tr>
<tr>
<td>&quot;757.5&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (&quot;Specified anomalies of nails&quot;)</td>
</tr>
<tr>
<td>&quot;757.6&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (&quot;Specified anomalies of breast&quot;)</td>
</tr>
<tr>
<td>&quot;757.8&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other specified anomalies of the integument)</td>
</tr>
<tr>
<td>&quot;757.9&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Unspecified anomaly of the integument)</td>
</tr>
<tr>
<td>&quot;758&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Chromosomal anomalies)</td>
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<tr>
<td>&quot;758.0&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Down’s syndrome)</td>
</tr>
<tr>
<td>&quot;758.1&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Patau’s syndrome)</td>
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<tr>
<td>&quot;758.2&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Edward’s syndrome)</td>
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<tr>
<td>&quot;758.3&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Autosomal deletion syndromes)</td>
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<tr>
<td>&quot;758.4&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Balanced autosomal translocation in normal individual)</td>
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<tr>
<td>&quot;758.5&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other conditions due to autosomal anomalies)</td>
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<tr>
<td>&quot;758.6&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Conadal dysgenesis)</td>
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<tr>
<td>&quot;758.7&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Klinefelter’s syndrome)</td>
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<tr>
<td>&quot;758.8&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other conditions due to chromosome anomalies)</td>
</tr>
<tr>
<td>&quot;758.81&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other conditions due to sex chromosome anomalies)</td>
</tr>
<tr>
<td>&quot;758.89&quot;</td>
<td>&quot;ICD9-HASH-TABLE&quot; (Other)</td>
</tr>
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</table>
### ICD9-HASH-TABLE

1. **Conditions due to anomaly of unspecified chromosome**
   - **ICD9-HASH-1758.9**

2. **Other and unspecified congenital anomalies**
   - **ICD9-HASH-1759.0**
     - Anomalies of spleen
   - **ICD9-HASH-1759.1**
     - Anomalies of adrenal gland
   - **ICD9-HASH-1759.2**
     - Anomalies of other endocrine glands
   - **ICD9-HASH-1759.3**
     - Situs inversus
   - **ICD9-HASH-1759.4**
     - Conjoined twins
   - **ICD9-HASH-1759.5**
     - Tuberous sclerosis
   - **ICD9-HASH-1759.6**
     - Other hamartoses, NEC
   - **ICD9-HASH-1759.7**
     - Multiple congenital anomalies, so described
   - **ICD9-HASH-1759.8**
     - Other specified anomalies
   - **ICD9-HASH-1759.81**
     - Prader-Willi syndrome
   - **ICD9-HASH-1759.82**
     - Marfan syndrome
   - **ICD9-HASH-1759.83**
     - Fragile X syndrome
   - **ICD9-HASH-1759.89**
     - Other
   - **ICD9-HASH-1759.9**
     - Congenital anomaly, unspecified
   - **ICD9-HASH-1760.0**
     - Fetus or newborn affected by material conditions which may be unrelated to present pregnancy
   - **ICD9-HASH-1760.1**
     - Maternal hypertensive disorders
   - **ICD9-HASH-1760.2**
     - Maternal renal and urinary tract diseases
   - **ICD9-HASH-1760.3**
     - Maternal infections
   - **ICD9-HASH-1760.4**
     - Maternal injuries
   - **ICD9-HASH-1760.5**
     - Maternal nutritional disorders
   - **ICD9-HASH-1760.6**
     - Surgical operation on mother
   - **ICD9-HASH-1760.7**
     - Noxious influences affecting fetus via placenta or breast milk
   - **ICD9-HASH-1760.71**
     - Unspecified noxious substance
   - **ICD9-HASH-1760.72**
     - Alcohol
   - **ICD9-HASH-1760.73**
     - Narcotics
   - **ICD9-HASH-1760.74**
     - Hallucinogenic agents
   - **ICD9-HASH-1760.75**
     - Anti-infectives
   - **ICD9-HASH-1760.76**
     - Cocaine
   - **ICD9-HASH-1760.77**
     - Diethylstilbestrol (DES)
   - **ICD9-HASH-1760.79**
     - Other
   - **ICD9-HASH-1760.8**
     - Other specified maternal conditions affecting fetus or newborn
   - **ICD9-HASH-1760.9**
     - Unspecified maternal condition affecting fetus or newborn
   - **ICD9-HASH-1761**
     - Fetus or newborn affected by maternal complications of pregnancy
   - **ICD9-HASH-1761.0**
     - Incompetent cervix
   - **ICD9-HASH-1761.1**
     - Premature rupture of membranes
   - **ICD9-HASH-1761.2**
     - Oligohydramnios
   - **ICD9-HASH-1761.3**
     - Polyhydramnios
   - **ICD9-HASH-1761.4**
     - Ectopic pregnancy
   - **ICD9-HASH-1761.5**
     - Multiple pregnancy
   - **ICD9-HASH-1761.6**
     - Maternal death
   - **ICD9-HASH-1761.7**
     - Malpresentation before labor
   - **ICD9-HASH-1761.8**
     - Other specified maternal complications of pregnancy affecting fetus or newborn
   - **ICD9-HASH-1762**
     - Unspecified maternal complication of pregnancy affecting fetus or newborn
   - **ICD9-HASH-1762.0**
     - Fetus or newborn affected by complications of placenta, cord, and membranes
"Fetal distress before onset of labor, in liveborn infant"

(SDF) (GETHAP "768.3" ICD-9-HASH-TABLE)
"Fetal distress (first noted during labor, in liveborn infant"

(SDF) (GETHAP "768.4" ICD-9-HASH-TABLE)
"Fetal distress, unspecified as to time of onset, in liveborn infant"

(SDF) (GETHAP "768.5" ICD-9-HASH-TABLE) "Severe birth asphyxia"

(SDF) (GETHAP "768.6" ICD-9-HASH-TABLE) "Wild or moderate birth asphyxia"

(SDF) (GETHAP "768.9" ICD-9-HASH-TABLE) "Unspecified birth asphyxia in liveborn infant"

(SDF) (GETHAP "768" ICD-9-HASH-TABLE) "Respiratory distress syndrome"

(SDF) (GETHAP "770" ICD-9-HASH-TABLE) "Other respiratory conditions of fetus and newborn"

(SDF) (GETHAP "770.0" ICD-9-HASH-TABLE) "Congenital pneumonia"

(SDF) (GETHAP "770.1" ICD-9-HASH-TABLE) "Meconium aspiration syndrome"

(SDF) (GETHAP "770.2" ICD-9-HASH-TABLE) "Interstitial emphysema and related conditions"

(SDF) (GETHAP "770.3" ICD-9-HASH-TABLE) "Pulmonary hemorrhage"

(SDF) (GETHAP "770.4" ICD-9-HASH-TABLE) "Primary atelectasis"

(SDF) (GETHAP "770.5" ICD-9-HASH-TABLE) "Other and unspecified atelectasis"

(SDF) (GETHAP "770.6" ICD-9-HASH-TABLE) "Transitory tachypnea of newborn"

(SDF) (GETHAP "770.7" ICD-9-HASH-TABLE) "Chronic respiratory disease arising in the perinatal period"

(SDF) (GETHAP "770.8" ICD-9-HASH-TABLE) "Other respiratory problems after birth"

(SDF) (GETHAP "770.9" ICD-9-HASH-TABLE) "Unspecified respiratory condition of fetus and newborn"

(SDF) (GETHAP "771" ICD-9-HASH-TABLE) "Infections specific to the perinatal period"

(SDF) (GETHAP "771.0" ICD-9-HASH-TABLE) "Congenital rubella"

(SDF) (GETHAP "771.1" ICD-9-HASH-TABLE) "Congenital cytomegalovirus infection"

(SDF) (GETHAP "771.2" ICD-9-HASH-TABLE) "Other congenital infections"

(SDF) (GETHAP "771.3" ICD-9-HASH-TABLE) "Tetanus neonatorum"

(SDF) (GETHAP "771.4" ICD-9-HASH-TABLE) "Omphalitis of the newborn"

(SDF) (GETHAP "771.5" ICD-9-HASH-TABLE) "Neonatal infective mastitis"

(SDF) (GETHAP "771.6" ICD-9-HASH-TABLE) "Neonatal conjunctivitis and dacryocystitis"

(SDF) (GETHAP "771.7" ICD-9-HASH-TABLE) "Neonatal Candida infection"

(SDF) (GETHAP "771.8" ICD-9-HASH-TABLE) "Other infection specific to the perinatal period"

(SDF) (GETHAP "772" ICD-9-HASH-TABLE) "Fetal and neonatal hemorrhage"

(SDF) (GETHAP "772.0" ICD-9-HASH-TABLE) "Fetal blood loss"

(SDF) (GETHAP "772.1" ICD-9-HASH-TABLE) "Intraventricular hemorrhage"

(SDF) (GETHAP "772.2" ICD-9-HASH-TABLE) "Subarachnoid hemorrhage"

(SDF) (GETHAP "772.3" ICD-9-HASH-TABLE) "Umbilical hemorrhage after birth"

(SDF) (GETHAP "772.4" ICD-9-HASH-TABLE) "Gastrointestinal hemorrhage"

(SDF) (GETHAP "772.5" ICD-9-HASH-TABLE) "Adrenal hemorrhage"

(SDF) (GETHAP "772.6" ICD-9-HASH-TABLE) "Cutaneous hemorrhage"

(SDF) (GETHAP "772.8" ICD-9-HASH-TABLE) "Other specified hemorrhage of fetus or newborn"

(SDF) (GETHAP "772.9" ICD-9-HASH-TABLE) "Unspecified hemorrhage of newborn"

(SDF) (GETHAP "772" ICD-9-HASH-TABLE) "Hemolytic disease of fetus or newborn, due to isoimmunization"

(SDF) (GETHAP "773.0" ICD-9-HASH-TABLE) "Hemolytic disease due to Rh isoimmunization"

(SDF) (GETHAP "773.1" ICD-9-HASH-TABLE) "Hemolytic disease due to ABO isoimmunization"

(SDF) (GETHAP "773.2" ICD-9-HASH-TABLE) "Hemolytic disease due to other and unspecified isoimmunization"

(SDF) (GETHAP "773.3" ICD-9-HASH-TABLE) "Hydrops fetalis due to isoimmunization"
(SETF (GETHASH "773.4" ICD9-HASH-TABLE) "Kernicterus due to isomunization")
(SETF (GETHASH "773.5" ICD9-HASH-TABLE) "Late anemia due to isomunization")
(SETF (GETHASH "774" ICD9-HASH-TABLE) "Other perinatal jaundice")
(SETF (GETHASH "774.0" ICD9-HASH-TABLE) "Perinatal jaundice from hereditary hemolytic anemia")
(SETF (GETHASH "774.1" ICD9-HASH-TABLE) "Perinatal jaundice from other excessive hemolysis")
(SETF (GETHASH "774.2" ICD9-HASH-TABLE) "Neonatal jaundice associated with preterm delivery")
(SETF (GETHASH "774.3" ICD9-HASH-TABLE) "Neonatal jaundice due to delayed conjugation from other causes")
(SETF (GETHASH "774.30" ICD9-HASH-TABLE) "Neonatal jaundice due to delayed conjugation, cause unspecified")
(SETF (GETHASH "774.132" ICD9-HASH-TABLE) "Neonatal jaundice due to delayed conjugation in diseases classified elsewhere")
(SETF (GETHASH "774.4" ICD9-HASH-TABLE) "Perinatal jaundice due to hepatocellular damage")
(SETF (GETHASH "774.5" ICD9-HASH-TABLE) "Perinatal jaundice from other causes")
(SETF (GETHASH "774.6" ICD9-HASH-TABLE) "Unspecified fetal and neonatal jaundice")
(SETF (GETHASH "774.7" ICD9-HASH-TABLE) "Kernicterus not due to isomunization")
(SETF (GETHASH "775" ICD9-HASH-TABLE) "Endocrine and metabolic disturbances specific to the fetus and newborn")
(SETF (GETHASH "775.1" ICD9-HASH-TABLE) "Neonatal diabetes mellitus")
(SETF (GETHASH "775.2" ICD9-HASH-TABLE) "Neonatal myasthenia gravis")
(SETF (GETHASH "775.3" ICD9-HASH-TABLE) "Neonatal thyrotoxicosis")
(SETF (GETHASH "775.4" ICD9-HASH-TABLE) "Hypocalcemia and hypomagnesemia of newborn")
(SETF (GETHASH "775.5" ICD9-HASH-TABLE) "Other transitory neonatal electrolyte disturbances")
(SETF (GETHASH "775.6" ICD9-HASH-TABLE) "Neonatal hypoglycemia")
(SETF (GETHASH "775.7" ICD9-HASH-TABLE) "Late metabolic acidsis of newborn")
(SETF (GETHASH "775.8" ICD9-HASH-TABLE) "Other transitory neonatal endocrine and metabolic disturbances")
(SETF (GETHASH "775.9" ICD9-HASH-TABLE) "Unspecified endocrine and metabolic disturbances specific to the fetus and newborn")
(SETF (GETHASH "776" ICD9-HASH-TABLE) "Hematological disorders of fetus and newborn")
(SETF (GETHASH "776.0" ICD9-HASH-TABLE) "Hemorrhagic disease of newborn")
(SETF (GETHASH "776.1" ICD9-HASH-TABLE) "Transient neonatal thrombocytopenia")
(SETF (GETHASH "776.2" ICD9-HASH-TABLE) "Disseminated intravascular coagulation in newborn")
(SETF (GETHASH "776.3" ICD9-HASH-TABLE) "Other transient fetal disorders of coagulation")
(SETF (GETHASH "776.4" ICD9-HASH-TABLE) "Polycythemia neonatorum")
(SETF (GETHASH "776.5" ICD9-HASH-TABLE) "Congenital anemia")
(SETF (GETHASH "776.6" ICD9-HASH-TABLE) "Aneoxia of prematurity")
(SETF (GETHASH "776.7" ICD9-HASH-TABLE) "Transient neonatal neutropenia")
(SETF (GETHASH "776.8" ICD9-HASH-TABLE) "Other specified transient hematological disorders")
(SETF (GETHASH "776.9" ICD9-HASH-TABLE) "Unspecified hematological disorder specific to fetus or newborn")
(SETF (GETHASH "777" ICD9-HASH-TABLE) "Perinatal disorders of digestive system")
(SETF (GETHASH "777.1" ICD9-HASH-TABLE) "Meconium obstruction")
(SETF (GETHASH "777.2" ICD9-HASH-TABLE) "Intestinal obstruction due to inpissated milk")
"Disruptions of 24-hour sleep-wake cycle")

(SETF (GETHASH "780.01" ICD9-HASH-TABLE)
"Dysfunctions associated with sleep stages or arousal from sleep")

(SETF (GETHASH "780.37" ICD9-HASH-TABLE)
"Other and unspecified sleep apnea")

(SETF (GETHASH "780.39" ICD9-HASH-TABLE)
"Other")

(SETF (GETHASH "780.6" ICD9-HASH-TABLE)
"Fever")

(SETF (GETHASH "780.7" ICD9-HASH-TABLE)
"Malaise and fatigue")

(SETF (GETHASH "780.8" ICD9-HASH-TABLE)
"Hypercibrosis")

(SETF (GETHASH "780.9" ICD9-HASH-TABLE)
"Other general symptoms")

(SETF (GETHASH "781" ICD9-HASH-TABLE)
"Symptoms involving nervous and musculoskeletal systems")

(SETF (GETHASH "781.0" ICD9-HASH-TABLE)
"Abnormal involuntary movements")

(SETF (GETHASH "781.1" ICD9-HASH-TABLE)
"Disturbances of sensation of smell and taste")

(SETF (GETHASH "781.2" ICD9-HASH-TABLE)
"Abnormality of gait")

(SETF (GETHASH "781.3" ICD9-HASH-TABLE)
"Lack of coordination")

(SETF (GETHASH "781.4" ICD9-HASH-TABLE)
"Transient paralysis of limb")

(SETF (GETHASH "781.5" ICD9-HASH-TABLE)
"Clubbing of fingers")

(SETF (GETHASH "781.6" ICD9-HASH-TABLE)
"Meningismus")

(SETF (GETHASH "781.7" ICD9-HASH-TABLE)
"Tetany")

(SETF (GETHASH "781.8" ICD9-HASH-TABLE)
"Neurologic neglect syndrome")

(SETF (GETHASH "781.9" ICD9-HASH-TABLE)
"Other symptoms involving nervous and musculoskeletal systems")

(SETF (GETHASH "782" ICD9-HASH-TABLE)
"Symptoms involving skin and other integumentary tissue")

(SETF (GETHASH "782.0" ICD9-HASH-TABLE)
"Disturbance of skin sensation")

(SETF (GETHASH "782.1" ICD9-HASH-TABLE)
"Rash and other nonspecific skin eruption")

(SETF (GETHASH "782.2" ICD9-HASH-TABLE)
"Localized superficial swelling, mass, or lump")

(SETF (GETHASH "782.3" ICD9-HASH-TABLE)
"Edema")

(SETF (GETHASH "782.4" ICD9-HASH-TABLE)
"Jaundice, unspecified, not of newborn")

(SETF (GETHASH "782.5" ICD9-HASH-TABLE)
"Cyanosis")

(SETF (GETHASH "782.6" ICD9-HASH-TABLE)
"Pallor or flushing")

(SETF (GETHASH "782.61" ICD9-HASH-TABLE)
"Pallor")

(SETF (GETHASH "782.62" ICD9-HASH-TABLE)
"Flushing")

(SETF (GETHASH "782.7" ICD9-HASH-TABLE)
"Spontaneous ecchymoses")

(SETF (GETHASH "782.8" ICD9-HASH-TABLE)
"Changes in skin texture")

(SETF (GETHASH "782.9" ICD9-HASH-TABLE)
"Other symptoms involving skin and integumentary tissues")

(SETF (GETHASH "783" ICD9-HASH-TABLE)
"Symptoms concerning nutrition, metabolism, and development")

(SETF (GETHASH "783.0" ICD9-HASH-TABLE)
"Anorexia")

(SETF (GETHASH "783.1" ICD9-HASH-TABLE)
"Abnormal weight gain")

(SETF (GETHASH "783.2" ICD9-HASH-TABLE)
"Abnormal loss of weight")

(SETF (GETHASH "783.3" ICD9-HASH-TABLE)
"Feeding difficulties and mismanagement")

(SETF (GETHASH "783.4" ICD9-HASH-TABLE)
"Lack of expected normal physiological development")

(SETF (GETHASH "783.5" ICD9-HASH-TABLE)
"Polydipsia")

(SETF (GETHASH "783.6" ICD9-HASH-TABLE)
"Polyphagia")

(SETF (GETHASH "783.9" ICD9-HASH-TABLE)
"Other symptoms concerning nutrition, metabolism, and development")

(SETF (GETHASH "784" ICD9-HASH-TABLE)
"Symptoms involving head and neck")

(SETF (GETHASH "784.0" ICD9-HASH-TABLE)
"Headache")

(SETF (GETHASH "784.1" ICD9-HASH-TABLE)
"Throat pain")

(SETF (GETHASH "784.2" ICD9-HASH-TABLE)
"Swelling, mass, or lump in head and neck")

(SETF (GETHASH "784.3" ICD9-HASH-TABLE)
"Aphasia")

(SETF (GETHASH "784.4" ICD9-HASH-TABLE)
"Voice disturbance")

(SETF (GETHASH "784.40" ICD9-HASH-TABLE)
"Voice disturbance, unspecified")
(SETF (GETHASH "784.42" ICD9-HASH-TABLE) "Aphonia")
(SETF (GETHASH "784.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "784.57" ICD9-HASH-TABLE) "Other speech disturbance")
(SETF (GETHASH "784.6" ICD9-HASH-TABLE) "Other symbolic dysfunction")
(SETF (GETHASH "784.60" ICD9-HASH-TABLE) "Symbolic dysfunction, unspecified")
(SETF (GETHASH "784.61" ICD9-HASH-TABLE) "Alexia and dyslexia")
(SETF (GETHASH "784.69" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "784.7" ICD9-HASH-TABLE) "Epistaxis")
(SETF (GETHASH "784.8" ICD9-HASH-TABLE) "Hemorrhage from throat")
(SETF (GETHASH "784.9" ICD9-HASH-TABLE) "Other symptoms involving head and neck")
(SETF (GETHASH "785" ICD9-HASH-TABLE) "Symptoms involving cardiovascular system")
(SETF (GETHASH "785.0" ICD9-HASH-TABLE) "Tachycardia, unspecified")
(SETF (GETHASH "785.1" ICD9-HASH-TABLE) "Palpitations")
(SETF (GETHASH "785.2" ICD9-HASH-TABLE) "Unilateral cardiac murmurs")
(SETF (GETHASH "785.3" ICD9-HASH-TABLE) "Other abnormal heart sounds")
(SETF (GETHASH "785.4" ICD9-HASH-TABLE) "Gangrene")
(SETF (GETHASH "785.5" ICD9-HASH-TABLE) "Shock without mention of trauma")
(SETF (GETHASH "785.50" ICD9-HASH-TABLE) "Shock, unspecified")
(SETF (GETHASH "785.51" ICD9-HASH-TABLE) "Cardiogenic shock")
(SETF (GETHASH "785.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "785.6" ICD9-HASH-TABLE) "Enlargement of lymph nodes")
(SETF (GETHASH "785.9" ICD9-HASH-TABLE) "Other symptoms involving cardiovascular system")
(SETF (GETHASH "786" ICD9-HASH-TABLE) "Symptoms involving respiratory system and other chest symptoms")
(SETF (GETHASH "786.0" ICD9-HASH-TABLE) "Dyspnea and respiratory abnormalities")
(SETF (GETHASH "786.00" ICD9-HASH-TABLE) "Respiratory abnormality, unspecified")
(SETF (GETHASH "786.01" ICD9-HASH-TABLE) "Hyperventilation")
(SETF (GETHASH "786.02" ICD9-HASH-TABLE) "Orthopnea")
(SETF (GETHASH "786.09" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "786.1" ICD9-HASH-TABLE) "Stridor")
(SETF (GETHASH "786.2" ICD9-HASH-TABLE) "Cough")
(SETF (GETHASH "786.3" ICD9-HASH-TABLE) "Hemoptysis")
(SETF (GETHASH "786.4" ICD9-HASH-TABLE) "Abnormal sputum")
(SETF (GETHASH "786.5" ICD9-HASH-TABLE) "Chest pain")
(SETF (GETHASH "786.50" ICD9-HASH-TABLE) "Chest pain, unspecified")
(SETF (GETHASH "786.51" ICD9-HASH-TABLE) "Precordial pain")
(SETF (GETHASH "786.52" ICD9-HASH-TABLE) "Painful respiration")
(SETF (GETHASH "786.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "786.6" ICD9-HASH-TABLE) "Swelling, mass, or lump in chest")
(SETF (GETHASH "786.7" ICD9-HASH-TABLE) "Abnormal chest sounds")
(SETF (GETHASH "786.8" ICD9-HASH-TABLE) "Hiccough")
(SETF (GETHASH "786.9" ICD9-HASH-TABLE) "Other symptoms involving respiratory system and chest")
(SETF (GETHASH "787" ICD9-HASH-TABLE) "Symptoms involving digestive system")
(SETF (GETHASH "787.01" ICD9-HASH-TABLE) "Nausea with vomiting")
(SETF (GETHASH "787.02" ICD9-HASH-TABLE) "Nausea alone")
(SETF (GETHASH "787.03" ICD9-HASH-TABLE) "Vomiting alone")
(SETF (GETHASH "787.1" ICD9-HASH-TABLE) "Heartburn")
(SETF (GETHASH "787.2" ICD9-HASH-TABLE) "Dysphagia")
(SETF (GETHASH "787.3" ICD9-HASH-TABLE) "Flatulence, eructation, and gas pain")
(SETF (GETHASH "787.4" ICD9-HASH-TABLE) "Visible peristalsis")
(SETF (GETHASH "787.5" ICD9-HASH-TABLE) "Abnormal bowel sounds")
(SETF (GETHASH "787.7" ICD9-HASH-TABLE) "Abnormal feaces")
(SETF (GETHASH "787.9" ICD9-HASH-TABLE) "Other symptoms involving digestive system")
(SETF (GETHASH "787.92" ICD9-HASH-TABLE) "Diarrhea")
(SETF (GETHASH "790.7" ICD9-HASH-TABLE) "Bacteremia")
(SETF (GETHASH "790.8" ICD9-HASH-TABLE) "Viremia, unspecified")
(SETF (GETHASH "790.9" ICD9-HASH-TABLE) "Other nonspecific findings on examination of blood")
(SETF (GETHASH "790.91" ICD9-HASH-TABLE) "Abnormal arterial blood gases")
(SETF (GETHASH "790.92" ICD9-HASH-TABLE) "Abnormal coagulation profile")
(SETF (GETHASH "790.93" ICD9-HASH-TABLE) "Elevated prostate specific antigen (PSA")
(SETF (GETHASH "790.94" ICD9-HASH-TABLE) "Euthyroid sick syndrome")
(SETF (GETHASH "790.95" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "791" ICD9-HASH-TABLE) "Nonspecific findings on examination of urine")
(SETF (GETHASH "791.0" ICD9-HASH-TABLE) "Proteinuria")
(SETF (GETHASH "791.1" ICD9-HASH-TABLE) "Chyluria")
(SETF (GETHASH "791.2" ICD9-HASH-TABLE) "Hemoglobinuria")
(SETF (GETHASH "791.3" ICD9-HASH-TABLE) "Myoglobinuria")
(SETF (GETHASH "791.4" ICD9-HASH-TABLE) "Biliruria")
(SETF (GETHASH "791.5" ICD9-HASH-TABLE) "Glycosuria")
(SETF (GETHASH "791.6" ICD9-HASH-TABLE) "Acetonuria")
(SETF (GETHASH "791.7" ICD9-HASH-TABLE) "Other cells and casts in urine")
(SETF (GETHASH "791.8" ICD9-HASH-TABLE) "Other nonspecific findings on examination of urine")
(SETF (GETHASH "792" ICD9-HASH-TABLE) "Nonspecific abnormal findings in other body substances")
(SETF (GETHASH "792.0" ICD9-HASH-TABLE) "Cerebrospinal fluid")
(SETF (GETHASH "792.1" ICD9-HASH-TABLE) "Stool contents")
(SETF (GETHASH "792.2" ICD9-HASH-TABLE) "Semen")
(SETF (GETHASH "792.3" ICD9-HASH-TABLE) "Amniotic fluid")
(SETF (GETHASH "792.4" ICD9-HASH-TABLE) "Saliva")
(SETF (GETHASH "792.9" ICD9-HASH-TABLE) "Other nonspecific abnormal findings in body substances")
(SETF (GETHASH "793" ICD9-HASH-TABLE) "Nonspecific abnormal findings on radiological and other examination of body structure")
(SETF (GETHASH "793.0" ICD9-HASH-TABLE) "Skull and head")
(SETF (GETHASH "793.1" ICD9-HASH-TABLE) "Lung field")
(SETF (GETHASH "793.2" ICD9-HASH-TABLE) "Other intrathoracic organ")
(SETF (GETHASH "793.3" ICD9-HASH-TABLE) "Biliary tract")
(SETF (GETHASH "793.4" ICD9-HASH-TABLE) "Gastrointestinal tract")
(SETF (GETHASH "793.5" ICD9-HASH-TABLE) "Genitourinary organs")
(SETF (GETHASH "793.6" ICD9-HASH-TABLE) "Abdominal area, including retroperitoneum")
(SETF (GETHASH "793.7" ICD9-HASH-TABLE) "Musculoskeletal system")
(SETF (GETHASH "793.8" ICD9-HASH-TABLE) "Breast")
(SETF (GETHASH "793.9" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "794" ICD9-HASH-TABLE) "Nonspecific abnormal results of function studies")
(SETF (GETHASH "794.0" ICD9-HASH-TABLE) "Brain and central nervous system")
(SETF (GETHASH "794.0.0" ICD9-HASH-TABLE) "Abnormal function study, unspecified")
(SETF (GETHASH "794.0.1" ICD9-HASH-TABLE) "Abnormal echoencephalogram")
(SETF (GETHASH "794.0.2" ICD9-HASH-TABLE) "Abnormal electroencephalogram (EEG")
(SETF (GETHASH "794.0.9" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "794.1" ICD9-HASH-TABLE) "Peripheral nervous system and special senses")
(SETF (GETHASH "794.10" ICD9-HASH-TABLE) "Abnormal response to nerve stimulation, unspecified")
(SETF (GETHASH "794.11" ICD9-HASH-TABLE) "Abnormal retinal function studies")
(SETF (GETHASH "794.12" ICD9-HASH-TABLE) "Abnormal electro-oculogram (EOG")
(SETF (GETHASH "794.13" ICD9-HASH-TABLE) "Abnormal visually evoked potential")
(SETF (GETHASH "794.14" ICD9-HASH-TABLE) "Abnormal oculomotor studies")
"Other ill-defined and unknown causes of morbidity and mortality")

(SETF (GETHASH "795.0" ICD9-HASH-TABLE) "Asphyxia")

(SETF (GETHASH "795.1" ICD9-HASH-TABLE) "Respiratory arrest")

(SETF (GETHASH "795.2" ICD9-HASH-TABLE) "Nervousness")

(SETF (GETHASH "795.3" ICD9-HASH-TABLE) "Debility, unspecified")

(SETF (GETHASH "795.4" ICD9-HASH-TABLE) "Cachexia")

(SETF (GETHASH "795.8" ICD9-HASH-TABLE) "Other ill-defined conditions")

(SETF (GETHASH "795.9" ICD9-HASH-TABLE) "Other unknown and unspecified cause")

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(SETF (GETHASH "800.0" ICD9-HASH-TABLE) "Fracture of vault of skull")

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(SETF (GETHASH "800.1" ICD9-HASH-TABLE) "Closed with cerebral laceration and contusion")

(SETF (GETHASH "800.2" ICD9-HASH-TABLE) "Closed with subarachnoid, subdural, and extradural hemorrhage")

(SETF (GETHASH "800.3" ICD9-HASH-TABLE) "Closed with other and unspecified intracranial hemorrhage")

(SETF (GETHASH "800.4" ICD9-HASH-TABLE) "Closed with intracranial injury of other and unspecified nature")

(SETF (GETHASH "800.5" ICD9-HASH-TABLE) "Open without mention of intracranial injury")

(SETF (GETHASH "800.5" ICD9-HASH-TABLE) "Open with cerebral laceration and contusion")

(SETF (GETHASH "800.7" ICD9-HASH-TABLE) "Open with subarachnoid, subdural, and extradural hemorrhage")

(SETF (GETHASH "800.8" ICD9-HASH-TABLE) "Open with other and unspecified intracranial hemorrhage")

(SETF (GETHASH "801" ICD9-HASH-TABLE) "Fracture of base of skull")

(SETF (GETHASH "801.0" ICD9-HASH-TABLE) "Closed without mention of intracranial injury")

(SETF (GETHASH "801.1" ICD9-HASH-TABLE) "Closed with cerebral laceration and contusion")

(SETF (GETHASH "801.2" ICD9-HASH-TABLE) "Closed with subarachnoid, subdural, and extradural hemorrhage")

(SETF (GETHASH "801.3" ICD9-HASH-TABLE) "Closed with other and unspecified intracranial hemorrhage")

(SETF (GETHASH "801.4" ICD9-HASH-TABLE) "Closed with intracranial injury of other and unspecified nature")

(SETF (GETHASH "801.5" ICD9-HASH-TABLE) "Open without mention of intracranial injury")

(SETF (GETHASH "801.6" ICD9-HASH-TABLE) "Open with cerebral laceration and contusion")

(SETF (GETHASH "801.7" ICD9-HASH-TABLE) "Open with subarachnoid, subdural, and extradural hemorrhage")

(SETF (GETHASH "801.8" ICD9-HASH-TABLE) "Open with other and unspecified intracranial hemorrhage")

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(SETF (GETHASH "802.2" ICD9-HASH-TABLE) "Mandible, closed")

(SETF (GETHASH "802.20" ICD9-HASH-TABLE) "Unspecified site")

(SETF (GETHASH "802.21" ICD9-HASH-TABLE) "Condylar process")

(SETF (GETHASH "802.22" ICD9-HASH-TABLE) "Subcondylar")

(SETF (GETHASH "802.23" ICD9-HASH-TABLE) "Coronoid process")

(SETF (GETHASH "802.24" ICD9-HASH-TABLE) "Ramus, unspecified")

(SETF (GETHASH "802.25" ICD9-HASH-TABLE) "Angle of jaw")

(SETF (GETHASH "802.26" ICD9-HASH-TABLE) "Symphysis of body")

(SETF (GETHASH "802.27" ICD9-HASH-TABLE) "Alveolar border of body")

(SETF (GETHASH "802.28" ICD9-HASH-TABLE) "Body, other and unspecified")

