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SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
A COMPUTERIZED SYSTEM FOR PROCESSING MEDICAL REPOSITORY DATA.(U)

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SAM-TR-77-21

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Report SAM-TR-77-21

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**A COMPUTERIZED SYSTEM FOR PROCESSING
MEDICAL REPOSITORY DATA**



August 1977

Interim Report for Period 1975-1976

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USAF SCHOOL OF AEROSPACE MEDICINE
Aerospace Medical Division (AFSC)
Brooks Air Force Base, Texas 78235



NOTICES

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This report has been reviewed by the Information Office (OI) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER SAM-TR-77-21	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER rest.	
4. TITLE (and Subtitle) A COMPUTERIZED SYSTEM FOR PROCESSING MEDICAL REPOSITORY DATA	5. TYPE OF REPORT & PERIOD COVERED Interim 1975-1976		
7. AUTHOR(s) Henry R. Bales, Jr. M.A. Gil D. Tolani, Major, USAF, MC	6. PERFORMING ORG. REPORT NUMBER		
9. PERFORMING ORGANIZATION NAME AND ADDRESS USAF School of Aerospace Medicine (BRM) Aerospace Medical Division (AFSC) Brooks AFB TX 78235	8. CONTRACT OR GRANT NUMBER(s)		
11. CONTROLLING OFFICE NAME AND ADDRESS USAF School of Aerospace Medicine (BRM) Aerospace Medical Division (AFSC) Brooks AFB TX 78235	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 62202F 1716 7755-16-01		
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 1237p.	12. REPORT DATE August 1977		
	13. NUMBER OF PAGES 34		
	15. SECURITY CLASS. (of this report) Classified		
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Repository, Medical data, Retrieval, Data validation, Data base, Hierarchical structures			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A description of the operation and formats of the Clinical Repository Information Filing System is presented. Field designation, codes employed, data validation, and techniques utilized are discussed. The general flow of information through the system and specific repositories are defined and presented to demonstrate the flexibility of this system.			

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A COMPUTERIZED SYSTEM FOR PROCESSING MEDICAL REPOSITORY DATA

INTRODUCTION

Centralization of clinical repositories allows accumulation of large numbers of case records so that clinical studies may gain statistical validity. Heretofore all of the repository efforts at the School of Aerospace Medicine have been 80-column-card oriented with little or no cross-referencing of individual repositories. With the advent of File Management Systems, in particular MARK IV, we have been able to redesign our separate repositories into record structures and efficiently bring data fields from different clinical repositories together to produce desired cross-referenced data retrievals for statistical analyses. The conversion of records of one-quarter of a million individuals in the Electrocardiogram (ECG) Repository indicated clearly that our record identification and checks used in the past were not reliable. Many discrepancies were found in Serial Number, Social Security Account Number (SSAN), Name (NAME), Date of Birth (DOB), Sex, and Race entries. These findings motivated the establishment of a master file which we call the Clinical Repository Information Filing System (CRIFS). Such a master filing system was justified to maintain the integrity of uniform record identification throughout the many clinical repositories that are handled by the Medical Computing Branch.

This clinical data file management system was designed to meet three requirements simultaneously. First, the design has satisfied the need to store relatively large amounts of medical data. Second, the design has enabled retrieval of selected data to provide summaries of USAFSAM medical experience to using commands, achieving a turnaround time of from 3 hours to 5 days. Third, the design was directed at the need for cost-effective retrieval of selected data for in-house research purposes.

DATA BASE

The first effort in the design of this data base was simply to establish the primary interconnecting repository key which is the individual's SSAN. This number is supposed to be a unique identifier; however, Air Force military personnel dependents can be treated at military bases and will use their sponsor's SSAN as a part of their own identification. Thus, we have used the individual's name (Last, First, MI, and Suffix) as a secondary key, and total identification

employs, when available, the DOB, Sex, and Race. For the purposes of obtaining quick look "query" type information, the data base has been expanded to include the type of Flying Physical Examination, Class, Death Code, and Source of Death Code. Also, the repository activity status of the individual has been incorporated into the data base. These activity features include: Date of Last Examination, Source of Last Entry, and flags indicating the existence of data in specific repositories, viz: Aeromedical Evaluation Summary Cover Sheet (CS), Electrocardiogram (ECG), Treadmill (TDM), Clinical Laboratory Determinations (LAB), and Catheterization (CAT). As other repositories are developed, they will be added to the data base. Figure 1 pictures our computer file system, which has two significant advantages. First, the system allows the individual files to be used simultaneously or individually depending on the data processing application. Also, the system obviates the need for duplicate data fields in the various specific repositories.

Figure 2 details the field length, type, and name, and lists the special code utilized for some fields in the master file.

INFORMATION FLOW

To insure that the patient identifiers will match across all repositories without having to access all the large data repositories, before updating the master file or any given repository a preliminary pass is always required to validate the patient identifiers against the small Clinical Repository Information Filing System. A patient's name is stored in a 27-character field with the last name, first name, middle initial, and suffix in capital letters without punctuation with truncation in accordance with AFM 300-4, page 6-305. The update transactions for any repository are first sequenced by patient SSAN, then both SSAN and NAME are matched against the copy of CRIFS which is also sequenced by SSAN. If both SSAN and NAME match the update, record identification is accepted. However, if either SSAN or NAME fails to match, the following strategy determines if only minor errors have occurred and makes automatic corrections.

(1) In the case where only the SSAN's match, a test is made for a single character in error in either the last name, first name, middle initial, or suffix. Date of Birth when available must also match before accepting the transaction. For example, if the last name is found to match, a 4 is placed into a special flag and we proceed to the first name test. If the last name does not match, then the last names in the CRIFS file and the transaction are scanned from both ends doing a single character-for-character match, stopping at the first mismatch. Matches are counted for each direction. If the sum of matches in each direction is equal to 1 less than the number of characters in the longest last name, the possibility of a single character error exists and

the special flag is set to 4, otherwise the special flag remains at zero. First name matching takes into consideration the fact that first names are sometimes truncated to allow the full name to fit into a 27-character field. If the shortest version of the first name matches the same number of characters in the other first name, a 3 is added to the 4 in the special flag. If the middle initial matches, 2 is added to the special flag and a 1 is used when the suffix matches. If the special flag count is greater than 6, and the DOB's when available match, the CRIFS NAME replaces the transaction name, the transaction is passed to the data validation program, and the original transaction SSAN and NAME along with the CRIFS NAME and the message "PROG CHGD" are outputted to the printer for human validation. When the special flag count is less than 7, the message will read "CK NPUT," and the transaction is returned to its source for resolution.

(2) When the SSAN's do not match, then an attempt at matching NAME's is tried utilizing a copy of CRIFS which is indexed by name. If an exact match is found, the SSAN's are scanned from the left doing a number-by-number match. The matches are counted and if this counter is equal to 8, the assumption is made that an error in transcription occurred in a single number of the transaction SSAN and the CRIFS SSAN replaces the transaction SSAN. If the counter is equal to 7, a test for numerical inversion is accomplished. If only a single numerical inversion is found, the CRIFS SSAN replaces the transaction SSAN. DOB when available is used to confirm all corrections made. The update record SSAN and NAME plus the CRIFS SSAN and the message "PROG CHGD" are printed for human validation. If the counter is less than 7, the message will read "CK NPUT." Output is returned to the responsible activity.

