A COMPUTER ASSISTED PROGRAM FOR THE MANAGEMENT OF ACUTE DENTAL PAIN:

PROGRAMMER'S MANUAL

by

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R. G. Walter, CAPT, DC, USN  
Commanding Officer  
Naval Submarine Medical Research Laboratory

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A COMPUTER ASSISTED PROGRAM FOR THE MANAGEMENT OF ACUTE DENTAL PAIN PROGRAMMER'S MANUAL

by

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Summary Page

THE PROBLEM

To provide a programmer's manual for the Dental Emergencies Diagnostic System (DENTAL).

THE FINDINGS

The manual lists and describes all programs, data, and text files.

APPLICATION

The information presented in this manual will allow programmers to understand and modify DENTAL as necessary to enhance its capabilities or to correct program malfunctions.

ADMINISTRATIVE INFORMATION

This work was conducted under Naval Medical Research and Development Command Research Work Unit MM33C30.002-5004. It was submitted for review on 19 June 1989, approved for publication on 02 February 1990, and has been designated as Naval Submarine Medical Research Laboratory Report No. 1156.
Abstract

DENTAL is a medical decision support system for the diagnosis and management of dental emergencies. The user’s manual has already been published as NSMRL Report # 1143. This report is written to function as the programmer’s manual for DENTAL. The report lists and describes the purpose of all programs, data, and text files.

Familiarity with Microsoft QuickBASIC is required to modify DENTAL or to use this manual effectively to identify program malfunctions.
# DENTAL Programmer’s Manual

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DENTAL Programmer's Manual

1. Introduction to the DENTAL Programmer's Manual

DENTAL is the Dental Emergencies Diagnostic Module developed for the diagnosis and medical management of dental emergencies by Independent Duty Corpsmen aboard submarines.

The DENTAL User's Manual (NSMRL Report #1143) contains information that is important to the user on how to run the program. The user's manual does not contain programming information. The DENTAL Programmer's Manual contains programming documentation for the Dental Emergencies Diagnostic Module.

1.1 Purpose of the Programmer's Manual

The purpose of this manual is to document the actual program listings to aid any future modifications to DENTAL. This report is a programmer's manual. It contains a brief description of each program and its listing. This manual should be used by a programmer familiar with Microsoft BASICA or QuickBASIC. The manual will not be useful to other readers.

Information on use of the current program may be found in the Dental user's manual, NSMRL Report #1143.

1.2 Background of DENTAL

The Dental Diagnostic Module was originally written in Basic on the Apple computer. As IBM personal computers (PC) were installed on submarines, the program was made MS-DOS compatible and rewritten in BASICA.

Microsoft QuickBASIC has superseded BASICA, so the latest version of DENTAL has been written in Microsoft QuickBASIC 3.0. DENTAL fits on a single 360 kilobyte floppy disk. The program runs on a machine with 512 kilybytes of RAM, though less memory may be required.

2. Description of the program files.

There are two programs that are distributed with the DENTAL system. They are DENTAL.EXE and DIFF.EXE.

---

1. Microsoft and MS-DOS are registered trademarks of Microsoft corporation. IBM is a registered trademark of International Business Machines Corporation. Apple is a registered trademark of Apple Computers Inc.
2.1 DENTAL.EXE

This is the main Dental Diagnostic program. This is the only program that the user executes.

2.2 DIFF.EXE

This is the Differential Diagnosis program. It is executed from the main program (DENTAL.EXE).

3. Description of the program utility files.

The following programs are not included in the distributed DENTAL system, but are useful to the programmer.

3.1 DEFBLD.BAS

This program creates the term definition file (DEF.RND) and the term definition index (DEF.IDX) from data statements within the program.

3.2 DISDFBLD.BAS

This program creates the disease definition file (DISDEF.RND) and the disease definition index (DISDEF.IDX) from the file DXDEF.TXT.

3.3 TREATBLD.BAS

This program creates the random access treatment plan file (TRTMTS.RND) from the ASCII file TRTMTS.TXT.

4. Description of definition files.

The following files are the random access files and indexes used by the definition routines.

4.1 DEF.RND

This file contains the term definitions. It is a random access file with 60 characters per record.