(SETF (GETHASH "802.29" ICD9-HASH-TABLE) "Multiple sites")
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(SETF (GETHASH "802.34" ICD9-HASH-TABLE) "Ramus, unspecified")
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(SETF (GETHASH "802.36" ICD9-HASH-TABLE) "Symphysis of body")
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(SETF (GETHASH "802.7" ICD9-HASH-TABLE) "Orbital floor (blow-out), open")
(SETF (GETHASH "802.8" ICD9-HASH-TABLE) "Other facial bones, closed")
(SETF (GETHASH "802.9" ICD9-HASH-TABLE) "Other facial bones, open")
(SETF (GETHASH "803" ICD9-HASH-TABLE) "Other and unspecified skull fractures")
(SETF (GETHASH "803.0" ICD9-HASH-TABLE) "Closed without mention of intracranial injury")
(SETF (GETHASH "803.1" ICD9-HASH-TABLE) "Closed with cerebral laceration and contusion")
(SETF (GETHASH "803.2" ICD9-HASH-TABLE) "Closed with subarachnoid, subdural, and extradural hemorrhage")
(SETF (GETHASH "803.3" ICD9-HASH-TABLE) "Closed with other and unspecified intracranial hemorrhage")
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(SETF (GETHASH "803.5" ICD9-HASH-TABLE) "Open without mention of intracranial injury")
(SETF (GETHASH "803.6" ICD9-HASH-TABLE) "Open with cerebral laceration and contusion")
(SETF (GETHASH "803.7" ICD9-HASH-TABLE) "Open with subarachnoid, subdural, and extradural hemorrhage")
(SETF (GETHASH "803.8" ICD9-HASH-TABLE) "Open with other and unspecified intracranial hemorrhage")
(SETF (GETHASH "803.9" ICD9-HASH-TABLE) "Open with intracranial injury of other and unspecified nature")
(SETF (GETHASH "804" ICD9-HASH-TABLE) "Multiple fractures involving skull or face with other bones")
(SETF (GETHASH "804.0" ICD9-HASH-TABLE) "Closed without mention of intracranial injury")
(SETF (GETHASH "804.1" ICD9-HASH-TABLE) "Closed with cerebral laceration and contusion")
(SETF (GETHASH "804.2" ICD9-HASH-TABLE) "Closed with subarachnoid, subdural, and extradural hemorrhage")
(SETF (GETHASH "804.3" ICD9-HASH-TABLE) "Closed with other and unspecified intracranial hemorrhage")
(SETF (GETHASH "804.4" ICD9-HASH-TABLE) "Closed with intracranial injury of other and unspecified nature")
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(SETF (GETHASH "805.7" ICD9-HASH-TABLE) "Sacrum and coccyx, open")
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(SETF (GETHASH "805.9" ICD9-HASH-TABLE) "Unspecified, open")
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(SETF (GETHASH "806.0" ICD9-HASH-TABLE) "Cervical, closed")
(SETF (GETHASH "806.00" ICD9-HASH-TABLE) "C1-C4 level with unspecified spinal cord injury")
(SETF (GETHASH "806.01" ICD9-HASH-TABLE) "C1-C4 level with complete lesion of cord")
(SETF (GETHASH "806.02" ICD9-HASH-TABLE) "C1-C4 level with anterior cord syndrome")
(SETF (GETHASH "806.03" ICD9-HASH-TABLE) "C1-C4 level with central cord syndrome")
(SETF (GETHASH "806.04" ICD9-HASH-TABLE) "C1-C4 level with other specified spinal cord injury")
(SETF (GETHASH "806.05" ICD9-HASH-TABLE) "C5-C7 level with unspecified spinal cord injury")
(SETF (GETHASH "806.06" ICD9-HASH-TABLE) "C5-C7 level with complete lesion of cord")
(SETF (GETHASH "806.07" ICD9-HASH-TABLE) "C3-C7 level with anterior cord syndrome")
(SETF (GETHASH "806.08" ICD9-HASH-TABLE) "C3-C7 level with central cord syndrome")
(SETF (GETHASH "806.09" ICD9-HASH-TABLE) "C3-C7 level with other specified spinal cord injury")
(SETF (GETHASH "806.1" ICD9-HASH-TABLE) "Cervical, open")
(SETF (GETHASH "806.10" ICD9-HASH-TABLE) "C1-C4 level with unspecified spinal cord injury")
(SETF (GETHASH "806.11" ICD9-HASH-TABLE) "C1-C4 level with complete lesion of cord")
(SETF (GETHASH "806.12" ICD9-HASH-TABLE) "C1-C4 level with anterior cord syndrome")
(SETF (GETHASH "806.13" ICD9-HASH-TABLE) "C1-C4 level with other specified spinal cord injury")
(SETF (GETHASH "806.14" ICD9-HASH-TABLE) "C5-C7 level with unspecified spinal cord injury")
(SETF (GETHASH "806.15" ICD9-HASH-TABLE) "C5-C7 level with complete lesion of cord")
(SETF (GETHASH "806.16" ICD9-HASH-TABLE) "C5-C7 level with anterior cord syndrome")
(SETF (GETHASH "806.17" ICD9-HASH-TABLE) "C5-C7 level with central cord syndrome")
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"Flail chest")
(CETHASH "807.5" ICD9-HASH-TABLE)
"Larynx and trachea, closed")
(CETHASH "807.6" ICD9-HASH-TABLE)
"Larynx and trachea, open")
(CETHASH "808" ICD9-HASH-TABLE)
"Fracture of pelvis")
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(SETF (GETHASH "808.1" ICD9-HASH-TABLE) "Acetabulum, open")
(SETF (GETHASH "808.2" ICD9-HASH-TABLE) "Pubis, closed")
(SETF (GETHASH "808.3" ICD9-HASH-TABLE) "Pubis, open")
(SETF (GETHASH "808.4" ICD9-HASH-TABLE) "Other specified part, closed")
(SETF (GETHASH "808.41" ICD9-HASH-TABLE) "Ilium")
(SETF (GETHASH "808.42" ICD9-HASH-TABLE) "Ilium")
(SETF (GETHASH "808.43" ICD9-HASH-TABLE) "Multiple pelvic fractures with disruption of pelvic circle")
(SETF (GETHASH "808.49" ICD9-HASH-TABLE) "Other")
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(SETF (GETHASH "808.51" ICD9-HASH-TABLE) "Ilium")
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(SETF (GETHASH "808.59" ICD9-HASH-TABLE) "Other")
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(SETF (GETHASH "808.9" ICD9-HASH-TABLE) "Unspecified, open")
(SETF (GETHASH "809" ICD9-HASH-TABLE) "Humerus")
(SETF (GETHASH "809.0" ICD9-HASH-TABLE) "Fractures of bones of trunk")
(SETF (GETHASH "809.1" ICD9-HASH-TABLE) "Fracture of bones of trunk, open")
(SETF (GETHASH "810" ICD9-HASH-TABLE) "Fracture of upper limb (810-819)")
(SETF (GETHASH "810.0" ICD9-HASH-TABLE) "Fracture of clavicle")
(SETF (GETHASH "810.1" ICD9-HASH-TABLE) "Open")
(SETF (GETHASH "811" ICD9-HASH-TABLE) "Fracture of scapula")
(SETF (GETHASH "811.0" ICD9-HASH-TABLE) "Closed")
(SETF (GETHASH "811.1" ICD9-HASH-TABLE) "Open")
(SETF (GETHASH "812" ICD9-HASH-TABLE) "Fracture of humerus")
(SETF (GETHASH "812.0" ICD9-HASH-TABLE) "Upper end, closed")
(SETF (GETHASH "812.01" ICD9-HASH-TABLE) "Upper end, unspecified part")
(SETF (GETHASH "812.02" ICD9-HASH-TABLE) "Antebrachial neck")
(SETF (GETHASH "812.03" ICD9-HASH-TABLE) "Greater tuberosity")
(SETF (GETHASH "812.09" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "812.12" ICD9-HASH-TABLE) "Upper end, open")
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(SETF (GETHASH "812.11" ICD9-HASH-TABLE) "Surgical neck")
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(SETF (GETHASH "812.13" ICD9-HASH-TABLE) "Greater tuberosity")
(SETF (GETHASH "812.19" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "812.2" ICD9-HASH-TABLE) "Shaft or unspecified part, closed")
(SETF (GETHASH "812.20" ICD9-HASH-TABLE) "Unspecified part of humerus")
(SETF (GETHASH "812.21" ICD9-HASH-TABLE) "Shaft of humerus")
(SETF (GETHASH "812.3" ICD9-HASH-TABLE) "Shaft or unspecified part, open")
(SETF (GETHASH "812.30" ICD9-HASH-TABLE) "Unspecified part of humerus")
(SETF (GETHASH "812.31" ICD9-HASH-TABLE) "Shaft of humerus")
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(SETF (GETHASH "812.40" ICD9-HASH-TABLE) "Lower end, unspecified part")
(SETF (GETHASH "812.41" ICD9-HASH-TABLE) "Supracondylar fracture of humerus")
(SETF (GETHASH "812.42" ICD9-HASH-TABLE) "Lateral condyle")
(SETF (GETHASH "812.43" ICD9-HASH-TABLE) "Medial condyle")
(SETF (GETHASH "812.44" ICD9-HASH-TABLE) "Condyle(x), unspecified")
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(SETF (GETHASH "812.5" ICD9-HASH-TABLE) "Lower end, open")
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(SETF (GETHASH "861.02" ICD9-HASH-TABLE)  
"Laceration without penetration of heart chambers")

(SETF (GETHASH "861.03" ICD9-HASH-TABLE)  
"Laceration with penetration of heart chambers")

(SETF (GETHASH "861.1" ICD9-HASH-TABLE)  
"Heart, with open wound into thorax")

(SETF (GETHASH "861.10" ICD9-HASH-TABLE)  
"Heart, with open wound into thorax")

(SETF (GETHASH "861.11" ICD9-HASH-TABLE)  
"Heart, with open wound into thorax")

(SETF (GETHASH "861.12" ICD9-HASH-TABLE)  
"Heart, with open wound into thorax")

(SETF (GETHASH "861.13" ICD9-HASH-TABLE)  
"Laceration without penetration of heart chambers")

(SETF (GETHASH "861.2" IC
(SETF (GETHASH "861.3" ICD9-HASH-TABLE)
"Lung, with open wound into thorax")
(SETF (GETHASH "861.30" ICD9-HASH-TABLE) "Unspecified injury")
(SETF (GETHASH "861.31" ICD9-HASH-TABLE) "Contusion")
(SETF (GETHASH "861.32" ICD9-HASH-TABLE) "Laceration")
(SETF (GETHASH "862" ICD9-HASH-TABLE)
"Injury to other and unspecified intrathoracic organs")
(SETF (GETHASH "862.0" ICD9-HASH-TABLE)
"Diaphragm, without mention of open wound into cavity")
(SETF (GETHASH "862.1" ICD9-HASH-TABLE)
"Diaphragm, with open wound into cavity")
(SETF (GETHASH "862.2" ICD9-HASH-TABLE)
"Other specified intrathoracic organs, without mention of open wound into cavity")
(SETF (GETHASH "862.21" ICD9-HASH-TABLE) "Bronchus")
(SETF (GETHASH "862.22" ICD9-HASH-TABLE) "Esophagus")
(SETF (GETHASH "862.29" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "862.3" ICD9-HASH-TABLE)
"Other specified intrathoracic organs, with open wound into cavity")
(SETF (GETHASH "862.31" ICD9-HASH-TABLE) "Bronchus")
(SETF (GETHASH "862.32" ICD9-HASH-TABLE) "Esophagus")
(SETF (GETHASH "862.39" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "862.8" ICD9-HASH-TABLE)
"Multiple and unspecified intrathoracic organs, without mention of open wound into cavity")
(SETF (GETHASH "862.9" ICD9-HASH-TABLE)
"Multiple and unspecified intrathoracic organs, with open wound into cavity")
(SETF (GETHASH "863" ICD9-HASH-TABLE)
"Injury to gastrointestinal tract")
(SETF (GETHASH "863.0" ICD9-HASH-TABLE)
"Stomach, without mention of open wound into cavity")
(SETF (GETHASH "863.1" ICD9-HASH-TABLE)
"Stomach, with open wound into cavity")
(SETF (GETHASH "863.2" ICD9-HASH-TABLE)
"Small intestine, without mention of open wound into cavity")
(SETF (GETHASH "863.20" ICD9-HASH-TABLE)
"Small intestine, unspecified site")
(SETF (GETHASH "863.21" ICD9-HASH-TABLE) "Duodenum")
(SETF (GETHASH "863.29" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "863.3" ICD9-HASH-TABLE)
"Small intestine, with open wound into cavity")
(SETF (GETHASH "863.30" ICD9-HASH-TABLE)
"Small intestine, unspecified site")
(SETF (GETHASH "863.31" ICD9-HASH-TABLE) "Duodenum")
(SETF (GETHASH "863.39" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "863.4" ICD9-HASH-TABLE)
"Colon or rectum, without mention of open wound into cavity")
(SETF (GETHASH "863.40" ICD9-HASH-TABLE) "Colon, unspecified site")
(SETF (GETHASH "863.41" ICD9-HASH-TABLE) "Ascending [right] colon")
(SETF (GETHASH "863.42" ICD9-HASH-TABLE) "Transverse colon")
(SETF (GETHASH "863.43" ICD9-HASH-TABLE) "Descending [left] colon")
(SETF (GETHASH "863.44" ICD9-HASH-TABLE) "Sigmoid colon")
(SETF (GETHASH "863.45" ICD9-HASH-TABLE) "Rectum")
(SETF (GETHASH "863.46" ICD9-HASH-TABLE)
"Multiple sites in colon and rectum")
(SETF (GETHASH "863.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "863.5" ICD9-HASH-TABLE)
"Colon or rectum, with open wound into cavity")
(SETF (GETHASH "863.50" ICD9-HASH-TABLE) "Colon, unspecified site")
(SETF (GETHASH "863.51" ICD9-HASH-TABLE) "Ascending [right] colon")
(SETF (GETHASH "863.52" ICD9-HASH-TABLE) "Transverse colon")
(SETF (GETHASH "863.53" ICD9-HASH-TABLE) "Descending [left] colon")
(SETF (GETHASH "863.54" ICD9-HASH-TABLE) "Sigmoid colon")
(SETF (GETHASH "863.55" ICD9-HASH-TABLE) "Rectum")
(SETF (GETHASH "863.56" ICD9-HASH-TABLE)
"Multiple sites in colon and rectum")
(SETF (GETHASH "863.59" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "863.8" ICD9-HASH-TABLE) "Other")
"Other and unspecified gastrointestinal sites, without mention of open wound into cavity"

(SETF (GETHASH "863.80" ICD9-HASH-TABLE) "Gastrointestinal tract, unspecified site")
(SETF (GETHASH "863.81" ICD9-HASH-TABLE) "Pancreas, head")
(SETF (GETHASH "863.82" ICD9-HASH-TABLE) "Pancreas, body")
(SETF (GETHASH "863.83" ICD9-HASH-TABLE) "Pancreas, tail")
(SETF (GETHASH "863.84" ICD9-HASH-TABLE) "Pancreas, multiple and unspecified sites")
(SETF (GETHASH "863.85" ICD9-HASH-TABLE) "Appendix")
(SETF (GETHASH "863.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "863.90" ICD9-HASH-TABLE) "Other and unspecified gastrointestinal sites, with open wound into cavity")
(SETF (GETHASH "863.91" ICD9-HASH-TABLE) "Gastrointestinal tract, unspecified site")
(SETF (GETHASH "863.92" ICD9-HASH-TABLE) "Pancreas, head")
(SETF (GETHASH "863.93" ICD9-HASH-TABLE) "Pancreas, body")
(SETF (GETHASH "863.94" ICD9-HASH-TABLE) "Pancreas, tail")
(SETF (GETHASH "863.95" ICD9-HASH-TABLE) "Pancreas, multiple and unspecified sites")
(SETF (GETHASH "863.99" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "864.0" ICD9-HASH-TABLE) "Injury to liver")
(SETF (GETHASH "864.0.0" ICD9-HASH-TABLE) "Injury to liver")
(SETF (GETHASH "864.0.1" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "864.0.5" ICD9-HASH-TABLE) "Injury to spleen")
(SETF (GETHASH "865.0" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "865.1" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "865.5" ICD9-HASH-TABLE) "Injury to kidney")
(SETF (GETHASH "866.0.0" ICD9-HASH-TABLE) "Injury to kidney")
(SETF (GETHASH "866.1" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "866.7" ICD9-HASH-TABLE) "Injury to pelvic organs")
(SETF (GETHASH "867.0.0" ICD9-HASH-TABLE) "Bladder and urethra, without mention of open wound into cavity")
(SETF (GETHASH "867.1" ICD9-HASH-TABLE) "Bladder and urethra, with open wound into cavity")
(SETF (GETHASH "867.2" ICD9-HASH-TABLE) "Ureter, without mention of open wound into cavity")
(SETF (GETHASH "867.3" ICD9-HASH-TABLE) "Ureter, with open wound into cavity")
(SETF (GETHASH "867.4" ICD9-HASH-TABLE) "Uterus, without mention of open wound into cavity")
(SETF (GETHASH "867.5" ICD9-HASH-TABLE) "Uterus, with open wound into cavity")
(SETF (GETHASH "867.6.0" ICD9-HASH-TABLE) "Other specified pelvic organs, without mention of open wound into cavity")
(SETF (GETHASH "867.7" ICD9-HASH-TABLE) "Other specified pelvic organs, with open wound into cavity")
(SETF (GETHASH "867.8" ICD9-HASH-TABLE) "Unspecified pelvic organ, without mention of open wound into cavity")
(SETF (GETHASH "867.9" ICD9-HASH-TABLE) "Unspecified pelvic organ, with open wound into cavity")
(SETF (GETHASH "868.0" ICD9-HASH-TABLE) "Injury to other intra-abdominal organs")
(SETF (GETHASH "868.1" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "868.2" ICD9-HASH-TABLE) "Without mention of open wound into cavity")
(SETF (GETHASH "868.3" ICD9-HASH-TABLE) "Internal injury to unspecified or ill-defined organs")
(SETF (GETHASH "869.0" ICD9-HASH-TABLE) "Without mention of open wound into cavity")
(SETF (GETHASH "869.1.1" ICD9-HASH-TABLE) "With open wound into cavity")
(SETF (GETHASH "870.0-879" ICD9-HASH-TABLE) "Other and unspecified gastrointestinal sites, with open wound into cavity")
"Pharynx, without mention of complication")
(SETF (GETHASH "874.5" ICD9-HASH-TABLE) "Pharynx, complicated")
(SETF (GETHASH "874.8" ICD9-HASH-TABLE) "Other and unspecified parts, without mention of complication")
(SETF (GETHASH "874.9" ICD9-HASH-TABLE) "Other and unspecified parts, complicated")
(SETF (GETHASH "875" ICD9-HASH-TABLE) "Open wound of chest (wall)")
(SETF (GETHASH "875.0" ICD9-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "875.1" ICD9-HASH-TABLE) "Complicated")
(SETF (GETHASH "875.2" ICD9-HASH-TABLE) "Open wound of back")
(SETF (GETHASH "876.1" ICD9-HASH-TABLE) "Complicated")
(SETF (GETHASH "876.0" ICD9-HASH-TABLE) "Other and unspecified parts, without mention of complication")
(SETF (GETHASH "876.7" ICD9-HASH-TABLE) "Open wound of main and trunk")
(SETF (GETHASH "876.8" ICD9-HASH-TABLE) "Other and unspecified parts, without mention of complication")
(SETF (GETHASH "877" ICD9-HASH-TABLE) "Penis, without mention of complication")
(SETF (GETHASH "877.1" ICD9-HASH-TABLE) "Penis, complicated")
(SETF (GETHASH "877.2" ICD9-HASH-TABLE) "Scrotum and testes, without mention of complication")
(SETF (GETHASH "877.3" ICD9-HASH-TABLE) "Scrotum and testes, complicated")
(SETF (GETHASH "877.4" ICD9-HASH-TABLE) "Vulva, without mention of complication")
(SETF (GETHASH "877.5" ICD9-HASH-TABLE) "Vulva, complicated")
(SETF (GETHASH "877.6" ICD9-HASH-TABLE) "Vagina, without mention of complication")
(SETF (GETHASH "877.7" ICD9-HASH-TABLE) "Vagina, complicated")
(SETF (GETHASH "877.8" ICD9-HASH-TABLE) "Other and unspecified parts, without mention of complication")
(SETF (GETHASH "877.9" ICD9-HASH-TABLE) "Other and unspecified parts, complicated")
(SETF (GETHASH "877.9" ICD9-HASH-TABLE) "Penis, without mention of complication")
(SETF (GETHASH "878" ICD9-HASH-TABLE) "Penis, complicated")
(SETF (GETHASH "878.0" ICD9-HASH-TABLE) "Scrotum and testes, without mention of complication")
(SETF (GETHASH "878.1" ICD9-HASH-TABLE) "Scrotum and testes, complicated")
(SETF (GETHASH "878.2" ICD9-HASH-TABLE) "Vulva, without mention of complication")
(SETF (GETHASH "878.5" ICD9-HASH-TABLE) "Vulva, complicated")
(SETF (GETHASH "878.6" ICD9-HASH-TABLE) "Vagina, without mention of complication")
(SETF (GETHASH "878.7" ICD9-HASH-TABLE) "Vagina, complicated")
(SETF (GETHASH "878.8" ICD9-HASH-TABLE) "Other and unspecified parts, without mention of complication")
(SETF (GETHASH "878.9" ICD9-HASH-TABLE) "Other and unspecified parts, complicated")
(SETF (GETHASH "079" ICD9-HASH-TABLE) "Open wound of other and unspecified sites, except limbs")
(SETF (GETHASH "879.0" ICD9-HASH-TABLE) "Breast, without mention of complication")
(SETF (GETHASH "879.1" ICD9-HASH-TABLE) "Breast, complicated")
(SETF (GETHASH "879.2" ICD9-HASH-TABLE) "Abdominal wall, anterior, without mention of complication")
(SETF (GETHASH "879.3" ICD9-HASH-TABLE) "Abdominal wall, anterior, complicated")
(SETF (GETHASH "879.4" ICD9-HASH-TABLE) "Abdominal wall, lateral, without mention of complication")
(SETF (GETHASH "879.5" ICD9-HASH-TABLE) "Abdominal wall, lateral, complicated")
(SETF (GETHASH "879.6" ICD9-HASH-TABLE) "Abdominal wall, posterior, without mention of complication")
(SETF (GETHASH "879.7" ICD9-HASH-TABLE) "Abdominal wall, posterior, complicated")
(SETF (GETHASH "879.8" ICD9-HASH-TABLE) "Open wound(s) (multiple) of unspecified site(s) without mention of complication")
(SETF (GETHASH "879.9" ICD9-HASH-TABLE) "Open wound(s) (multiple) of unspecified site(s), complicated")
(SETF (GETHASH "OPEN WOUND OF UPPER LIMB (880-887)" ICD9-HASH-TABLE) "")
(SETF (GETHASH "880" ICD9-HASH-TABLE) "Open wound of shoulder and upper arm")
(SETF (GETHASH "880.0" ICD9-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "880.1" ICD9-HASH-TABLE) "Complicated")
(SETF (GETHASH "880.2" ICD9-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "882" ICD9-HASH-TABLE) "With tendon involvement")
"Open wound of elbow, forearm, and wrist")

(SETF (GETHASH "'881.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'881.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'881.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'882" IC9D-HASH-TABLE) "Open wound of hand except finger(s) alone")
(SETF (GETHASH "'882.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'882.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'882.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'883" IC9D-HASH-TABLE) "Open wound of finger(s)")
(SETF (GETHASH "'883.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'883.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'883.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'884" IC9D-HASH-TABLE) "Multiple and unspecified open wound of upper limb")
(SETF (GETHASH "'884.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'884.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'884.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'885" IC9D-HASH-TABLE) "Traumatic amputation of thumb (complete) (partial)")
(SETF (GETHASH "'885.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'885.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'886" IC9D-HASH-TABLE) "Traumatic amputation of other finger(s) (complete) (partial)")
(SETF (GETHASH "'886.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'886.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'887" IC9D-HASH-TABLE) "Traumatic amputation of arm and hand (complete) (partial)")
(SETF (GETHASH "'887.0" IC9D-HASH-TABLE) "Unilateral, below elbow, without mention of complication")
(SETF (GETHASH "'887.1" IC9D-HASH-TABLE) "Unilateral, below elbow, complicated")
(SETF (GETHASH "'887.2" IC9D-HASH-TABLE) "Unilateral, at or above elbow, without mention of complication")
(SETF (GETHASH "'887.3" IC9D-HASH-TABLE) "Unilateral, at or above elbow, complicated")
(SETF (GETHASH "'887.4" IC9D-HASH-TABLE) "Unilateral, level not specified, without mention of complication")
(SETF (GETHASH "'887.5" IC9D-HASH-TABLE) "Unilateral, level not specified, complicated")
(SETF (GETHASH "'887.6" IC9D-HASH-TABLE) "Bilateral [any level], without mention of complication")
(SETF (GETHASH "'887.7" IC9D-HASH-TABLE) "Bilateral [any level], complicated")
(SETF (GETHASH "OPEN WOUND OF LOWER LIMB (890-897)" IC9D-HASH-TABLE) "")
(SETF (GETHASH "'890" IC9D-HASH-TABLE) "Open wound of hip and thigh")
(SETF (GETHASH "'890.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'890.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'890.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'891" IC9D-HASH-TABLE) "Open wound of knee, leg [except thigh], and ankle")
(SETF (GETHASH "'891.0" IC9D-HASH-TABLE) "Without mention of complication")
(SETF (GETHASH "'891.1" IC9D-HASH-TABLE) "Complicated")
(SETF (GETHASH "'891.2" IC9D-HASH-TABLE) "With tendon involvement")
(SETF (GETHASH "'892" IC9D-HASH-TABLE) "Open wound of foot except toe(s) alone")
(SETF (GETHASH "'892.0" IC9D-HASH-TABLE) "Without mention of complication")
"Multiple blood vessels of abdomen and pelvis")
(SETF (GETHASH "'902.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "'902.9" ICD9-HASH-TABLE) "Unspecified blood vessel of abdomen and pelvis")
(SETF (GETHASH "'903" ICD9-HASH-TABLE) "Injury to blood vessels of upper extremity")
(SETF (GETHASH "'903.0" ICD9-HASH-TABLE) "Axillary blood vessels")
(SETF (GETHASH "'903.00" ICD9-HASH-TABLE) "Axillary vessel(s), unspecified")
(SETF (GETHASH "'903.01" ICD9-HASH-TABLE) "Axillary artery")
(SETF (GETHASH "'903.02" ICD9-HASH-TABLE) "Axillary vein")
(SETF (GETHASH "'903.1" ICD9-HASH-TABLE) "Brachial blood vessels")
(SETF (GETHASH "'903.2" ICD9-HASH-TABLE) "Radial blood vessels")
(SETF (GETHASH "'903.3" ICD9-HASH-TABLE) "Ulnar blood vessels")
(SETF (GETHASH "'903.4" ICD9-HASH-TABLE) "Palmar artery")
(SETF (GETHASH "'903.5" ICD9-HASH-TABLE) "Digital blood vessels")
(SETF (GETHASH "'903.8" ICD9-HASH-TABLE) "Other specified blood vessels of upper extremity")
(SETF (GETHASH "'903.9" ICD9-HASH-TABLE) "Unspecified blood vessel of upper extremity")
(SETF (GETHASH "'904" ICD9-HASH-TABLE) "Injury to blood vessels of lower extremity and unspecified sites")
(SETF (GETHASH "'904.0" ICD9-HASH-TABLE) "Common femoral artery")
(SETF (GETHASH "'904.1" ICD9-HASH-TABLE) "Superficial femoral artery")
(SETF (GETHASH "'904.2" ICD9-HASH-TABLE) "Femoral veins")
(SETF (GETHASH "'904.3" ICD9-HASH-TABLE) "Saphenous veins")
(SETF (GETHASH "'904.4" ICD9-HASH-TABLE) "Popliteal blood vessels")
(SETF (GETHASH "'904.40" ICD9-HASH-TABLE) "Popliteal vessel(s), unspecified")
(SETF (GETHASH "'904.42" ICD9-HASH-TABLE) "Popliteal artery")
(SETF (GETHASH "'904.42" ICD9-HASH-TABLE) "Popliteal vein")
(SETF (GETHASH "'904.5" ICD9-HASH-TABLE) "Tibial blood vessels")
(SETF (GETHASH "'904.50" ICD9-HASH-TABLE) "Tibial vessel(s), unspecified")
(SETF (GETHASH "'904.51" ICD9-HASH-TABLE) "Anterior tibial artery")
(SETF (GETHASH "'904.52" ICD9-HASH-TABLE) "Anterior tibial vein")
(SETF (GETHASH "'904.53" ICD9-HASH-TABLE) "Posterior tibial artery")
(SETF (GETHASH "'904.54" ICD9-HASH-TABLE) "Posterior tibial vein")
(SETF (GETHASH "'904.6" ICD9-HASH-TABLE) "Deep plantar blood vessels")
(SETF (GETHASH "'904.7" ICD9-HASH-TABLE) "Other specified blood vessels of lower extremity")
(SETF (GETHASH "'904.8" ICD9-HASH-TABLE) "Unspecified blood vessel of lower extremity")
(SETF (GETHASH "'904.9" ICD9-HASH-TABLE) "Unspecified site")
(SETF (GETHASH "'905" ICD9-HASH-TABLE) "Late effects of musculoskeletal and connective tissue injuries")
(SETF (GETHASH "'905.0" ICD9-HASH-TABLE) "Late effect of fracture of skull and face bones")
(SETF (GETHASH "'905.1" ICD9-HASH-TABLE) "Late effect of fracture of spine and trunk without mention of spinal cord lesion")
(SETF (GETHASH "'905.2" ICD9-HASH-TABLE) "Late effect of fracture of upper extremities")
(SETF (GETHASH "'905.3" ICD9-HASH-TABLE) "Late effect of fracture of neck of femur")
(SETF (GETHASH "'905.4" ICD9-HASH-TABLE) "Late effect of fracture of lower extremities")
(SETF (GETHASH "'905.5" ICD9-HASH-TABLE) "Late effect of fracture of multiple and unspecified bones")
(SETF (GETHASH "'905.6" ICD9-HASH-TABLE) "Late effect of dislocation")
(SETF (GETHASH "'905.7" ICD9-HASH-TABLE) "Late effect of sprain and strain without mention of tendon injury")
(SETF (GETHASH "'905.8" ICD9-HASH-TABLE) "Late effect of tendon injury")
(SETF (GETHASH "'905.9" ICD9-HASH-TABLE) "Late effect of traumatic amputation")
(SETF (GETHASH "'906" ICD9-HASH-TABLE) "Late effects of injuries to skin and subcutaneous tissues")
(SETF (GETHASH "905.0" ICD9-HASH-TABLE)
  "Late effect of open wound of head, neck, and trunk")
(SETF (GETHASH "905.1" ICD9-HASH-TABLE)
  "Late effect of open wound of extremities without mention of tendon injury")
(SETF (GETHASH "906.2" ICD9-HASH-TABLE)
  "Late effect of superficial injury")
(SETF (GETHASH "906.3" ICD9-HASH-TABLE) "Late effect of contusion")
(SETF (GETHASH "906.4" ICD9-HASH-TABLE) "Late effect of crushing")
(SETF (GETHASH "906.5" ICD9-HASH-TABLE) "Late effect of burn of eye, face, head, and neck")
(SETF (GETHASH "906.6" ICD9-HASH-TABLE) "Late effect of burn of wrist and hand")
(SETF (GETHASH "906.7" ICD9-HASH-TABLE) "Late effect of burn of other extremities")
(SETF (GETHASH "906.8" ICD9-HASH-TABLE) "Late effect of burns of other specified sites")
(SETF (GETHASH "906.9" ICD9-HASH-TABLE) "Late effect of burn of unspecified site")
(SETF (GETHASH "907" ICD9-HASH-TABLE) "Late effects of injuries to the nervous system")
(SETF (GETHASH "907.0" ICD9-HASH-TABLE) "Late effect of intracranial injury without mention of skull fracture")
(SETF (GETHASH "907.1" ICD9-HASH-TABLE) "Late effect of injury to cranial nerve")
(SETF (GETHASH "907.2" ICD9-HASH-TABLE) "Late effect of spinal cord injury")
(SETF (GETHASH "907.3" ICD9-HASH-TABLE) "Late effect of injury to nerve root(s), spinal plexus(es), and other nerves of trunk")
(SETF (GETHASH "907.4" ICD9-HASH-TABLE) "Late effect of injury to peripheral nerve of shoulder girdle and upper limb")
(SETF (GETHASH "907.5" ICD9-HASH-TABLE) "Late effect of injury to peripheral nerve of pelvic girdle and lower limb")
(SETF (GETHASH "907.9" ICD9-HASH-TABLE) "Late effect of injury to other and unspecified nerves")
(SETF (GETHASH "908.0" ICD9-HASH-TABLE) "Late effects of other and unspecified injuries")
(SETF (GETHASH "908.1" ICD9-HASH-TABLE) "Late effect of internal injury to chest")
(SETF (GETHASH "908.2" ICD9-HASH-TABLE) "Late effect of internal injury to intra-abdominal organs")
(SETF (GETHASH "908.3" ICD9-HASH-TABLE) "Late effect of internal injury to other internal organs")
(SETF (GETHASH "908.4" ICD9-HASH-TABLE) "Late effect of injury to blood vessel of head, neck, and extremities")
(SETF (GETHASH "908.5" ICD9-HASH-TABLE) "Late effect of injury to blood vessel of thorax, abdomen, and pelvis")
(SETF (GETHASH "908.8" ICD9-HASH-TABLE) "Late effect of foreign body in orifice")
(SETF (GETHASH "908.9" ICD9-HASH-TABLE) "Late effect of certain complications of trauma")
(SETF (GETHASH "908.9" ICD9-HASH-TABLE) "Late effect of unspecified injury")
(SETF (GETHASH "909" ICD9-HASH-TABLE) "Late effects of other and unspecified external causes")
(SETF (GETHASH "909.0" ICD9-HASH-TABLE) "Late effect of poisoning due to drug, medicinal or biological substance")
(SETF (GETHASH "909.1" ICD9-HASH-TABLE) "Late effect of toxic effects of nonmedical substances")
(SETF (GETHASH "909.2" ICD9-HASH-TABLE) "Late effect of radiation")
(SETF (GETHASH "909.3" ICD9-HASH-TABLE) "Late effect of complications of surgical and medical care")
(SETF (GETHASH "909.4" ICD9-HASH-TABLE) "Late effect of certain other external causes")
(SETF (GETHASH "909.5" ICD9-HASH-TABLE) "Late effect of adverse effect of drug, medicinal or biological substance")
(SETF (GETHASH "909.6" ICD9-HASH-TABLE) "Late effect of surgery")
"Late effect of other and unspecified external causes")