(3) When a match fails to materialize on both the SSAN and NAME, the record identification is printed with the message "NEW," so that it can be checked against the Military Personnel File for accuracy before entering a new patient into the system.

In the above strategy, the Clinical Repository Information Filing System patient identification is assumed to be correct. When a change is made in the patient identification such as a new last name, the CRIFS data is updated along with all the other repositories, containing data on that individual. Only after patient identification inconsistencies have been resolved and corrections made to the update transactions, does the process begin of updating the Clinical Repository Information Filing System and the data file associated with the update transactions with the latest information on this individual.

At the present time there are 5 data files associated with CRIFS:

The first file developed was the ECG Repository. Figure 3 details the hierarchical record structure of this file while Figure 4 gives field definitions and specifications. After resolving identification

differences, the ECG update transactions are validated for correct range before merging into the permanent ECG file. That is to say, checking is performed on the coding of Sex (male, female, or blank), Race (Caucasoid, Negroid, Oriental, Indian, other, or blank), Height (between 60 and 80 inches), Weight (between 85 and 265 pounds), Date of Examination, and ECG Diagnosis. If any ECG code is abnormal, a special flag is set both in CRIFS and the ECG repository top level segment. A record is completed for all validation results and if any errors are found, the entire record is printed and further processing on the record is bypassed. Corrections will be made and the record included in the next update cycle. Our update cycle occurs once every 6 to 8 weeks on the average.

The second repository completed was the Treadmill Exercise Tolerance Test (TDM). Because of the weekly output requirements (summary and graphic) the validation of data fields is accomplished during the weekly runs. The correction of errors is made and updating of the master file takes place when sufficient data has been gathered or when a special retrieval is requested. Figures 5 and 6 describe the file structure and the form from which the data is taken.

The Clinical Laboratory Determinations (LAB) was the next file automated. Daily input and output are required from a subfile of those individuals currently undergoing physical examination at the USAF School of Aerospace Medicine Consultation Service. Figure 7 shows the hierarchical file structure, and Figure 8 pictures the 12-page Laboratory Report Form. Briefly, the flow of work is as follows. A blank laboratory form is generated with correct identifiers for each patient scheduled for examination the following week. Laboratory results are recorded on this blank form and returned for keypunching. The data along with ID information is entered into a program which validates the data received, prints rejected data, and updates a temporary subfile with valid data. A summary of all laboratory results obtained during that evaluation is generated for each patient after new laboratory results are reported. Two copies are sent to the physicians' morning conference, one of which is inserted into the patient's medical records, and a third copy is returned to the laboratory for verification. Corrections and additional test results are handwritten on the laboratory copy and returned for keypunching. Three summaries of all laboratory results performed during that evaluation are sent to the physicians and clinical laboratory to replace the entire old summaries. This process is repeated each day any laboratory test is reported. One special note about validation is in order, and that is, the Laboratory Director has provided a range of healthy values and a range of permissible values for each test. Unhealthy values are flagged with a *1 and values out of the permissible range are flagged *8 (a computer-detected error). Specific comments are allowed and when these occur the test is flagged with a *9. Updating the master LAB file is done approximately every 2 months.

The next repository to be completed was the Aeromedical Evaluation Summary Cover Sheet (CS). Figure 9 describes the record structure. The coding form developed for the input is shown in Figure 10. Currently, this form is recorded on IBM MAG CARD II typewriters. When the finished form is completed, it is ready to be sent via terminal (IBM-CMC) to the IBM 360-65 where a FORTRAN program edits and validates most fields before storing it in a temporary working subfile. When the subfile accumulates several hundred cases, a listing sequenced by the diagnostic codes is printed along with the text for validation by the medical librarian. After all corrections have been made, updating the master file takes place, which occurs approximately once every 3 months.

The latest file to be completed was a Cardiac Catheterization Repository (CAT). Figure 11 details the hierarchical record structure of this file, while Figure 12 pictures the 8-page form from which the data is taken. Data from the Catheterization form is keypunched and then matched against CRIFS to resolve any identification differences. Special programs are then utilized to process and validate all data field entries before updating the master file. Detected field errors, error messages, and identification data are printed. Corrections are included in the next update cycle.

As is the case with any of the present files, deletion of data fields or the replacement of values within data fields is provided.

CURRENT STATUS

The feasibility of our Clinical Repository Information Filing System has been demonstrated as each new file has been added. Because patient identifiers are always validated against the small CRIFS file before updating the source-oriented master data files, retrievals requiring data from multiple sources have been quickly and reliably accomplished.

Future plans call for the conversions of the Vectorcardiogram, Routine Pulmonary Function Test, Dental Determinations, Double Master Exercise Tolerance Test, and the Tilt Table Study repositories from card format to this system. The Hearing Conservation Registry and Waiver File which are now maintained under MARK IV will also become part of this system. Further work will involve periodic computerized validation of the patient identification in CRIFS with the Military Personnel Center files.

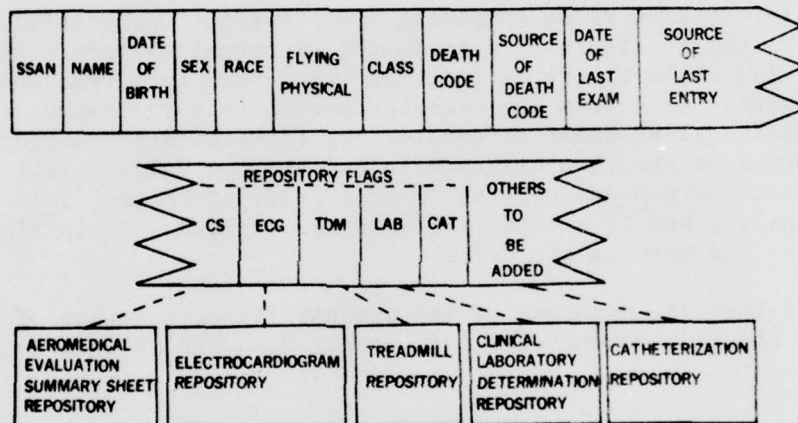


Figure 1. Clinical Repository Information Filing System (CRIFS) file organization.