4.2 DEF.IDX

This is a sequential ASCII file that contains the index for the term definitions which the dental program loads into the arrays dindx and item$. The format is:

\[ \text{dindx}(x,1) - \text{The record number for the beginning of this definition.} \]
\[ \text{dindx}(x,2) - \text{The number of records for this definition.} \]
\[ \text{item$(x) - \text{The term to be defined.}} \]

4.3 DISDEF.RND

This file contains the disease definitions. It is a random access file with 58 characters per record.
4.4 DISDEF.IDX

This is a sequential ASCII file that contains the index for the disease definitions which the dental program loads into the arrays disindx and disease$. The format is:

- `disindx(x,1)` - The record number for the beginning of this definition.
- `disindx(x,2)` - The number of records for this definition.
- `disease$(x)` - The disease to be defined.

5. Description of the data file DENTAL.DAT

DENTAL.DAT contains the information the user entered and the computer's diagnosis for each case. Every time a case is stored, the information is appended to the end of this file. If the file does not exist, it is created.

This data file is a random access file with a record length of 474 bytes. Each record contains 11 variables. Each variable is listed below along with a brief description, its length, and its starting position in the record.

<table>
<thead>
<tr>
<th>Starting Variable</th>
<th>Position</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ss$</td>
<td>1</td>
<td>9</td>
<td>The patient's social security number.</td>
</tr>
<tr>
<td>ag$</td>
<td>10</td>
<td>2</td>
<td>The patient's age.</td>
</tr>
<tr>
<td>dt$</td>
<td>12</td>
<td>10</td>
<td>The date converted into a string.</td>
</tr>
<tr>
<td>tm$</td>
<td>22</td>
<td>5</td>
<td>The time converted into a string.</td>
</tr>
<tr>
<td>r$</td>
<td>27</td>
<td>92</td>
<td>The 92 responses from DENTAL and DIFF converted into a string.</td>
</tr>
<tr>
<td>npb$</td>
<td>119</td>
<td>2</td>
<td>The total number of probable diagnoses.</td>
</tr>
<tr>
<td>nps$</td>
<td>121</td>
<td>2</td>
<td>The total number of possible diagnoses.</td>
</tr>
<tr>
<td>pb$</td>
<td>123</td>
<td>70</td>
<td>The identifying numbers for the probable diagnoses converted into a string.</td>
</tr>
<tr>
<td>ps$</td>
<td>193</td>
<td>70</td>
<td>The identifying numbers for the possible diagnoses converted into a string.</td>
</tr>
<tr>
<td>cpdx$</td>
<td>263</td>
<td>72</td>
<td>The corpsman's diagnosis converted into a string.</td>
</tr>
<tr>
<td>othr$</td>
<td>335</td>
<td>40</td>
<td>The corpsman's response, if he chose &quot;Other&quot;.</td>
</tr>
</tbody>
</table>

6. Description of the Treatment Plan files.

The following files contain the treatment plans in different formats.

6.1 TRTMTS.RND

This file is a random access file that contains the treatment plans. The length of each record is 75 bytes. Each treatment plan is terminated by a "I" (ASCII 124).

6.2 TRTMTS.TXT

This file is the ASCII version of the treatment plan file.
7. Description of batch files.

The following batch files are not necessary, but they make compiling, linking, and copying the DENTAL system more convenient.

7.1 DENTLIB.BAT

This is a batch file that creates the user library. It is shown below.

```
builddlib defrtns.obj dentsubs.obj winsave.obj fprint.obj int86.obj;
```

7.2 DENTBLD.BAT

This is a batch file that compiles and links the Dental and Diff programs. It is shown below.

```
qb dental/l;
qb diff/l;
link dental;
link diff;
```

7.3 COPYDEN.BAT

This is a batch file that copies the files necessary to copy the system to a floppy disk. It is shown below.

```
COPY/V \DENTAL\STEVE2\DENTALQ3\USERLIB.EXE A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DENTAL.EXE A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DIFF.EXE A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\TRTMTS.RND A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DEF.IDX A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DEF.RND A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DISDEF.IDX A:*.*
COPY/V \DENTAL\STEVE2\DENTALQ3\DISDEF.RND A:*.*
COPY/V \QUICK3\BRUN30.EXE A:*.*
```

8. Description of BRUN30.EXE.

BRUN30.EXE is the Microsoft QuickBASIC run-time module. It must be present in order to run the DENTAL and DIFF programs.
9. Description of BRUN30.LIB.