(SETF (GETHASH "910" ICD9-HASH-TABLE)
"Superficial injury of face, neck, and scalp except eye")

(SETF (GETHASH "910.0" ICD9-HASH-TABLE)
"Abraison or friction burn without mention of infection")

(SETF (GETHASH "910.1" ICD9-HASH-TABLE)
"Abraison or friction burn, infected")

(SETF (GETHASH "910.2" ICD9-HASH-TABLE)
"Blister without mention of infection")

(SETF (GETHASH "910.3" ICD9-HASH-TABLE) "Blister, infected")

(SETF (GETHASH "910.4" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, without mention of infection")

(SETF (GETHASH "910.5" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, infected")

(SETF (GETHASH "910.6" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "910.7" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "910.8" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of face, neck, and scalp without mention of infection")

(SETF (GETHASH "910.9" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of face, neck, and scalp, infected")

(SETF (GETHASH "911" ICD9-HASH-TABLE) "Superficial injury of trunk")

(SETF (GETHASH "911.0" ICD9-HASH-TABLE)
"Abraison or friction burn without mention of infection")

(SETF (GETHASH "911.1" ICD9-HASH-TABLE) "Blister, infected")

(SETF (GETHASH "911.2" ICD9-HASH-TABLE)
"Blister without mention of infection")

(SETF (GETHASH "911.3" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, without mention of infection")

(SETF (GETHASH "911.4" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, infected")

(SETF (GETHASH "911.5" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "911.6" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "911.7" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of trunk without mention of infection")

(SETF (GETHASH "911.8" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of trunk, infected")

(SETF (GETHASH "912" ICD9-HASH-TABLE)
"Superficial injury of shoulder and upper arm")

(SETF (GETHASH "912.0" ICD9-HASH-TABLE)
"Abraison or friction burn without mention of infection")

(SETF (GETHASH "912.1" ICD9-HASH-TABLE)
"Abraison or friction burn, infected")

(SETF (GETHASH "912.2" ICD9-HASH-TABLE)
"Blister without mention of infection")

(SETF (GETHASH "912.3" ICD9-HASH-TABLE)
"Blister, infected")

(SETF (GETHASH "912.4" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, without mention of infection")

(SETF (GETHASH "912.5" ICD9-HASH-TABLE)
"Insect bite, nonvenomous, infected")

(SETF (GETHASH "912.6" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "912.7" ICD9-HASH-TABLE)
"Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "912.8" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of shoulder and upper arm without mention of infection")

(SETF (GETHASH "912.9" ICD9-HASH-TABLE)
"Other and unspecified superficial injury of shoulder and upper arm, infected")

(SETF (GETHASH "913" ICD9-HASH-TABLE)
"Superficial injury of elbow, forearm, and wrist")

(SETF (GETHASH "913.0" ICD9-HASH-TABLE)
"Abrasion or friction burn without mention of infection")

(SETF (GETHASH "913.1" ICD9-HASH-TABLE) "Abrasion or friction burn, infected")

(SETF (GETHASH "913.2" ICD9-HASH-TABLE) "Blister without mention of infection")

(SETF (GETHASH "913.3" ICD9-HASH-TABLE) "Blister, infected")

(SETF (GETHASH "913.4" ICD9-HASH-TABLE) "Insect bite, nonvenemous, without mention of infection")

(SETF (GETHASH "913.5" ICD9-HASH-TABLE) "Insect bite, nonvenemous, infected")

(SETF (GETHASH "913.6" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "913.7" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "913.8" ICD9-HASH-TABLE) "Other and unspecified superficial injury of elbow, forearm, and wrist without mention of infection")

(SETF (GETHASH "913.9" ICD9-HASH-TABLE) "Other and unspecified superficial injury of elbow, forearm, and wrist, infected")

(SETF (GETHASH "914.0" ICD9-HASH-TABLE) "Superficial injury of hand(s) except finger(s) alone")

(SETF (GETHASH "914.1" ICD9-HASH-TABLE) "Abrasion or friction burn, infected")

(SETF (GETHASH "914.2" ICD9-HASH-TABLE) "Blister without mention of infection")

(SETF (GETHASH "914.3" ICD9-HASH-TABLE) "Blister, infected")

(SETF (GETHASH "914.4" ICD9-HASH-TABLE) "Insect bite, nonvenemous, without mention of infection")

(SETF (GETHASH "914.5" ICD9-HASH-TABLE) "Insect bite, nonvenemous, infected")

(SETF (GETHASH "914.6" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "914.7" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "914.8" ICD9-HASH-TABLE) "Other and unspecified superficial injury of hand without mention of infection")

(SETF (GETHASH "914.9" ICD9-HASH-TABLE) "Other and unspecified superficial injury of hand, infected")

(SETF (GETHASH "915.0" ICD9-HASH-TABLE) "Superficial injury of finger(s)")

(SETF (GETHASH "915.1" ICD9-HASH-TABLE) "Abrasion or friction burn without mention of infection")

(SETF (GETHASH "915.2" ICD9-HASH-TABLE) "Abrasion or friction burn, infected")

(SETF (GETHASH "915.3" ICD9-HASH-TABLE) "Blister without mention of infection")

(SETF (GETHASH "915.4" ICD9-HASH-TABLE) "Blister, infected")

(SETF (GETHASH "915.5" ICD9-HASH-TABLE) "Insect bite, nonvenemous, without mention of infection")

(SETF (GETHASH "915.6" ICD9-HASH-TABLE) "Insect bite, nonvenemous, infected")

(SETF (GETHASH "915.7" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound and without mention of infection")

(SETF (GETHASH "915.8" ICD9-HASH-TABLE) "Superficial foreign body (splinter) without major open wound, infected")

(SETF (GETHASH "915.9" ICD9-HASH-TABLE) "Other and unspecified superficial injury of fingers without mention of infection")

(SETF (GETHASH "916.0" ICD9-HASH-TABLE) "Other and unspecified superficial injury of fingers, infected")

(SETF (GETHASH "916.1" ICD9-HASH-TABLE) "Superficial injury of hip, thigh, leg, and ankle")

(SETF (GETHASH "916.2" ICD9-HASH-TABLE) "Abrasion or friction burn without mention of infection")

(SETF (GETHASH "916.3" ICD9-HASH-TABLE) "Abrasion or friction burn, infected")

(SETF (GETHASH "916.4" ICD9-HASH-TABLE) "Blister without mention of infection")

(SETF (GETHASH "916.5" ICD9-HASH-TABLE) "Blister, infected")
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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>927.01</td>
<td>Scapular region</td>
</tr>
<tr>
<td>927.02</td>
<td>Axillary region</td>
</tr>
<tr>
<td>927.03</td>
<td>Upper arm</td>
</tr>
<tr>
<td>927.05</td>
<td>&quot;Multiple sites&quot;</td>
</tr>
<tr>
<td>927.11</td>
<td>Elbow and forearm</td>
</tr>
<tr>
<td>927.10</td>
<td>Forearm</td>
</tr>
<tr>
<td>927.11</td>
<td>Elbow</td>
</tr>
<tr>
<td>927.21</td>
<td>Wrist</td>
</tr>
<tr>
<td>927.23</td>
<td>Finger(s)</td>
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<tr>
<td>927.89</td>
<td>&quot;Unspecified site&quot;</td>
</tr>
<tr>
<td>928.01</td>
<td>Hip and thigh</td>
</tr>
<tr>
<td>928.30</td>
<td>&quot;Lower leg&quot;</td>
</tr>
<tr>
<td>928.31</td>
<td>Knee</td>
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<tr>
<td>928.20</td>
<td>Foot</td>
</tr>
<tr>
<td>928.21</td>
<td>&quot;Ankle&quot;</td>
</tr>
<tr>
<td>928.23</td>
<td>&quot;Toe(s)&quot;</td>
</tr>
<tr>
<td>928.24</td>
<td>&quot;Multiple sites of lower limb&quot;</td>
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<tr>
<td>928.29</td>
<td>&quot;Unspecified site&quot;</td>
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<tr>
<td>929.01</td>
<td>&quot;Crushing injury of multiple and unspecified sites&quot;</td>
</tr>
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<td>929.04</td>
<td>&quot;Multiple sites, not elsewhere classified&quot;</td>
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<tr>
<td>930.01</td>
<td>&quot;Foreign body on external eye&quot;</td>
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<tr>
<td>930.02</td>
<td>&quot;Corneal foreign body&quot;</td>
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<tr>
<td>930.21</td>
<td>&quot;Foreign body in conjunctival sac&quot;</td>
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<tr>
<td>930.22</td>
<td>&quot;Foreign body in lacrimal punctum&quot;</td>
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<tr>
<td>930.81</td>
<td>&quot;Other and combined sites&quot;</td>
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<tr>
<td>930.99</td>
<td>&quot;Unspecified site&quot;</td>
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<tr>
<td>931.02</td>
<td>&quot;Foreign body in ear&quot;</td>
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<tr>
<td>932.02</td>
<td>&quot;Foreign body in nose&quot;</td>
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<td>933.01</td>
<td>&quot;Foreign body in pharynx and larynx&quot;</td>
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<td>&quot;Pharynx&quot;</td>
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<td>933.11</td>
<td>&quot;Larynx&quot;</td>
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<tr>
<td>934.01</td>
<td>&quot;Foreign body in trachea, bronchus, and lung&quot;</td>
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<td>&quot;Trachea&quot;</td>
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<tr>
<td>934.11</td>
<td>&quot;Main bronchus&quot;</td>
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<td>934.21</td>
<td>&quot;Other specified parts&quot;</td>
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<tr>
<td>934.31</td>
<td>&quot;Respiratory tree, unspecified&quot;</td>
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<tr>
<td>935.01</td>
<td>&quot;Foreign body in mouth, esophagus, and stomach&quot;</td>
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<tr>
<td>935.11</td>
<td>&quot;Mouth&quot;</td>
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<td>935.21</td>
<td>&quot;Esophagus&quot;</td>
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<td>&quot;Stomach&quot;</td>
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<td>936.01</td>
<td>&quot;Foreign body in intestine and colon&quot;</td>
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<tr>
<td>937.01</td>
<td>&quot;Foreign body in anus and rectum&quot;</td>
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<tr>
<td>938.01</td>
<td>&quot;Foreign body in digestive system, unspecified&quot;</td>
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<tr>
<td>939.01</td>
<td>&quot;Foreign body in genitourinary tract&quot;</td>
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<tr>
<td>939.11</td>
<td>&quot;Bladder and urethra&quot;</td>
</tr>
<tr>
<td>939.12</td>
<td>&quot;Uterus, any part&quot;</td>
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<tr>
<td>Code</td>
<td>Description</td>
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<td>------------------------------------------------------------------------------</td>
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<tr>
<td>939.2</td>
<td>Vulva and vagina</td>
</tr>
<tr>
<td>939.3</td>
<td>Penis</td>
</tr>
<tr>
<td>939.9</td>
<td>Unspecified site</td>
</tr>
<tr>
<td>940</td>
<td>Burn confined to eye and adnexe</td>
</tr>
<tr>
<td>940.0</td>
<td>Chemical burn of eyelids and periorcular area</td>
</tr>
<tr>
<td>940.1</td>
<td>Other burns of eyelids and periorcular area</td>
</tr>
<tr>
<td>940.2</td>
<td>Alkaline chemical burn of cornea and conjunctival sac</td>
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<tr>
<td>940.3</td>
<td>Other burn of cornea and conjunctival sac</td>
</tr>
<tr>
<td>941</td>
<td>Burn with resulting rupture and destruction of eyeball</td>
</tr>
<tr>
<td>941.0</td>
<td>Unspecified burn of eye and adnexa</td>
</tr>
<tr>
<td>941.1</td>
<td>Burn of face, head, and neck</td>
</tr>
<tr>
<td>941.2</td>
<td>Erythema [first degree]</td>
</tr>
<tr>
<td>941.3</td>
<td>Blisters, epidermal loss [second degree]</td>
</tr>
<tr>
<td>941.4</td>
<td>Full-thickness skin loss [third degree NOS]</td>
</tr>
<tr>
<td>941.5</td>
<td>Deep necrosis of underlying tissues [deep third degree] without mention of loss of a body part</td>
</tr>
<tr>
<td>942</td>
<td>Full-thickness skin loss [third degree NOS]</td>
</tr>
<tr>
<td>942.0</td>
<td>Deep necrosis of underlying tissues [deep third degree] without loss of a body part</td>
</tr>
<tr>
<td>942.1</td>
<td>Blisters, epidermal loss [second degree]</td>
</tr>
<tr>
<td>942.2</td>
<td>Full-thickness skin loss [third degree NOS]</td>
</tr>
<tr>
<td>942.3</td>
<td>Deep necrosis of underlying tissues [deep third degree] without loss of a body part</td>
</tr>
<tr>
<td>943</td>
<td>Burn of upper limb, except wrist and hand</td>
</tr>
<tr>
<td>943.0</td>
<td>Unspecified degree</td>
</tr>
<tr>
<td>943.1</td>
<td>Erythema [first degree]</td>
</tr>
<tr>
<td>943.2</td>
<td>Blisters, epidermal loss [second degree]</td>
</tr>
<tr>
<td>943.3</td>
<td>Full-thickness skin loss [third degree NOS]</td>
</tr>
<tr>
<td>943.4</td>
<td>Deep necrosis of underlying tissues [deep third degree] without mention of loss of a body part</td>
</tr>
<tr>
<td>943.5</td>
<td>Deep necrosis of underlying tissues [deep third degree] without loss of a body part</td>
</tr>
<tr>
<td>944</td>
<td>Burn of wrist(s) and hand(s)</td>
</tr>
<tr>
<td>944.0</td>
<td>Unspecified degree</td>
</tr>
<tr>
<td>944.1</td>
<td>Erythema [first degree]</td>
</tr>
<tr>
<td>944.2</td>
<td>Blisters, epidermal loss [second degree]</td>
</tr>
<tr>
<td>944.3</td>
<td>Full-thickness skin loss [third degree NOS]</td>
</tr>
<tr>
<td>944.4</td>
<td>Deep necrosis of underlying tissues [deep third degree] without mention of loss of a body part</td>
</tr>
<tr>
<td>944.5</td>
<td>Deep necrosis of underlying tissues [deep third degree] without loss of a body part</td>
</tr>
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</table>
(SETF (GETHASH "954" ICD9-HASH-TABLE)  "Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles")
(SETF (GETHASH "954.0" ICD9-HASH-TABLE)  "Cervical sympathetic")
(SETF (GETHASH "954.1" ICD9-HASH-TABLE)  "Other sympathetic")
(SETF (GETHASH "954.8" ICD9-HASH-TABLE)  "Other specified nerve(s) of trunk")
(SETF (GETHASH "954.9" ICD9-HASH-TABLE)  "Unspecified nerve of trunk")
(SETF (GETHASH "955" ICD9-HASH-TABLE)  "Injury to peripheral nerve(s) of shoulder girdle and upper limb")
(SETF (GETHASH "955.0" ICD9-HASH-TABLE)  "Axillary nerve")
(SETF (GETHASH "955.1" ICD9-HASH-TABLE)  "Median nerve")
(SETF (GETHASH "955.2" ICD9-HASH-TABLE)  "Ulnar nerve")
(SETF (GETHASH "955.3" ICD9-HASH-TABLE)  "Radial nerve")
(SETF (GETHASH "955.4" ICD9-HASH-TABLE)  "Musculocutaneous nerve")
(SETF (GETHASH "955.5" ICD9-HASH-TABLE)  "Cutaneous sensory nerve, upper limb")
(SETF (GETHASH "955.6" ICD9-HASH-TABLE)  "Digital nerve")
(SETF (GETHASH "955.7" ICD9-HASH-TABLE)  "Other specified nerve(s) of shoulder girdle and upper limb")
(SETF (GETHASH "955.8" ICD9-HASH-TABLE)  "Multiple nerves of shoulder girdle and upper limb")
(SETF (GETHASH "955.9" ICD9-HASH-TABLE)  "Unspecified nerve of shoulder girdle and upper limb")
(SETF (GETHASH "956" ICD9-HASH-TABLE)  "Injury to peripheral nerve(s) of pelvic girdle and lower limb")
(SETF (GETHASH "956.0" ICD9-HASH-TABLE)  "Sciatic nerve")
(SETF (GETHASH "956.1" ICD9-HASH-TABLE)  "Femoral nerve")
(SETF (GETHASH "956.2" ICD9-HASH-TABLE)  "Posterior tibial nerve")
(SETF (GETHASH "956.3" ICD9-HASH-TABLE)  "Peroneal nerve")
(SETF (GETHASH "956.4" ICD9-HASH-TABLE)  "Cutaneous sensory nerve, lower limb")
(SETF (GETHASH "956.5" ICD9-HASH-TABLE)  "Other specified nerve(s) of pelvic girdle and lower limb")
(SETF (GETHASH "956.8" ICD9-HASH-TABLE)  "Multiple nerves of pelvic girdle and lower limb")
(SETF (GETHASH "956.9" ICD9-HASH-TABLE)  "Unspecified nerve of pelvic girdle and lower limb")
(SETF (GETHASH "957" ICD9-HASH-TABLE)  "Injury to other and unspecified nerves")
(SETF (GETHASH "957.0" ICD9-HASH-TABLE)  "Superficial nerves of head and neck")
(SETF (GETHASH "957.1" ICD9-HASH-TABLE)  "Other specified nerve(s)")
(SETF (GETHASH "957.8" ICD9-HASH-TABLE)  "Multiple nerves in several parts")
(SETF (GETHASH "957.9" ICD9-HASH-TABLE)  "Unspecified site")
(SETF (GETHASH "958" ICD9-HASH-TABLE)  "Certain early complications of trauma")
(SETF (GETHASH "958.0" ICD9-HASH-TABLE)  "Air embolism")
(SETF (GETHASH "958.1" ICD9-HASH-TABLE)  "Fat embolism")
(SETF (GETHASH "958.2" ICD9-HASH-TABLE)  "Secondary and recurrent hemorrhage")
(SETF (GETHASH "958.3" ICD9-HASH-TABLE)  "Posttraumatic wound infection, not elsewhere classified")
(SETF (GETHASH "958.4" ICD9-HASH-TABLE)  "Traumatic shock")
(SETF (GETHASH "958.5" ICD9-HASH-TABLE)  "Traumatic anuria")
(SETF (GETHASH "958.6" ICD9-HASH-TABLE)  "Volkmann's ischemic contracture")
(SETF (GETHASH "958.7" ICD9-HASH-TABLE)  "Traumatic subcutaneous emphysema")
(SETF (GETHASH "958.8" ICD9-HASH-TABLE)  "Other early complications of trauma")
(SETF (GETHASH "959" ICD9-HASH-TABLE)  "Injury, other and unspecified")
(SETF (GETHASH "959.0" ICD9-HASH-TABLE)  "Face and neck")
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(SETF (GETHASH "959.09" ICD9-HASH-TABLE)  "Injury of face and neck")
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(SETF (GETHASH "959.2" ICD9-HASH-TABLE) "Shoulder and upper arm")
(SETF (GETHASH "959.3" ICD9-HASH-TABLE) "Elbow, forearm, and wrist")
(SETF (GETHASH "959.4" ICD9-HASH-TABLE) "Hand, except finger")
(SETF (GETHASH "959.5" ICD9-HASH-TABLE) "Finger")
(SETF (GETHASH "959.6" ICD9-HASH-TABLE) "Hip and thigh")
(SETF (GETHASH "959.7" ICD9-HASH-TABLE) "Knee, leg, ankle, and foot")
(SETF (GETHASH "959.8" ICD9-HASH-TABLE) "Other specified sites, including multiple")
(SETF (GETHASH "959.9" ICD9-HASH-TABLE) "Unspecified site")
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(SETF (GETHASH "960.0" ICD9-HASH-TABLE) "Penicillins")
(SETF (GETHASH "960.1" ICD9-HASH-TABLE) "Antifungal antibiotics")
(SETF (GETHASH "960.2" ICD9-HASH-TABLE) "Chloramphenicol group")
(SETF (GETHASH "960.3" ICD9-HASH-TABLE) "Erythromycin and other macrolides")
(SETF (GETHASH "960.4" ICD9-HASH-TABLE) "Tetracycline group")
(SETF (GETHASH "960.5" ICD9-HASH-TABLE) "Cephalosporin group")
(SETF (GETHASH "960.6" ICD9-HASH-TABLE) "Antimycobacterial antibiotics")
(SETF (GETHASH "960.7" ICD9-HASH-TABLE) "Antineoplastic antibiotics")
(SETF (GETHASH "960.8" ICD9-HASH-TABLE) "Other specified antibiotics")
(SETF (GETHASH "960.9" ICD9-HASH-TABLE) "Unspecified antibiotic")
(SETF (GETHASH "961" ICD9-HASH-TABLE) "Poisoning by other anti-infectives")
(SETF (GETHASH "961.0" ICD9-HASH-TABLE) "Sulfonamides")
(SETF (GETHASH "961.1" ICD9-HASH-TABLE) "Arsenic anti-infectives")
(SETF (GETHASH "961.2" ICD9-HASH-TABLE) "Heavy metal anti-infectives")
(SETF (GETHASH "961.3" ICD9-HASH-TABLE) "Quinoline and hydroxyquinoline derivatives")
(SETF (GETHASH "961.4" ICD9-HASH-TABLE) "Antimalarials and drugs acting on other blood protozoa")
(SETF (GETHASH "961.5" ICD9-HASH-TABLE) "Other antiprotozoal drugs")
(SETF (GETHASH "961.6" ICD9-HASH-TABLE) "Anthelmintics")
(SETF (GETHASH "961.7" ICD9-HASH-TABLE) "Antiviral drugs")
(SETF (GETHASH "961.8" ICD9-HASH-TABLE) "Other antimycobacterial drugs")
(SETF (GETHASH "961.9" ICD9-HASH-TABLE) "Other and unspecified anti-infectives")
(SETF (GETHASH "962" ICD9-HASH-TABLE) "Poisoning by hormones and synthetic substitutes")
(SETF (GETHASH "962.0" ICD9-HASH-TABLE) "Adrenal cortical steroids")
(SETF (GETHASH "962.1" ICD9-HASH-TABLE) "Androgens and anabolic congeners")
(SETF (GETHASH "962.2" ICD9-HASH-TABLE) "Ovarian hormones and synthetic substitutes")
(SETF (GETHASH "962.3" ICD9-HASH-TABLE) "Insulins and antidiabetic agents")
(SETF (GETHASH "962.4" ICD9-HASH-TABLE) "Anterior pituitary hormones")
(SETF (GETHASH "962.5" ICD9-HASH-TABLE) "Posterior pituitary hormones")
(SETF (GETHASH "962.6" ICD9-HASH-TABLE) "Parathyroid and parathyroid derivatives")
(SETF (GETHASH "962.7" ICD9-HASH-TABLE) "Thyroid and thyroid derivatives")
(SETF (GETHASH "962.8" ICD9-HASH-TABLE) "Antithyroid agents")
(SETF (GETHASH "962.9" ICD9-HASH-TABLE) "Other and unspecified hormones and synthetic substitutes")
(SETF (GETHASH "963" ICD9-HASH-TABLE) "Poisoning by primarily systemic agents")
(SETF (GETHASH "963.0" ICD9-HASH-TABLE) "Antiallergic and antihistaminic drugs")
(SETF (GETHASH "963.1" ICD9-HASH-TABLE) "Antineoplastic and immunosuppressive drugs")
(SETF (GETHASH "963.2" ICD9-HASH-TABLE) "Anticoagulants")
(SETF (GETHASH "963.3" ICD9-HASH-TABLE) "Alkalizing agents")
(SETF (GETHASH "963.4" ICD9-HASH-TABLE) "Enzymes, not elsewhere classified")
(SETF (GETHASH "963.5" ICD9-HASH-TABLE) "Vitamins, not elsewhere classified")
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<tr>
<td>968.3</td>
<td>Intravenous anesthetics</td>
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<td>968.4</td>
<td>Other and unspecified general anesthetics</td>
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<tr>
<td>968.5</td>
<td>Surface [topical] and infiltration anesthetics</td>
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<td>968.6</td>
<td>Peripheral nerve- and plexus-blocking anesthetics</td>
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<td>968.7</td>
<td>Spinal anesthetics</td>
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<tr>
<td>968.9</td>
<td>Other and unspecified local anesthetics</td>
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<td>969</td>
<td>Poisoning by psychotropic agents</td>
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<tr>
<td>969.0</td>
<td>Antidepressants</td>
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<td>969.1</td>
<td>Phenothiazine-based tranquilizers</td>
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<td>969.2</td>
<td>Butyrophenone-based tranquilizers</td>
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<td>969.3</td>
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<tr>
<td>969.4</td>
<td>Benzodiazepine-based tranquilizers</td>
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<td>969.5</td>
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<td>969.6</td>
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<td>Unspecified psychotropic agent</td>
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<td>970.8</td>
<td>Other specified central nervous system stimulants</td>
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<td>970.5</td>
<td>Unspecified central nervous system stimulant</td>
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<td>971.0</td>
<td>Poisoning by drugs primarily affecting the autonomic nervous system</td>
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<tr>
<td>971.1</td>
<td>Parasympathomimetics [cholinergics]</td>
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<tr>
<td>971.2</td>
<td>Parasympathomyltics [anticholinergics and antimuscarinics] and spasmylhetics</td>
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<td>971.2</td>
<td>Symptomamnietics [adrenalgicals]</td>
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<tr>
<td>971.3</td>
<td>Symptomamolitics [antidrenergicals]</td>
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<td>971.9</td>
<td>Unspecified drug primarily affecting autonomic nervous system</td>
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<tr>
<td>972</td>
<td>Poisoning by agents primarily affecting the cardiovascular system</td>
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<td>Cardiotonic glycosides and drugs of similar action</td>
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<td>972.2</td>
<td>Antitipenic and antiarteriosclerotic drugs</td>
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<td>972.3</td>
<td>Ganglion-blocking agents</td>
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<td>Coronary vasodilators</td>
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<td>Other antihypertensive agents</td>
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<td>972.7</td>
<td>Antiarteric drugs, including sclerosing agents</td>
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<td>972.8</td>
<td>Capillary-active drugs</td>
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<td>972.9</td>
<td>Other and unspecified agents primarily affecting the cardiovascular system</td>
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"Poisoning by agents primarily affecting the gastrointestinal system")

(SETF (GETHASH "973.0" ICD9-HASH-TABLE)
  "Antacids and antigastric secretion drugs")
(SETF (GETHASH "973.1" ICD9-HASH-TABLE) "Irritant cathartics")
(SETF (GETHASH "973.2" ICD9-HASH-TABLE) "Emollient cathartics")
(SETF (GETHASH "973.3" ICD9-HASH-TABLE)
  "Other cathartics, including intestinal atonia drugs")
(SETF (GETHASH "973.4" ICD9-HASH-TABLE) "Digestants")
(SETF (GETHASH "973.5" ICD9-HASH-TABLE) "Antidiarrheal drugs")
(SETF (GETHASH "973.6" ICD9-HASH-TABLE) "Emetics")
(SETF (GETHASH "973.8" ICD9-HASH-TABLE)
  "Other specified agents primarily affecting the gastrointestinal system")
(SETF (GETHASH "973.9" ICD9-HASH-TABLE)
  "Unspecified agent primarily affecting the gastrointestinal system")
(SETF (GETHASH "974" ICD9-HASH-TABLE) "Poisoning by water, mineral, and uric acid metabolism drugs")
(SETF (GETHASH "974.0" ICD9-HASH-TABLE) "Mercurial diuretics")
(SETF (GETHASH "974.1" ICD9-HASH-TABLE) "Purine derivative diuretics")
(SETF (GETHASH "974.2" ICD9-HASH-TABLE) "Carbonic acid anhydrase inhibitors")
(SETF (GETHASH "974.3" ICD9-HASH-TABLE) "Saluretics")
(SETF (GETHASH "974.4" ICD9-HASH-TABLE) "Other diuretics")
(SETF (GETHASH "974.3" ICD9-HASH-TABLE)
  "Electrolytic, caloric, and water-balance agents")
(SETF (GETHASH "974.6" ICD9-HASH-TABLE)
  "Other mineral salts, not elsewhere classified")
(SETF (GETHASH "974.7" ICD9-HASH-TABLE) "Uric acid metabolism drugs")
(SETF (GETHASH "975" ICD9-HASH-TABLE)
  "Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system")
(SETF (GETHASH "975.0" ICD9-HASH-TABLE) "Dyeotic agents")
(SETF (GETHASH "975.1" ICD9-HASH-TABLE) "Smooth muscle relaxants")
(SETF (GETHASH "975.2" ICD9-HASH-TABLE) "Skeletal muscle relaxants")
(SETF (GETHASH "975.3" ICD9-HASH-TABLE)
  "Other and unspecified drugs acting on muscles")
(SETF (GETHASH "975.4" ICD9-HASH-TABLE) "Antitussives")
(SETF (GETHASH "975.5" ICD9-HASH-TABLE) "Expectorants")
(SETF (GETHASH "975.6" ICD9-HASH-TABLE) "Anti-common cold drugs")
(SETF (GETHASH "975.7" ICD9-HASH-TABLE) "Antiasmatics")
(SETF (GETHASH "975.8" ICD9-HASH-TABLE)
  "Other and unspecified respiratory drugs")
(SETF (GETHASH "976" ICD9-HASH-TABLE)
  "Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otolaryngological, and dental drugs")
(SETF (GETHASH "976.0" ICD9-HASH-TABLE)
  "Local anti-infectives and anti-inflammatory drugs")
(SETF (GETHASH "976.1" ICD9-HASH-TABLE) "Antipruritics")
(SETF (GETHASH "976.2" ICD9-HASH-TABLE)
  "Local astringents and local detergents")
(SETF (GETHASH "976.3" ICD9-HASH-TABLE) "Emollients, demulcents, and protectants")
(SETF (GETHASH "976.4" ICD9-HASH-TABLE)
  "Keratolytics, keratoplastics, other hair treatment drugs and preparations")
(SETF (GETHASH "976.5" ICD9-HASH-TABLE) "Eye anti-infectives and other eye drugs")
(SETF (GETHASH "976.6" ICD9-HASH-TABLE)
  "Anti-infectives and other drugs and preparations for ear, nose, and throat")
(SETF (GETHASH "976.7" ICD9-HASH-TABLE) "Dental drugs topically applied")
(SETF (GETHASH "976.8" ICD9-HASH-TABLE)
  "Other agents primarily affecting skin and mucous membrane")
(SETF (GETHASH "976.9" ICD9-HASH-TABLE)
  "Unspecified agent primarily affecting skin and mucous membrane")
(SETF (GETHASH "977" ICD9-HASH-TABLE) "Poisoning by other and unspecified drugs and medicinal substances")
(SETF (GETHASH "977.0" ICD9-HASH-TABLE) "Diabetes")
(SETF (GETHASH "977.1" ICD9-HASH-TABLE) "Lipotropic drugs")
(SETF (GETHASH "977.2" ICD9-HASH-TABLE) "Other and unspecified drugs and medicinal substances")
Other specified effects of reduced temperature

Other specified effect of reduced temperature

Effects of heat and light

Heat stroke and sunstroke

Heat syncope

Heat cramps

Heat exhaustion, anhydrotic

Heat exhaustion due to salt depletion

Heat exhaustion, unspecified

Heat fatigue, transient

Heat edema

Other specified heat effects

Unspecified

Effects of air pressure

Barotrauma, otitic

Barotrauma, sinus

Other and unspecified effects of high altitude

Caisson disease

Effects of air pressure caused by explosion

Other specified effects of air pressure

Unspecified effect of air pressure

Effects of other external causes

Effects of lightning

Gripping and nonfatal submersion

Effects of hunger

Effects of thirst

Exhaustion due to exposure

Exhaustion due to excessive exertion

Motion sickness

Asphyxiation and strangulation

Electrocution and nonfatal effects of electric current

Other effects of external causes

Certain adverse effects not elsewhere classified

Other anaphylactic shock

Angioneurotic edema

Unspecified adverse effect of drug, medicinal and biological substance (due to correct medicinal substance properly administered)