<u>FIELD LENGTH</u> <u>Bytes & Type</u>	<u>FIELD NAME</u>	<u>SYMBOLIC</u> <u>NAME</u>	<u>SPECIFICATION & CODES</u>
9 C	SOCIAL SECURITY ACCOUNT NUMBER	SSAN	
27 C	NAME of INDIVIDUAL	NAME	Last, First, MI, No special characters are allowed.
6 C	DATE of BIRTH	DOB	Year, Month & Day.
1 C	SEX	SEX	M = Male F = Female Ø = Unknown or not stated.
1 C	RACE	RACE	C = Caucasoid N = Negroid O = Oriental I = Indian X = Other Ø = Unknown or not stated.
1 C	FLYING PHYSICAL	FLY-PHYS	A = Class I B = Class IA C = Class II D = Class III E = USAF Academy F = Non-Flying X = Other Ø = Unknown or not stated.
1 C	CLASSIFICATION	CLASS	R = Regular - Active duty Air Force V = Reserve - Active duty Air Force G = National Guard - Air Force A = Army N = Navy L = Coast Guard M = Marine Corps K = Cadet F = Foreign National D = Dependent (Military) S = Retired Military C = Civilian X = Other Ø = Unknown or not stated.

Figure 2. CRIFS field definitions and specifications.

<u>FIELD LENGTH</u> <u>Bytes & Type</u>	<u>FIELD NAME</u>	<u>SYMBOLIC</u> <u>NAME</u>	<u>SPECIFICATIONS & CODES</u>
1 C	DEATH CODES	DTH-CODE	Codes are extracted from AFM 300-4. Codes used are alpha (A-T). * = Dead per ECG repository information. % = Not identified as being dead.
1 C	SOURCE of DEATH CODE	SODC	A = DD1300 B = Death Certificate C = Autopsy Report D = Questionnaire E = MPC List F = ECG Repository X = Other % = Not identified as being dead.
4 C	DATE of LAST EXAM	DOLE	Year & Month (If SODC is equal to anything but a %, then the DATE of LAST EXAM will become the DATE of LAST BREATH.)
1 C	SOURCE of LAST ENTRY	SOLE	Indicated by assigned repository number. 1 = Clinical Cover Sheet 2 = ECG 3 = Treadmill 4 = Lab Determinations 5 = Catheterization (Other codes can be added as needed.)
1 C	CLINICAL COVER SHEET	CS	Repository flag indicated by Alpha case number. A = Special B = Cabin C = Aeromedical Evaluation D = Flying/Non-Flying E = Experimental K = USAF Cadet L = Laser M = West Point Study P = Pentathlon S = Dependents of RPW T = RPW W = W-File (Wiesbaden & Clark) X = ECG % = Not in this repository.
1 C	ECG	ECG	Repository flags: 1 = Normal diagnostic codes only. 2 = Normal & abnormal diagnostic codes.

Figure 2. (Continued)

<u>FIELD LENGTH</u> <u>Bytes & Type</u>	<u>FIELD NAME</u>	<u>SYMBOLIC</u> <u>NAME</u>	<u>SPECIFICATION & CODES</u>
1 C	TREADMILL	TDM	Ø = Not identified as being in this repository. 1 = Normal diagnostic codes only. 2 = Normal & abnormal diagnostic codes.
1 C	LAB DETERMINATIONS	LAB	1 = Indicates presence of laboratory data. Ø = Not identified as being in this repository.
1 C	CATHETERIZATION	CAT	1 = Indicates presence of catheterization data. Ø = Not identified as being in this repository.

REPOSITORIES STILL TO BE ADDED TO THIS SYSTEM ARE:

- (1) VCG
- (2) WAIVER
- (3) PULMONARY
- (4) DENTAL
- (5) DOUBLE MASTERS
- (6) TILT TABLE

Figure 2. (Continued)

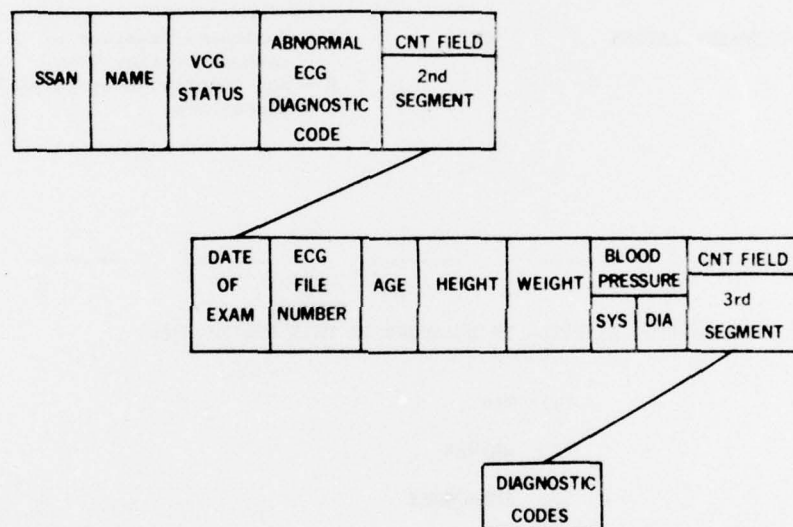


Figure 3. ECG file structure.

<u>FIELD LENGTH</u> <u>Bytes & Type</u>	<u>FIELD NAME</u>	<u>SYMBOLIC</u> <u>NAME</u>	<u>SPECIFICATIONS</u>
9 C	SOCIAL SECURITY ACCOUNT NUMBER	SSAN	
18 C	NAME OF INDIVIDUAL	NAME	Last, First, MI. No special characters are allowed.
1 C	VCG STATUS	VCG	This is a flag. If the flag = 1, a VCG is on file in the CONSULTATION SERVICE repository, otherwise the flag is a blank.
1 C	ABNORMAL ECG	ABN-FLAG	This is a flag. If the flag = 1, an abnormal diagnostic ECG code has been read for this individual, other- wise the flag is a blank.
1 F	NUMBER OF ECG's ON FILE	ECG-CNT	This shows the number of repeated segments for this individual.
6 C	DATE OF EXAMINATION	DOE	Year, Month & Day.
6 C	ECG FILE NUMBER	FILE-NR	ECG file number assigned by the Clinical Sciences Division.
1 F	AGE	AGE	Age in years of the individual.
1 F	HEIGHT	HT	Height in inches of the individual.
2 F	WEIGHT	WT	Weight in pounds of the individual.
6 C	BLOOD PRESSURE	BP	Systolic/Diastolic(Blood Pressure) reading of the individual.
1 F	NUMBER OF DIAGNOSTIC CODES FOR THIS ECG	DX-CNT	This shows the number of repeated segments for this ECG.
3 C	DIAGNOSTIC CODES	DX	Valid codes as found in the coding chart.

Figure 4. ECG field definitions and specifications.

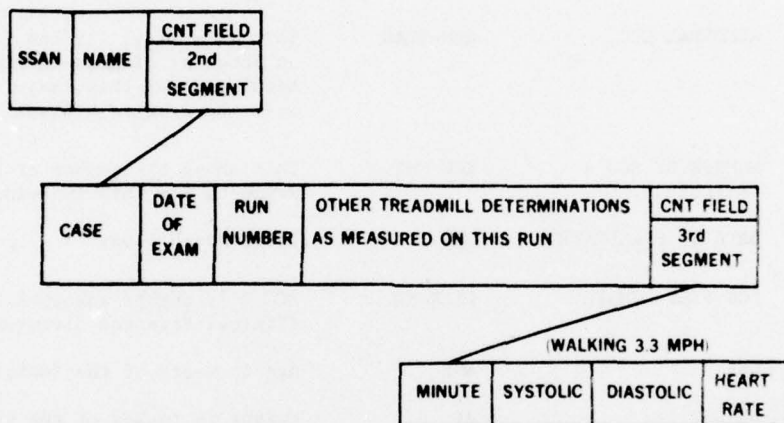


Figure 5. Treadmill file structure.