This is the Microsoft QuickBASIC run-time module library. It must be present in order to link the Dental and Diff programs.

10. Description of USERLIB.EXE.

USERLIB.EXE is a library of subroutines that the Dental and Diff programs use. The modules that are combined to create the user library are:

10.1 DEFRTNS.BAS
This module contains the definition and window routines.

10.2 DENTSUBS.BAS
This module contains the subroutines for DENTAL and DIFF.

10.3 WINSAVE.ASM
This is the assembly language routine to save the text behind a window.

10.4 FPRINT.ASM
This is the assembly language routine to print text fast.

10.5 INT86.OBJ
This is a QuickBASIC supplied assembly-language subroutine that provides software interrupt support for system service calls.

11. Procedure to compile and link.

DENTAL.BAS, DIFF.BAS, DEFRTNS.BAS and DENTSUBS.BAS are compiled using the QuickBASIC 3.0 compiler. Use the /L option for DENTAL.BAS and DIFF.BAS (it allows them to access the user library). The assembly language subroutines WINSAVE.ASM and FPRINT.ASM are compiled using the microsoft MACRO assembler Version 1.27, MASM.EXE, but should also compile with any later version without difficulty. LINK.EXE, the Microsoft linker, is used to link the object modules DENTAL.OBJ and DIFF.OBJ. The library file, BRUN30.LIB must be present on the disk in order to link the DENTAL and DIFF object modules.

The batch file DENTBLD.BAT, is used to compile and link the DENTAL and DIFF programs.

NOTE: If any of the programs that are combined to create the user library are modified, it must be rebuilt and the DENTAL and DIFF programs must be recompiled.
12. Procedure to change the Term Definition files.

Load the program DEFBLD.BAS into the QuickBASIC environment. Edit the definitions in the data statements located at the bottom of the program. Press CTRL-R to run the program and create new DEF.RND and DEF.IDX files.

13. Procedure to change the Disease Definition files.

Edit the ASCII file of disease definitions (DXDEF.TXT). Load the program DISDFBLD.BAS into the QuickBASIC environment and press CTRL-R to run it. It will create new DISDEF.RND and DISDEF.IDX files.

14. Procedure to change the treatment files

Edit the ASCII file TRTMTS.TXT. Load the program TREATBLD.BAS into the QuickBASIC environment and press CTRL-R to run it. It will create a new TRTMTS.RND file. Check the record numbers that appear on the screen against the data statements in the dental program. If any of the record numbers have changed, the data statement must also be changed and the DENTAL program recompiled.

15. Procedure to build the user library.

After any modifications are made to DEFRTNS.BAS, DENTSUBS.BAS, WINSAVE.ASM and FPRINT.ASM recompile them, then execute DENTLIB.BAT to rebuild the user library.
Acknowledgements

The original Dental Diagnostic Program was produced by Captain Stephen A. Ralls at the Naval Dental Research Institute, Great Lakes, IL. Some of the window and assembly language routines were written by LCDR David G. Southerland. The authors would like to express their deepest appreciation for the superb technical support provided by Ms. Ellen Perkins, Mr. Harry Fiske, and Ms. Susan Monty.

Disclaimer

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Appendix A

List of Variables Used in Programs

ANSI
The response to a question passed from getresp.

ANSI
The response to a question passed from trtresp to see trmt.

ATTRIB
The screen attribute used by SCROLLUP.

BEGC
Used by BOX, the column where the box begins.

BEGR
Used by BOX, the row where the box begins.

C
Corresponds with RESPONSE(57).

CI
Corresponds with RESPONSE(10).

CORPRESP(36)
When the corpsman is asked to diagnose the patient, the cells in CORPRESP that correspond with the diseases he picks are set to 1.

D1
Corresponds with RESPONSE(3).

D2
Corresponds with RESPONSE(4).

D3
Corresponds with RESPONSE(5).

DGLIMT
The maximum number of characters to print on a line.

DGPOS(35,2)
Line numbers to keep track of the line the diagnosis is displayed on are stored in this array.

DINDX(120,2)
This is the index for the Term Definitions.

DISEASE$(34)
The diseases used by the disease definition routines are stored in this array.