Allergy, unspecified

Shock due to anesthesia

Child maltreatment syndrome

Child abuse, unspecified

Child emotional/psychological abuse

Child neglect (nutritional)

Child sexual abuse

Child physical abuse

Shaken infant syndrome

Other child abuse and neglect

Anaphylactic shock due to adverse food reaction

Due to unspecified food

Due to peanuts
"Due to vascular device, implant and graft"

(SETF (GETHASH "996.63" ICD9-HASH-TABLE)
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(SETF (GETHASH "996.64" ICD9-HASH-TABLE)
  "Due to indwelling urinary catheter")
(SETF (GETHASH "996.65" ICD9-HASH-TABLE)
  "Due to other genitourinary device, implant and graft")
(SETF (GETHASH "996.66" ICD9-HASH-TABLE)
  "Due to internal joint prosthesis")
(SETF (GETHASH "996.67" ICD9-HASH-TABLE)
  "Due to other internal orthopedic device, implant and graft")
(SETF (GETHASH "996.68" ICD9-HASH-TABLE)
  "Due to other internal prosthetic device, implant, and graft")
(SETF (GETHASH "996.69" ICD9-HASH-TABLE)
  "Other complications of internal (biological) (synthetic) prosthesis device, implant, and graft")
(SETF (GETHASH "996.70" ICD9-HASH-TABLE)
  "Due to unspecified device, implant, and graft")
(SETF (GETHASH "996.71" ICD9-HASH-TABLE)
  "Due to heart valve prosthesis")
(SETF (GETHASH "996.72" ICD9-HASH-TABLE)
  "Due to other cardiac device, implant, and graft")
(SETF (GETHASH "996.73" ICD9-HASH-TABLE)
  "Due to renal dialysis device, implant, and graft")
(SETF (GETHASH "996.74" ICD9-HASH-TABLE)
  "Due to vascular disease, implant, and graft")
(SETF (GETHASH "996.75" ICD9-HASH-TABLE)
  "Due to nervous system device, implant, and graft")
(SETF (GETHASH "996.76" ICD9-HASH-TABLE)
  "Due to genitourinary device, implant, and graft")
(SETF (GETHASH "996.77" ICD9-HASH-TABLE)
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(SETF (GETHASH "996.78" ICD9-HASH-TABLE)
  "Due to other internal orthopedic device, implant, and graft")
(SETF (GETHASH "996.79" ICD9-HASH-TABLE)
  "Due to other internal prosthetic device, implant, and graft")
(SETF (GETHASH "996.80" ICD9-HASH-TABLE)
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  "Transplanted organ, unspecified")
(SETF (GETHASH "996.82" ICD9-HASH-TABLE)
  "Kidney")
(SETF (GETHASH "996.83" ICD9-HASH-TABLE)
  "Liver")
(SETF (GETHASH "996.84" ICD9-HASH-TABLE)
  "Heart")
(SETF (GETHASH "996.85" ICD9-HASH-TABLE)
  "Lung")
(SETF (GETHASH "996.86" ICD9-HASH-TABLE)
  "Bone marrow")
(SETF (GETHASH "996.87" ICD9-HASH-TABLE)
  "Pancreas")
(SETF (GETHASH "996.88" ICD9-HASH-TABLE)
  "Other specified transplanted organ")
(SETF (GETHASH "996.89" ICD9-HASH-TABLE)
  "Other specified transplanted organ")
(SETF (GETHASH "996.90" ICD9-HASH-TABLE)
  "Complications of reattached extremity or body part")
(SETF (GETHASH "996.91" ICD9-HASH-TABLE)
  "Unspecified extremity")
(SETF (GETHASH "996.92" ICD9-HASH-TABLE)
  "Forearm")
(SETF (GETHASH "996.93" ICD9-HASH-TABLE)
  "Hand")
(SETF (GETHASH "996.94" ICD9-HASH-TABLE)
  "Finger(s")
(SETF (GETHASH "996.95" ICD9-HASH-TABLE)
  "Upper extremity, other and unspecified")
(SETF (GETHASH "996.96" ICD9-HASH-TABLE)
  "Foot and toe(s)")
(SETF (GETHASH "996.97" ICD9-HASH-TABLE)
  "Lower extremity, other and unspecified")
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(SETF (GETHASH "997.02" ICD9-HASH-TABLE)
  "Central nervous system complication")
(SETF (GETHASH "997.02" ICD9-HASH-TABLE) "Iatrogenic cerebrovascular infarction or hemorrhage")
(SETF (GETHASH "997.09" ICD9-HASH-TABLE) "Other nervous system complications")
(SETF (GETHASH "997.1" ICD9-HASH-TABLE) "Cardiac complications")
(SETF (GETHASH "997.2" ICD9-HASH-TABLE) "Peripheral vascular complications")
(SETF (GETHASH "997.3" ICD9-HASH-TABLE) "Respiratory complications")
(SETF (GETHASH "997.4" ICD9-HASH-TABLE) "Digestive system complications")
(SETF (GETHASH "997.5" ICD9-HASH-TABLE) "Urinary complications")
(SETF (GETHASH "997.6" ICD9-HASH-TABLE) "Amputation stump complication")
(SETF (GETHASH "997.60" ICD9-HASH-TABLE) "Unspecified complication")
(SETF (GETHASH "997.61" ICD9-HASH-TABLE) "Neuroma of amputation stump")
(SETF (GETHASH "997.62" ICD9-HASH-TABLE) "Infection (chronic)")
(SETF (GETHASH "997.69" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "997.9" ICD9-HASH-TABLE) "Complications affecting other specified body systems, not elsewhere classified")
(SETF (GETHASH "998.0" ICD9-HASH-TABLE) "Hypertension")
(SETF (GETHASH "998.00" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "998.1" ICD9-HASH-TABLE) "Postoperative shock")
(SETF (GETHASH "998.11" ICD9-HASH-TABLE) "Hemorrhage or hematoma or seroma complicating a procedure")
(SETF (GETHASH "998.12" ICD9-HASH-TABLE) "Hematoma complicating a procedure")
(SETF (GETHASH "998.13" ICD9-HASH-TABLE) "Seroma complicating a procedure")
(SETF (GETHASH "998.2" ICD9-HASH-TABLE) "Accidental puncture or laceration during a procedure")
(SETF (GETHASH "998.3" ICD9-HASH-TABLE) "Disruption of operation wound")
(SETF (GETHASH "998.4" ICD9-HASH-TABLE) "Foreign body accidentally left during a procedure")
(SETF (GETHASH "998.5" ICD9-HASH-TABLE) "Postoperative infection")
(SETF (GETHASH "998.51" ICD9-HASH-TABLE) "Infected postoperative seroma")
(SETF (GETHASH "998.59" ICD9-HASH-TABLE) "Other postoperative infection")
(SETF (GETHASH "998.6" ICD9-HASH-TABLE) "Persistent postoperative fistula")
(SETF (GETHASH "998.7" ICD9-HASH-TABLE) "Acute reaction to foreign substance accidentally left during a procedure")
(SETF (GETHASH "998.8" ICD9-HASH-TABLE) "Other specified complications of procedures, not elsewhere classified")
(SETF (GETHASH "998.81" ICD9-HASH-TABLE) "Emphysema (subcutaneous) (surgical) resulting from a procedure")
(SETF (GETHASH "998.82" ICD9-HASH-TABLE) "Cataract fragments in eye following cataract surgery")
(SETF (GETHASH "998.83" ICD9-HASH-TABLE) "Non-healing surgical wound")
(SETF (GETHASH "998.89" ICD9-HASH-TABLE) "Other specified complications")
(SETF (GETHASH "998.9" ICD9-HASH-TABLE) "Unspecified complication of procedure, not elsewhere classified")
(SETF (GETHASH "999" ICD9-HASH-TABLE) "Complications of medical care, not elsewhere classified")
(SETF (GETHASH "999.0" ICD9-HASH-TABLE) "Generalized vaccinia")
(SETF (GETHASH "999.1" ICD9-HASH-TABLE) "Air embolism")
(SETF (GETHASH "999.2" ICD9-HASH-TABLE) "Other vascular complications")
(SETF (GETHASH "999.3" ICD9-HASH-TABLE) "Other infection")
(SETF (GETHASH "999.4" ICD9-HASH-TABLE) "Anaphylactic shock due to serum")
(SETF (GETHASH "999.5" ICD9-HASH-TABLE) "Other serum reaction")
(SETF (GETHASH "999.6" ICD9-HASH-TABLE) "ABO incompatibility reaction")
"With resistance to multiple quinolones and fluoroquinolones")

(CSET (GETHASH "V09.6" ICD9-HASH-TABLE)
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(CSET (GETHASH "V09.7" ICD9-HASH-TABLE)
  "Infection with microorganisms resistant to other specified antimicrobial agents")

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  "Without mention of resistance to multiple antimicrobial agents")

(CSET (GETHASH "V09.9" ICD9-HASH-TABLE)
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(CSET (GETHASH "V09.9" ICD9-HASH-TABLE)
  "With multiple drug resistance")

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  "Gastrointestinal tract")

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(CSET (GETHASH "V10.03" ICD9-HASH-TABLE)
  "Esophagus")

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  "Stomach")

(CSET (GETHASH "V10.05" ICD9-HASH-TABLE)
  "Large intestine")

(CSET (GETHASH "V10.06" ICD9-HASH-TABLE)
  "Rectum, rectosigmoid junction, and anus")

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  "Liver")

(CSET (GETHASH "V10.08" ICD9-HASH-TABLE)
  "Other")

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  "Trachea, bronchus, and lung")

(CSET (GETHASH "V10.11" ICD9-HASH-TABLE)
  "Bronchus and lung")

(CSET (GETHASH "V10.12" ICD9-HASH-TABLE)
  "Trachea")

(CSET (GETHASH "V10.2" ICD9-HASH-TABLE)
  "Other respiratory and intrathoracic organs")

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  "Respiratory organ, unspecified")

(CSET (GETHASH "V10.21" ICD9-HASH-TABLE)
  "Larynx")

(CSET (GETHASH "V10.22" ICD9-HASH-TABLE)
  "Nasal cavities, middle ear, and accessory sinuses")

(CSET (GETHASH "V10.29" ICD9-HASH-TABLE)
  "Other")

(CSET (GETHASH "V10.3" ICD9-HASH-TABLE)
  "Breast")

(CSET (GETHASH "V10.4" ICD9-HASH-TABLE)
  "Genital organs")

(CSET (GETHASH "V10.40" ICD9-HASH-TABLE)
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  "Cervix uteri")

(CSET (GETHASH "V10.42" ICD9-HASH-TABLE)
  "Other parts of uterus")

(CSET (GETHASH "V10.43" ICD9-HASH-TABLE)
  "Ovary")

(CSET (GETHASH "V10.44" ICD9-HASH-TABLE)
  "Other female genital organs")

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(CSET (GETHASH "V10.46" ICD9-HASH-TABLE)
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(CSET (GETHASH "V10.47" ICD9-HASH-TABLE)
  "Testis")

(CSET (GETHASH "V10.49" ICD9-HASH-TABLE)
  "Other male genital organs")

(CSET (GETHASH "V10.52" ICD9-HASH-TABLE)
  "Urinary organs")

(CSET (GETHASH "V10.50" ICD9-HASH-TABLE)
  "Urinary organ, unspecified")

(CSET (GETHASH "V10.51" ICD9-HASH-TABLE)
  "Bladder")

(CSET (GETHASH "V10.52" ICD9-HASH-TABLE)
  "Kidney")

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(SETF GETHASH "V10.62" IC9-HASH-TABLE) "Myeloid leukemia")
(SETF GETHASH "V10.03" IC9-HASH-TABLE) "Monocytic leukemia")
(SETF GETHASH "V10.69" IC9-HASH-TABLE) "Other")
(SETF GETHASH "V10.7" IC9-HASH-TABLE) "Other lymphatic and hematopoietic neoplasms")
(SETF GETHASH "V10.71" IC9-HASH-TABLE) "Lymphosarcoma and reticulosisarcoma")
(SETF GETHASH "V10.72" IC9-HASH-TABLE) "Hodgkin's disease")
(SETF GETHASH "V10.78" IC9-HASH-TABLE) "Other")
(SETF GETHASH "V10.8" IC9-HASH-TABLE) "Personal history of malignant neoplasm of other sites")
(SETF GETHASH "V10.81" IC9-HASH-TABLE) "Bone")
(SETF GETHASH "V10.82" IC9-HASH-TABLE) "Malignant melanoma of skin")
(SETF GETHASH "V10.83" IC9-HASH-TABLE) "Other malignant neoplasm of skin")
(SETF GETHASH "V10.84" IC9-HASH-TABLE) "Eye")
(SETF GETHASH "V10.85" IC9-HASH-TABLE) "Brain")
(SETF GETHASH "V10.86" IC9-HASH-TABLE) "Other parts of nervous system")
(SETF GETHASH "V10.87" IC9-HASH-TABLE) "Thyroid")
(SETF GETHASH "V10.88" IC9-HASH-TABLE) "Other endocrine glands and related structures")
(SETF GETHASH "V10.89" IC9-HASH-TABLE) "Other")
(SETF GETHASH "V10.9" IC9-HASH-TABLE) "Unspecified personal history of malignant neoplasm")
(SETF GETHASH "V11.0" IC9-HASH-TABLE) "Personal history of mental disorder")
(SETF GETHASH "V11.0" IC9-HASH-TABLE) "Schizophrenia")
(SETF GETHASH "V11.2" IC9-HASH-TABLE) "Affective disorders")
(SETF GETHASH "V11.2" IC9-HASH-TABLE) "Neurosis")
(SETF GETHASH "V11.3" IC9-HASH-TABLE) "Alcoholism")
(SETF GETHASH "V11.4" IC9-HASH-TABLE) "Other mental disorders")
(SETF GETHASH "V12.0" IC9-HASH-TABLE) "Personal history of certain other diseases")
(SETF GETHASH "V12.0" IC9-HASH-TABLE) "Infectious and parasitic diseases")
(SETF GETHASH "V12.0" IC9-HASH-TABLE) "Unspecified infectious and parasitic disease")
(SETF GETHASH "V12.01" IC9-HASH-TABLE) "Tuberculosis")
(SETF GETHASH "V12.02" IC9-HASH-TABLE) "Poliomyelitis")
(SETF GETHASH "V12.03" IC9-HASH-TABLE) "Malaria")
(SETF GETHASH "V12.04" IC9-HASH-TABLE) "Other")
(SETF GETHASH "V12.1" IC9-HASH-TABLE) "Nutritional deficiency")
(SETF GETHASH "V12.2" IC9-HASH-TABLE) "Endocrine, metabolic, and immunity disorders")
(SETF GETHASH "V12.3" IC9-HASH-TABLE) "Diseases of blood and blood-forming organs")
(SETF GETHASH "V12.4" IC9-HASH-TABLE) "Disorders of nervous system and sense organs")
(SETF GETHASH "V12.41" IC9-HASH-TABLE) "Unspecified disorder of nervous system and sense organs")
(SETF GETHASH "V12.42" IC9-HASH-TABLE) "Benign neoplasm of the brain")
(SETF GETHASH "V12.49" IC9-HASH-TABLE) "Other disorders of nervous system and sense organs")
(SETF GETHASH "V12.5" IC9-HASH-TABLE) "Diseases of circulatory system")
(SETF GETHASH "V12.51" IC9-HASH-TABLE) "Venous thrombosis and embolism")
(SETF GETHASH "V12.52" IC9-HASH-TABLE) "Thrombophlebitis")
(SETF GETHASH "V12.59" IC9-HASH-TABLE) "Other")
(SETF GETHASH "V12.6" IC9-HASH-TABLE) "Diseases of respiratory system")
(SETF (GETHASH "V40.3" ICD9-HASH-TABLE) "Other behavioral problems")
(SETF (GETHASH "V40.9" ICD9-HASH-TABLE) "Unspecified mental or behavioral problem")
(SETF (GETHASH "V41" ICD9-HASH-TABLE) "Problems with special senses and other special functions")
(SETF (GETHASH "V41.0" ICD9-HASH-TABLE) "Problems with sight")
(SETF (GETHASH "V41.1" ICD9-HASH-TABLE) "Other eye problems")
(SETF (GETHASH "V41.2" ICD9-HASH-TABLE) "Problems with hearing")
(SETF (GETHASH "V41.3" ICD9-HASH-TABLE) "Other ear problems")
(SETF (GETHASH "V41.4" ICD9-HASH-TABLE) "Problems with voice production")
(SETF (GETHASH "V41.5" ICD9-HASH-TABLE) "Problems with smell and taste")
(SETF (GETHASH "V41.6" ICD9-HASH-TABLE) "Problems with swallowing and mastication")
(SETF (GETHASH "V41.7" ICD9-HASH-TABLE) "Problems with sexual function")
(SETF (GETHASH "V41.8" ICD9-HASH-TABLE) "Other problems with special functions")
(SETF (GETHASH "V41.9" ICD9-HASH-TABLE) "Unspecified problem with special functions")
(SETF (GETHASH "V42" ICD9-HASH-TABLE) "Organ or tissue replaced by transplant")
(SETF (GETHASH "V42.0" ICD9-HASH-TABLE) "Kidney")
(SETF (GETHASH "V42.1" ICD9-HASH-TABLE) "Heart")
(SETF (GETHASH "V42.2" ICD9-HASH-TABLE) "Heart valve")
(SETF (GETHASH "V42.3" ICD9-HASH-TABLE) "Skin")
(SETF (GETHASH "V42.4" ICD9-HASH-TABLE) "Bone")
(SETF (GETHASH "V42.5" ICD9-HASH-TABLE) "Cornea")
(SETF (GETHASH "V42.6" ICD9-HASH-TABLE) "Lung")
(SETF (GETHASH "V42.7" ICD9-HASH-TABLE) "Liver")
(SETF (GETHASH "V42.8" ICD9-HASH-TABLE) "Other specified organ or tissue")
(SETF (GETHASH "V42.81" ICD9-HASH-TABLE) "Bone marrow")
(SETF (GETHASH "V42.82" ICD9-HASH-TABLE) "Peripheral stem cells")
(SETF (GETHASH "V42.83" ICD9-HASH-TABLE) "Pancreas")
(SETF (GETHASH "V42.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V42.9" ICD9-HASH-TABLE) "Unspecified organ or tissue")
(SETF (GETHASH "V43" ICD9-HASH-TABLE) "Organ or tissue replaced by other means")
(SETF (GETHASH "V43.0" ICD9-HASH-TABLE) "Eye globe")
(SETF (GETHASH "V43.1" ICD9-HASH-TABLE) "Lens")
(SETF (GETHASH "V43.2" ICD9-HASH-TABLE) "Heart")
(SETF (GETHASH "V43.3" ICD9-HASH-TABLE) "Heart valve")
(SETF (GETHASH "V43.4" ICD9-HASH-TABLE) "Blood vessel")
(SETF (GETHASH "V43.5" ICD9-HASH-TABLE) "Bladder")
(SETF (GETHASH "V43.6" ICD9-HASH-TABLE) "Joint")
(SETF (GETHASH "V43.60" ICD9-HASH-TABLE) "Unspecified joint")
(SETF (GETHASH "V43.61" ICD9-HASH-TABLE) "Shoulder")
(SETF (GETHASH "V43.62" ICD9-HASH-TABLE) "Elbow")
(SETF (GETHASH "V43.63" ICD9-HASH-TABLE) "Wrist")
(SETF (GETHASH "V43.64" ICD9-HASH-TABLE) "Hip")
(SETF (GETHASH "V43.65" ICD9-HASH-TABLE) "Knee")
(SETF (GETHASH "V43.66" ICD9-HASH-TABLE) "Ankle")
(SETF (GETHASH "V43.69" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V43.7" ICD9-HASH-TABLE) "Limb")
(SETF (GETHASH "V43.8" ICD9-HASH-TABLE) "Other organ or tissue")
(SETF (GETHASH "V43.81" ICD9-HASH-TABLE) "Larynx")
(SETF (GETHASH "V43.82" ICD9-HASH-TABLE) "Breast")
(SETF (GETHASH "V43.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V44" ICD9-HASH-TABLE) "Artificial opening status")
(SETF (GETHASH "V44.0" ICD9-HASH-TABLE) "Tracheostomy")
(SETF (GETHASH "V44.1" ICD9-HASH-TABLE) "Gastrostomy")
(SETF (GETHASH "V44.2" ICD9-HASH-TABLE) "ileoostomy")
(SETF (GETHASH "V44.3" ICD9-HASH-TABLE) "Colostomy")
(SETF (GETHASH "V44.4" ICD9-HASH-TABLE) "Other artificial opening of gastrointestinal tract")
(SETF (GETHASH "V44.5" ICD9-HASH-TABLE) "Cystostomy")
(SETF (GETHASH "V52.1" ICD9-HASH-TABLE) "Artificial leg (complete) (partial)"
(SETF (GETHASH "V52.2" ICD9-HASH-TABLE) "Artificial eye"
(SETF (GETHASH "V52.3" ICD9-HASH-TABLE) "Dental prosthetic device"
(SETF (GETHASH "V52.4" ICD9-HASH-TABLE) "Breast prosthesis and implant"
(SETF (GETHASH "V52.8" ICD9-HASH-TABLE) "Other specified prosthetic device"
(SETF (GETHASH "V52.9" ICD9-HASH-TABLE) "Unspecified prosthetic device"
(SETF (GETHASH "V53" ICD9-HASH-TABLE) "Fitting and adjustment of other device"
(SETF (GETHASH "V53.0" ICD9-HASH-TABLE) "Devices related to nervous system and special senses"
(SETF (GETHASH "V53.01" ICD9-HASH-TABLE) "Fitting and adjustment of cerebral ventricular (communicating) shunt"
(SETF (GETHASH "V53.02" ICD9-HASH-TABLE) "Neuropacemaker (brain) (peripheral nerve) (spinal cord)"
(SETF (GETHASH "V53.09" ICD9-HASH-TABLE) "Fitting and adjustment of other devices related to nervous system and special senses"
(SETF (GETHASH "V53.1" ICD9-HASH-TABLE) "Spectacles and contact lenses"
(SETF (GETHASH "V53.2" ICD9-HASH-TABLE) "Hearing aid"
(SETF (GETHASH "V53.3" ICD9-HASH-TABLE) "Cardiac device"
(SETF (GETHASH "V53.31" ICD9-HASH-TABLE) "Cardiac pacemaker"
(SETF (GETHASH "V53.32" ICD9-HASH-TABLE) "Automatic implantable cardiac defibrillator"
(SETF (GETHASH "V53.39" ICD9-HASH-TABLE) "Other cardiac device"
(SETF (GETHASH "V53.4" ICD9-HASH-TABLE) "Orthodontic devices"
(SETF (GETHASH "V53.5" ICD9-HASH-TABLE) "Other intestinal appliance"
(SETF (GETHASH "V53.6" ICD9-HASH-TABLE) "Uriney devices"
(SETF (GETHASH "V53.7" ICD9-HASH-TABLE) "Orthopedic devices"
(SETF (GETHASH "V53.8" ICD9-HASH-TABLE) "Wheelchair"
(SETF (GETHASH "V53.9" ICD9-HASH-TABLE) "Other and unspecified device"
(SETF (GETHASH "V54" ICD9-HASH-TABLE) "Aftercare involving removal of fracture plate or other internal fixation device"
(SETF (GETHASH "V54.0" ICD9-HASH-TABLE) "Other orthopedic aftercare"
(SETF (GETHASH "V54.9" ICD9-HASH-TABLE) "Unspecified orthopedic aftercare"
(SETF (GETHASH "V55" ICD9-HASH-TABLE) "Attention to artificial openings"
(SETF (GETHASH "V55.0" ICD9-HASH-TABLE) "Tracheostomy"
(SETF (GETHASH "V55.1" ICD9-HASH-TABLE) "Gastrostomy"
(SETF (GETHASH "V55.2" ICD9-HASH-TABLE) "Ileostomy"
(SETF (GETHASH "V55.3" ICD9-HASH-TABLE) "Colostomy"
(SETF (GETHASH "V55.4" ICD9-HASH-TABLE) "Other artificial opening of digestive tract"
(SETF (GETHASH "V55.5" ICD9-HASH-TABLE) "Cystostomy"
(SETF (GETHASH "V55.6" ICD9-HASH-TABLE) "Other artificial opening of urinary tract"
(SETF (GETHASH "V55.7" ICD9-HASH-TABLE) "Artificial vagina"
(SETF (GETHASH "V55.8" ICD9-HASH-TABLE) "Other specified artificial opening"
(SETF (GETHASH "V55.9" ICD9-HASH-TABLE) "Unspecified artificial opening"
(SETF (GETHASH "V56" ICD9-HASH-TABLE) "Encounter for dialysis and dialysis catheter care"
(SETF (GETHASH "V56.0" ICD9-HASH-TABLE) "Extracorporeal dialysis"
(SETF (GETHASH "V56.1" ICD9-HASH-TABLE) "Fitting and adjustment of dialysis (extracorporeal) (peritoneal) catheter"
(SETF (GETHASH "V56.8" ICD9-HASH-TABLE) "Other dialysis"
(SETF (GETHASH "V57" ICD9-HASH-TABLE) "Care involving use of rehabilitation procedures"
(SETF (GETHASH "V57.0" ICD9-HASH-TABLE) "Breathing exercises"
(SETF (GETHASH "V57.1" ICD9-HASH-TABLE) "Other physical therapy"
(SETF (GETHASH "V57.2" ICD9-HASH-TABLE) "Occupational therapy and vocational rehabilitation"
(SETF (GETHASH "V57.22" ICD9-HASH-TABLE) "Other therapy and psychological rehabilitation"
"Encounter for occupational therapy")
(SetF (GETHASH "VS7.22" ICD9-HASH-TABLE) "Encounter for vocational therapy")
(SetF (GETHASH "VS7.3" ICD9-HASH-TABLE) "Speech therapy")
(SetF (GETHASH "VS7.4" ICD9-HASH-TABLE) "Orthoptic training")
(SetF (GETHASH "VS7.8" ICD9-HASH-TABLE) "Other specified rehabilitation procedure")
(SetF (GETHASH "VS7.81" ICD9-HASH-TABLE) "Orthotic training")
(SetF (GETHASH "VS7.89" ICD9-HASH-TABLE) "Other")
(SetF (GETHASH "VS7.9" ICD9-HASH-TABLE) "Unspecified rehabilitation procedure")
(SetF (GETHASH "VS8" ICD9-HASH-TABLE) "Encounter for other and unspecified procedures and aftercare")
(SetF (GETHASH "VS8.0" ICD9-HASH-TABLE) "Radiotherapy")
(SetF (GETHASH "VS8.2" ICD9-HASH-TABLE) "Blood transfusion, without reported diagnosis")
(SetF (GETHASH "VS8.3" ICD9-HASH-TABLE) "Attention to surgical dressings and sutures")
(SetF (GETHASH "VS8.4" ICD9-HASH-TABLE) "Other aftercare following surgery")
(SetF (GETHASH "VS8.41" ICD9-HASH-TABLE) "Encounter for planned post-operative wound closure")
(SetF (GETHASH "VS8.49" ICD9-HASH-TABLE) "Other specified aftercare following surgery")
(SetF (GETHASH "VS8.5" ICD9-HASH-TABLE) "Orthodontics")
(SetF (GETHASH "VS8.6" ICD9-HASH-TABLE) "Long-term (current) drug use")
(SetF (GETHASH "VS8.61" ICD9-HASH-TABLE) "Long-term (current) use of anticoagulants")
(SetF (GETHASH "VS8.69" ICD9-HASH-TABLE) "Other aftercare")
(SetF (GETHASH "VS8.8" ICD9-HASH-TABLE) "Other specified procedures and aftercare")
(SetF (GETHASH "VS8.82" ICD9-HASH-TABLE) "Fitting and adjustment of vascular catheter")
(SetF (GETHASH "VS8.82" ICD9-HASH-TABLE) "Fitting and adjustment of non-vascular catheter NEC")
(SetF (GETHASH "VS8.89" ICD9-HASH-TABLE) "Other specified aftercare")
(SetF (GETHASH "VS8.9" ICD9-HASH-TABLE) "Unspecified aftercare")
(SetF (GETHASH "VS9" ICD9-HASH-TABLE) "Donors")
(SetF (GETHASH "VS9.0" ICD9-HASH-TABLE) "Blood")
(SetF (GETHASH "VS9.01" ICD9-HASH-TABLE) "Whole blood")
(SetF (GETHASH "VS9.02" ICD9-HASH-TABLE) "Blood cells")
(SetF (GETHASH "VS9.09" ICD9-HASH-TABLE) "Other")
(SetF (GETHASH "VS9.1" ICD9-HASH-TABLE) "Skin")
(SetF (GETHASH "VS9.2" ICD9-HASH-TABLE) "Bone")
(SetF (GETHASH "VS9.3" ICD9-HASH-TABLE) "Bone marrow")
(SetF (GETHASH "VS9.4" ICD9-HASH-TABLE) "Kidney")
(SetF (GETHASH "VS9.5" ICD9-HASH-TABLE) "Cornea")
(SetF (GETHASH "VS9.6" ICD9-HASH-TABLE) "Liver")
(SetF (GETHASH "VS9.8" ICD9-HASH-TABLE) "Other specific organ or tissue")
(SetF (GETHASH "VS9.9" ICD9-HASH-TABLE) "Unspecified organ or tissue")
(SetF (GETHASH "V60" ICD9-HASH-TABLE) "Housing, household, and economic circumstances")
(SetF (GETHASH "V60.0" ICD9-HASH-TABLE) "Lack of housing")
(SetF (GETHASH "V60.1" ICD9-HASH-TABLE) "Inadequate housing")
(SetF (GETHASH "V60.2" ICD9-HASH-TABLE) "Inadequate material resources")
(SetF (GETHASH "V60.3" ICD9-HASH-TABLE) "Person living alone")
(SetF (GETHASH "V60.4" ICD9-HASH-TABLE) "No other household member able to render care")
(SetF (GETHASH "V60.5" ICD9-HASH-TABLE) "Holiday relief care")
(SetF (GETHASH "V60.6" ICD9-HASH-TABLE) "Person living in residential institution")
(SetF (GETHASH "V60.8" ICD9-HASH-TABLE) "Other specific housing or economic circumstances")
(SetF (GETHASH "V60.9" ICD9-HASH-TABLE) "Unspecified housing or economic circumstances")
"Unspecified housing or economic circumstance")
(SETF (GETHASH "V61.0" ICD9-HASH-TABLE) "Other family circumstances")
(SETF (GETHASH "V61.0" ICD9-HASH-TABLE) "Family disruption")
(SETF (GETHASH "V61.1" ICD9-HASH-TABLE) "Counseling for marital and partner problems")
(SETF (GETHASH "V61.10" ICD9-HASH-TABLE) "Counseling for marital and partner problems, unspecified")
(SETF (GETHASH "V61.11" ICD9-HASH-TABLE) "Counseling for victim of spousal and partner abuse")
(SETF (GETHASH "V61.12" ICD9-HASH-TABLE) "Counseling for perpetrator of spousal and partner abuse")
(SETF (GETHASH "V61.13" ICD9-HASH-TABLE) "Parent-child problems")
(SETF (GETHASH "V61.2" ICD9-HASH-TABLE) "Counseling for parent-child problem, unspecified")
(SETF (GETHASH "V61.21" ICD9-HASH-TABLE) "Counseling for victim of child abuse")
(SETF (GETHASH "V61.22" ICD9-HASH-TABLE) "Counseling for perpetrator of parental child abuse")
(SETF (GETHASH "V61.29" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V61.3" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V61.4" ICD9-HASH-TABLE) "Health problems within family")
(SETF (GETHASH "V61.41" ICD9-HASH-TABLE) "Alcoholism in family")
(SETF (GETHASH "V61.49" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V61.7" ICD9-HASH-TABLE) "Illegitimacy or illegitimate pregnancy")
(SETF (GETHASH "V61.71" ICD9-HASH-TABLE) "Other unwanted pregnancy")
(SETF (GETHASH "V61.8" ICD9-HASH-TABLE) "Other specified family circumstances")
(SETF (GETHASH "V61.9" ICD9-HASH-TABLE) "Unspecified family circumstance")
(SETF (GETHASH "V62" ICD9-HASH-TABLE) "Other psychosocial circumstances")
(SETF (GETHASH "V62.0" ICD9-HASH-TABLE) "Unemployment")
(SETF (GETHASH "V62.1" ICD9-HASH-TABLE) "Adverse effects of work environment")
(SETF (GETHASH "V62.2" ICD9-HASH-TABLE) "Other occupational circumstances or maladjustment")
(SETF (GETHASH "V62.3" ICD9-HASH-TABLE) "Educational circumstances")
(SETF (GETHASH "V62.4" ICD9-HASH-TABLE) "Social maladjustment")
(SETF (GETHASH "V62.5" ICD9-HASH-TABLE) "Legal circumstances")
(SETF (GETHASH "V62.6" ICD9-HASH-TABLE) "Refusal of treatment for reasons of religion or conscience")
(SETF (GETHASH "V62.8" ICD9-HASH-TABLE) "Other psychological or physical stress, not elsewhere classified")
(SETF (GETHASH "V62.81" ICD9-HASH-TABLE) "Interpersonal problems, not elsewhere classified")
(SETF (GETHASH "V62.82" ICD9-HASH-TABLE) "Bereavement, uncomplicated")
(SETF (GETHASH "V62.83" ICD9-HASH-TABLE) "Counseling for perpetrator of physical/sexual abuse")
(SETF (GETHASH "V62.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V62.9" ICD9-HASH-TABLE) "Unspecified psychosocial circumstance")
(SETF (GETHASH "V63" ICD9-HASH-TABLE) "Unavailability of other medical facilities for care")
(SETF (GETHASH "V63.0" ICD9-HASH-TABLE) "Residence remote from hospital or other health care facility")
(SETF (GETHASH "V63.1" ICD9-HASH-TABLE) "Medical services in home not available")
(SETF (GETHASH "V63.2" ICD9-HASH-TABLE) "Person awaiting admission to adequate facility elsewhere")
(SETF (GETHASH "V63.8" ICD9-HASH-TABLE) "Other specified reasons for unavailability of medical facilities")
(SETF (GETHASH "V63.9" ICD9-HASH-TABLE) "Unspecified reason for unavailability of medical facilities")
(SETF (GETHASH "V64" IC9-HASH-TABLE) "Persons encountering health services for specific procedures, not carried out")
(SETF (GETHASH "V64.0" IC9-HASH-TABLE) "Vaccination not carried out because of contraindication")
(SETF (GETHASH "V64.1" IC9-HASH-TABLE) "Surgical or other procedure not carried out because of contraindication")
(SETF (GETHASH "V64.2" IC9-HASH-TABLE) "Surgical or other procedure not carried out because of patient's decision")
(SETF (GETHASH "V64.3" IC9-HASH-TABLE) "Procedure not carried out for other reasons")
(SETF (GETHASH "V64.4" IC9-HASH-TABLE) "Laparoscopic surgical procedure converted to open procedure")
(SETF (GETHASH "V65" IC9-HASH-TABLE) "Other persons seeking consultation without complaint or sickness")
(SETF (GETHASH "V65.0" IC9-HASH-TABLE) "Healthy person accompanying sick person")
(SETF (GETHASH "V65.1" IC9-HASH-TABLE) "Person consulting on behalf of another person")
(SETF (GETHASH "V65.2" IC9-HASH-TABLE) "Person feigning illness")
(SETF (GETHASH "V65.3" IC9-HASH-TABLE) "Dietary surveillance and counseling")
(SETF (GETHASH "V65.4" IC9-HASH-TABLE) "Other counseling, not elsewhere classified")
(SETF (GETHASH "V65.40" IC9-HASH-TABLE) "Counseling NOS")
(SETF (GETHASH "V65.41" IC9-HASH-TABLE) "Exercise counseling")
(SETF (GETHASH "V65.42" IC9-HASH-TABLE) "Counseling on substance use and abuse")
(SETF (GETHASH "V65.43" IC9-HASH-TABLE) "Counseling on injury prevention")
(SETF (GETHASH "V65.44" IC9-HASH-TABLE) "Human immunodeficiency virus [HIV] counseling")
(SETF (GETHASH "V65.45" IC9-HASH-TABLE) "Counseling on other sexually transmitted diseases")
(SETF (GETHASH "V65.49" IC9-HASH-TABLE) "Other specified counseling")
(SETF (GETHASH "V65.5" IC9-HASH-TABLE) "Person with feared complaint in whom no diagnosis was made")
(SETF (GETHASH "V65.8" IC9-HASH-TABLE) "Other reasons for seeking consultation")
(SETF (GETHASH "V65.9" IC9-HASH-TABLE) "Unspecified reason for consultation")
(SETF (GETHASH "V66" IC9-HASH-TABLE) "Convalescence and palliative care")
(SETF (GETHASH "V66.0" IC9-HASH-TABLE) "Following surgery")
(SETF (GETHASH "V66.1" IC9-HASH-TABLE) "Following radiotherapy")
(SETF (GETHASH "V66.2" IC9-HASH-TABLE) "Following chemotherapy")
(SETF (GETHASH "V66.3" IC9-HASH-TABLE) "Following psychotherapy and other treatment for mental disorder")
(SETF (GETHASH "V66.4" IC9-HASH-TABLE) "Following treatment of fracture")
(SETF (GETHASH "V66.5" IC9-HASH-TABLE) "Following other treatment")
(SETF (GETHASH "V66.6" IC9-HASH-TABLE) "Following combined treatment")
(SETF (GETHASH "V66.7" IC9-HASH-TABLE) "Encounter for palliative care")
(SETF (GETHASH "V66.9" IC9-HASH-TABLE) "Unspecified convalescence")
(SETF (GETHASH "V67" IC9-HASH-TABLE) "Follow-up examination")
(SETF (GETHASH "V67.0" IC9-HASH-TABLE) "Following surgery")
(SETF (GETHASH "V67.1" IC9-HASH-TABLE) "Following radiotherapy")
(SETF (GETHASH "V67.2" IC9-HASH-TABLE) "Following chemotherapy")
(SETF (GETHASH "V67.3" IC9-HASH-TABLE) "Following psychotherapy and other treatment for mental disorder")
(SETF (GETHASH "V67.4" IC9-HASH-TABLE) "Following treatment of healed fracture")
(SETF (GETHASH "V67.5" IC9-HASH-TABLE) "Following other treatment")
(SETF (GETHASH "V67.51" IC9-HASH-TABLE) "Following completed treatment with high-risk medication, not elsewhere classified")
(SETF (GETHASH "V67.59" IC9-HASH-TABLE) "Other")
(SETF (GETHASH "V67.6" IC9-HASH-TABLE) "Following combined treatment")
(SETF (GETHASH "V67.9" ICD9-HASH-TABLE) "Unspecified follow-up examination")
(SETF (GETHASH "V68" ICD9-HASH-TABLE) "Encounters for administrative purposes")
(SETF (GETHASH "V68.0" ICD9-HASH-TABLE) "Issue of medical certificates")
(SETF (GETHASH "V68.1" ICD9-HASH-TABLE) "Issue of repeat prescriptions")
(SETF (GETHASH "V68.2" ICD9-HASH-TABLE) "Request for expert evidence")
(SETF (GETHASH "V68.8" ICD9-HASH-TABLE) "Other specified administrative purpose")
(SETF (GETHASH "V68.81" ICD9-HASH-TABLE) "Referral of patient without examination or treatment")
(SETF (GETHASH "V68.89" ICD9-HASH-TABLE) "Other")
(SETF (GETHASH "V68.9" ICD9-HASH-TABLE) "Unspecified administrative purpose")
(SETF (GETHASH "V69" ICD9-HASH-TABLE) "Problems related to lifestyle")
(SETF (GETHASH "V69.0" ICD9-HASH-TABLE) "Lack of physical exercise")
(SETF (GETHASH "V69.1" ICD9-HASH-TABLE) "Inappropriate diet and eating habits")
(SETF (GETHASH "V69.2" ICD9-HASH-TABLE) "High-risk sexual behavior")
(SETF (GETHASH "V69.3" ICD9-HASH-TABLE) "Gambling and betting")
(SETF (GETHASH "V69.8" ICD9-HASH-TABLE) "Other problems related to lifestyle")
(SETF (GETHASH "V69.89" ICD9-HASH-TABLE) "Problem related to lifestyle, unspecified")
(SETF (GETHASH "V70.0" ICD9-HASH-TABLE) "General medical examination")
(SETF (GETHASH "V70.1" ICD9-HASH-TABLE) "Routine general medical examination at a health care facility")
(SETF (GETHASH "V70.2" ICD9-HASH-TABLE) "General psychiatric examination, requested by the authority")
(SETF (GETHASH "V70.3" ICD9-HASH-TABLE) "Other medical examination for administrative purposes")
(SETF (GETHASH "V70.4" ICD9-HASH-TABLE) "Examination for medicolegal reasons")
(SETF (GETHASH "V70.5" ICD9-HASH-TABLE) "Health examination of defined subpopulations")
(SETF (GETHASH "V70.6" ICD9-HASH-TABLE) "Health examination in population surveys")
(SETF (GETHASH "V70.7" ICD9-HASH-TABLE) "Examination for normal comparison or control in clinical research")
(SETF (GETHASH "V70.8" ICD9-HASH-TABLE) "Other specified general medical examinations")
(SETF (GETHASH "V70.9" ICD9-HASH-TABLE) "Unspecified general medical examination")
(SETF (GETHASH "V71" ICD9-HASH-TABLE) "Observation and evaluation for suspected conditions not found")
(SETF (GETHASH "V71.0" ICD9-HASH-TABLE) "Observation for suspected mental condition")
(SETF (GETHASH "V71.01" ICD9-HASH-TABLE) "Adult antisocial behavior")
(SETF (GETHASH "V71.02" ICD9-HASH-TABLE) "Childhood or adolescent antisocial behavior")
(SETF (GETHASH "V71.09" ICD9-HASH-TABLE) "Other suspected mental condition")
(SETF (GETHASH "V71.1" ICD9-HASH-TABLE) "Observation for suspected malignant neoplasm")
(SETF (GETHASH "V71.2" ICD9-HASH-TABLE) "Observation for suspected tuberculosis")
(SETF (GETHASH "V71.3" ICD9-HASH-TABLE) "Observation following accident at work")
(SETF (GETHASH "V71.4" ICD9-HASH-TABLE) "Observation following other accident")
(SETF (GETHASH "V71.5" ICD9-HASH-TABLE) "Observation following alleged rape or seduction")
(SETF (GETHASH "V71.6" ICD9-HASH-TABLE) "Observation following other inflicted injury")
(SETF (GETHASH "V71.7" ICD9-HASH-TABLE) 
"Observation for suspected cardiovascular disease")
(SETF (GETHASH "V71.8" ICD9-HASH-TABLE) 
"Observation for other specified suspected conditions")
(SETF (GETHASH "V71.9" ICD9-HASH-TABLE) 
"Observation for unspecified suspected condition")
(SETF (GETHASH "V72" ICD9-HASH-TABLE) 
"Special investigations and examinations")
(SETF (GETHASH "V72.0" ICD9-HASH-TABLE) 
"Examination of eyes and vision")
(SETF (GETHASH "V72.1" ICD9-HASH-TABLE) 
"Examination of ears and hearing")
(SETF (GETHASH "V72.2" ICD9-HASH-TABLE) "Dental examination")
(SETF (GETHASH "V72.3" ICD9-HASH-TABLE) "Gynecological examination")
(SETF (GETHASH "V72.4" ICD9-HASH-TABLE) "Pregnancy examination or test, pregnancy unconfirmed")
(SETF (GETHASH "V72.5" ICD9-HASH-TABLE) "Radiological examination, not elsewhere classified")
(SETF (GETHASH "V72.6" ICD9-HASH-TABLE) "Laboratory examination")
(SETF (GETHASH "V72.7" ICD9-HASH-TABLE) "Diagnostic skin and sensitization tests")
(SETF (GETHASH "V72.8" ICD9-HASH-TABLE) "Other specified examinations")
(SETF (GETHASH "V72.81" ICD9-HASH-TABLE) "Preoperative cardiovascular examination")
(SETF (GETHASH "V72.82" ICD9-HASH-TABLE) "Preoperative respiratory examination")
(SETF (GETHASH "V72.83" ICD9-HASH-TABLE) "Other specified preoperative examination")
(SETF (GETHASH "V72.84" ICD9-HASH-TABLE) "Preoperative examination, unspecified")
(SETF (GETHASH "V72.85" ICD9-HASH-TABLE) "Other specified examination")
(SETF (GETHASH "V72.9" ICD9-HASH-TABLE) "Unspecified examination")
(SETF (GETHASH "V73" ICD9-HASH-TABLE) "Special screening examination for viral and chlamydial diseases")
(SETF (GETHASH "V73.0" ICD9-HASH-TABLE) "Poliomyelitis")
(SETF (GETHASH "V73.1" ICD9-HASH-TABLE) "Smallpox")
(SETF (GETHASH "V73.2" ICD9-HASH-TABLE) "Measles")
(SETF (GETHASH "V73.3" ICD9-HASH-TABLE) "Rubella")
(SETF (GETHASH "V73.4" ICD9-HASH-TABLE) "Yellow fever")
(SETF (GETHASH "V73.5" ICD9-HASH-TABLE) "Other arthropod-borne viral diseases")
(SETF (GETHASH "V73.6" ICD9-HASH-TABLE) "Trachoma")
(SETF (GETHASH "V73.8" ICD9-HASH-TABLE) "Other specified viral and chlamydial diseases")
(SETF (GETHASH "V73.88" ICD9-HASH-TABLE) "Other specified chlamydial diseases")
(SETF (GETHASH "V73.89" ICD9-HASH-TABLE) "Other specified viral diseases")
(SETF (GETHASH "V73.9" ICD9-HASH-TABLE) "Unspecified viral and chlamydial disease")
(SETF (GETHASH "V73.98" ICD9-HASH-TABLE) "Unspecified chlamydial disease")
(SETF (GETHASH "V73.99" ICD9-HASH-TABLE) "Unspecified viral disease")
(SETF (GETHASH "V74" ICD9-HASH-TABLE) "Special screening examination for bacterial and spirochetal diseases")
(SETF (GETHASH "V74.0" ICD9-HASH-TABLE) "Cholera")
(SETF (GETHASH "V74.1" ICD9-HASH-TABLE) "Pulmonary tuberculosis")
(SETF (GETHASH "V74.2" ICD9-HASH-TABLE) "Leprosy [Mansen's disease]")
(SETF (GETHASH "V74.3" ICD9-HASH-TABLE) "Diphtheria")
(SETF (GETHASH "V74.4" ICD9-HASH-TABLE) "Bacterial conjunctivitis")
(SETF (GETHASH "V74.5" ICD9-HASH-TABLE) "Venereal disease")
(SETF (GETHASH "V74.6" ICD9-HASH-TABLE) "Yaws")
(SETF (GETHASH "V74.8" ICD9-HASH-TABLE) "Other specified bacterial and spirochetal diseases")
(SETF (GETHASH "V74.9" ICD9-HASH-TABLE) "Unspecified bacterial and spirochetal disease")
(SETF (GETHASH "E818" IC9-HASH-TABLE) "Other noncollision motor vehicle traffic accident")
(SETF (GETHASH "E819" IC9-HASH-TABLE) "Motor vehicle traffic accident of unspecified nature")
(SETF (GETHASH "E820" IC9-HASH-TABLE) "Nontraffic accident involving motor-driven snow vehicle")
(SETF (GETHASH "E821" IC9-HASH-TABLE) "Nontraffic accident involving other off-road motor vehicle")
(SETF (GETHASH "E822" IC9-HASH-TABLE) "Other motor vehicle nontraffic accident involving collision with moving object")
(SETF (GETHASH "E823" IC9-HASH-TABLE) "Other motor vehicle nontraffic accident involving collision with stationary object")
(SETF (GETHASH "E824" IC9-HASH-TABLE) "Other motor vehicle nontraffic accident while boarding and alighting")
(SETF (GETHASH "E825" IC9-HASH-TABLE) "Other motor vehicle nontraffic accident of other and unspecified nature")
(SETF (GETHASH "E826" IC9-HASH-TABLE) "Pedal cycle accident")
(SETF (GETHASH "E827" IC9-HASH-TABLE) "Animal-drawn vehicle accident")
(SETF (GETHASH "E828" IC9-HASH-TABLE) "Accident involving animal being ridden")
(SETF (GETHASH "E829" IC9-HASH-TABLE) "Other road vehicle accidents")
(SETF (GETHASH "E830" IC9-HASH-TABLE) "Accident to watercraft causing submersion")
(SETF (GETHASH "E831" IC9-HASH-TABLE) "Accident to watercraft causing other injury")
(SETF (GETHASH "E832" IC9-HASH-TABLE) "Other accidental submersion or drowning in water transport accident")
(SETF (GETHASH "E833" IC9-HASH-TABLE) "Fall on stairs or ladders in water transport")
(SETF (GETHASH "E834" IC9-HASH-TABLE) "Other fall from one level to another in water transport")
(SETF (GETHASH "E835" IC9-HASH-TABLE) "Other and unspecified fall in water transport")
(SETF (GETHASH "E836" IC9-HASH-TABLE) "Machinery accident in water transport")
(SETF (GETHASH "E837" IC9-HASH-TABLE) "Explosion, fire, or burning in watercraft")
(SETF (GETHASH "E838" IC9-HASH-TABLE) "Other and unspecified water transport accident")
(SETF (GETHASH "E840" IC9-HASH-TABLE) "Accident to powered aircraft at takeoff or landing")
(SETF (GETHASH "E841" IC9-HASH-TABLE) "Accident to powered aircraft, other and unspecified")
(SETF (GETHASH "E842" IC9-HASH-TABLE) "Accident to unpowered aircraft")
(SETF (GETHASH "E843" IC9-HASH-TABLE) "Fall in, on, or from aircraft")
(SETF (GETHASH "E844" IC9-HASH-TABLE) "Other specified air transport accidents")
(SETF (GETHASH "E845" IC9-HASH-TABLE) "Accident involving spacecraft")
(SETF (GETHASH "E846" IC9-HASH-TABLE) "Accidents involving powered vehicles used solely within the buildings and premises of industrial or commercial establishment")
(SETF (GETHASH "E847" IC9-HASH-TABLE) "Accidents involving cable cars not running on rails")
(SETF (GETHASH "E848" IC9-HASH-TABLE) "Accidents involving other vehicles, not elsewhere classifiable")
(SETF (GETHASH "E849" IC9-HASH-TABLE) "Place of occurrence")
(SETF (GETHASH "E849.0" IC9-HASH-TABLE) "Home")
(SETF (GETHASH "E849.1" IC9-HASH-TABLE) "Farm")
(SETF (GETHASH "E849.2" IC9-HASH-TABLE) "Mine and quarry")
(SETF (GETHASH "E849.3" IC9-HASH-TABLE) "Industrial place and premises")
(SETF (GETHASH "E849.4" IC9-HASH-TABLE) "Place for recreation and sport")
(SETF (GETHASH "E849.5" IC9-HASH-TABLE) "Street and highway")
(SETF (GETHASH "E849.6" IC9-HASH-TABLE) "Public building")
(SETF (GETHASH "E849.7" IC9-HASH-TABLE) "Residential institution")
(SETF (GETHASH "E849.8" IC9-HASH-TABLE) "Other specified places")
"Sympathomimetics (Adrenergics)"