PAGE NUMBER		14 TREADMILL EXERCISE TOLERANCE TEST									
SOCIAL SECURITY NUMBER			NAME (Last, First, MI)					GRADE		CASE NUMBER	
1. DATE OF EXAMINATION			TEST RUN NUMBER		PRIOR TM TEST		AGE		ACTIVITY STATUS (Circle One)		
YEAR	MONTH	DAY	1 - INITIAL		1 - YES				1	2	3
			2, 3, 4, ---		2 - NO						
2. CONDITIONS			Y. LAST						10. FINDINGS		
A. TIME OF DAY					Z. MAXIMAL				A. INTERPRETATION		
B. BELL TEMP (°C)					4. RECOVERY - SUPINE				B. REPOLARIZATION		
C. HOURS SINCE LAST MEAL					MINUTES		SYST DIAST H.R.		C. ARRHYTHMIA		
D. P.B. (mmHg)					A. IMMED				D. ECG CODE		
E. STD FACTOR					B. 2				E. ABNORMAL BP RESPONSE (Y-N)		
F. BELL READING					C. 5						
G. SAMPLE VOLUME					D. 1						
H. LBM (Kg) (H ₂ O)					7. REASON FOR TERMINATING						
I. BODY FAT (%) (H ₂ O)					1. EXHAUSTION 2. LEG FATIGUE						
J. BODY TEMP (°C)					3. JOINT/MUSCLE PAIN/OR INJURY						
K. ROOM TEMP (°C)					(Explain)						
L. PERFORMANCE RESULTS					4. CHEST PAIN (Possible Angina)						
A. TOTAL TIME (MIN + SEC)					5. SUB MAX EFFORT BECAUSE OF POOR COOPERATION						
B. O ₂ CONSUMED LAST MIN (L)					6. SYST > 250 AND/OR DIAST. > 180						
C. MAX O ₂ CONSUMED (L)					7. RELATIVE HYPOTENSION						
D. MAX O ₂ CONSUMED (ml/Kg)					8. ARRHYTHMIA 9. ST CHANGES						
4. BASELINE			SYST DIAST H.R.		10. OTHER (Explain)						
A. SUPINE (2nd)											
B. IMMED STD					8. RESPIRATORY DATA						
C. 3RD STD					EXHALED						
D. 45 SEC. HV					A. VOLUME (L/min)						
E. WALKING 3.3 MPH (90M/MIN)					B. CO ₂ (%)						
MINUTES			SYST DIAST H.R.		C. O ₂ (%)						
A. 1					D. O ₂ (%) ROOM AIR						
B. 2					E. MAXIMAL RQ						
C. 3					9. OTHER						
D. 4					A. HISTORY OF HBP (Y-N)						
E. 5					B. RECENTLY OR CURRENTLY ON ANTIHYPERTENSIVES (Y-N)						
F. 6					COMMENTS						
G. 7											
H. 8											
I. 9											
J. 10											
K. 11											
L. 12											
M. 13											
N. 14											
O. 15											
P. 16											
Q. 17											
R. 18											
S. 19											
T. 20											
U. 21											
V. 22											
W. 23											
X. 24											

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Figure 6. Treadmill exercise tolerance test form.

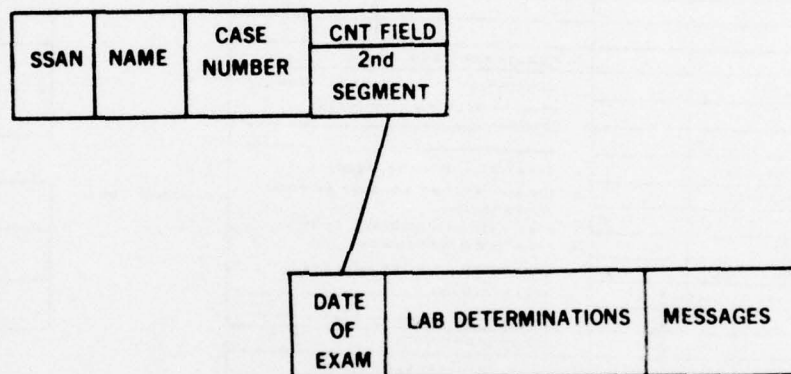


Figure 7. LAB file structure.

SSAN:

NAME:

CASE NR:

DATES OF EXAMINATION

PANEL A - HEMOGRAM

HEMATOCRIT	AA			38-52%
HEMOGLOBIN	AB			13.4-17.5 gm%
RBC	AC			4.5-6.5 m/mm ³ *
MCV	AD			80.0-96.0 u ³
MCH	AE			27.0-32.0 pg*
MCHC	AF			30.0-35.0% *
WBC	AG			3200-8000/mm ³ *
NEUTROPHILS	AH			40-75% *
BANDS	AI			0-4% *
LYMPHOCYTES	AJ			15-50% *
MONOCYTES	AK			0-9% *
EOSINOPHILS	AL			0-6% *
BASOPHILS	AM			0-1% *
TOTAL EOSINOPHIL COUNT	AN			150-400/cc *
RBC MORPHOLOGY	AO			Normal
LYMPHOCYTE MORPHOLOGY	AP			Normal
ATYPICAL	AQ			0-20%
MONOCYTE MORPHOLOGY	AR			Normal
NEUTROPHIL MORPHOLOGY	AS			Normal
MONO SPOT TEST	AT			Negative

PANEL B - HEMOLYTIC SCREEN

RETICULOCYTE COUNT	BA			0.2-1.5% *
LDH FRACTION I	BB			11-32%
INDIRECT BILIRUBIN	BC			0.4-0.8 mg%
G-6-PDH	BD			5-10 IU *

Figure 8. LAB report form.