DISINDX(34,2)
This is the index for the Disease Definitions.

DU
Corresponds with RESPONSE(7).

DX$(35)
This array contains the 35 diseases.

E1
Corresponds with RESPONSE(14).
Corresponds with RESPONSE(15).

Corresponds with RESPONSE(17).

Corresponds with RESPONSE(18).

Corresponds with RESPONSE(19).

Corresponds with RESPONSE(16).

Corresponds with RESPONSE(20).

Corresponds with RESPONSE(21).

Corresponds with RESPONSE(22).

Corresponds with RESPONSE(53).

Corresponds with RESPONSE(23).

Corresponds with RESPONSE(24).

Corresponds with RESPONSE(25).

Corresponds with RESPONSE(26).

Corresponds with RESPONSE(28).

Corresponds with RESPONSE(27).

Used by BOX, the column where the box ends.

Used by BOX, the row where the box ends.

Corresponds with RESPONSE(67).

The number of the first diagnosis to print on a page in SEETRMTS.

Corresponds with RESPONSE(77).

Corresponds with RESPONSE(8).

This array contains the terms used by the term definition routines.

The number of the last diagnosis to print on a page in SEETRMTS.
LONGEST

The number of characters in the longest option.

MAIN

This is a constant used to compare with responses.

MB

Corresponds with RESPONSE(86).

MMENU

This is used to save the response from the main menu.

MON$

MON$ is equal to "c" if the monitor is color and "m" if the monitor is monochrome.

MP

Corresponds with RESPONSE(87).

MR

Corresponds with RESPONSE(85).

MW

Corresponds with RESPONSE(84).

MY

Corresponds with RESPONSE(88).

NF

Corresponds with RESPONSE(54).

NM

This is the total number of diagnoses in the program.

NUMDG(n)

NUMDG(1) is a counter for the total number of probable diagnoses. NUMDG(2) is a counter for the total number of possible diagnoses.

NUMOPS

This is the number of options for a given question.

OPLINE(10)

The line numbers for the first line of each option to a given question are stored in this array.

OPTION$(10,2)

Array to store the options to a given question.

OW

Corresponds with RESPONSE(50).

P1

Corresponds with RESPONSE(29).

P2

Corresponds with RESPONSE(31).

P3

Corresponds with RESPONSE(32).

P4

Corresponds with RESPONSE(33).

P5

Corresponds with RESPONSE(34).
P6  Corresponds with RESPONSE(36).
P7  Corresponds with RESPONSE(37).
P8  Corresponds with RESPONSE(38).
P9  Corresponds with RESPONSE(39).
PAGE  This keeps track of the page number.
PAUSE!  This variable is a counter for the pause between questions.
PB  Corresponds with RESPONSE(11).
PC  Corresponds with RESPONSE(12).
PCOL  This variable keeps track of which side of the screen the diagnoses are listed.
PE  Corresponds with RESPONSE(13).
PG  Corresponds with RESPONSE(40).
PH  Corresponds with RESPONSE(42).
PN  Corresponds with RESPONSE(9).
POSSCOL  Column number to display possible diagnoses.
POSSPTRL  Column number to display pointer for possible diagnoses.
PROBCOL  Column number to display probable diagnoses.
PROBPTR  Column number to display pointer for probable diagnoses.
PV  Corresponds with RESPONSE(41).
PZ  Corresponds with RESPONSE(58).
QCOL  Column number to display question.
QROW  Row number to display question.
QUE$$  Variable to store the question.
REALCASE  Flag for real case (simulated case = 0; real case = 1).

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RESPONSE(92) Array to store the all the responses to the questions in DENTAL and DIFF.

SA Corresponds with RESPONSE(80).

SB Corresponds with RESPONSE(81).

SC Corresponds with RESPONSE(83).

SCROLLINES The number of lines to scroll, used by SCROLLUP.

SH Corresponds with RESPONSE(89).

SI Corresponds with RESPONSE(90).

SJ Corresponds with RESPONSE(91).

SK Corresponds with RESPONSE(92).

SOFTMENU The response from the Soft Tissue Lesions Menu is stored in this variable.

SW Corresponds with RESPONSE(35).

SZ Corresponds with RESPONSE(82).

T0 Corresponds with RESPONSE(69).