(SETF (GETHASH "E85.5" ICD9-HASH-TABLE) "Sympathomimetics (Adrenergics)"
(SETF (GETHASH "E85.8" ICD9-HASH-TABLE) "Other specified drugs acting on central and autonomic nervous systems"
(SETF (GETHASH "E85.9" ICD9-HASH-TABLE) "Unspecified drug acting on central and autonomic nervous systems"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Accidental poisoning by antibiotics"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Accidental poisoning by other anti-infectives"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Accidental poisoning by other drugs"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Hormones and synthetic substitutes"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Primarily systemic agents"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Agents primarily affecting blood constituents"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Agents primarily affecting cardiovascular system"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Agents primarily affecting gastrointestinal system"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Water, mineral, and uric acid metabolism drugs"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Agents primarily acting on the smooth and skeletal muscles and respiratory system"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Agents primarily affecting skin and mucus membrane, ophthalmological, otorhinolaryngological, and dental drugs"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Other specified drugs"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Unspecified drug"
(SETF (GETHASH "E85T" ICD9-HASH-TABLE) "Accidental poisoning by alcohol, not elsewhere classified"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Alcoholic beverages"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Other and unspecified ethyl alcohol and its products"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Methyl alcohol"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Isopropyl alcohol"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Fuse oil"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Other specified alcohols"
(SETF (GETHASH "E85.T" ICD9-HASH-TABLE) "Unspecified alcohol"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Accidental poisoning by cleaning and polishing agents, disinfectants, paints, and varnishes"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Synthetic detergents and shampoos"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Soap products"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Polishes"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Other cleansing and polishing agents"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Disinfectants"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Lead paints"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Other paints and varnishes"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Unspecified"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Accidental poisoning by petroleum products, other solvents and their vapors, not elsewhere classified"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Petroleum solvents"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Petroleum fuels and cleaners"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Lubricating oils"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Petroleum solids"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Other specified solvents"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Unspecified solvent"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Accidental poisoning by agricultural and horticultural chemical and pharmaceutical preparations other than plant foods and fertilizers"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Insecticides of organochlorine compounds"
(SETF (GETHASH "E86I" ICD9-HASH-TABLE) "Insecticides of organophosphorus compounds"
(SETF (GETHASH "E863.2" ICD9-HASH-TABLE) "Carbamates")
(SETF (GETHASH "E863.3" ICD9-HASH-TABLE) "Mixtures of insecticides")
(SETF (GETHASH "E863.4" ICD9-HASH-TABLE) "Other and unspecified insecticides")
(SETF (GETHASH "E863.5" ICD9-HASH-TABLE) "Herbicides")
(SETF (GETHASH "E863.6" ICD9-HASH-TABLE) "Fungicides")
(SETF (GETHASH "E863.7" ICD9-HASH-TABLE) "Rodenticides")
(SETF (GETHASH "E863.8" ICD9-HASH-TABLE) "Fumigants")
(SETF (GETHASH "E863.9" ICD9-HASH-TABLE) "Other and unspecified")
(SETF (GETHASH "E864" ICD9-HASH-TABLE) "Accidental poisoning by corrosives and caustics, not elsewhere classified")
(SETF (GETHASH "E864.0" ICD9-HASH-TABLE) "Corrosive aromatics")
(SETF (GETHASH "E864.1" ICD9-HASH-TABLE) "Acids")
(SETF (GETHASH "E864.2" ICD9-HASH-TABLE) "Caustic alkalis")
(SETF (GETHASH "E864.3" ICD9-HASH-TABLE) "Other specified corrosives and caustics")
(SETF (GETHASH "E864.4" ICD9-HASH-TABLE) "Accidental poisoning from poisonous foodstuffs and poisonous plants")
(SETF (GETHASH "E865.0" ICD9-HASH-TABLE) "Meat")
(SETF (GETHASH "E865.1" ICD9-HASH-TABLE) "Shellfish")
(SETF (GETHASH "E865.2" ICD9-HASH-TABLE) "Other fish")
(SETF (GETHASH "E865.3" ICD9-HASH-TABLE) "Berries and seeds")
(SETF (GETHASH "E865.4" ICD9-HASH-TABLE) "Other specified plants")
(SETF (GETHASH "E865.5" ICD9-HASH-TABLE) "Mushrooms and other fungi")
(SETF (GETHASH "E865.6" ICD9-HASH-TABLE) "Other specified foods")
(SETF (GETHASH "E865.9" ICD9-HASH-TABLE) "Unspecified foodstuff or poisonous plant")
(SETF (GETHASH "E866" ICD9-HASH-TABLE) "Accidental poisoning by other and unspecified solid and liquid substances")
(SETF (GETHASH "E866.0" ICD9-HASH-TABLE) "Lead and its compounds and fumes")
(SETF (GETHASH "E866.1" ICD9-HASH-TABLE) "Mercury and its compounds and fumes")
(SETF (GETHASH "E866.2" ICD9-HASH-TABLE) "Antimony and its compounds and fumes")
(SETF (GETHASH "E866.3" ICD9-HASH-TABLE) "Arsenic and its compounds and fumes")
(SETF (GETHASH "E866.4" ICD9-HASH-TABLE) "Other metals and their compounds and fumes")
(SETF (GETHASH "E866.5" ICD9-HASH-TABLE) "Plant foods and fertilizers")
(SETF (GETHASH "E866.6" ICD9-HASH-TABLE) "Clues and adhesives")
(SETF (GETHASH "E866.7" ICD9-HASH-TABLE) "Cosmetics")
(SETF (GETHASH "E866.8" ICD9-HASH-TABLE) "Other specified solid or liquid substances")
(SETF (GETHASH "E866.9" ICD9-HASH-TABLE) "Unspecified solid or liquid substance")
(SETF (GETHASH "E867" ICD9-HASH-TABLE) "Accidental poisoning by gas distributed by pipeline")
(SETF (GETHASH "E868" ICD9-HASH-TABLE) "Accidental poisoning by other utility gas and other carbon monoxide")
(SETF (GETHASH "E868.0" ICD9-HASH-TABLE) "Liquefied petroleum gas distributed in mobile containers")
(SETF (GETHASH "E868.1" ICD9-HASH-TABLE) "Other and unspecified utility gas")
(SETF (GETHASH "E868.2" ICD9-HASH-TABLE) "Motor vehicle exhaust gas")
(SETF (GETHASH "E868.3" ICD9-HASH-TABLE) "Carbon monoxide from incomplete combustion of other domestic fuels")
(SETF (GETHASH "E868.8" ICD9-HASH-TABLE) "Carbon monoxide from other sources")
(SETF (GETHASH "E868.9" ICD9-HASH-TABLE) "Unspecified carbon monoxide")
(SETF (GETHASH "E869" ICD9-HASH-TABLE) "Accidental poisoning by other gases and vapors")
(SETF (GETHASH "E869.0" ICD9-HASH-TABLE) "Nitrogen oxides")
(SETF (GETHASH "E869.1" ICD9-HASH-TABLE) "Sulphur dioxide")
"Unspecified failure in dosage"

(SETF (GETHASH "'E874" IC90-HASH-TABLE) "Mechanical failure of instrument or apparatus during procedure"

(SETF (GETHASH "'E874.0" IC90-HASH-TABLE) "Surgical operation"

(SETF (GETHASH "'E874.1" IC90-HASH-TABLE) "Infusion and transfusion"

(SETF (GETHASH "'E874.2" IC90-HASH-TABLE) "Kidney dialysis and other perfusion"

(SETF (GETHASH "'E874.3" IC90-HASH-TABLE) "Endoscopic examination"

(SETF (GETHASH "'E874.4" IC90-HASH-TABLE) "Aspiration of fluid or tissue, puncture, and catheterization"

(SETF (GETHASH "'E874.5" IC90-HASH-TABLE) "Heart catheterization"

(SETF (GETHASH "'E874.8" IC90-HASH-TABLE) "Other specified procedures"

(SETF (GETHASH "'E874.9" IC90-HASH-TABLE) "Unspecified procedure"

(SETF (GETHASH "'E875" IC90-HASH-TABLE) "Contaminated or infected blood, other fluid, drug, or biological substance"

(SETF (GETHASH "'E875.0" IC90-HASH-TABLE) "Contaminated substance transfused or infused"

(SETF (GETHASH "'E875.1" IC90-HASH-TABLE) "Contaminated substance injected or used for vaccination"

(SETF (GETHASH "'E875.2" IC90-HASH-TABLE) "Contaminated drug or biological substance administered by other means"

(SETF (GETHASH "'E875.9" IC90-HASH-TABLE) "Unspecified"

(SETF (GETHASH "'E876" IC90-HASH-TABLE) "Other and unspecified mishandlings during medical care"

(SETF (GETHASH "'E876.0" IC90-HASH-TABLE) "Mismatched blood in transfusion"

(SETF (GETHASH "'E876.1" IC90-HASH-TABLE) "Wrong fluid in infusion"

(SETF (GETHASH "'E876.2" IC90-HASH-TABLE) "Failure in suture and ligature, during surgical operation"

(SETF (GETHASH "'E876.3" IC90-HASH-TABLE) "Endotracheal tube wrongly placed during anesthetic procedure"

(SETF (GETHASH "'E876.4" IC90-HASH-TABLE) "Failure to introduce or to remove other tube or instrument"

(SETF (GETHASH "'E876.5" IC90-HASH-TABLE) "Performance of inappropriate operation"

(SETF (GETHASH "'E876.8" IC90-HASH-TABLE) "Other specified mishandlings during medical care"

(SETF (GETHASH "'E876.9" IC90-HASH-TABLE) "Unspecified mishandling during medical care"

(SETF (GETHASH "'E878" IC90-HASH-TABLE) "Surgical operation and other surgical procedures as the cause of abnormal reaction of patient, or of later complication, without mention of mishandling at the time of operation"

(SETF (GETHASH "'E878.0" IC90-HASH-TABLE) "Surgical operation with transplant of whole organ"

(SETF (GETHASH "'E878.1" IC90-HASH-TABLE) "Surgical operation with implant of artificial internal device"

(SETF (GETHASH "'E878.2" IC90-HASH-TABLE) "Surgical operation with anastomosis, bypass, or graft, with natural or artificial tissues used as implant"

(SETF (GETHASH "'E878.3" IC90-HASH-TABLE) "Surgical operation with formation of external stoma"

(SETF (GETHASH "'E878.4" IC90-HASH-TABLE) "Other restorative surgery"

(SETF (GETHASH "'E878.5" IC90-HASH-TABLE) "Amputation of limb(s)"

(SETF (GETHASH "'E878.6" IC90-HASH-TABLE) "Removal of other organ (partial) (total)"

(SETF (GETHASH "'E878.8" IC90-HASH-TABLE) "Other specified surgical operations and procedures"

(SETF (GETHASH "'E878.9" IC90-HASH-TABLE) "Unspecified surgical operations and procedures"

(SETF (GETHASH "'E879" IC90-HASH-TABLE) "Other procedures, without mention of mishandling at the time of procedure, as the cause of abnormal reaction of patient, or of later complication"

(SETF (GETHASH "'E879.0" IC90-HASH-TABLE) "Cardiac catheterization"

(SETF (GETHASH "'E879.1" IC90-HASH-TABLE) "Kidney dialysis"

(SETF (GETHASH "'E879.2" IC90-HASH-TABLE) "Radiological procedure and radiotherapy"

(SETF (GETHASH "'E879.3" IC90-HASH-TABLE) "Shock therapy"
(SETF (GETHASH "E879.4" IC99-HASH-TABLE) "Aspiration of fluid")
(SETF (GETHASH "E879.5" IC99-HASH-TABLE) "Insertion of gastric or duodenal sound")
(SETF (GETHASH "E879.6" IC99-HASH-TABLE) "Urinary catheterization")
(SETF (GETHASH "E879.7" IC99-HASH-TABLE) "Blood sampling")
(SETF (GETHASH "E879.8" IC99-HASH-TABLE) "Other specified procedures")
(SETF (GETHASH "E879.9" IC99-HASH-TABLE) "Unspecified procedure")
(SETF (GETHASH "E880" IC99-HASH-TABLE) "Fall on or from stairs or steps")
(SETF (GETHASH "E880.0" IC99-HASH-TABLE) "Escalator")
(SETF (GETHASH "E880.1" IC99-HASH-TABLE) "Fall on or from sidewalk curb")
(SETF (GETHASH "E880.9" IC99-HASH-TABLE) "Other stairs or steps")
(SETF (GETHASH "E881" IC99-HASH-TABLE) "Fall on or from ladders or scaffolding")
(SETF (GETHASH "E881.0" IC99-HASH-TABLE) "Fall from ladder")
(SETF (GETHASH "E881.1" IC99-HASH-TABLE) "Fall from scaffolding")
(SETF (GETHASH "E882" IC99-HASH-TABLE) "Fall from or out of building or other structure")
(SETF (GETHASH "E883" IC99-HASH-TABLE) "Fall into hole or other opening in surface")
(SETF (GETHASH "E883.0" IC99-HASH-TABLE) "Accident from diving or jumping into water [swimming pool]")
(SETF (GETHASH "E883.1" IC99-HASH-TABLE) "Accidental fall into well")
(SETF (GETHASH "E883.2" IC99-HASH-TABLE) "Accidental fall into storm drain or manhole")
(SETF (GETHASH "E883.9" IC99-HASH-TABLE) "Fall into other hole or other opening in surface")
(SETF (GETHASH "E884" IC99-HASH-TABLE) "Other fall from one level to another")
(SETF (GETHASH "E884.0" IC99-HASH-TABLE) "Fall from playground equipment")
(SETF (GETHASH "E884.1" IC99-HASH-TABLE) "Fall from cliff")
(SETF (GETHASH "E884.2" IC99-HASH-TABLE) "Fall from chair")
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(SETF (GETHASH "E884.5" IC99-HASH-TABLE) "Fall from other furniture")
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(SETF (GETHASH "E890.1" IC99-HASH-TABLE) "Explosion caused by conflagration")
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(SETF (GETHASH "E890.3" IC99-HASH-TABLE) "Burning caused by conflagration")
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(SETF (GETHASH "E891.8" ICD9-HASH-TABLE) "Other accident resulting from conflagration")
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(SETF (GETHASH "E009.8" ICD9-HASH-TABLE) "Other cataclysmic earth surface movements and eruptions")
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(SETF (GETHASH "E944.7" ICD9-HASH-TABLE) "Uric acid metabolism drugs")
(SETF (GETHASH "E945" ICD9-HASH-TABLE) "Agents primarily acting on the smooth and skeletal muscles and respiratory system")
(SETF (GETHASH "E945.0" ICD9-HASH-TABLE) "Oxytocic agents")
(SETF (GETHASH "E945.1" ICD9-HASH-TABLE) "Smooth muscle relaxants")
(SETF (GETHASH "E945.2" ICD9-HASH-TABLE) "Skeletal muscle relaxants")
(SETF (GETHASH "E945.3" ICD9-HASH-TABLE) "Other and unspecified drugs acting on muscles")
(SETF (GETHASH "E945.4" ICD9-HASH-TABLE) "Antitussives")
(SETF (GETHASH "E945.5" ICD9-HASH-TABLE) "Expectorants")
(SETF (GETHASH "E945.6" ICD9-HASH-TABLE) "Anti-common cold drugs")
(SETF (GETHASH "E945.7" ICD9-HASH-TABLE) "Antiallergics")
(SETF (GETHASH "E945.8" ICD9-HASH-TABLE) "Other and unspecified respiratory drugs")
(SETF (GETHASH "E946" ICD9-HASH-TABLE) "Agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs")
(SETF (GETHASH "E946.0" ICD9-HASH-TABLE) "Local anti-infectives and anti-inflammatory drugs")
(SETF (GETHASH "E946.1" ICD9-HASH-TABLE) "Antipruritics")
(SETF (GETHASH "E946.2" ICD9-HASH-TABLE) "Local astringents and local detergents")
(SETF (GETHASH "E946.3" ICD9-HASH-TABLE) "Emollients, demulcients, and protectants")
(SETF (GETHASH "E946.4" ICD9-HASH-TABLE) "Keratolytics, keratothetics, other hair treatment drugs and preparations")
(SETF (GETHASH "E946.5" ICD9-HASH-TABLE) "Eye anti-infectives and other eye drugs")
(SETF (GETHASH "E946.6" ICD9-HASH-TABLE) "Anti-infectives and other drugs and preparations for ear, nose, and throat")
(SETF (GETHASH "E946.7" ICD9-HASH-TABLE) "Dental drugs topically applied")
(SETF (GETHASH "E946.8" ICD9-HASH-TABLE) "Other agents primarily affecting skin and mucous membrane")
(SETF (GETHASH "E946.9" ICD9-HASH-TABLE) "Unspecified agent primarily affecting skin and mucous membrane")
(SETF (GETHASH "E947" ICD9-HASH-TABLE) "Other and unspecified drugs and medicinal substances")
(SETF (GETHASH "E947.0" ICD9-HASH-TABLE) "Dietetics")
(SETF (GETHASH "E947.1" ICD9-HASH-TABLE) "Lipotropic drugs")
(SETF (GETHASH "E947.2" ICD9-HASH-TABLE) "Antidotes and chelating agents, not elsewhere classified")
(SETF (GETHASH "E947.3" ICD9-HASH-TABLE) "Alcohol detergents")
"Suicide and self-inflicted injury by hanging, strangulation, and suffocation")