SSAN:

NAME:

CASE NR:

DATES OF EXAMINATION

| |

PANEL C -- TISSUE DESTRUCT SCREEN

SEDIMENTATION RATE	CA			0-10 mm/hr *
HAPTOGLOBIN	CB			25-150 HBC
TOTAL PROTEIN	CC			6.0-8.3 gm%
SERUM PROTEIN ELECTRO	CD			Normal
1. ALBUMIN	CE			3.5-5.5 gm%
2. ALPHA 1 GLOBULIN	CF			0.2-0.4 gm%
3. ALPHA 2 GLOBULIN	CG			0.5-0.9 gm%
4. BETA GLOBULIN	CH			0.6-1.1 gm%
5. GAMMA GLOBULIN	CI			0.7-1.7 gm%
LDH	CJ			120-197 IU

PANEL D -- CARDIOVASCULAR SCREEN

CHOLESTEROL	DA			150-250 mg% *
TRIGLYCEPIDE	DB			30-150 mg% *
PHOSPHOLIPIDS	DC			110-300 mg% *
TOTAL LIPIDS	DD			210-850 mg% *
Lipoprotein ELECTRO	DE			Normal

PANEL E - HEPATIC SCREEN

PARENCHYMAL 1. SGPT	EA			6-40 IU
2. SGOT	EB			12-30 IU
3. LDH V	EC			3.0-11.0 %
EXCRETORY 1. ALK PHOS	ED			11-94 IU
2. BILI TOT	EE			0.2-1.2 mg%
3. BILI DIR	EF			0.1-0.4 mg%
4. GGTP	EG			6-30 IU
ALK PHOS HEAT INACT	EH			Normal

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NR:

DATES OF EXAMINATION

| |

PANEL F - RENAL SCREEN

COLOR	FA			Normal
SPECIFIC GRAVITY	PB			1.001-1.035
PH	PC			5.0-7.0
PROTEIN	PD			Negative
GLUCOSE	PE			Negative
ACETONE	PF			Negative
BLOOD	PG			Negative
BILE	PH			Negative
MICRO 1.CASTS A.HYALNE	PI			0-20 LPF
B.P GRAN	PJ			0-20 LPF
C.OTHER	PK			Negative
2. WBC	PL			0-20/10 HPF
3. RBC	PM			0-10/10 HPF
4. OTHER	PN			
BUN	PO			5.0-24.0 mg%
CREATININE	PP			0.8-1.3 mg%
CREATININE CLEARANCE	PQ			97-137 cc/min*
CULTURE	PR			N,0-10K Col/cc
24 HR URINE PROTEIN	PS			6-150mg *
24 HR URINE TOT VOL	PT			600-1600ml/24H*

PANEL G - MISCELLANEOUS

RPR	GA			Negative
BLOOD GROUP-PH FACTOR	GB			
CPK	GC			26-109 IU

Figure 8. (Continued)

PAGE 4

SSAN: - -

NAME:

CASE NR:

DATES OF EXAMINATION

PANEL H - PARATHYROID SCREEN

SERUM CALCIUM	HA			9.1-10.5 mg%
24 HR URINE CALCIUM	HB			50-300 mg/24Hr*
INORGANIC PHOSPHOROUS	HC			2.5-4.7 mg%
24HR URINE PHOSPHOROUS	HD			900-1300 mg/24*
SERUM MAGNESIUM	HE			1.8-2.4 mg%
24 HR URINE MAGNESIUM	HF			60-300 mg/24Hr*
24 HR URINE TOT VOL	HG			600-1600ml/24H*

PANEL I - METABOLIC SCREEN

SODIUM	IA			138-144 mEq/L*
POTASSIUM	IB			3.6-5.2 mEq/L*
CO2	IC			25-33 mEq/L *
CHLORIDE	ID			98-108 mEq/L *
URIC ACID	IE			4.0-8.0 mg%
24 HR URINE URIC ACID	IF			250-750 mg/24*
24 HR URINE TOT VOL	IG			600-1600ml/24H*

***** EXPLANATION OF NUMBERED MESSAGES *****

- | | |
|------------------|-------------------------------|
| 1. ABNORMAL TEST | 3. PATIENT IMPROPERLY PREPPED |
| 2. LAB ERROR | 8. COMPUTER DETECTED ERROR |
| 9. | |

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NR:

DATES OF EXAMINATION

| |

PANEL J - HEMOGRAM

MALARIAL SMEAR	JA			Negative
RED CELL 1. PAT-INIT	JB			0.40-0.46% *
2. PAT-FINAL	JC			0.30-0.36% *
3. CNTL-INIT	JD			0.40-0.46% *
4. CNTL-FINAL	JE			0.30-0.36% *
NASAL SMEAR FOR EOS	JP			None seen

PANEL K - BACTERIOLOGY

THROAT	KA			Normal
WOUNDS	KB			Normal
APB 1. SPUTUM	KC			Negative
2. UPINE	KD			Negative

PANEL L - HEMOLYTIC SCREEN

SICKLEDEX	LA			Negative
HEMOGLOBIN ELECTRO	LB			
1. HEMOGLOBIN A-1	LC			94.8-96.7%
2. HEMOGLOBIN A-2	LD			3.3-5.2%
3. HEMOGLOBIN - OTHER	LE			Negative
2HR URINE UROBILINOGEN	LF			.3-1.0 EU
DIRECT COOMBS	LG			Negative
INDIRECT COOMBS	LH			Negative

PANEL M - RENAL SCREEN

URINE OSMOLALITY	MA			800-1400 mosm*
SERUM OSMOLALITY	MB			280-290 mosm*
24 HR URINE TOT VOL	MC			600-1600 ml/24H

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NR:

DATES OF EXAMINATION

| |

PANEL N CEREBROSPINAL FLUID

CELL COUNT	NA			0-10 Lymph/cc*
GLUCOSE	NB			40-75 mg% *
PROTEIN	NC			15-45 mg% *
GRAM STAIN	ND			
INDIA INK PREP	NE			Negative
CULTURE	NF			Negative
PROTEIN ELECTRO	NG			Normal *
ALBUMIN	NH			56.8-76.4% *
ALPHA 1 GLOBULIN	NI			1.1-6.6% *
ALPHA 2 GLOBULIN	NJ			3.0-12.6% *
BETA GLOBULIN	NK			7.3-17.9% *
GAMMA GLOBULIN	NL			3.0-13.0% *
IGG	NM			0.2-5.0mg% *
VDRL	NN			Negative
PTA	NO			Negative

PANEL O - COAGULATION SCREEN

PLATELET COUNT	OA			200K-400K/cc*
PROTHROMBIN TIME 1.PAT	OB			12-14 Sec *
2.CON	OC			
PART THROMB TIME 1.PAT	OD			30-45 Sec *
2.CON	OE			
BLEEDING TIME	OF			1.00 - 6.00 *
CLOTTING TIME	OG			5.00 - 11.00 *
FIBRINOGEN	OH			110-400 mg% *
CLOT RETRACTION/LYSIS	OI			Normal

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NP:

DATES OF EXAMINATION

PANEL P - TISSUE DESTRUCT SCREEN

RHEUMATOID FACTOR	PA		Negative
ANTINUCLEAR ANTIBODY	PB		Negative

PANEL Q - CARDIOVASCULAR SCREEN

FREE FATTY ACIDS	QA		9-57 mg% *
------------------	----	--	------------

PANEL R - TRACE METALS

SERUM COPPER	RA		70-130 ug%
URINE COPPER	RB		30-90 ug/24Hr*
SERUM ZINC	RC		75-120 ug%
URINE ZINC	RD		300-600 ug/24*
SERUM CHROMIUM	RE		.03-.20 ug% *
URINE CHROMIUM	RF		10-20 ug/24Hr*
SERUM CADMIUM	RG		.02-1.00 ug% *
URINE CADMIUM	RH		7-30 ug/24Hrs*
SERUM IRON	RI		80-160 ug% *
TOTAL IRON BIND CAPAC	RJ		250-500 ug% *
URINE IRON	RK		100-300 ug/24*
BLOOD LEAD	RL		0-50 ug% *
24 HR URINE TOT VOL	RM		