TA Corresponds with RESPONSE(55).

TB Corresponds with RESPONSE(56).

TC Corresponds with RESPONSE(60).

TDLINE(35) This array is used in SEETRTMTS. It keeps track of the line numbers where the diseases are displayed.

TG Corresponds with RESPONSE(61).

TH Corresponds with RESPONSE(66).

TI Corresponds with RESPONSE(62).

TJ Corresponds with RESPONSE(63).

TK Corresponds with RESPONSE(64).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL</td>
<td>Corresponds with RESPONSE(65).</td>
</tr>
<tr>
<td>TM</td>
<td>Corresponds with RESPONSE(6).</td>
</tr>
<tr>
<td>TN</td>
<td>Corresponds with RESPONSE(68).</td>
</tr>
<tr>
<td>TP</td>
<td>Corresponds with RESPONSE(70).</td>
</tr>
<tr>
<td>TPTRCOL</td>
<td>Column number to display pointer in SEETRTMTS.</td>
</tr>
<tr>
<td>TR</td>
<td>Corresponds with RESPONSE(71).</td>
</tr>
<tr>
<td>TREATIDX(35)</td>
<td>This is the index for the first record number of each treatment plan.</td>
</tr>
<tr>
<td>TREATROW</td>
<td>This contains the row to print the treatment information on.</td>
</tr>
<tr>
<td>TS</td>
<td>Corresponds with RESPONSE(72).</td>
</tr>
<tr>
<td>TT</td>
<td>Corresponds with RESPONSE(73).</td>
</tr>
<tr>
<td>TU</td>
<td>Corresponds with RESPONSE(74).</td>
</tr>
<tr>
<td>TV</td>
<td>Corresponds with RESPONSE(76).</td>
</tr>
<tr>
<td>TW</td>
<td>Corresponds with RESPONSE(75).</td>
</tr>
<tr>
<td>TY</td>
<td>Corresponds with RESPONSE(78).</td>
</tr>
<tr>
<td>TZ</td>
<td>Corresponds with RESPONSE(79).</td>
</tr>
<tr>
<td>UZ</td>
<td>Corresponds with RESPONSE(30).</td>
</tr>
<tr>
<td>WHEREFROM$</td>
<td>If WHEREFROM$=&quot;Diff&quot; then control is being transferred from the DIFF program.</td>
</tr>
<tr>
<td>X</td>
<td>Corresponds with RESPONSE(2).</td>
</tr>
<tr>
<td>X1</td>
<td>Corresponds with RESPONSE(43).</td>
</tr>
<tr>
<td>X2</td>
<td>Corresponds with RESPONSE(44).</td>
</tr>
<tr>
<td>X3</td>
<td>Corresponds with RESPONSE(45).</td>
</tr>
<tr>
<td>X4</td>
<td>Corresponds with RESPONSE(46).</td>
</tr>
<tr>
<td>X5</td>
<td>Corresponds with RESPONSE(47).</td>
</tr>
</tbody>
</table>

DENTAL Programmer's Manual A-6
X6  Corresponds with RESPONSE(48).
X7  Corresponds with RESPONSE(49).
X8  Corresponds with RESPONSE(51).
X9  Corresponds with RESPONSE(52).
XX  Corresponds with RESPONSE(1).
Z(35) Each cell in this array corresponds with a certain diagnosis. If Z(x)=1 then this is a probable diagnosis, if Z(x)=2 then this is a possible diagnosis.
ZY  Corresponds with RESPONSE(59).
Appendix A
Program Listings

DENTAL.BAS

REM This is the main program. It was modified last on 4/3/89 by Cindy Burgess-Russotti.

DEFINT A-Z

REM Dimension arrays for DENTAL and DIFF programs.

DIM Z(35)
DIM DX$(35)
dim response(92)
dim option$(10, 2), opline(10)
dim dgpos(35, 2), treatnum(35, 2), numdg(2), treatidx(35)
dim tdlne(35), corresp(36)

REM Dimension arrays for window routines.

DIM WINDscratt(5), WINDframatt(5), WINDheader$(5)
DIM WINDrow(5), WINDcol(5), WINDheight(5), WINDwidth(5)
DIM wind%(2000, 5)
DIM WINDrowptr(5), WINDcolptr(5) 'UL corner of frame

REM Dimension arrays for definition routines

DIM item$(120), dindx(120, 2), disease$(34), disindx(34, 2)

REM Include common statements for all modules.
REM NOTE: The "rem" before the command is part of the command.