(SETF (GETHASH "E953.0" ICO9-HASH-TABLE) "Hanging")
(SETF (GETHASH "E953.1" ICO9-HASH-TABLE) "Suffocation by plastic bag")
(SETF (GETHASH "E953.8" ICO9-HASH-TABLE) "Other specified means")
(SETF (GETHASH "E953.9" ICO9-HASH-TABLE) "Unspecified means")
(SETF (GETHASH "E954" ICO9-HASH-TABLE) "Suicide and self-inflicted injury by submersion [drowning]")
(SETF (GETHASH "E955" ICO9-HASH-TABLE) "Suicide and self-inflicted injury by firearms and explosives")
(SETF (GETHASH "E955.0" ICO9-HASH-TABLE) "Handgun")
(SETF (GETHASH "E955.1" ICO9-HASH-TABLE) "Shotgun")
(SETF (GETHASH "E955.2" ICO9-HASH-TABLE) "Hunting rifle")
(SETF (GETHASH "E955.3" ICO9-HASH-TABLE) "Military firearms")
(SETF (GETHASH "E955.4" ICO9-HASH-TABLE) "Other and unspecified firearm")
(SETF (GETHASH "E955.5" ICO9-HASH-TABLE) "Explosives")
(SETF (GETHASH "E955.6" ICO9-HASH-TABLE) "Air gun")
(SETF (GETHASH "E955.9" ICO9-HASH-TABLE) "Unspecified")
(SETF (GETHASH "E956" ICO9-HASH-TABLE) "Suicide and self-inflicted injury by cutting and piercing instrument")
(SETF (GETHASH "E957" ICO9-HASH-TABLE) "Suicide and self-inflicted injuries by jumping from high place")
(SETF (GETHASH "E957.0" ICO9-HASH-TABLE) "Residential premises")
(SETF (GETHASH "E957.1" ICO9-HASH-TABLE) "Other man-made structures")
(SETF (GETHASH "E957.2" ICO9-HASH-TABLE) "Natural sites")
(SETF (GETHASH "E957.9" ICO9-HASH-TABLE) "Unspecified")
(SETF (GETHASH "E958" ICO9-HASH-TABLE) "Suicide and self-inflicted injury by other and unspecified means")
(SETF (GETHASH "E958.0" ICO9-HASH-TABLE) "Jumping or lying before moving object")
(SETF (GETHASH "E958.1" ICO9-HASH-TABLE) "Burns, fire")
(SETF (GETHASH "E958.2" ICO9-HASH-TABLE) "Scald")
(SETF (GETHASH "E958.3" ICO9-HASH-TABLE) "Extremes of cold")
(SETF (GETHASH "E958.4" ICO9-HASH-TABLE) "Electrocution")
(SETF (GETHASH "E958.5" ICO9-HASH-TABLE) "Crashing of motor vehicle")
(SETF (GETHASH "E958.6" ICO9-HASH-TABLE) "Crashing of aircraft")
(SETF (GETHASH "E958.7" ICO9-HASH-TABLE) "Caustic substances, except poisoning")
(SETF (GETHASH "E958.8" ICO9-HASH-TABLE) "Other specified means")
(SETF (GETHASH "E958.9" ICO9-HASH-TABLE) "Unspecified means")
(SETF (GETHASH "E959" ICO9-HASH-TABLE) "Late effects of self-inflicted injury")
(SETF (GETHASH "E960" ICO9-HASH-TABLE) "Fight, brawl, rape")
(SETF (GETHASH "E960.0" ICO9-HASH-TABLE) "Unarmed fight or brawl")
(SETF (GETHASH "E960.1" ICO9-HASH-TABLE) "Rape")
(SETF (GETHASH "E962" ICO9-HASH-TABLE) "Assault by corrosive or caustic substance, except poisoning")
(SETF (GETHASH "E962" ICO9-HASH-TABLE) "Assault by poisoning")
(SETF (GETHASH "E962.0" ICO9-HASH-TABLE) "Drugs and medicinal substances")
(SETF (GETHASH "E962.1" ICO9-HASH-TABLE) "Other solid and liquid substances")
(SETF (GETHASH "E962.2" ICO9-HASH-TABLE) "Other gases and vapors")
(SETF (GETHASH "E962.9" ICO9-HASH-TABLE) "Unspecified poisoning")
(SETF (GETHASH "E963" ICO9-HASH-TABLE) "Assault by hanging and strangulation")
(SETF (GETHASH "E964" ICO9-HASH-TABLE) "Assault by submersion [drowning]")
(SETF (GETHASH "E965" ICO9-HASH-TABLE) "Suicide and self-inflicted injury by firearms and explosives")
(SETF (GETHASH "E965.0" ICO9-HASH-TABLE) "Handgun")
(SETF (GETHASH "E965.1" ICO9-HASH-TABLE) "Shotgun")
(SETF (GETHASH "E965.2" ICO9-HASH-TABLE) "Hunting rifle")
(SETF (GETHASH "E965.3" ICO9-HASH-TABLE) "Military firearms")
(SETF (GETHASH "E965.4" ICO9-HASH-TABLE) "Other and unspecified firearm")
(SETF (GETHASH "E955.5" IC99-HASH-TABLE) "Antipersonnel bomb")
(SETF (GETHASH "E955.6" IC99-HASH-TABLE) "Gasoline bomb")
(SETF (GETHASH "E955.7" IC99-HASH-TABLE) "Letter bomb")
(SETF (GETHASH "E955.8" IC99-HASH-TABLE) "Other specified explosive")
(SETF (GETHASH "E955.9" IC99-HASH-TABLE) "Unspecified explosive")
(SETF (GETHASH "E960" IC99-HASH-TABLE) "Assault by cutting and piercing instrument")
(SETF (GETHASH "E967" IC99-HASH-TABLE) "Child and adult battering and other maltreatment")
(SETF (GETHASH "E967.0" IC99-HASH-TABLE) "By father or stepfather")
(SETF (GETHASH "E967.1" IC99-HASH-TABLE) "By other specified person")
(SETF (GETHASH "E967.2" IC99-HASH-TABLE) "By mother or stepmother")
(SETF (GETHASH "E967.3" IC99-HASH-TABLE) "By spouse or partner")
(SETF (GETHASH "E967.4" IC99-HASH-TABLE) "By child")
(SETF (GETHASH "E967.5" IC99-HASH-TABLE) "By sibling")
(SETF (GETHASH "E967.6" IC99-HASH-TABLE) "By grandparent")
(SETF (GETHASH "E967.7" IC99-HASH-TABLE) "By other relative")
(SETF (GETHASH "E967.8" IC99-HASH-TABLE) "By non-related caregiver")
(SETF (GETHASH "E967.9" IC99-HASH-TABLE) "By unspecified person")
(SETF (GETHASH "E968" IC99-HASH-TABLE) "Assault by other and unspecified means")
(SETF (GETHASH "E968.0" IC99-HASH-TABLE) "Fire")
(SETF (GETHASH "E968.1" IC99-HASH-TABLE) "Pushing from a high place")
(SETF (GETHASH "E968.2" IC99-HASH-TABLE) "Striking by blunt or thrown object")
(SETF (GETHASH "E968.3" IC99-HASH-TABLE) "Hot liquid")
(SETF (GETHASH "E968.4" IC99-HASH-TABLE) "Criminal neglect")
(SETF (GETHASH "E968.5" IC99-HASH-TABLE) "Transport vehicle")
(SETF (GETHASH "E968.6" IC99-HASH-TABLE) "Air gun")
(SETF (GETHASH "E968.8" IC99-HASH-TABLE) "Other specified means")
(SETF (GETHASH "E968.9" IC99-HASH-TABLE) "Unspecified means")
(SETF (GETHASH "E969" IC99-HASH-TABLE) "Late effects of injury purposely inflicted by other person")
(SETF (GETHASH "E970" IC99-HASH-TABLE) "Injury due to legal intervention by firearms")
(SETF (GETHASH "E971" IC99-HASH-TABLE) "Injury due to legal intervention by explosives")
(SETF (GETHASH "E972" IC99-HASH-TABLE) "Injury due to legal intervention by gas")
(SETF (GETHASH "E973" IC99-HASH-TABLE) "Injury due to legal intervention by blunt object")
(SETF (GETHASH "E974" IC99-HASH-TABLE) "Injury due to legal intervention by cutting and piercing instrument")
(SETF (GETHASH "E975" IC99-HASH-TABLE) "Injury due to legal intervention by other specified means")
(SETF (GETHASH "E976" IC99-HASH-TABLE) "Injury due to legal intervention by unspecified means")
(SETF (GETHASH "E977" IC99-HASH-TABLE) "Injury due to legal intervention")
(SETF (GETHASH "E978" IC99-HASH-TABLE) "Legal execution")
(SETF (GETHASH "E980" IC99-HASH-TABLE) "Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted")
(SETF (GETHASH "E980.0" IC99-HASH-TABLE) "Analgesics, antipyretics, and antiinflammatories")
(SETF (GETHASH "E980.1" IC99-HASH-TABLE) "Barbiturates")
(SETF (GETHASH "E980.2" IC99-HASH-TABLE) "Other sedatives and hypnotics")
(SETF (GETHASH "E980.3" IC99-HASH-TABLE) "Tranquilizers and other psychotropic agents")
(SETF (GETHASH "E980.4" IC99-HASH-TABLE) "Other specified drugs and medicinal substances")
(SETF (GETHASH "E980.5" IC99-HASH-TABLE) "Unspecified drug or medicinal substance")
(SETF (GETHASH "E980.6" IC99-HASH-TABLE) "Corrosive and caustic substances")
(SETF (GETHASH "E980.7" IC99-HASH-TABLE) "Inhalation of solid or liquid substances")
"Agricultural and horticultural chemical and pharmaceutical preparations other than plant foods and fertilizers")

(SET (GETHASH "E880.8" IC9D-HASH-TABLE) "Arsenic and its compounds")
(SET (GETHASH "E880.9" IC9D-HASH-TABLE) "Other and unspecified solid and liquid substances")

(SET (GETHASH "E891.0" IC9D-HASH-TABLE) "Poisoning by gases in domestic use, undetermined whether accidentally or purposely inflicted")
(SET (GETHASH "E891.0" IC9D-HASH-TABLE) "Gas distributed by pipeline")
(SET (GETHASH "E891.1" IC9D-HASH-TABLE) "Liquefied petroleum gas distributed in mobile containers")

(SET (GETHASH "E891.8" IC9D-HASH-TABLE) "Other utility gas")
(SET (GETHASH "E892" IC9D-HASH-TABLE) "Poisoning by other gases, undetermined whether accidentally or purposely inflicted")
(SET (GETHASH "E892.0" IC9D-HASH-TABLE) "Motor vehicle exhaust gas")
(SET (GETHASH "E892.1" IC9D-HASH-TABLE) "Other carbon monoxide")

(SET (GETHASH "E893.0" IC9D-HASH-TABLE) "Hanging")
(SET (GETHASH "E893.1" IC9D-HASH-TABLE) "Suffocation by plastic bag")
(SET (GETHASH "E893.8" IC9D-HASH-TABLE) "Other specified means")

(SET (GETHASH "E894" IC9D-HASH-TABLE) "Submersion (drowning), undetermined whether accidentally or purposely inflicted")

(SET (GETHASH "E895" IC9D-HASH-TABLE) "Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted")
(SET (GETHASH "E895.0" IC9D-HASH-TABLE) "Handgun")
(SET (GETHASH "E895.1" IC9D-HASH-TABLE) "Shotgun")

(SET (GETHASH "E895.2" IC9D-HASH-TABLE) "Hunting rifle")
(SET (GETHASH "E895.3" IC9D-HASH-TABLE) "Military firearms")
(SET (GETHASH "E895.4" IC9D-HASH-TABLE) "Other and unspecified firearms")

(SET (GETHASH "E895.5" IC9D-HASH-TABLE) "Explosives")
(SET (GETHASH "E895.6" IC9D-HASH-TABLE) "Air gun")

(SET (GETHASH "E896" IC9D-HASH-TABLE) "Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted")
(SET (GETHASH "E897" IC9D-HASH-TABLE) "Falling from high place, undetermined whether accidentally or purposely inflicted")

(SET (GETHASH "E897.0" IC9D-HASH-TABLE) "Residential premises")
(SET (GETHASH "E897.1" IC9D-HASH-TABLE) "Other man-made structures")
(SET (GETHASH "E897.2" IC9D-HASH-TABLE) "Natural sites")
(SET (GETHASH "E897.9" IC9D-HASH-TABLE) "Unspecified site")

(SET (GETHASH "E898" IC9D-HASH-TABLE) "Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted")

(SET (GETHASH "E898.0" IC9D-HASH-TABLE) "Jumping or lying before moving object")
(SET (GETHASH "E898.1" IC9D-HASH-TABLE) "Burns, fire")

(SET (GETHASH "E898.2" IC9D-HASH-TABLE) "Scald")
(SET (GETHASH "E898.3" IC9D-HASH-TABLE) "Extremes of cold")

(SET (GETHASH "E898.4" IC9D-HASH-TABLE) "Electrocution")
(SET (GETHASH "E898.5" IC9D-HASH-TABLE) "Crashing of motor vehicle")

(SET (GETHASH "E898.6" IC9D-HASH-TABLE) "Crashing of aircraft")
(SET (GETHASH "E898.7" IC9D-HASH-TABLE) "Crushing, entrapment")

(SET (GETHASH "E898.8" IC9D-HASH-TABLE) "Other specified means")
(SET (GETHASH "E898.9" IC9D-HASH-TABLE) "Unspecified means")

(SET (GETHASH "E899" IC9D-HASH-TABLE) "Late effects of injury, undetermined whether accidentally or purposely inflicted")
(SET (GETHASH "E899.0" IC9D-HASH-TABLE) "Injury due to war operations by fires and conflagrations")

(SET (GETHASH "E899.0" IC9D-HASH-TABLE) "From gasoline bomb")
(SET (GETHASH "E899.9" IC9D-HASH-TABLE) "From other and unspecified source")

(SET (GETHASH "E901" IC9D-HASH-TABLE) "Injury due to war operations by bullets and fragments")
(SETF (GETHASH "E991.0" ICD9-HASH-TABLE) "Rubber bullets (rifle")
(SETF (GETHASH "E991.1" ICD9-HASH-TABLE) "Pellets (rifle")
(SETF (GETHASH "E991.2" ICD9-HASH-TABLE) "Other bullets")
(SETF (GETHASH "E991.3" ICD9-HASH-TABLE) "Antipersonnel bomb (fragments")
(SETF (GETHASH "E991.9" ICD9-HASH-TABLE) "Other and unspecified fragments")
(SETF (GETHASH "E992" ICD9-HASH-TABLE) "Injury due to war operations by explosion of marine weapons")
(SETF (GETHASH "E993" ICD9-HASH-TABLE) "Injury due to war operations by other explosion")
(SETF (GETHASH "E994" ICD9-HASH-TABLE) "Injury due to war operations by destruction of aircraft")
(SETF (GETHASH "E995" ICD9-HASH-TABLE) "Injury due to war operations by other and unspecified forms of conventional warfare")
(SETF (GETHASH "E996" ICD9-HASH-TABLE) "Injury due to war operations by nuclear weapons")
(SETF (GETHASH "E997" ICD9-HASH-TABLE) "Injury due to war operations by other forms of unconventional warfare")
(SETF (GETHASH "E997.0" ICD9-HASH-TABLE) "Lasers")
(SETF (GETHASH "E997.1" ICD9-HASH-TABLE) "Biological warfare")
(SETF (GETHASH "E997.2" ICD9-HASH-TABLE) "Gases, fumes, and chemicals")
(SETF (GETHASH "E997.5" ICD9-HASH-TABLE) "Other specified forms of unconventional warfare")
(SETF (GETHASH "E997.8" ICD9-HASH-TABLE) "Unspecified form of unconventional warfare")
(SETF (GETHASH "E998" ICD9-HASH-TABLE) "Injury due to war operations but occurring after cessation of hostilities")
(SETF (GETHASH "E999" ICD9-HASH-TABLE) "Late effect of injury due to war operations")
;;; Code for the dialog :files-dialog

(in-package :common-graphics-user)

(defun files-dialog-load-on-click (dialog-widget)
  (declare (ignore-if-unused dialog-widget))
  (let ((file-list nil))
    (setf file-list
          (find-widget :file-list dialog))
    (when (value file-list)
      (load (value file-list))
      (mapc #'(lambda (x) (create-consult-instance x)) (consults))
    )
    (setf (list-of-instances temp-consult)
          (bubble-sorter (list-of-instances temp-consult)
                         #'(lambda (x) (consult-number (eval x)))
                         #'string-lessp))
    (setf (list-of-instances temp-patient)
          (bubble-sorter (list-of-instances temp-patient)
                         #'(lambda (x) (printname (eval x)))
                         #'string-lessp))
    (close dialog)
    t)
)
;; Code for the dialog :patients

(in-package :common-graphics-user)

(defun patients-display-on-click (dialog-widget)
  (declare (ignore-if-unused dialog-widget))
  (let ((patients-list nil))
    (setf patient-list (find-widget :patient-list dialog-widget))
    (when value patient-list)
      (let ((patient-instance (eval (value patient-list))))
        (ssn (ssn patient-instance))
        (firstname (firstname patient-instance))
        (mi (mi patient-instance))
        (id (id patient-instance))
        (dob (dob patient-instance))
        (if birthday (string (date-from-universal-time
          (encode-universal-time 0 0 0
            (nth 0 birthday)
            (nth 1 birthday)
            (nth 2 birthday) "*time-zone")))))
        (sex (sex patient-instance))
        (military-status (princ-to-string (military-status patient-instance)))
        (military-rank (military-rank patient-instance))
        (phone-number (princ-to-string (phone-number patient-instance)))
        (home-phone-number (home-phone-number patient-instance))
        (all-consults (consults patient-instance))
        (list-of-consults (remove nil)
          (mapcar #\'(lambda (x) (if (not (equal (specialist-id (eval (string-to-symbol x)) ""))) x)
            all-consults)
          :test #'equal)
        )
        (list-of-new-consults (remove nil)
          (mapcar #\'(lambda (x) (if (equal (specialist-id (eval (string-to-symbol x)) "")) x)
            all-consults)
          :test #'equal)
        )
        (items (mapcar #\'(lambda (x) (name x)) (dialog-items (patient-info))))
      )
    (eval (set-dialog-field (patient-info) :pat-firstname-value firstname))
    (eval (set-dialog-field (patient-info) :pat-mi-value mi))
    (eval (set-dialog-field (patient-info) :pat-lastname-value lastname))
    (eval (set-dialog-field (patient-info) :pat-ssn-value ssn))
    (eval (set-dialog-field (patient-info) :pat-patient-id-value id))
    (eval (set-dialog-field (patient-info) :pat-dob-value (quote dob)))
    (if (equal sex "Male")
      (set-dialog-field (patient-info) :pat-male t)
      (set-dialog-field (patient-info) :pat-female t))
    (eval (set-dialog-field (patient-info) :pat-military-status-value (quote ,military-status)))
    (eval (set-dialog-field (patient-info) :pat-military-rank-value (quote ,military-rank)))
    (setf patient-list (find-widget :patient-list patient-info)))
    (eval (set (range pat-list-of-consults) quote ,list-of-consults))
    (eval (setf (range pat-list-of-new-consults) quote ,list-of-new-consults))
    (close dialog)
    (select-window (patient-info))
  )
(defun specialty-type (cdt-code)
  (if (equal (string-trim '#\Space) cdt-code) "")
    (let ((cdt-number (string-to-symbol (subseq (string cdt-code) 1))))
      (cond ((and (>= cdt-number 100)
                  (<= cdt-number 999))
             "diagnostics")
            ((and (>= cdt-number 1000)
                  (<= cdt-number 1999))
             "preventive")
            ((and (>= cdt-number 2000)
                  (<= cdt-number 2999))
             "restorative")
            ((and (>= cdt-number 3000)
                  (<= cdt-number 3999))
             "endodontics")
            ((and (>= cdt-number 4000)
                  (<= cdt-number 4999))
             "periodontics")
            ((and (>= cdt-number 5000)
                  (<= cdt-number 5999))
             "prosthodontics, removable")
            ((and (>= cdt-number 6000)
                  (<= cdt-number 6199))
             "implant services")
            ((and (>= cdt-number 6200)
                  (<= cdt-number 6999))
             "prosthodontics, fixed")
            ((and (>= cdt-number 7000)
                  (<= cdt-number 7999))
             "oral surgery")
            ((and (>= cdt-number 8000)
                  (<= cdt-number 8999))
             "orthodontics")
            ((and (>= cdt-number 9000)
                  (<= cdt-number 9999))
             "adjunctive general services")
      t))
    t))

(defmethod specialty-check ((consult-instance consult-request))
  (let* ((patient-instance (eval (string-to-symbol (patient-name consult-instance))))
         (age (age patient-instance))
         (age-number (string-to-symbol (age patient-instance)))
         (cdts (procedure-codes consult-instance))
         (specialty-from-cdts (mapcar #'(lambda (x) (specialty-type x)) cdts))
     (if (not (equal "" age))
       (cond ((and (<= age-number 8)
                    (= age-number 11))
              "Pediatric Dentistry")
              ((and (<= age-number 10)
                    (> age-number 8)
                    (or (equal (specialty consult-instance) "Pediatric Dentistry")
                        (equal (specialty consult-instance) "Orthodontics"))
                   (equal (specialty consult-instance) "Orthodontics")
                    (> age-number 18)
                    (equal (specialty consult-instance) "Orthodontics")
                   "Orthodontics")
              ((and (<= age-number 18)
                    (> age-number 10)
                    (equal (specialty consult-instance) "Orthodontics")
                   "Orthodontics")
              t)))
  t))
(t
  (list (specialty consult-instance)
    (remove "" (mapcar #'(lambda (x) (specialty-type x)) cdts) :test #'equal)
    (printname consult-instance))))

(deffunction specialty-consistency-check ((consult-instance consult-request))
  (let ((specialty-assigned (specialty consult-instance))
        (specialty-from-cdts (mapcar #'(lambda (x) (specialty-type x)) (procedure-codes consult-instance)))
        (if (member specialty-assigned specialty-from-cdts :test #'equal) NIL
            (list (printname consult-instance) specialty-assigned specialty-from-cdts)))
  ))

;;;; (print (mapcar #'(lambda (x) (specialty-consistency-check (eval x))))
;;;; (cdr (reverse (list-of-instances temp-consult))))
;; Code for the dialog : consult-info-2

(in-package :common-graphics-user)

(defclass consult-info-2 (dialog)
  ()
)

(defun consult-info-2-close-button-on-click (dialog-widget)
  (declare (ignore-if-unused dialog-widget))
  (close (consult-info-2))
  (select-window (tent))
)

(defun consult-info-2-clear-form-button-on-click (dialog-widget)
  (declare (ignore-if-unused dialog-widget))
  (eval `(set-dialog-field (consult-info-2) :new-consult-firstname-value "")
    (set-dialog-field (consult-info-2) :new-consult-lastname-value "")
    (set-dialog-field (consult-info-2) :new-consult-military-status-value "")
    (set-dialog-field (consult-info-2) :new-consult-military-rank-value "")
    (set-dialog-field (consult-info-2) :new-consult-phone-number-value "")
    (set-dialog-field (consult-info-2) :new-consult-id-value "")
    (set-dialog-field (consult-info-2) :new-consult-chief-complaints-value "")
    (set-dialog-field (consult-info-2) :new-consult-referring-military-rank-value "")
    (set-dialog-field (consult-info-2) :new-consult-referring-firstname-value "")
    (set-dialog-field (consult-info-2) :new-consult-referring-location-value "")
    (set-dialog-field (consult-info-2) :new-consult-specialty-value "")
    (set-dialog-field (consult-info-2) :new-consult-procedure-codes-value "")
    (set-dialog-field (consult-info-2) :new-consult-explanation-of-specialty-value "")
    (set-dialog-field (consult-info-2) :new-consult-diagnosis-value "")
    (set-dialog-field (consult-info-2) :new-consult-recommended-consultants-value "")
    (set-dialog-field (consult-info-2) :new-consult-ssn-value "")
    (let* ((firstname (dialog-field (consult-info-2) :new-consult-firstname-value)))
      (consult-info-2-save-button-on-click (dialog-widget))
      (declare (ignore-if-unused dialog-widget))
      (let* ((lastname (dialog-field (consult-info-2) :new-consult-lastname-value)))
        (consult-info-2-cancel-button-on-click (dialog-widget))
)
(if (member patient-instance-symbol (list-of-instances temp-patient))
  (setf (consults (eval patient-instance-symbol)) (remove-duplicates
    (push (princ-to-string consult-instance-symbol) (consults (eval patient-instance-symbol))))
    :test #'equal))

(make-a-class-instance 'consult-request consult-instance-symbol)
(setf (consult-number (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-id-value))
(setf (patient-name (eval patient-instance-symbol)) (concatenate 'string firstname " " mi " " last-name))
(setf (history (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-history-value))
(setf (chief-complaints (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-chief-complaints-value))
(setf (exam-findings (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-exam-findings-value))
(setf (provisional-diagnosis (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-provisional-diagnosis-value))
(setf (referring-id (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-referring-id-value))
(setf (referring-location (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-referring-location-value))
(setf (date-of-request (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-date-of-request-value))
(setf (urgency (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-urgency-value))
(setf (modality (eval patient-instance-symbol)) (dialog-field consult-info-2 :new-consult-modality-value))

#|((exam-findings-procedure-string exam-findings)
  (remove nil)
    (mapcar #\(lambda (y)
      (if (search y (nth 1 x)) (nth 0 x)))
    :test #'equal))
  (string-to-list exam-findings))
(setf (chief-complaints-proc-info (mapcar #\(lambda (y)
    (remove nil)
(mapcar #'(lambda (x)
  (if (search y (nth 1 x)) (nth 0 x))
  "all-cdt-codes")
  :test #'equal))
  (string-to-list chief-complaints)))
(provisional-diagnosis-proc-info (mapcar #'(lambda (y)
  (remove nil
  (mapcar #'(lambda (x)
    (if (search y (nth 1 x)) (nth 0 x))
    "all-cdt-codes")
  :test #'equal))
  (string-to-list provisional-diagnosis)))
(procds-in-common (intersection (intersection exam-findings-proc-info chief-complaints-proc-info)
  provisional-diagnosis-proc-info)))
(ppprint ccds-in-common)
  |
  #
  (setf (specialty (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-consult-specialty-value))
  (dialogic-codes
  (setf (procedure-codes (eval consult-instance-symbol)) (string-to-list (dialog-field (consult-info-2) :new-consult-procedure-codes-value)))
  (dialogof-codes
  (setf (diagnosis (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-consult-diagnosis-value))
  (setf (suggested-treatment (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-consult-suggested-treatment-value))
  (setf (specialist-firstname (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-consult-specialist-firstname-value))
  (setf (specialist-lastname (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-lastname-value))
  (setf (specialist-id (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-id-value))
  (setf (specialist-rank (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-rank-value))
  (setf (specialist-location (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-location-value))
  (setf (date-of-visit-by-specialist (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-consult-date-of-visit-by-specialist-value))
  (setq specialist-instance-symbol (string-to-symbol (concatenate 'string "SPEC" (dialog-field (consult-info-2) :new-specialist-specialist-id-value))))
  (if (member specialist-instance-symbol (list-of-instances temp-specialist))
    (setq (consults (eval specialist-instance-symbol)) (push (dialog-field (consult-info-2) :new-consult-specialist-id-value) (consults (eval specialist-instance-symbol)))
    (progn :else
      (make-a-class-instance 'specialist-specialist-instance-symbol)
      (setf (printname (eval consult-instance-symbol)) (dialog-field (consult-info-2) (concatenate 'string "SPEC" (dialog-field (consult-info-2) :new-specialist-specialist-id-value))))
      (setf (lastname (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-lastname-value))
      (setf (id (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-id-value))
      (setf (location (eval consult-instance-symbol)) (dialog-field (consult-info-2) :new-specialist-specialist-location-value))
      (setf (specialist-instance-symbol) (push (dialog-field (consult-info-2) :new-specialist-specialist-location-value) (slot-value (eval patient-instance-symbol) 'consults)))
    )
  )
  t)
(defun consult-info-2-specialist-id-value-on-change (widget new-value old-value)
  (declare (ignore-if-unused widget new-value old-value))
  (setq spec-symbol (string-to-symbol (concatenate 'string "SPEC" (princ-to-string (dialog-field (consult-info-2) :new-specialist-specialist-id-value))))
  (if (member spec-symbol (list-of-instances temp-specialist))
    (progn
      (set-dialog-field (consult-info-2) :new-specialist-specialist-location-value (location (eval spec-symbol)))
      (set-dialog-field (consult-info-2) :new-specialist-specialist-firstname-value (firstname (eval spec-symbol)))
      (set-dialog-field (consult-info-2) :new-specialist-specialist-lastname-value (lastname (eval spec-symbol)))
    )
  )
  t); Accept the new value
(defun new-consult-yellow-pages-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let* ((referring-location (dialog-field (consult-info-2) :new-consult-referring-location-value))
         (specialty (dialog-field (consult-info-2) :new-consult-specialty-value))
         (procedure-codes (dialog-field (consult-info-2) :new-consult-procedure-codes-value))
         (modality (dialog-field (consult-info-2) :new-consult-modality-value))))
  (set-dialog-field (yellow-pages-dialog) :yellow-pages-referring-location-value referring-location)
  (set-dialog-field (yellow-pages-dialog) :yellow-pages-specialty-value specialty)
  (set-dialog-field (yellow-pages-dialog) :yellow-pages-procedure-codes-value procedure-codes)
  (setf modality-list (find-widget :yellow-pages-modality-value (yellow-pages-dialog)))
  (setf (range modality-list) modality)
  (select-window (yellow-pages-dialog))
  t)

(defun consult-info-2-new-consult-e-board-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let* ((consult-id (dialog-field (consult-info-2) :new-consult-id-value))
         (referring-location (dialog-field (consult-info-2) :new-consult-referring-location-value))
         (date-of-request (dialog-field (consult-info-2) :new-consult-date-of-request-value))
         (specialty (dialog-field (consult-info-2) :new-consult-specialty-value))
         (procedure-codes (dialog-field (consult-info-2) :new-consult-procedure-codes-value))
         (urgency (dialog-field (consult-info-2) :new-consult-urgency-value))
         (modality (dialog-field (consult-info-2) :new-consult-modality-value))
         (universal-time (get-universal-time))
         (time (princ-to-string (time-from-universal-time universal-time)))
         (old-consults-in-e-board (range (find-widget :e-board-list-of-consults (e-board))))
         (setf consult-list (find-widget :e-board-list-of-consults (e-board)))
         (setf (range consult-list) (append (list (concatenate 'string
               consult-id (make-string-of-given-length consult-id 7)
               referring-location (make-string-of-given-length referring-location 10)
               date-of-request (make-string-of-given-length date-of-request 10)
               urgency (make-string-of-given-length urgency 10)
               ("(" list-to-string modality ")")
               (make-string-of-given-length (list-to-string modality) 23)
               time (make-string-of-given-length time 15)
               "(make-string-of-given-length (date-of-request 10))")
               old-consults-in-e-board)))
  (select-window (e-board))
  t)