PANEL S - STOOL EXAMINATION

OCCULT BLOOD	SA		Negative *
OVA & PARASITES	SB		Negative
FAT SCREEN	SC		Negative
72 HR STOOL FAT	SD		0.6-6.0 gm% *
CULTURE	SE		Normal

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NO:

DATES OF EXAMINATION

| |

PANEL T - HEPATIC SCREEN

EXCRE PUNC ICG TA | | 2.1-9.0% *

PANEL U - PARATHYROID SCREEN

UNBOUND SERUM CALCIUM UA | | 3.7-6.3 mg% *

ALK PHOS HEAT INACT UB | | Normal

PANEL V - MISCELLANEOUS

ACID PHOSPHATASE VA | | 0-1.6 IU *

D-XYLOSE EXCRETION VB | | 16-33% *

5 HP TOTAL VOLUME VC | | 100-300 ml

KOH PREP VD | | Negative

SERUM AMYLASE VE | | 60-160 Units% *

URINE AMYLASE VF | | 35-260 Unit/Hr*

1. TOTAL VOLUME VG | | 600-1600ml/24H

FTA ABS VH | | Negative

HEPATITIS ASSOC ANTIGN VI | | Negative

COCCIIDIOMYCOSIS TITER VJ | | Negative

HISTOPLASMOSIS TITER VK | | Negative

ALPHA 1 ANTITRYPSIN VL | | 200-400 mg% *

TOXOPLASMOSIS TITER VM | | Negative

URINE PORPHYRINS VN | | 10-30 ug/24Hr*

DELTA AMINO LEVUL ACID VO | | 1-7 mg/24 Hrs*

ALDOLASE VP | | 1-6 IU *

TFP VQ | | 80-90% *

SERUM CAPOTENE VR | | 50-300 ug% *

THYROGLOBULIN ANTIBODY VS | | Negative

24 HR URINE TOT VOL VT | | 600-1600ml/24H

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NF:

DATES OF EXAMINATION

| |

PANEL W - THREE GLASS URINALYSIS

COLOR	WA			Normal
SPECIFIC GRAVITY	WB			1.012-1.049*
PH	WC			5.0-7.0 *
PROTEIN	WD			Negative
GLUCOSE	WE			Negative
ACETONE	WF			Negative
BLOOD	WG			Negative
BILE	WH			Negative
MICRO-G1 1.CASTS HYALN	WI			0-20/10LPP
	F GRN WJ			0-20/10LPP
	OTHER WK			Negative
2. WBC	WL			0-20/10 HPP
3. RBC	WM			0-10/10 HPP
4. OTHER	WN			Negative
CULTURE-GLASS 1 24 HR	WO			0-10K Col/cc*
CULTURE-GLASS 1 48 HR	WP			0-10K Col/cc*

SSAN: -

NAME:

CASE NP:

DATES OF EXAMINATION

PANEL X - THREE GLASS URINALYSIS

MICRO-G2 1.CASTS HYALN	XA	!	!	0-20/10LPF
F GPN	XB	!	!	0-20/10LPF
OTHER	XC	!	!	Negative
2. WBC	XD	!	!	0-20/10 HPF
3. RBC	XE	!	!	0-10/10 HPF
4. OTHER	XF	!	!	Negative
CULTURE-GLASS 2 24 HR	XG	!	!	0-10K Col/cc*
CULTURE-GLASS 2 48 HR	XH	!	!	0-10K Col/cc*
MICRO-G3 1.CASTS HYALN	XI	!	!	0-20/10LPF
F GPN	XJ	!	!	0-20/10LPF
OTHER	XK	!	!	Negative
2. WBC	XL	!	!	0-20/10 HPF
3. RBC	XM	!	!	0-10/10 HPF
4. OTHER	XN	!	!	Negative
CULTURE-GLASS 3 24 HR	XO	!	!	0-10K Col/cc*
CULTURE-GLASS 3 48 HR	XP	!	!	0-10K Col/cc*

Figure 8. (Continued)

SSAN: - -

NAME:

CASE NR:

DATES OF EXAMINATION

| |

PANEL Y - HYPERTENSIVE SCREEN

24 HR URINE SODIUM	YA			80-180 mEq/L*
24 HR URINE POTASSIUM	YB			25-100 mEq/L*
VMA	YC			4-15 mg/24Hr*
17 KETOSTEROIDS	YD			8-20 mgs/24Hr*
HYDROXYCORTICOSTEROIDS	YE			6-24 mg/24Hrs*
CREATININE CLEARANCE	YF			97-137 cc/min*
URINE OSMOLALITY	YG			800-1400m/k/v*
SERUM OSMOLALITY	YH			280-290 m/k/v*
PLASMA CORTISOL (AM)	YI			8-22 ug% *
PLASMA CORTISOL (PM)	YJ			5-9 ug% *
RENIN 1.SODIUM LOAD	YK			Normal *
UPRIGHT 2.SODIUM DEPL	YL			Normal *
RENIN 1.SODIUM LOAD	YM			Normal *
RECLINE 2.SODIUM DEPL	YN			Normal *
24 HR URINE TOT VOL	YO			

SSAN: - -

NAME:

CASE NO:

DATE OF EXAMINATION

GLUCOSE TOLERANCE - PART I

		FBS	.5HR	1HR	1.5HR	2HR	3HR	4HR	5HR
		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
PLASMA GLUCOSE (mg%)	A								
Normals		<120	<220	<220	<172	<135	<120	<120	<120
UPINE GLUCOSE	B								
PLASMA FFA (ug%)	C								
PLASMA CORTISOL (ug%)	D								
SERUM COPPER (ug%)	E								
SERUM ZINC (ug%)	F								
SERUM CHROMIUM (ug%)	G								
SERUM CALCIUM (mg%)	H								
SERUM MAGNESIUM (mg%)	I								
SERUM CADMIUM (ug%)	J								

PART II - URINE

2HR PRE PRANDIAL 2HR POST PRANDIAL

		(A)	(B)
TOTAL VOLUME (ml)	K		
CREATININE (mg/TV)	L		
CALCIUM (mg/TV)	M		
CHROMIUM (ug/TV)	N		
COPPER (ug/TV)	O		
MAGNESIUM (mg/TV)	P		
ZINC (ug/TV)	Q		
CADMIUM (ug/TV)	R		

Figure 8. (Continued)