REM $include: 'dentcomm.bas'
REM $include: 'windcomm.bas'

REM Initialize variables for dental.
REM If this is the first time through (mon$="") ask if the display is color or monochrome. The default is color.

ask:
if (mon$"C") and (mon$"c") and (mon$"M") and (mon$"m")
then
    cls: locate 23, 4: print "Monochrome or Color Display? (M/C) C"
    locate 23, 40, 1
    mon$= input$(1)
    if mon$=chr$(13) then
        mon$="c"
    end if
end if

REM If monitor is monochrome, then initialize variables for black, white, and high intensity white. Otherwise, initialize variables for color.

if mon$="m" or mon$="M" then
    blink=16: highlight=15: normal=7: bground=0: border=0: quescolor=15
    keyline=7: keylettr=0: ptcolor=15: respbar=7: resplettr=0
    keyline2=15: keylettr2=0: ssnbox=7
    dotcolor=7: otherscrn=7: otherfram=-112

REM definition routine colors
defkeyline=7: defkeylettr=0: def1f=-112: def1s=7
def2f=-112: def2s=7: select1f=-112: select2f=-112: select2s=7

elseif mon$="e" or mon$="C" then
   blink=16: highlight=14: normal=7: bgound=0: border=0: quescolor=15
   keyline=1: keylettr=7: ptcolor=12: respbar=7: resplettr=1
   keyline2=3: keylettr2=1: ssnbox=9
   dotcolor=2: otherscrn=112: otherfram=-32

   REM definition routine colors

   defkeyline=3: defkeylettr=0: def1f=-116: def1s=48
   def2f=-32: def2s=113: select1f=-23: select2f=-116: select2s=48

else
   goto ask
end if

LOCATE , , 0           ' turn cursor off
color normal, bgound

FOR I=0 TO NM           ' read dx and treatment data from data statements
    READ treatidx(i), DX$(I)
NEXT I

REM If control is being returned to the DENTAL program from diff then skip opening
files, reading indexes, and printing the instructions.

If wherefrom$="diff" THEN    ' from diff
   GOTO mainmenu
end if

REM open random files, read indexes and words (definition routines)

open "r", #1, "def.rnd", 60      ' for term definitions
open "def.idx" for input as #2
open "r", #3, "disdef.rnd", 60    ' for disease definitions
open "disdef.idx" for input as #4

REM read term definitions and index
FOR x=1 TO 77
    input #2, dindx(x, 1), dindx(x, 2)
    input #2, item$(x)
NEXT x
close #2

REM read disease definitions and index

for x=1 to 34
    input #4, disindx(x, 1), disindx(x, 2)
    line input #4, disease$(x)
next x
close #4

REM Print the title page.

160 cls
color normal, bgground
call box(begr, begc, endr, endc)  'draw a box around the screen
color normal, bgground
locate 3, 18:print "Naval Submarine Medical Research Laboratory"
locate 4, 30:print "Groton, Connecticut"
LOCATE 6, 24:PRINT "Naval Dental Research Institute" 
LOCATE 7, 29:PRINT "Great Lakes, Illinois"
LOCATE 11, 15
color highlight, bgground
PRINT "COMPUTER-ASSISTED DIAGNOSIS OF DENTAL EMERGENCIES"
LOCATE 13, 21
PRINT "FOR INDEPENDENT DUTY HOSPITAL CORPSMEN"
color normal, bgground
LOCATE 19, 34: PRINT "Version 3.0."
LOCATE 20, 35:PRINT "April 1989"

LOCATE 25, 1: print "Press RETURN to continue."
X$=input$(1)

REM Print the instructions.

180 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
'clear the screen except for the box

DENTAL Programmer's Manual  A-11
This computer-assisted program is designed to aid you in the diagnosis and treatment of common dental emergencies. As such, it is only advisory and is not meant to replace your first hand impressions or judgment. The program is divided into three main sections:

1. **Diagnosis of Dental Emergencies** - Use this section for symptomatic dental emergencies only. With this section, you must select either "not trauma-related" or "trauma-related" categories.