(defun new-consult-classifier-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let* ((complaints (dialog-field (consult-info-2) :new-consult-chief-complaints-value))
         (history (dialog-field (consult-info-2) :new-consult-history-value))
         (exam-findings (dialog-field (consult-info-2) :new-consult-exam-findings-value))
         (provisional-diagnosis (dialog-field (consult-info-2) :new-consult-provisional-diagnosis-value))
         (the-string (concatenate 'string complaints history exam-findings provisional-diagnosis))
         (clean-string (eliminate-several-characters "," ";" "$" ";" ";" "$" ";" "$" '"" (" the-string)))
         (set-dialog-field (classify-dialog) :consult-value clean-string)
  (select-window (classify-dialog))
  t)
;; Code for the dialog :patient-info

(defun patient-info-save-on-click (dialog widget)
  (declare (ignore -if-unused dialog widget))
  (let* ((firstname (dialog-field dialog :firstname-value))
         (mi (dialog-field dialog :mi-value))
         (lastname (dialog-field dialog :lastname-value))
         (dob (dialog-field dialog :dob-value))
         (sex (if (dialog-field dialog :sex) "Male" "Female"))
         (military-status (dialog-field dialog :military-status-value))
         (military-rank (dialog-field dialog :military-rank-value))
         (phone-number (dialog-field dialog :phone-number-value))
         (chief-complaints (dialog-field dialog :chief-complaints-value))
         (history (dialog-field dialog :history-value))
         (exam-findings (dialog-field dialog :exam-findings-value))
         (provisional-diagnosis (dialog-field dialog :provisional-diagnosis-value))
         (referring-military-rank (dialog-field dialog :referring-military-rank-value))
         (referring-firstname (dialog-field dialog :referring-firstname-value))
         (referring-lastname (dialog-field dialog :referring-lastname-value))
         (referring-location (dialog-field dialog :referring-location-value))
         (date-of-request (string (dialog-field dialog :date-of-request-value)))
         (specialty (dialog-field dialog :specialty-value))
         (diagnostic-codes (dialog-field dialog :diagnostic-codes-value))
         (procedure-codes (dialog-field dialog :procedure-codes-value))
         (diagnosis (dialog-field dialog :diagnosis-value))
         (procedure-codes (dialog-field dialog :procedure-codes-value))
         (explanation-of-diagnosis (dialog-field dialog :explanation-of-diagnosis-value))
         (explanation-of-specialty (dialog-field dialog :explanation-of-specialty-value))
         (recommended-consultants (dialog-field dialog :recommended-consultants-value))
         (filename (concatenate "string " (string-firstname "-" mi "-" lastname)))
         (printname (concatenate "string firstname " (string-firstname "-" mi "-" lastname)))
         (filename (concatenate "string " (string-firstname "-" mi "-" lastname)))
         (temp-stream (make-string-output-stream))
         (with-open-file
           (progn
             ;; Code for printing the information
             ;; Print the patient data
             ;; Print the medical history
             ;; Print the examination findings
             ;; Print the diagnosis and suggested treatment
             ;; Print the recommended consultants
             ;; Close the file
           ))

;; Code for printing the information
;; Print the patient data
;; Print the medical history
;; Print the examination findings
;; Print the diagnosis and suggested treatment
;; Print the recommended consultants
;; Close the file

;; Code for the dialog :consults-dialog

(in-package :common-graphics-user)

(defvar *dialog* nil)

(defun dialog (dialog)
  (when (not (find-if (lambda (x) (eq (symbol-name x) "**")) (list (string-to-symbol (symbol-name dialog)))))
    (error "** Symbol Not Found In: ~s" (symbol-name dialog))))

(defun display-on-click (dialog)
  (declare (ignore-if-unused dialog widget))
  (let ((consults-list nil))
    (setf consult-list
      (find-widget :consult-list dialog))
    (when (value consult-list)
      (let* ((consult-instance (eval (value consult-list)))
             (consult-id (consult-number consult-instance))
             (patient-instance (eval (string-to-symbol (patient-name consult-instance))))
             (lastname (lastname patient-instance))
             (firstname (firstname patient-instance))
             (mi (mi patient-instance)))
        (ssn (ssn patient-instance))
        (patient-id (id patient-instance))
        (dob (dob patient-instance))
        (sex (sex patient-instance))
        (military-status (princ-to-string (military-status patient-instance)))
        (military-rank (military-rank patient-instance))
        (phone-number (princ-to-string (phone-number patient-instance)))
        (home-phone-number (princ-to-string (home-phone-number patient-instance)))
        (chief-complaints (chief-complaints consult-instance))
        (chief-complaints consult-instance)))
    (exam-findings (exam-findings consult-instance))
    (provisional-diagnosis (provisional-diagnosis consult-instance))
    (referring-id (referring-id consult-instance))
    (referring-military-rank (referring-military-rank consult-instance))
    (referring-firstname (referring-firstname consult-instance))
    (referring-location (referring-location consult-instance))
    (date-of-request (date-of-request consult-instance))
    (date-of-request (date-from-universal-time
      ;; (encode-universal-time 0 0
      ;; (nth 1 do)
      ;; (nth 2 do) "timezone")
      ;; (images (images consult-instance))
      (specialty (specialty consult-instance))
      (diagnostic-codes (list-to-string (diagnostic-codes consult-instance))))
    (procedure-codes (list-to-string (procedure-codes consult-instance)))
    (explanation-of-specialty (list-to-string (explanation-of-specialty consult-instance)))
    (explanation-of-diagnostic-codes (list-to-string (explanation-of-diagnostic-codes consult-instance)))
    (explanation-of-procedure-codes
      (let ((codes (procedure-codes consult-instance)))
        (list-to-string (mapcar #'(lambda (x) (concatenate 'string (string x) " - " (gethash (string-to-symbol x) cdt-hash-table)) codes))))))
    (recommended-consultants (list-to-string (recommended-consultants consult-instance)))
    (explanation-of-recommended-consultants (list-to-string (explanation-of-recommended-consultants consult-instance))))
  (dialog (dialog))
  (dialog (dialog)))

(defun main
  (display-on-click))
(items (mapcar #'(lambda (x) (name x)) (dialog-items (consult-info))))

(eval `(set-dialog-field (consult-info) :firstname-value . firstname))
(eval `(set-dialog-field (consult-info) :mi-value . mi))
(eval `(set-dialog-field (consult-info) :lastname-value . lastname))
(eval `(set-dialog-field (consult-info) :ssn-value . ssn))
(eval `(set-dialog-field (consult-info) :patient-id-value . patient-id))
(eval `(set-dialog-field (consult-info) :dob-value (quote ,dob)))
(if (equal sex "Male")
  `(set-dialog-field (consult-info) :male t)
  `(set-dialog-field (consult-info) :female t))
(eval `(set-dialog-field (consult-info) :military-status-value (quote ,military-status)))
(eval `(set-dialog-field (consult-info) :military-rank-value (quote ,military-rank)))
(eval `(set-dialog-field (consult-info) :home-phone-number-value (quote ,home-phone-number)))
(eval `(set-dialog-field (consult-info) :consult-id-value (quote ,consult-id)))
(eval `(set-dialog-field (consult-info) :history-value (quote ,history)))
(eval `(set-dialog-field (consult-info) :exam-findings-value (quote ,exam-findings)))
(eval `(set-dialog-field (consult-info) :provisional-diagnosis-value (quote ,provisional-diagnosis)))
(eval `(set-dialog-field (consult-info) :referring-id-value (quote ,referring-id)))
(eval `(set-dialog-field (consult-info) :referring-military-rank-value (quote ,referring-military-rank)))
(eval `(set-dialog-field (consult-info) :referring-lastname-value (quote ,referring-lastname)))
(eval `(set-dialog-field (consult-info) :referring-firstname-value (quote ,referring-firstname)))
(eval `(set-dialog-field (consult-info) :date-of-request-value (quote ,date-of-request)))
(eval `(set-dialog-field (consult-info) :specialty-value (quote ,specialty)))
(eval `(set-dialog-field (consult-info) :diagnostic-codes-value (quote ,diagnostic-codes)))
(eval `(set-dialog-field (consult-info) :procedure-codes-value (quote ,procedure-codes)))
(eval `(set-dialog-field (consult-info) :explanation-of-diagnosis-codes-value (quote ,explanation-of-diagnosis-codes)))
(eval `(set-dialog-field (consult-info) :explanation-of-diagnosis-values-value (quote ,explanation-of-diagnosis-values)))
(eval `(set-dialog-field (consult-info) :explanation-of-recommended-consultants-value (quote ,explanation-of-recommended-consultants)))
(eval `(set-dialog-field (consult-info) :diagnosis-value (quote ,diagnosis)))
(eval `(set-dialog-field (consult-info) :suggested-treatment-value (quote ,suggested-treatment)))
(eval `(set-dialog-field (consult-info) :specialist-id-value (quote ,specialist-id)))
(eval `(set-dialog-field (consult-info) :specialist-rank-value (quote ,specialist-rank)))
(eval `(set-dialog-field (consult-info) :specialist-firstname-value (quote ,specialist-firstname)))
(eval `(set-dialog-field (consult-info) :specialist-lastname-value (quote ,specialist-lastname)))
(eval `(set-dialog-field (consult-info) :specialist-location-value (quote ,specialist-location)))
(eval `(set-dialog-field (consult-info) :date-of-visit-by-specialist-value (quote ,date-of-visit-by-specialist))))
(close dialog)
(select-window (consult-info))
t)
;; Code for the dialog :patient-info

(in-package :common-graphics-user)

(defvar patient-info (dialog))

(defun patient-consult-info-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let ((consult-list nil))
    (setf consult-list
         (find-widget :pat-list-of-consults (patient-info)))
    (when (value consult-list)
      (let* ((consult-instance (eval (string-to-symbol (value consult-list))))
             (consult-id (consult-number consult-instance))
             (patient-instance (eval (string-to-symbol (patient-name consult-instance))))
             (last-name (last-name patient-instance))
             (first-name (first-name patient-instance))
             (mi (mi patient-instance))
             (patient-id (id patient-instance))
             (dob (dob patient-instance))
             (sex (sex patient-instance))
             (military-status (princ-to-string (military-status patient-instance)))
             (military-rank (military-rank patient-instance))
             (phone-number (princ-to-string (phone-number patient-instance)))
             (home-phone-number (princ-to-string (home-phone-number patient-instance)))
             (chief-complaints (chief-complaints consult-instance))
             (history (history consult-instance))
             (exam-findings (exam-findings consult-instance))
             (provisional-diagnosis (provisional-diagnosis consult-instance))
             (referring-id (referring-id consult-instance))
             (referring-military-rank (referring-military-rank consult-instance))
             (referring-first-name (referring-first-name consult-instance))
             (referring-location (referring-location consult-instance))
             (date-of-request (date-of-request consult-instance))
             (date-of-request (if (string (date-from-universal-time))
                                  (encode-universal-time 0 0 0)
                                  (nth 0 dop) (nth 1 dop) (nth 2 dop) "time-zone")))
      (images (images consult-instance))
      (specialty (specialty consult-instance))
      (diagnostic-codes (list-to-string (diagnostic-codes consult-instance)))
      (procedure-codes (list-to-string (procedure-codes consult-instance)))
      (explanation-of-specialty (list-to-string (explanation-of-specialty consult-instance)))
      (explanation-of-diagnostic-codes (list-to-string (explanation-of-diagnostic-codes consult-instance)))
      (explanation-of-procedure-codes (let ((codes (procedure-codes consult-instance)))
                                         (list-to-string (mapcar #'(lambda (x) (concatenate 'string (string x) " - " (gethash (string-to-symbol x) cd-hash-table)) codes))))
                                         (explanation-of-recommended-consultants (list-to-string (explanation-of-recommended-consultants consult-instance)))
                                         (diagnosis (diagnosis consult-instance))
                                         (suggested-treatment (suggested-treatment consult-instance))
                                         (specialist-id (specialist-id consult-instance))
                                         (specialist-rank (specialist-rank consult-instance))
                                         (specialist-last-name (specialist-last-name consult-instance))
                                         (specialist-first-name (specialist-first-name consult-instance))
                                         (specialist-location (specialist-location consult-instance))
                                         (date-of-visit-by-specialist (date-of-visit-by-specialist consult-instance)))
      (items (mapcar #'(lambda (x) (name x)) (dialog-items consult-info))))
  )
(eval 'set-dialog-field (consult-info-2) :new-consult-firstname-value ,firstname))
(eval 'set-dialog-field (consult-info-2) :new-consult-mi-value ,mi))
(eval 'set-dialog-field (consult-info-2) :new-consult-lastname-value ,lastname))
(eval 'set-dialog-field (consult-info-2) :new-consult-patient-id-value ,patient-id))
(eval 'set-dialog-field (consult-info-2) :new-consult-dob-value (quote ,dob)))
(eval 'set-dialog-field (consult-info-2) :new-consult-ssn-value (quote ,ssn)))

;if (equal sex "Male")
(set-dialog-field (consult-info-2) :new-consult-male t)

(set-dialog-field (consult-info-2) :new-consult-female t))
(eval 'set-dialog-field (consult-info-2) :new-consult-military-status-value (quote ,military-status))
(eval 'set-dialog-field (consult-info-2) :new-consult-military-rank-value (quote ,military-rank))
(eval 'set-dialog-field (consult-info-2) :new-consult-home-phone-number-value (quote ,home-phone-number))
(eval 'set-dialog-field (consult-info-2) :new-consult-chief-complaints-value (quote ,chief-complaints))
(eval 'set-dialog-field (consult-info-2) :new-consult-history-value (quote ,history))
(eval 'set-dialog-field (consult-info-2) :new-consult-exam-findings-value (quote ,exam-findings))
(eval 'set-dialog-field (consult-info-2) :new-consult-provisional-diagnosis-value (quote ,provisional-diagnosis))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-id-value (quote ,referring-id))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-military-rank-value (quote ,referring-military-rank))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-lastname-value (quote ,referring-lastname))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-firstname-value (quote ,referring-firstname))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-location-value (quote ,referring-location))
(eval 'set-dialog-field (consult-info-2) :new-consult-date-of-request-value (quote ,date-of-request))
(eval 'set-dialog-field (consult-info-2) :new-consult-specialty-value (quote ,specialty))
(eval 'set-dialog-field (consult-info-2) :new-consult-diagnostic-codes-value (quote ,diagnostic-codes))
(eval 'set-dialog-field (consult-info-2) :new-consult-procedure-codes-value (quote ,procedure-codes))
(eval 'set-dialog-field (consult-info-2) :new-consult-explanation-of-specialty-value (quote ,expl-oft-specialty))

(eval '(set-dialog-field (consult-info-2) :new-consult-explanation-of-diagnostic-codes-value (quote, explanation-of-diagnostic-codes)))
(eval '(set-dialog-field (consult-info-2) :new-consult-explanation-of-procedure-codes-value (quote, explanation-of-procedure-codes)))
(eval '(set-dialog-field (consult-info-2) :new-consult-recommended-consultants-value (quote, recommended-consultants)))
(eval '(set-dialog-field (consult-info-2) :new-consult-diagnosis-value (quote, diagnosis)))
(eval '(set-dialog-field (consult-info-2) :new-consult-suggested-treatment-value (quote, suggested-treatment)))
(eval '(set-dialog-field (consult-info-2) :new-consult-specialist-id-value (quote, specialist-id)))
(eval '(set-dialog-field (consult-info-2) :new-consult-specialist-rank-value (quote, specialist-rank)))
(eval '(set-dialog-field (consult-info-2) :new-consult-firstname-value (quote, specialist-firstname)))
(eval '(set-dialog-field (consult-info-2) :new-consult-lastname-value (quote, specialist-lastname)))
(eval '(set-dialog-field (consult-info-2) :new-consult-location-value (quote, specialist-location)))
(eval '(set-dialog-field (consult-info-2) :new-consult-date-of-visit-by-specialist-value (quote, date-of-visit-by-specialist)))
(eval '(set-dialog-field (consult-info-2) :new-consult-urgency-value (quote, urgency)))
(eval '(set-dialog-field (consult-info-2) :new-consult-modality-value (quote, modality)))
)

:(close (patient-info))
:(select-window (consult-info-2))
:t)
("Vilseck" VILSECK)
("Virginia Beach" FORT_STORY\_VIRGINIA_Beach)
("Virginia Beach" DAM\_NECK\_BASE\_VIRGINIA_Beach)
("Vogelweh" VOGELWEH)
("Washington" NAF)
("Washington" NAVSECSTA)
("Washington" NAVY\_YARD)
("Washington" ARLINGTON\_ANNEX)
("Washington" US\_ARMY\_HEALTH\_CLINIC\_FORT\_MCNAIR)
("Washington" CAMERON\_STATION\_ALEXANDRIA)
("Washington" ARLINGTON\_HALL\_STATION\_ARLINGTON)
("WRAM" WALTER\_REED\_ARMY\_MEDICAL\_CENTER)
("Washington" US\_COAST\_GUARD\_CLINIC\_HEADQUARTERS)
("Washington" NAVAL\_RESEARCH\_LABORATORY)
("Wiesbaden" DETACHMENT\_WIESEBADEN\_USAF\_LINDSEY\_AIR\_STATION\_USAF\_REGIONAL\_MEDICAL\_CENTER)
("Wiesbaden" WIESBADEN)
("Wurzburg" US\_ARMY\_HOSPITAL\_WURzburg)
("Wyman Park " UNIFORMED\_SERVICES\_MEDICAL\_TREATMENT\_FACILITY)
("Yorktown" WPNTA\_YORKTOWN)
("Yorktown" US\_COAST\_GUARD\_RESERVE\_TRAINING\_CENTER\_CLINIC)
("Yuma" NAVAL\_BRANCH\_MEDICAL\_CLINIC\_MARINE\_CORPS\_AIR\_STATION)
("Yuma" US\_ARMY\_HEALTH\_CLINIC\_YUMA\_PROVING\_GROUND)
)

(defun find-facilities (the-location)
 (remove-nil
 (mapcar #'(lambda (x) (if (equal the-location (car x)) (cadr x))) city-location)
   :test #'equal))

(defun find-specialist-location (spec-id)
 (let ((spec-loc (location (eval spec-id))))
   (find-facilities spec-loc)))
;;; location-class.lsp

(defun location
  ()
  ((print-name :initarg :print-name
    :initform ""
    :accessor print-name)
   (list-of-instances :initarg :list-of-instances
    :initform ()
    :accessor list-of-instances
    :allocation :class)
   (longitude :initarg :longitude
    :initform 0
    :accessor longitude)
   (latitude :initarg :latitude
    :initform 0
    :accessor latitude)
   (type-of-facility :initarg :type-of-facility
    :initform ""
    :accessor type-of-facility)
   (modality :initarg :modality
    :initform ()
    :accessor modality)
   (service :initarg :service
    :initform ""
    :accessor service)
   (name :initarg :name
    :initform ""
    :accessor name)
   (city :initarg :city
    :initform ""
    :accessor city)
   (state :initarg :state
    :initform ""
    :accessor state)
   (code1 :initarg :code1
    :initform ""
    :accessor code1)
   (code2 :initarg :code2
    :initform ""
    :accessor code2)
   (country :initarg :country
    :initform ""
    :accessor country)
   (current-location :initarg :current-location
    :initform ""
    :accessor current-location))

;;; latitude is North or South
;;; longitude is West or East
;;; North or West are positive
;;; South or East are negative

(setq madrid-sp (make-instance 'location :longitude 0.064577182 :latitude 0.7056947944))
(setq wellington-nz (make-instance 'location :longitude -3.505444644 :latitude -0.7205380093))
(setq pittsburgh-pa (make-instance 'location :longitude "80" :latitude (princ-to-string (float (+ 40 (/ 26 60)))))
(setq kuwait (make-instance 'location :longitude "-47.932" :latitude "29.324"))

(defun distance-between (lat1 long1 lat2 long2)
  (if (or (null lat1) (null long1)
           (null lat2) (null long2))
    0
    (if
      ""
(null lat2)  
(null long2)  

(let* ((lat-city1 (/ (+ lat1 pi) 180))  
       (long-city1 (/ (+ long1 pi) 180))  
       (lat-city2 (/ (+ lat2 pi) 180))  
       (long-city2 (/ (+ long2 pi) 180))  
       (earth-radius 3963.205))  
    (argument (+ (* (cos (- long-city1 long-city2)) (cos lat-city1) (cos lat-city2))  
               (+ (sin lat-city1) (sin lat-city2)))))  
(*/ earth-radius (acos argument))))  
))

(make-a-class-instance 'location 'temp-location)

(defun make-location (data-string)  
(let* ((type-of-facility (nth 0 data-string))  
       (service (nth 1 data-string))  
       (description (nth 2 data-string))  
       (name (make-name-from-description description))  
       (city (nth 3 data-string))  
       (state (nth 4 data-string))  
       (code1 (nth 5 data-string))  
       (code2 (nth 6 data-string))  
       (country (nth 7 data-string))  
       (latitude (nth 8 data-string))  
       (longitude (nth 9 data-string))  
       (modality (nth 10 data-string)))  
  (cond ((null (my-instancece (string-to-symbol name)))  
         (make-a-class-instance 'location (string-to-symbol name)))  
        (setf type-of-facility (eval (string-to-symbol name)))  
        (setf service (eval (string-to-symbol name)))  
        (setf name (eval (string-to-symbol name)))  
        (setf city (eval (string-to-symbol name)))  
        (setf state (eval (string-to-symbol name)))  
        (setf code1 (eval (string-to-symbol name)))  
        (setf code2 (eval (string-to-symbol name)))  
        (setf country (eval (string-to-symbol name)))  
        (setf latitude (eval (string-to-symbol name)))  
        (setf longitude (eval (string-to-symbol name)))  
        (setf modality (eval (string-to-symbol name)))  
        (setf country (eval (string-to-symbol name)))  
        (cond (not (equal (current-location (eval (string-to-symbol name))) "") city))  
        )  
        )
))

(defun make-name-from-description (the-string)  
(let ((n (find-the-first-blank the-string)))  
  (cond ((null n) the-string)  
        (t (make-name-from-description  
                                       (concatenate 'string (subseq the-string 0 (- n 1)) "_" (subseq the-string n))  
                                        ))))

(mapc #'(lambda (x) (make-location x)) locations)

(defclass country-class ()  
  ((timezone :initarg :timezone  
             :initvalue " something"  
             :accessor get-timezone))  
  (defmethod print ((x country-class))  
    (print x)))

(defun print-timezone (x)  
  (print-timezone x))
(defclass USA-forces (country-class)
 (country :initarg :country
 :initform "USA"
 :accessor country))

(defclass EUCOM (USA-forces)
 ()

(defclass USAREUR (EUCOM)
 ()

(defclass ERDC (USAREUR)
 (type-of-facility :initarg :type-of-facility
 :initform "clinic"
 :accessor type-of-facility))

(defclass ERM (USAREUR)
 (type-of-facility :initarg :type-of-facility
 :initform "hospital"
 :accessor type-of-facility))
;;; doctor-class.lsp

(defclass doctor
  ()
  ((pname :initarg :printname
           :initform ""
           :accessor printname)
   (name :initarg :name
         :initform ""
         :accessor getname)
   (list-of-instance :initarg :list-of-instances
                     :initform '()
                     :accessor getlist-of-instances
                     :allocation :class)
   (medical-group :initarg :medical-group
                  :initform ""
                  :accessor getmedical-group)
   (last-name :initarg :last-name
               :initform ""
               :accessor getlast-name)
   (first-name :initarg :first-name
               :initform ""
               :accessor getfirst-name)
   (id :initarg :id
        :initform ""
        :accessor getid)
   (location :initarg :location
             :initform ""
             :accessor getlocation)
   (assignment :initarg :assignment
               :initform ""
               :accessor getassignment)
   (cdts :initarg :cdts
          :initform '()
          :accessor getcdts)
   (icdgs :initarg :icdgs
          :initform '()
          :accessor geticdgs)
   (specialty :initarg :specialty
             :initform ""
             :accessor getspecialty)
   (consults :initarg :consults
           :initform '()
           :accessor getconsults)
  ))

(defun make-specialist (data-string)
  (let* ((id (symbol-name (nth 0 data-string)))
         (name (symbol-name (nth 1 data-string)))
         (location (symbol-name (nth 2 data-string)))
         (cdts (symbol-name (nth 3 data-string)))
         (icdgs (symbol-name (nth 4 data-string)))
         (specialty (symbol-name (nth 5 data-string)))
         (consults (symbol-name (nth 6 data-string)))
         (make-specialist id name location cdts icdgs specialty consults))

(make-a-class-instance 'specialist 'temp-specialist)

(defun make-temp-specialist (id-string)
  (let* ((id (symbol-name (nth 0 id-string)))
         (name (symbol-name (nth 1 id-string)))
         (location (symbol-name (nth 2 id-string)))
         (cdts (symbol-name (nth 3 id-string)))
         (icdgs (symbol-name (nth 4 id-string)))
         (specialty (symbol-name (nth 5 id-string)))
         (consults (symbol-name (nth 6 id-string)))
         (make-temp-specialist id name location cdts icdgs specialty consults))

(make-a-class-instance 'temp-specialist 'temp-temp-specialist)
;; Code for the specialists-dialog\:specialist-dialog

(in-package :common-graphics-user)

(defun specialists-dialog-display-on-click (dialog widget)
  (declare (ignore if-unused dialog widget))
  (let ((specialist-list nil))
    (setf specialist-list
         (find-widget :specialist-list dialog))
    (when (value specialist-list)
      (let* ((specialist-instance (eval (value specialist-list)))
             (specialist-id (id specialist-instance))
             (specialty (specialty specialist-instance))
             (list-of-consults (consults specialist-instance))
             (diagnostic-codes (icd9s specialist-instance))
             (procedure-codes (cdts specialist-instance))
             (specialist-assignment (string-to-symbol (assignment specialist-instance)))
             (specialist-location (if (equal (location specialist-instance) (city (eval specialist-assignment)))
                                      (location specialist-instance)
                                      (city specialist-assignment))))
      (eval `(set-dialog-field (specialist-info) :specialist-id-value (quote ,specialist-id))
            (eval `(set-dialog-field (specialist-info) :doctor-speciality-value ,specialty))
            (setf specialist-list-of-consults
                 (find-widget :specialist-list-of-consults specialist-info))
            (setf (range specialist-list-of-consults) list-of-consults)
            (setf specialist-list-of-icd9s (find-widget :specialist-list-of-icd9s (specialist-info))
                 (setf (range specialist-list-of-icd9s) diagnostic-codes)
                 (setf specialist-list-of-cdts (find-widget :specialist-list-of-cdts specialist-info))
                 (setf (range specialist-list-of-cdts) procedure-codes)
                 (eval `(set-dialog-field (specialist-info) :specialist-location-value ,specialist-location))
                 (set-dialog-field (specialist-info) :specialist-facility-value (car (find-facilities specialist-location)))
                 (eval `(set-dialog-field (specialist-info) :specialist-assignment-value (quote ,specialist-assignment)))))
    (close dialog)
    (select-window (specialist-info))
  )
;; Code for the specialist-info :specialist-info
(in-package :common-graphics-user)
(defclass specialist-info (dialog) ()

(defun specialist-consult-info-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let ((consult-list nil))
    (setf consult-list
      (find-widget :specialist-list-of-consults (specialist-info)))
    (when (value consult-list)
      (let* ((consult-instance (eval (string-to-symbol (concatenate 'string "c" (princ-to-string (value consult-list))))))
             (consult-id (consult-number consult-instance))
             (patient-instance (eval (string-to-symbol (patient-name consult-instance))))
             (lastname (lastname patient-instance))
             (firstname (firstname patient-instance))
             (mi (mi patient-instance))
             (patient-id (id patient-instance))
             (DOB (DOB patient-instance))
             (sex (sex patient-instance))
             (military-status (military-status patient-instance))
             (military-rank (military-rank patient-instance))
             (phone-number (princ-to-string (phone-number patient-instance)))
             (home-phone-number (princ-to-string (home-phone-number patient-instance)))
             (chief-complaints (chief-complaints consult-instance))
             (history (history consult-instance))
             (exam-findings (exam-findings consult-instance))
             (provisional-diagnosis (provisional-diagnosis consult-instance))
             (referring-id (referring-id consult-instance))
             (referring-military-rank (referring-military-rank consult-instance))
             (referring-lastname (referring-lastname consult-instance))
             (referring-firstname (referring-firstname consult-instance))
             (referring-location (referring-location consult-instance))
             (date-of-request (date-of-request consult-instance))
             (date-of-request (if dor (string (date-from-universal-time
               ; (encode-universal-time 0 0 0
               ; (ninth 0 dor)
               ; (ninth 1 dor)
               ; (ninth 2 dor) "time-zone")
               (list-to-string (mapcar #'(lambda (x) (concatenate 'string "c" (gethash (string-to-symbol x) cdt-hash-table)) codes)))))))
             (diagnostic-codes (list-to-string (diagnostic-codes consult-instance))
             (procedure-codes (list-to-string (procedure-codes consult-instance)))
             (explanation-of-subspecialty (list-to-string (explanation-of-subspecialty consult-instance)))
             (explanation-of-diagnostic-codes (list-to-string (explanation-of-diagnostic-codes consult-instance)))
             (explanation-of-procedure-codes (list-to-string (mapcar #'(lambda (x) (concatenate 'string "c" (gethash (string-to-symbol x) cdt-hash-table)) codes))))
             (suggested-treatment (suggested-treatment consult-instance))
             (specialist-id (specialist-id consult-instance))
             (specialist-rank (specialist-rank consult-instance))
             (specialist-lastname (specialist-lastname consult-instance))
             (specialist-firstname (specialist-firstname consult-instance))
             (specialist-location (specialist-location consult-instance))
             (date-of-visit-by-specialist (date-of-visit-by-specialist consult-instance))
             (items (mapcar #'(lambda (x) (name x)) (dialog-items (consult-info-2)))))
    )
  )
)

)
(eval (set-dialog-field (consult-info) :firstname-value ,firstname))
(eval (set-dialog-field (consult-info) :m-value ,m))
(eval (set-dialog-field (consult-info) :last-name-value ,last-name))
(eval (set-dialog-field (consult-info) :patient-id-value ,patient-id))
(eval (set-dialog-field (consult-info) :dob-value (quote ,dob)))
(if (equal sex "Male")
  (set-dialog-field (consult-info) :male t))
(eval (set-dialog-field (consult-info) :military-status-value (quote ,military-status)))
(eval (set-dialog-field (consult-info) :military-rank-value (quote ,military-rank)))
(eval (set-dialog-field (consult-info) :phone-number-value (quote ,phone-number)))
(eval (set-dialog-field (consult-info) :home-phone-number-value (quote ,home-phone-number)))
(eval (set-dialog-field (consult-info) :chief-complaints-value (quote ,chief-complaints)))
(eval (set-dialog-field (consult-info) :history-value (quote ,history)))
(eval (set-dialog-field (consult-info) :exam-findings-value (quote ,exam-findings)))
(eval (set-dialog-field (consult-info) :provisional-diagnosis-value (quote ,provisional-diagnosis)))
(eval (set-dialog-field (consult-info) :referring-id-value (quote ,referring-id)))
(eval (set-dialog-field (consult-info) :referring-military-rank-value (quote ,referring-military-rank)))
(eval (set-dialog-field (consult-info) :referring-last-name-value (quote ,referring-lastname)))
(eval (set-dialog-field (consult-info) :referring-first-name-value (quote ,referring-firstname)))
(eval (set-dialog-field (consult-info) :referring-location-value (quote ,referring-location)))
(eval (set-dialog-field (consult-info) :date-of-request-value (quote ,date-of-request)))
(eval (set-dialog-field (consult-info) :specialty-value (quote ,specialty)))
(eval (set-dialog-field (consult-info) :diagnostic-codes-value (quote ,diagnostic-codes)))
(eval (set-dialog-field (consult-info) :procedure-codes-value (quote ,procedure-codes)))
(eval (set-dialog-field (consult-info) :explanation-of-speciality-value (quote ,explanation-of-speciality)))
(eval (set-dialog-field (consult-info) :explanation-of-diagnostic-codes-value (quote ,explanation-of-diagnostic-codes)))
(eval (set-dialog-field (consult-info) :explanation-of-diagnostic-codes-value (quote ,explanation-of-diagnostic-codes)))
(eval (set-dialog-field (consult-info) :recommended-consultants-value (quote ,recommended-consultants)))
(eval (set-dialog-field (consult-info) :explanation-of-recommended-consultants-value (quote ,explanation-of-recommended-consultants)))
(eval (set-dialog-field (consult-info) :diagnosis-value (quote ,diagnosis)))
(eval (set-dialog-field (consult-info) :suggested-treatment-value (quote ,suggested-treatment)))
(eval (set-dialog-field (consult-info) :specialist-id-value (quote ,specialist-id)))
(eval (set-dialog-field (consult-info) :specialist-rank-value (quote ,specialist-rank)))
(eval (set-dialog-field (consult-info) :specialist-first-name-value (quote ,specialist-first-name)))
(eval (set-dialog-field (consult-info) :specialist-last-name-value (quote ,specialist-last-name)))
(eval (set-dialog-field (consult-info) :specialist-location-value (quote ,specialist-location)))
(eval (set-dialog-field (consult-info) :date-of-visit-by-specialist-value (quote ,date-of-visit-by-specialist)))
)