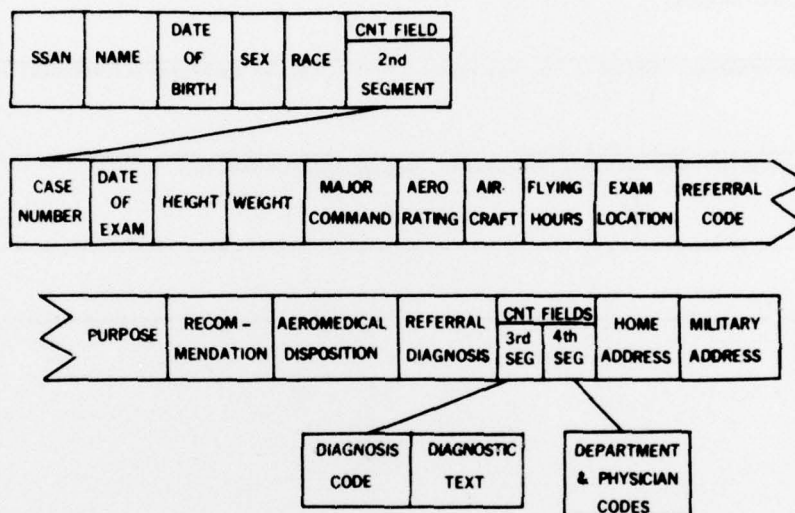


Figure 9. CS file structure.

REFERENCE CODE	PAGE NO.	01 AEROMEDICAL EVALUATION SUMMARY SHEET							
SOCIAL SECURITY ACCT NR.		NAME (LAST, FIRST, MI)						GRADE	CASE NUMBER
DATE OF BIRTH (YEAR, MONTH, DAY)	HEIGHT	WEIGHT	SEX	RACE	MAJ COMMAND	AERO-RATING	AIRCRAFT	FLYING HOURS	SEC I CODE
HOME ADDRESS (INCLUDE ZIP CODE)									
MILITARY ADDRESS (INCLUDE ZIP CODE)									
NAME, RELATIONSHIP AND PERMANENT ADDRESS OF TWO CIVILIANS THRU WHOM YOU MAY BE CONTACTED IN SUBSEQUENT YEARS.									
1.									
2.									
SEC II CODE	LOCATION	REFERRAL	PURPOSE	RECOMMENDATION	AEROMEDICAL DISPOSITION				
REFERRAL DIAGNOSIS									
SEC III CODE	DEPARTMENT AND PHYSICIAN								
DATE OF EXAM (YEAR, MONTH, DAY)	REVIEWING PHYSICIAN						SIGNATURE		
SEC IV CODE	USAFSAM, BROOKS AFB, TEXAS 78235								

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Figure 10. CS report form.

SSAN	NAME	CASE NUMBER	DATE OF EXAM	OTHER CATHETERIZATION DETERMINATIONS	CNT FIELD 2nd SEGMENT
------	------	----------------	--------------------	--	-----------------------------

SEQUENCE NUMBER	SECTION B DETERMINATIONS	SECTION C DETERMINATIONS	SECTION E DETERMINATIONS	SECTION F DETERMINATIONS	SECTION G DETERMINATIONS	SECTION H DETERMINATIONS
--------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------

Figure 11. Cardiac catheterization file structure.

20 CATHETERIZATION				
SSAN	NAME	GRADE	CASE NUMBER	
DATE OF BIRTH (Y, Mo, Day)	HEIGHT (Inches)	WEIGHT (Lbs)	CATH SEQUENCE NO.	NO. FOR PATIENT
DATE OF CATH (Y, Mo, Day)	PHYSICIAN IN CHARGE	ARTERIAL CATH STARTED	ARTERIAL CATH ENDED	
		AMOUNT OF DYE USED	NO. OF ARTERIAL CATH CHANGES	
SECTION A - CORONARY RISK PROFILE				
1. HAVE ANY OF THE PATIENT'S BLOOD RELATIVES HAD A HEART ATTACK, ANGINA (<i>Heart related chest pain</i>), CORONARY ARTERY SURGERY, OR DIED SUDDENLY BEFORE THE AGE OF 55 YEARS? (YES-NO)				
2. HAS PATIENT EVER BEEN TOLD HE HAS HIGH BLOOD PRESSURE? (Y-N)				
3. HAS PATIENT EXERCISED REGULARLY AT ONE TIME BUT NO LONGER DOES SO? (Y-N)				
4. DOES PATIENT PREFER AND REGULARLY EAT MEAT WITH VISIBLE FAT OR SKIN? (Y-N)				
5. NUMBER OF EGGS EATEN PER WEEK				
6. DOES PATIENT REGULARLY EAT (<i>at least every other day</i>) CHEESE OR BUTTER? (Y-N)				
SECTION B - REFERRAL CONSIDERATIONS				
7. REASON(S) FOR SAM REFERRAL (<i>One or more</i>)				
1. FLIGHT MEDICINE		4. OPHTHALMOLOGY		
2. PSYCHIATRY		5. INTERNAL MEDICINE		
3. NEUROLOGY		6. CARDIOLOGY		
8. CLINICAL REASON(S) FOR CARDIAC CATHETERIZATION (ONE OR MORE)				
01 - ABNORMAL ELECTROCARDIOGRAPHIC FINDING				
02 - ANGINA, DEFINITE OR SUSPECTED				
03 - HISTORY OF ISCHEMIC EPISODES OF INFARCTION				
04 - MITRAL VALVE DISEASE, SUSPECTED				
05 - AORTIC VALVE DISEASE, SUSPECTED				
06 - CARDIOMYOPATHY, OBSTRUCTIVE, SUSPECTED				
07 - CARDIOMYOPATHY, NON-OBSTRUCTIVE, SUSPECTED				
08 - PERICARDIAL DISEASE, SUSPECTED				
09 - RISK FACTOR PROFILE SUGGESTIVE OF CORONARY HEART DISEASE				
10 - OTHER				
9. ELECTROCARDIOGRAPHIC REASON(S) FOR CARDIAC CATHETERIZATION (<i>One or more</i>)				
01 - NONE, NORMAL STUDIES				
02 - LEFT BUNDLE BRANCH BLOCK				
03 - RIGHT BUNDLE BRANCH BLOCK				
04 - INTERVENTRICULAR CONDUCTION DEFECT				
05 - SUPRAVENTRICULAR TACHYCARDIA				
06 - ATRIOVENTRICULAR BLOCK - 1ST, 2ND, OR 3RD DEGREE				
07 - SERIAL T WAVE CHANGES				
08 - SERIAL ST SEGMENT CHANGES				
09 - INFARCT PATTERNS, ECG OR VCG				
10 - ABNORMAL DOUBLE MASTERS, REFERRED WITH				
11 - ABNORMAL DOUBLE MASTERS, SAM				
12 - ABNORMAL TREADMILL STRESS TEST WITH HISTORY OF NORMAL ECG'S				
13 - ABNORMAL TREADMILL STRESS TEST WITH HISTORY OF REPOLARIZATION ABNORMALITIES				
14 - PVC'S, VT - RESTING OR EXERCISE INDUCED				
15 - ABNORMAL SEPTAL Q WAVES				
16 - ABNORMAL TREADMILL STRESS TEST, REFERRED WITH				
17 - PACEMAKER DYSFUNCTION (e.g., sick sinus syndrome, etc.)				
18 - OTHER				

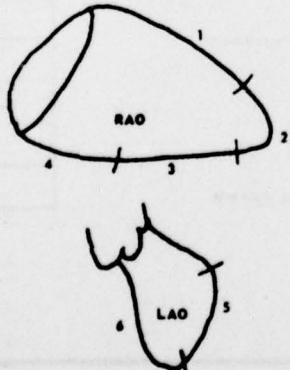
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Figure 12. Cardiac catheterization report form.