2. **Differential Diagnosis of Soft Tissue Lesions** - Use this section for a differential diagnosis of soft tissue lesions.

3. **Other Activities** - Use this section for definitions of terms and diseases, to bypass the questions and proceed directly to specific treatment recommendations, or to enter a new patient. When indicated, press Function key 9 (F9) or 10 (F10) for the Main Menu or Sub-menus, respectively.

The program is able to help you only by your accurate input of information. You will be asked to answer a series of questions concerning the problem at hand. For each question, select one answer that is most appropriate. Most questions will need to be answered using the following...
Step 1. Use the up and down arrow keys (";chr$(24);" ;chr$(25);") to move the pointer (";chr$(16)+chr$(16);") to your choice.".color normal, bground

locate 8, 3:PRINT "then,"

color highlight, bground
locate 12, 3:PRINT " Step 2. Press the Return key."

color normal, bground
locate 14, 3:PRINT "Some questions can be answered by just pressing the Return key. These will"

locate 15, 3:PRINT "be so indicated when appropriate. The ";chr$(34);"Return";chr$(34);" key, as referred to in this"
locate 16, 3:PRINT "program, is synonymous with the ";chr$(34);"Enter";chr$(34);" key."
locate 18, 3:PRINT "Please select the areas of concern from the various menus carefully!"
locate 19, 3:PRINT "Read and answer the questions carefully!"
LOCATE 25, 1:print "Press RETURN to continue.";
x$=input$(1)

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
color highlight, bground
locate 2, 3:PRINT "Printing The Screen Display"
color normal, bground
locate 4, 3:PRINT "If at any time you desire to print the screen display with your printer, use"
locate 5, 3:PRINT "the following sequence:"
color highlight, bground
locate 7, 8:PRINT "Step 1. Hold the Shift key down, ";color normal, bground
locate 9, 3:PRINT "then,"
color highlight, bground
locate 11, 8:PRINT "Step 2. Press the Print Screen (PrtSc) key"
color normal, bground
locate 13, 3:PRINT "This is valuable for printing definitions or treatment recommendations."
locate 15, 3:color highlight, bground:PRINT "Important!":color normal, bground
locate 17, 3:PRINT "Please examine the patient carefully. Review the patient’s:"
locate 19, 3:PRINT " * Chief Complaint
* Allergies"
locate 21, 3:PRINT " * Medical and Dental History";
* Medications"
locate 23, 3:PRINT " * Signs and Symptoms
* Habits"
LOCATE 25, 1:PRINT "Press RETURN to continue."
x$=input$(1)

REM The routine to display each question is as follows:

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)  
Clear the screen except for the border.
call initoptions   ' Erase options assigned to option$ from previous
question.
ques$="Question text"   ' Assign question text to ques$.

option$(1, 1)=" 1. Option one line one"   ' Assign options to option$.
option$(1, 2)=" Option one line two"
option$(2, 1)=" 2. Option two line one"
option$(3, 1)=" 3. Option three line one"
option$(4, 1)=" 4. Option four line one"

longest=26   ' Assign length of longest option to longest.
umops=4   ' Assign number of options to numops.
qrow=2   ' Row to locate cursor to print question.
qcol=5   ' Column to locate cursor to print question.

call priques((ques$))   ' Call subroutine to print the question. Put
parenthesis around ques$, so that it will be passed by value. Priques will
change it, so it shouldn't be passed by reference.

call prioptions   ' Call subroutine to print options.
an$s=0   ' Set ans (variable used in getresp) to zero.
call getresp   'Call subroutine to get response from user. Response is
assigned to ans.

if ans=67 then   'Branch to appropriate menu if F9 or F10 keys were
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
goto trauma
end if

old variable name=ans 'Assign ans to old variable left over from previous versions of the program (this is necessary in order for the computer to make a diagnosis).

response(3)=old variable name 'Assign old variable to response array.

pause!=timer+.5 'Pause for a little while before clearing the screen and displaying a new question.

do while TIMER pause!
loop

REM Ask if this case is real or simulated.

getsocsec:
cls
call box (begr, begc, endr, endc)
call initoptions
ques$="This case is:"
option$(1, 1)=" 1. Real"
option$(2, 1)=" 2. Simulated"

longest=13
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
if ans=1 then
    realcase=1
else
    realcase=0
end if

pause! = timer + .5
do while TIMER pause!
loop

REM if this is a real case then get the patient's social security number and age from the user.