(select-window (consult-info))
)

(defun specialist-dialog-display-location-on-click (dialog widget)
  (declare (ignore (if-unused dialog widget)))
  (let* ((location-instance (eval (dialog-field (specialist-info) :specialist-facility-value)))
         (facility-name (name location-instance))
         (latitude (latitude location-instance))
         (longitude (longitude location-instance))
         (service (service location-instance))
         (type (type-of-facility location-instance))
         (city (city location-instance))
         (deployment-location (if (equal city current-location location-instance))
                           city)
         (state (state location-instance))
         (country (country location-instance))
         (code1 (code1 location-instance))
         (code2 (code2 location-instance))
         (modality (modality location-instance)))
    (eval (set-dialog-field (location-info) :facility-value (quote ,facility-name)))
    (eval (set-dialog-field (location-info) :service-value (quote ,service)))
    (eval (set-dialog-field (location-info) :type-value (quote ,type))))
;;; locations-dialog.cl

(in-package :common-graphics-user)

(defclass locations-dialog (dialog)
  ((location-info-dialog
    :accessor location-info-dialog
    :initform nil)))

(defun locations-dialog-display-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (let ((location-list nil))
    (setf location-list
      (find-widget :location-list dialog))
    (when (value location-list)
      (let* ((location-instance (eval (value location-list)))
             (facility-name (name location-instance))
             (latitude (latitude location-instance))
             (longitude (longitude location-instance))
             (type (type-of-facility location-instance))
             (city (city location-instance))
             (deployment-location (if (equal city
                                           (current-location location-instance)))
                                       city
                                           (current-location location-instance)))
            (state (state location-instance))
            (country (country location-instance))
            (code1 (code1 location-instance))
            (code2 (code2 location-instance))
            (modality (modality location-instance)))
      (eval '(set-dialog-field (location-info) :facility-value (quote ,facility-name)))
      (eval '(set-dialog-field (location-info) :service-value (quote ,service)))
      (eval '(set-dialog-field (location-info) :type-value (quote ,type)))
      (eval '(set-dialog-field (location-info) :latitude-value (quote ,latitude)))
      (eval '(set-dialog-field (location-info) :longitude-value (quote ,longitude)))
      (eval '(set-dialog-field (location-info) :state-value (quote ,state)))
      (eval '(set-dialog-field (location-info) :country-value (quote ,country)))
      (eval '(set-dialog-field (location-info) :code1-value (quote ,code1)))
      (eval '(set-dialog-field (location-info) :code2-value (quote ,code2)))
      (eval '(set-dialog-field (location-info) :deployment-location-value (quote ,deployment-location)))
      (eval '(setf range (find-widget :modality-value (location-info)) ,modality))))

:(close-dialog)

(select-window (location-info))

t)
;; Code for the dialog :yellow-pages

(in-package :common-graphics-user)

(defun yellow-pages-dialog-find-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (if (equal (dialog-field dialog :yellow-pages-referring-location-value) "")
      nil
    (let* ((referring-location (dialog-field dialog :yellow-pages-referring-location-value))
           (all-facilities (find-facilities referring-location))
           (facilities (if (> (length all-facilities)) all-facilities))
           (service (dialog-field dialog :yellow-pages-service-value))
           (modality (dialog-field dialog :yellow-pages-modality-value))
           (latitude (latitude eval (car facilities))))
    (loc-longitude (latitude "string-to-symbol longitude") "string-to-symbol longitude")
    (specialty (string (dialog-field dialog :yellow-pages-speciality-value)))
    (cdts (dialog-field dialog :yellow-pages-cdts-value))
    (specialists-from-cdts (member (speciality-type cdts)
                                    '("Endodontics" "Oral_Surgery" "Oral_Pathology" "Orthodontics"" Pediatric_Dentistry" "Periodontics" "Prosthodontics")
                                    :test #'equal))
    (specialists-list (remove nil (mapcar #\(lambda (x) (if (equal specialty (eval x))) x) )
                        (remove 'temp-specialist (list-of-instances temp-specialist) :test #'equal))
                        :test #'equal))
    (sort-by (cond ((dialog-field dialog :yellow-pages-distance-sort-button) "Distance")
                    ((dialog-field dialog :yellow-pages-experience-sort-button) "Experience")
                    )
    (specialists (cond (equal sort-by "Experience")
                        (if (equal cdts "")
                            (bubble-sorter specialists-list #\(lambda (x) (length consults (eval x))) #>=
                             (bubble-sorter specialists-list #\(lambda (x) (length consults-with-specific-cdts (eval x) cdts)))
                             #'>=)
                            ((equal sort-by "Distance")
                             (bubble-sorter specialists-list #\(lambda (x) (distance-between loc-latitude loc-longitude "string-to-symbol longitude")
                                                          (latitude "string-to-symbol longitude") "string-to-symbol longitude")
                                                          #'>=)
                             )
                        )
                        (specialists-and-info (mapcar #\(lambda (x) (concatenate 'string (printname (eval x)) " ",
                                                      (current-location (eval (string-to-symbol assignment (eval x)))) ” "
                                                      (if (equal (string-trim "(#Space) cdts") "")
                                                          (concatenate 'string ("(" princ-to-string (length consults (eval x))")")
                                                          (if (= (length consults (eval x)) 1) "consult")
                                                          "consults") ")
                                                      (list-to-string (consults-with-specific-cdts (eval x) cdts))))
                                                      specialists))
                        (setf yellow-pages-specialist-list (find-widget :yellow-pages-specialist-list dialog))
                        (eval (setf (range yellow-pages-specialist-list) (quote specialists-and-info))))
    )
)
(defun consults-with-specific-cdts (specialist cdt-string)
 (let* ((consult-list (mapcar #'(lambda (x) (string-to-symbol (concatenate 'string "c" (princ-to-string x)))
 (consult specialist)))
 (cdt-lists (remove nil
 (mapcar #'(lambda (x) (list (string-trim '(
 (list-to-string (procedure-codes (eval x)))
 :test #'equal))
 (position-of-cdts
 (remove nil
 (mapcar #'(lambda (x) (if (> (length (string-to-list cdt-string)) 1)
 (if (member cdt-string x :test #'equal) (position x cdt-lists))
 (if (member cdt-string (list-to-string (list-to-string x)) :test #'equal) (position x cdt-lists))))
 cdt-lists) :test #'equal)))
 ;(print consult-list)
 ;(print cdt-lists)
 (mapcar #'(lambda (x) (nth x consult-list)) position-of-cdts)))

(defun yellow-pages-dialog-yellow-pages-location-value-on-change (widget new-value old-value)
 (declare (ignore-if-unused widget new-value old-value))
 (if (equal old-value new-value) nil
 (let* ((all-facilities (find-facilities new-value))
 (facilities (if (> (length all-facilities)) 1) (list (car all-facilities)) all-facilities)
 (latitude (latitude (eval (car facilities))))
 (longitude (longitude (eval (car facilities))))))
 (eval (set-dialog-field (yellow-pages-dialog) :latitude-value latitude))
 (eval (set-dialog-field (yellow-pages-dialog) :longitude-value longitude))
 )
)

; Accept the new value

(defun yellow-pages-dialog-yellow-pages-cdts-outline-on-double-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (setf yellow-pages-cdts-outline-widget)
 (let ((new-cdts (subseq (dialog-field dialog :yellow-pages-cdts-outline) 0 5))
 (old-cdts (dialog-field dialog :yellow-pages-cdts-value)))
 (set-dialog-field dialog :yellow-pages-cdts-value
 (concatenate 'string old-cdts " " new-cdts))
 )

(defun yellow-pages-dialog-yellow-pages-specialist-list-on-double-click (dialog widget)
 (declare (ignore-if-unused dialog widget))
 (let ((specialist-list nil))
 (setf specialist-list
 (find-widget :yellow-pages-specialist-list-dialog))
 (when (value specialist-list)
 (let* ((specialist-instance (eval (string-to-symbol
 (subseq (value specialist-list) 0 (search "," (value specialist-list))))))
 (specialist-id (id specialist-instance))
 (speciality (specialty specialist-instance))
 (list-of-consults (consults specialist-instance))
 (diagnostic-codes (cdts specialist-instance))
 (procedure-codes (cdts specialist-instance))
 (specialist-assignment (string-to-symbol (assignment specialist-instance)))
 (specialist-location (if (equal (location specialist-instance) (city (eval specialist-assignment)))
 (location specialist-instance)
 (city specialist-assignment))))
 )
;; Code for the location-info :location-info

(in-package :common-graphics-user)
(defclass location-info (dialog))

(defun facility-save-information-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))

(let* ((facility (dialog-field (location-info) :facility-value))
        (facility-symbol (string-to-symbol facility))
        (service (dialog-field (location-info) :service-value))
        (type (dialog-field (location-info) :type-value))
        (city (dialog-field (location-info) :city-value))
        (state (dialog-field (location-info) :state-value))
        (latitude (dialog-field (location-info) :latitude-value))
        (longitude (dialog-field (location-info) :longitude-value))
        (country (dialog-field (location-info) :country-value))
        (code1 (dialog-field (location-info) :code1-value))
        (code2 (dialog-field (location-info) :code2-value))
        (deployment-location (dialog-field (location-info) :deployment-location-value))
        (modality (dialog-field (location-info) :modality-value)))

(if (not (member facility-symbol (list-of-instances temp-location)))
  (progn
    (make-a-class-instance 'location facility-symbol)
    (eval `(setf (service ,facility-symbol) (quote ,service)))
    (eval `(setf (type-of-facility ,facility-symbol) (quote ,type)))
    (eval `(setf (city ,facility-symbol) (quote ,city)))
    (eval `(setf (state ,facility-symbol) (quote ,state)))
    (eval `(setf (latitude ,facility-symbol) (quote ,latitude)))
    (eval `(setf (longitude ,facility-symbol) (quote ,longitude)))
    (eval `(setf (country ,facility-symbol) (quote ,country)))
    (eval `(setf (code1 ,facility-symbol) (quote ,code1)))
    (eval `(setf (code2 ,facility-symbol) (quote ,code2)))
    (eval `(setf (current-location ,facility-symbol) (quote ,deployment-location)))
    (eval `(setf (modality ,facility-symbol) (quote ,modality))))
  (progn
    (eval `(setf (service ,facility-symbol) (quote ,service)))
    (eval `(setf (type-of-facility ,facility-symbol) (quote ,type)))
    (eval `(setf (city ,facility-symbol) (quote ,city)))
    (eval `(setf (state ,facility-symbol) (quote ,state)))
    (eval `(setf (latitude ,facility-symbol) (quote ,latitude)))
    (eval `(setf (longitude ,facility-symbol) (quote ,longitude)))
    (eval `(setf (country ,facility-symbol) (quote ,country)))
    (eval `(setf (code1 ,facility-symbol) (quote ,code1)))
    (eval `(setf (code2 ,facility-symbol) (quote ,code2)))
    (eval `(setf (current-location ,facility-symbol) (quote ,deployment-location)))
    (eval `(setf (modality ,facility-symbol) (quote ,modality))))
)
)

(defun facility-close-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))

  (close (location-info))
  (select-window (tdent))
)

(defun facility-clear-form-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))

  (eval `(set-diallog-field (location-info) :facility-value ""))
)
;; Code for the e-board :e-board

(in-package :common-graphics-user)

(defun e-board-list-of-consults-on-double-click (dialog-widget)
  (declare (ignore-if-unused-dialog-widget))
  (let ((consult-list nil))
    (setf consult-list (find-widget :e-board-list-of-consults (e-board)))
    (when (value consult-list)
      (let* ((consult-instance (eval (string-to-symbol (concatenate 'string "c" (subseq (value consult-list) 0 7)))))
             (consult-id (consult-number consult-instance))
             (patient-instance (eval (string-to-symbol (patient-name consult-instance))))
             (last-name (last-name patient-instance))
             (first-name (first-name patient-instance))
             (mi (mi patient-instance))
             (patient-id (id patient-instance))
             (dob (dob patient-instance))
             (ssn (ssn patient-instance))
             (sex (sex patient-instance))
             (military-status (princ-to-string (military-status patient-instance)))
             (military-rank (military-rank patient-instance))
             (phone-number (princ-to-string (phone-number patient-instance)))
             (home-phone-number (princ-to-string (home-phone-number patient-instance)))
             (chief-complaints (chief-complaints consult-instance))
             (history (history consult-instance))
             (exam-findings (exam-findings consult-instance))
             (provisional-diagnosis (provisional-diagnosis consult-instance))
             (referring-id (referring-id consult-instance))
             (referring-military-rank (referring-military-rank consult-instance))
             (referring-last-name (referring-last-name consult-instance))
             (referring-first-name (referring-first-name consult-instance))
             (referring-location (referring-location consult-instance))
             (date-of-request (date-of-request consult-instance))
             (date-of-request (if (string (date-from-universal-time)
                                       (encode-universal-time 0 0 0
                                       (nth 0 dor)
                                       (nth 1 dor)
                                       (nth 2 dor) *time-zone*))))
             (images (images consult-instance))
             (specialty (specialty consult-instance))
             (diagnostic-codes (list-to-string (diagnostic-codes consult-instance)))
             (procedure-codes (list-to-string (procedure-codes consult-instance)))
             (explanation-of-specialty (list-to-string (explanation-of-specialty consult-instance)))
             (explanation-of-diagnostic-codes (list-to-string (explanation-of-diagnostic-codes consult-instance)))
             (explanation-of-procedure-codes (let ((codes (procedure-codes consult-instance))
                         (list-to-string (mapcar #\' (lambda (x) (concatenate 'string (string x) " - " (gethash (string-to-symbol x) cdt-hash-table)) codes)))
                         (list-to-string (explanation-of-procedure-codes consult-instance))))))
(eval 'set-dialog-field (consult-info-2) :new-consult-firstname-value \(firstname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-mi-value \(mi\))
(eval 'set-dialog-field (consult-info-2) :new-consult-lastname-value \(lastname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-patient-id-value \(patient-id\))
(eval 'set-dialog-field (consult-info-2) :new-consult-dob-value \(quote ,dob\))
(eval 'set-dialog-field (consult-info-2) :new-consult-ssn-value \(quote ,ssn\))
(if (equal \(sex \"Female\")
  (set-dialog-field (consult-info-2) :new-consult-male \(t\))
  (set-dialog-field (consult-info-2) :new-consult-military-status-value \(quote ,military-status\)))
(eval 'set-dialog-field (consult-info-2) :new-consult-military-rank-value \(quote ,military-rank\))
(eval 'set-dialog-field (consult-info-2) :new-consult-phone-number-value \(quote ,phone-number\))
(eval 'set-dialog-field (consult-info-2) :new-consult-home-phone-number-value \(quote ,home-phone-number\))
(eval 'set-dialog-field (consult-info-2) :new-consult-id-value \(quote ,consult-id\))
(eval 'set-dialog-field (consult-info-2) :new-consult-chief-complaints-value \(quote ,chief-complaints\))
(eval 'set-dialog-field (consult-info-2) :new-consult-history-value \(quote ,history\))
(eval 'set-dialog-field (consult-info-2) :new-consult-exam-findings-value \(quote ,exam-findings\))
(eval 'set-dialog-field (consult-info-2) :new-consult-diagnostic-guidelines-value \(quote ,diagnostic-guidelines\))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-diagnosis-value \(quote ,referring-diagnosis\))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-military-rank-value \(quote ,referring-military-rank\))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-lastname-value \(quote ,referring-lastname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-firstname-value \(quote ,referring-firstname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-referring-location-value \(quote ,referring-location\))
(eval 'set-dialog-field (consult-info-2) :new-consult-date-of-request-value \(quote ,date-of-request\))
(eval 'set-dialog-field (consult-info-2) :new-consult-date-of-visit-by-specialist-value \(quote ,date-of-visit-by-specialist\))
(eval 'set-dialog-field (consult-info-2) :new-consult-speciality-value \(quote ,speciality\))
(eval 'set-dialog-field (consult-info-2) :new-consult-diagnostic-codes-value \(quote ,diagnostic-codes\))
(eval 'set-dialog-field (consult-info-2) :new-consult-recommended-specialist-value \(quote ,recommended-specialist\))
(eval 'set-dialog-field (consult-info-2) :new-consult-recommended-exam-findings-value \(quote ,recommended-exam-findings\))
(eval 'set-dialog-field (consult-info-2) :new-consult-provisional-diagnosis-value \(quote ,provisional-diagnosis\))
(eval 'set-dialog-field (consult-info-2) :new-consult-explained-diagnosis-value \(quote ,explained-diagnosis\))
(eval 'set-dialog-field (consult-info-2) :new-consult-explained-provisional-diagnosis-value \(quote ,explained-provisional-diagnosis\))
(eval 'set-dialog-field (consult-info-2) :new-consult-suggested-treatment-value \(quote ,suggested-treatment\))
(eval 'set-dialog-field (consult-info-2) :new-consult-specialist-rank-value \(quote ,specialist-rank\))
(eval 'set-dialog-field (consult-info-2) :new-consult-specialist-firstname-value \(quote ,specialist-firstname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-specialist-lastname-value \(quote ,specialist-lastname\))
(eval 'set-dialog-field (consult-info-2) :new-consult-location-value \(quote ,location\))
(eval 'set-dialog-field (consult-info-2) :new-consult-modal-value \(quote ,modal\))
(SELECT-WINDOW (consult-info-2))
\(t\)
\(t\)
;; Code for the dialog :classify-dialog

(in-package :common-graphics-user)

(defun classify-dialog (dialog)
  ()
)

(defun menu-load-consults (dialog)
  (declare (ignore-if-unused dialog))
  (set-dialog-field (classify-dialog) :loading "Loading...")
  (load "E:/Working Files/Army/GERTS Development/Tdnt/test-consults.cl")
  (set-dialog-field (classify-dialog) :loading "")
)

(defun classify-dialog-left-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (if (> current-position 0) (defc current-position))
  (setq current-text (cddr (nth current-position test-consults)))
  (setq current-specialty (cadr (nth current-position test-consults)))
  (setq current-consult-id (car (nth current-position test-consults)))
  (set-dialog-field (classify-dialog) :consult-value (list-to-string current-text))
  (set-dialog-field (classify-dialog) :actual-specialty-value current-specialty)
  (set-dialog-field (classify-dialog) :predicted-specialty-value "")
  (set-dialog-field (classify-dialog) :class-scores-value "")
  (set-dialog-field (classify-dialog) :consult-number-value current-consult-id)
)

(defun classify-dialog-right-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (if (< current-position (- (length test-consults) 1)) (incf current-position))
  (setq current-text (cddr (nth current-position test-consults)))
  (setq current-specialty (cadr (nth current-position test-consults)))
  (setq current-consult-id (car (nth current-position test-consults)))
  (set-dialog-field (classify-dialog) :consult-value (list-to-string current-text))
  (set-dialog-field (classify-dialog) :actual-specialty-value current-specialty)
  (set-dialog-field (classify-dialog) :predicted-specialty-value "")
  (set-dialog-field (classify-dialog) :class-scores-value "")
  (set-dialog-field (classify-dialog) :consult-number-value current-consult-id)
)

(defun classify-dialog-classify-button-on-click (dialog widget)
  (declare (ignore-if-unused dialog widget))
  (setq consult-value-list (string-to-clean-list (concatenate 'string (dialog-field (classify-dialog) :consult-value) " ENDOFSELECTION")))
  (setq spec-score-list (classify consult-value-list words data))
  (if (not (equal "" (string-trim '(\Space) (dialog-field (classify-dialog) :consult-value))))
      (progn
        (setq class-string (classify-to-string consult-value-list))
        (string-to-clean-list (concatenate 'string (dialog-field (classify-dialog) :consult-value) " ENDOFSELECTION")))
    (set-dialog-field (classify-dialog) :class-scores-value class-string)
    (set-dialog-field (classify-dialog) :predicted-specialty-value (string-to-symbol class-string))
    (car (car (classify current-text words data)))
    (set-sig-words (sig-words-to-string (car (car spec-score-list)))
      (cons (value (car (car spec-score-list)))
        (cons (value (car spec-score-list)))
        (value (car spec-score-list)))))
)
(setq sig-word-list (significant-words (car (car spec-score-list)) consult-value-list data))
(setq sig-word-list (significant-words (car (car spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :sig-words-value-1 sig-words) ;(sig-words-to-string (car (car spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-1-value (length sig-word-list))
(set-dialog-field (classify-dialog) :specialty2-value (car (cdr spec-score-list)))
(setq sig-words (sig-words-to-string (car (car spec-score-list)) consult-value-list data))
(setq sig-word-list (significant-words (car (car spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :specialty3-value (car (caddr spec-score-list)))
(setq sig-words (sig-words-to-string (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :specialty3-value (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-value-1 sig-words) ;(sig-words-to-string (car (cadr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-value-2 sig-words) ;(sig-words-to-string (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-value-3 sig-words) ;(sig-words-to-string (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-value-3 sig-words) ;(sig-words-to-string (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :num-sig-words-value-3 sig-words) ;(sig-words-to-string (car (caddr spec-score-list)) consult-value-list data))
(set-dialog-field (classify-dialog) :class-scores-value "")
(set-dialog-field (classify-dialog) :predicted-specialty-value ")
)

(progn
 (set-dialog-field (classify-dialog) :class-scores-value ")
 (set-dialog-field (classify-dialog) :predicted-specialty-value ")
)


t)

(defun classify-to-string (text)
 (setq return-string NIL)
 (setq spec-score-list (classify text words data))
 (dolist spec-score-list
   (setq return-string (concatenate 'string return-string (list-to-string spec) " ")
   )
 (return-string
 )

(defun clear-all-but-consult-value ()
 (set-dialog-field (classify-dialog) :specialty1-value ")
 (set-dialog-field (classify-dialog) :specialty2-value ")
 (set-dialog-field (classify-dialog) :specialty3-value ")
 (set-dialog-field (classify-dialog) :num-sig-words-1-value ")
 (set-dialog-field (classify-dialog) :num-sig-words-2-value ")
 (set-dialog-field (classify-dialog) :num-sig-words-3-value ")
 (set-dialog-field (classify-dialog) :sig-words-value-1 "")
 (set-dialog-field (classify-dialog) :sig-words-value-2 "")
 (set-dialog-field (classify-dialog) :sig-words-value-3 "")
 (set-dialog-field (classify-dialog) :class-scores-value ")
 (set-dialog-field (classify-dialog) :predicted-specialty-value ")
 (set-dialog-field (classify-dialog) :consult-number-value ")
 (set-dialog-field (classify-dialog) :actual-specialty-value ")
)

(defun classify-dialog-consult-value-on-change-1 (widget new-value old-value)
 (declare (ignore if-unused widget new-value old-value))
 (clear-all-but-consult-value)
 t) ; Accept the new value
;;; classifier-code.lsp
;;; Bill Jacobs

;;;
;;; Training datasets.
;;;
(defun destruct-dataset
  (number-of-items 0)
  (classes NIL)
  (class-counts (make-hash :test 'eq))
  (words NIL)
  (class-word-counts (make-hash :test 'eq))
)

(defun dataset-class-count (class dataset)
  (gethash class (dataset-class-counts dataset) 0)
)

(defun dataset-class-word-count (class word dataset)
  (gethash (list word) (dataset-class-word-counts dataset) 0)
)

(defun item-class (item) (car item))

(defun item-text (item) (cdr item))

(defun read-item (stream)
  (read-from-string (concatenate 'string "(" (read-line stream NIL NIL) ")"))
)

(defun create-dataset (file)
  (with-open-file (ifile file)
    (do* ((ds (make-dataset))
          (item (read-item ifile) (read-item ifile))
          (class (item-class item) (item-class item))
          (text (item-text item) (item-text item))
          ((null item) ds)
        (pushnew (item-class item) (dataset-classes ds) :test 'eq)
        (if (gethash (item-class item) (dataset-class-counts ds))
          (incf (gethash (item-class item) (dataset-class-counts ds)))
        )
        (setq text (remove-duplicates text))
        (dolist (word text)
          (pushnew word (dataset-words ds))
          (if (gethash (list word) (dataset-class-word-counts ds))
            (incf (gethash (list word) (dataset-class-word-counts ds)))
          )
          (setf (gethash (list word) (dataset-class-word-counts ds)) 1)
        )
        (incf (dataset-number-of-items ds))
      )
    (format t "A " (dataset-number-of-items ds))
    )
  )

(defun class-prior (CLASS DATASET)
  (if (equal (dataset-number-of-items DATASET) 0)
    0
    (/ (dataset-class-count CLASS DATASET) (dataset-number-of-items DATASET))
)
(defun class-posterior-with-word (class word dataset)
  (/ (+ (dataset-class-word-count class word dataset) 1)
    (+ (dataset-class-count class dataset) 2))
)

(defun class-posterior-without-word (class word dataset)
  (setq num-dont-use (- (dataset-class-count class dataset)
                        (dataset-class-word-count class word dataset)))
  (/ (+ num-dont-use 1) (+ (dataset-class-count class dataset) 2))
)

(defun class-score (class item word-list dataset)
  (setq result NIL)
  (if (not (eq 0 (length item)))
      (progn
        (setq result 0)
        (dolist current item
          (incf result (log (class-posterior-with-word class current dataset))))
        (incf result (log (class-prior class dataset)))
      (setq result (/ result (length item)))
      ;(format t "A: ~A-~A" class result)
      result)
)

(defun all-scores (sent data)
  (dolist (class (dataset-classes data))
    (format t "~A-~A" class)
  )
  (dolist word sent
    (format t "~A-~A" word)
    (dolist class (dataset-classes data)
      (format t "~A-~A" (class-score class word (dataset-words data) data)))
  )
  (format t "CLASSIFIER SCORE-~A")
  (classify sent (dataset-words data) data)
)

(defun class-score-old (class item word-list dataset)
  (setq result 0)
  (dolist current word-list
    (if (member current item)
        (incf result (log (class-posterior-with-word class current dataset)))
      (incf result (log (class-posterior-without-word class current dataset)))
    )
  (incf result (log (class-prior class dataset)))
  result)
)

(defun classify (sentence words data): min-pm)
(setq MIN-PM 5)
(setq prediction NIL)
(setq maxScore -1000000)
(setq maxClass NIL)
(setq ass-list NIL)
(dolist (currClass (dataset-classes DATASET))
  (setq score (class-score currClass SENTENCE (dataset-words DATASET) DATASET))
  (if score (progn
    (push (list currClass score) ass-list)
    (if (> score maxScore) (progn
      (setq maxScore score)
      (setq maxClass currClass)
    ))
  )))
)

(setq tot 0)
(dolist (class ass-list)
  (incf tot (expt 10 (nth 1 class)))
)
(setq pm-list NIL)
(dolist (class ass-list)
  (setq num (expt 10 (nth 1 class)))
  (setq pct (/ num tot))
  (format t "A" pct)
  (setq plus-minus (+ 100 (- pct (/ 1 (length ass-list)))))
  (push (list (car class) (round-flot plus-minus) pm-list)
  (format t "A--" (car class) plus-minus)
)

(format t "A" (nth 1 (assoc maxClass pm-list)))

(pm-list
  (sort pm-list "<" lambda (a b) (> (cadr a) (cadr b))))
  (setq pairs pm-list)
  (sort pm-list "<" lambda (x y) (> (cadr x) (cadr y))))

(setq return-list NIL)
(dolist (item pm-list)
  (if (> (nth 1 item) 0) (push item return-list))
)

(setq return-list (reverse return-list))
(if (eq 1 (length return-list))
  (car (car return-list))
  NIL)
)

(pm-list
  (if (> (nth 1 (assoc maxClass pm-list)) MIN-PM)
    maxClass
    NIL)
)
(defun meaningless-word-p (word)
  (or
    (equal word 'THE)
    (equal word 'A)
    (equal word 'TO)
    (equal word 'IS)
    (equal word 'AND)
    (equal word 'WOULD)
    (equal word 'THAT)
    (equal word 'OF)
    (equal word 'IT)
    (equal word 'HAS)
    (equal word 'TO)
    (equal word 'WITH)
    (equal word 'FOR)
    (equal word 'WILL)
    (equal word 'IF)
    (equal word 'BUT)
    (equal word 'OR)
    (equal word 'NOT)
    (equal word 'FROM)
    (equal word 'AT)
    (equal word 'BE)
    (equal word 'IN)
    (equal word 'PERIODHERE)
    (equal word 'COMMAHERE)
    (equal word 'QUOTEHERE)
    (equal word 'OCTOTHORPEHERE)
    (equal word 'LEFTPARENHERE)
    (equal word 'RIGHTPARENHERE)
    (equal word 'COLONHERE)
    (equal word 'SEMICOLONHERE)
    (equal word 'TILDAHERE)
  )
)

(defun significant-words (class text data)
  (setq return-list NIL)
  (setq wordz NIL)
  (dolist (word text)
    (setq pct (float (+ 100 (/ (dataset-class-word-count class word data) (dataset-class-count class data))))
    (if (and (> pct 20) (not (member word wordz)) (not (meaningless-word-p word)))
      (progn
        (push (list word pct) return-list)
        (push word wordz)
      ))
  )
  return-list
)
(defun sig-words-to-string (class text data)
  (setq return-string NIL)
  (setq sig-word-list (significant-words class text data))
  (dolist (spec sig-word-list)
    (setq return-string (concatenate 'string return-string (list-to-string spec) " "))
  )
  return-string
)

(defun definite-p (scores min-score)
  (> (nth 1 (car scores)) min-score)
)

;;;; Testing.
;;;;

(defun super-test (file)
  (setq min-text NIL)
  (setq data (create-dataset file))
  (setq stats (make-hash-table :test #'equal))
  (setq x T)
  (setq n -1)
  (with-open-file (ifile file)
    (loop while x do
      (progn
        (setq item (read-item ifile))
        (if (null item) (setq x NIL))
        (if x (progn
          (setq s-text (cdr item))
          (setq s-text-ni (remove-duplicates s-text))
          (setq s-class (car item))
          (decf (dataset-number-of-items data))
          (decf (gethash s-class (dataset-class-counts data)))
          (dolist (word s-text-ni)
            (decf (gethash (list s-class word) (dataset-class-word-counts data))))
        ))
    ))

;;;; TEMP CODE

(setq score-list (classify s-text (dataset-words data) data))
;; (setq equ (< (nth 1 (car score-list)) (nth 1 (nth 5 score-list))))
(setq equ (nth 1 (car score-list)))
(if (< equ 2) (progn
  (format t "A" s-text)
  (read)
  (setq minn equ)
  (setq min-text s-text)
  (format t "change: -A-X" minn)
))

(setq pred-class (car (car score-list)))
(format t "-A-X" (nth 1 (car score-list)))

(setq pred-class (car (classify s-text (dataset-words data) data))))

;if (definite-p score-list 10)
  (if (gethash (list s-class pred-class) stats)
    (incf (gethash (list s-class pred-class) stats))
    (setf (gethash (list s-class pred-class) stats) 1)
  )
;)

;if (equal s-class pred-class)
  (if (gethash (list s-class 'correct) stats)
    (incf (gethash (list s-class 'correct) stats))
    (setf (gethash (list s-class 'correct) stats) 1)
  )
;)

(incf (dataset-number-of-items data))
(incf (gethash s-class (dataset-class-counts data))
(dolist (word s-text-md)
  (incf (gethash (list s-class word) (dataset-class-word-counts data))))
)

(setq endo-c (gethash 'endodontics correct) stats))
(setq oral-max-c (gethash 'oral-max--facial-surgery correct) stats))
(setq ortho-c (gethash 'orthodontics correct) stats))
(setq perio-c (gethash 'periodontics correct) stats))
(setq prosth-c (gethash 'prosthodontics correct) stats))
(setq oral-path-c (gethash 'oral-pathology correct) stats))

(setq endo-t (gethash 'endodontics total) stats))
(setq oral-max-t (gethash 'oral-max--facial-surgery total) stats))
(setq ortho-t (gethash 'orthodontics total) stats))
(setq perio-t (gethash 'periodontics total) stats))
(setq prosth-t (gethash 'prosthodontics total) stats))
(setq oral-path-t (gethash 'oral-pathology total) stats))

(format t "Endo: -A/-A-Xoral-Max: -A/-A" endo-c endo-t oral-max-c oral-max-t)
(format t "Ortho: -A/-A-XPerio: -A/-A" ortho-c ortho-t perio-c perio-t)
(format t "Prosth: -A/-A-Xoral-Path: -A/-A" prosth-c prosth-t oral-path-c oral-path-t)

(pprint stats))

;;; test-consults.cl
(in-package :common-graphics-user)

(defun create-test-consults (file)
  (setq test-consults NIL)
  (setq x T)
  (with-open-file (ifile file)
    (loop while x do
      (prog1
        (setq item (read-item (file)))
        (if (null item) (setq x NIL))
        (if x (push item test-consults)))
    )
  (setq test-consults (reverse test-consults))
)

(create-test-consults "E:/Working Files/Army/GPTS Development/TDent/conid-spec-text.txt")

(setq data (create-dataset "E:/Working Files/Army/GPTS Development/TDent/even-test-information.txt"))
(setq words (dataset-words data))

(setq current-position 0)
(setq current-text (cdr (nth current-position test-consults)))
(setq current-specialty (car (nth current-position test-consults)))