SECTION C - CATHETERIZATION PROCEDURES																																			
10. CATHETERIZATION PROCEDURES USED (One or more numbers) 01 - INTRAVENOUS CATHETER, STAND BY 02 - INTRAVENOUS PACING ELECTRODE, STAND BY 03 - RIGHT HEART CATHETERIZATION 04 - LEFT HEART CATHETERIZATION, RETROGRADE BRACHIAL 05 - LEFT HEART CATHETERIZATION, RETROGRADE FEMORAL 06 - HIS BUNDLE ELECTROCARDIOGRAPHY 07 - HIS BUNDLE ELECTROCARDIOGRAPHY WITH ATRIAL PACING 08 - CARDIAC OUTPUT, FICK 09 - CARDIAC OUTPUT, CARDIOGREEN 10 - CORONARY SINUS METABOLIC STUDIES 11 - SUPINE BICYCLE ERGOMETRY 12 - CONTRACTILITY STUDIES		<table border="1" style="width: 100%; height: 100px; border-collapse: collapse;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>																																	
11. ANGIOGRAPHY COMPLETED (One or more numbers) 01 - RIGHT ATRIAL ANGIOGRAPHY 02 - PULMONARY ANGIOGRAPHY 03 - FORWARD ANGIOGRAPHY 04 - LEFT VENTRICLE ANGIOGRAPHY 05 - SUPRAVALVULAR, AORTOGRAPHY 06 - CORONARY ANGIOGRAPHY, SONES 07 - CORONARY ANGIOGRAPHY, JUDKINS 08 - CORONARY ANGIOGRAPHY, MIXED 09 - RIGHT VENTRICULAR ANGIOGRAPHY		<table border="1" style="width: 100%; height: 100px; border-collapse: collapse;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>																																	
12. CATHETERIZATION TECHNIQUE AND VESSEL REPAIR (Enter appropriate number sequence) A 1 - ANTECUBITAL VEIN, RIGHT 2 - SAPHENOUS VEIN, RIGHT 3 - FEMORAL VEIN, RIGHT 4 - BRACHIAL ARTERY, RIGHT 5 - FEMORAL ARTERY, RIGHT B 1 - CUTDOWN 2 - PERCUTANEOUS C 1 - PRIMARY ARTERIAL REPAIR 2 - PURSESTRING ARTERIAL REPAIR 3 - LIGATION VENOUS 4 - VENOUS REPAIR 5 - N/A		<table border="1" style="width: 100%; height: 100px; border-collapse: collapse;"> <thead> <tr> <th style="width: 33.33%;">A</th> <th style="width: 33.33%;">B</th> <th style="width: 33.33%;">C</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	A	B	C																														
A	B	C																																	
13. COMPLICATIONS OF CARDIAC CATHETERIZATION (One or more numbers) 01 - NONE 02 - DEATH 03 - MYOCARDIAL INFARCTION 04 - VENTRICULAR FIBRILLATION 05 - VENTRICULAR TACHYCARDIA 06 - SUPRAVENTRICULAR TACHYCARDIA 07 - ATRIOVENTRICULAR BLOCK 08 - AYSTOLE OR MARKED BRADYCARDIA 09 - ANY ARRHYTHMIA LEADING TO DISCONTINUATION OF THE PROCEDURE 10 - PROFOUND HYPOTENSION 11 - INTRAMYOCARDIAL INJECTION 12 - MYOCARDIAL PERFORATION 13 - PERFORATION OF GREAT VESSELS 14 - DIMINISHED PULSE 15 - LOSS OF PULSE WITHOUT SYMPTOMS 16 - LOSS OF PULSE WITH SYMPTOMS 17 - LOSS OF PULSE OR ARTERIAL DAMAGE REQUIRING SURGICAL REPAIR 18 - A-V FISTULA 19 - VASOVASAL REACTION REQUIRING TREATMENT 20 - COMPLETE HEART BLOCK		<table border="1" style="width: 100%; height: 100px; border-collapse: collapse;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>																																	

Figure 12. (Continued)

SECTION D - CATHETERIZATION HEMODYNAMICS																				
14. AORTIC PRESSURE (mmHg) - SYSTOLIC																				
- DIASTOLIC																				
15. AORTIC PRESSURE (mmHg) - MEAN																				
16. LEFT VENTRICULAR PRESSURE (mmHg) - SYSTOLIC																				
- DIASTOLIC																				
17. END DIASTOLIC PRESSURE (mmHg) (Before Angiography)																				
18. END DIASTOLIC PRESSURE (mmHg) (After Angiography)																				
19. AORTIC VALVE GRADIENT (mmHg)																				
20. MITRAL VALVE GRADIENT (mmHg)																				
21. CARDIAC INDEX: L/MIN/M ²																				
SECTION E - SUPRAVALVULAR AORTOGRAPHY																				
22. COMPLETED (Y-N)																				
23. SUPRAVALVULAR AORTOGRAPHY (One or more by number)																				
01 - NORMAL 02 - DILATATION OF AORTA 03 - ANEURYSM OF AORTA 04 - DISSECTION OF AORTA 05 - UNICUSPID AORTIC VALVE 06 - BICUSPID AORTIC VALVE 07 - ANEURYSM SINUS VALSALVA 08 - AORTIC REGURGITATION, GRADE I 09 - AORTIC REGURGITATION, GRADE II 10 - AORTIC REGURGITATION, GRADE III 11 - AORTIC REGURGITATION, GRADE IV 12 - AORTIC RUN OFF LESION, OTHER 13 - CALCIUM, ASCENDING AORTA 14 - CALCIUM, AORTIC VALVE																				
SECTION F - LEFT VENTRICULAR ANGIOGRAPHY																				
24. COMPLETED (Y-N)																				
25. LEFT VENTRICULAR ANGIOGRAPHY (N=Normal, A=Abnormal. If A, complete items 26 and/or 27)																				
26. LOCATION AND DEFINITION OF ABNORMAL CONTRACTION PATTERNS (Select appropriate codes)																				
	A 1 - ANTERIOR WALL 2 - APEX 3 - DIAPHRAGMATIC 4 - POSTEROBASAL 5 - POSTEROLATERAL 6 - SEPTAL WALL B 1 - AKINESIS 2 - DYSKINESIS 3 - HYPOKINESIS 4 - ASYNCHRONY	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">A</th> <th style="width: 50%; text-align: center;">B</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	A	B																
A	B																			

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Figure 12. (Continued)

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