if realcase=1 then
    CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call getssn
end if

pause! = timer + .5
do while TIMER pause!
loop

REM Print the main menu. The PRIOPIONS subroutine isn't used because of the sub-headings for the menu, and the highlighted word in option #1.

mainmenu:

call box (begr, begc, endr, endc)
wherefrom$ = "dental"

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
locate 25, 1:color keyline, keyline
'print blank instruction line
print space$(80);
color normal, bgound

850 call initoptions
'initialize option$
locate 2, 35
color highlight, bgound:PRINT "Main Menu":color normal, bgound

count=1:oprow=4:opcol=17:ptrcol=opcol-5
locate oprow, ptrcol
color highlight, bgound

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PRINT "Diagnosis of Dental Emergencies":color normal, bground
oprow=oprow+2
locate oprow, ptrcol:color ptrcolor, bground:print ptr$:color normal, bground
locate oprow, opcol:PRINT " 1. Discomfort or Pain, NOT Trauma-related"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, opcol:PRINT " 2. Discomfort or Pain, Trauma-related"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, ptrcol:color highlight, bground:PRINT "Differential Diagnosis of Soft Tissue Lesions":color normal, bground
oprow=oprow+2
locate oprow, opcol:PRINT " 3. A Clinical Change in Oral/Facial Tissues"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, ptrcol:color highlight, bground:PRINT "Other Activities":color normal, bground
oprow=oprow+2
locate oprow, opcol:PRINT " 4. Definitions"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, opcol:PRINT " 5. Treatment Recommendations"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, opcol:PRINT " 6. Enter a New Patient"
opline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, opcol:PRINT " 7. Quit"
opline(count)=oprow

REM Assign options to option$ for GETRESP subroutine.

option$(1, 1)= " 1. Discomfort or Pain, NOT Trauma-related"
option$(2, 1)= " 2. Discomfort or Pain, Trauma-related"
option$(3, 1)= " 3. A Clinical Change in Oral/Facial Tissues"
option$(4, 1)= " 4. Definitions"
option$(5, 1)= " 5. Treatment Recommendations"
option$(6, 1)= " 6. Enter a New Patient"
option$(7, 1)= " 7. Quit"

GOSUB 32400 'initialize all answer variables to zero

longest=45
numops=7
ans=0

xx=0
mmenu=0

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call getresp

pause! = timer + .5
do while TIMER  pause!
loop

XX = ans
response(1) = XX

REM Assign response to mmenu. Mmenu is used to determine what submenu should be
displayed when the user presses the "F10" key.

mmenu = ans

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)

REM Branch according to response from main menu (before printing instruction line).

IF XX = 4 THEN
goto defmenu
end if
IF XX = 5 THEN
call seestmts
goto mainmenu
end if
IF XX = 6 THEN
GOTO getsocsec
end if
IF XX = 7 THEN GOTO 15230

REM Print instruction line at bottom of screen.

locate 25, 1: color keyline, keyline: print space$(80);
locate 25, 5: color normal, bground: print " F9 ";:color keylettr,
keyline: print " - Main Menu";
locate 25, 26: color normal, bground: print " F10 ";:color keylettr,
keyline: print " - Sub-menu";
locate 25, 47: color normal, bground: print " F7 ";:color keylettr,
keyline: print " - Definitions";
color normal, bground
REM Branch according to response from main menu (after printing instruction line).

IF XX = 1 THEN GOTO 1450
IF XX = 2 THEN GOTO 8470
IF XX = 3 THEN GOTO 1880

REM Display definitions submenu and call appropriate definition routine.

defmenu:
call box(beg, begc, endr, endc)
locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, bground:print " F9 ";:color keylettr,
keyline:print "- Main Menu";
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
count=1:oprow=4:opcol=27:ptrcol=opcol-5
locate 2, 32:color highlight, bground:PRINT "Definitions Menu":color
normal, bground
locate oprow, ptrcol:color ptrcolor, bground:print ptr$:color normal,
bground
locate oprow, opcol:print " 1. Definitions of diseases"
oline(count)=oprow:count=count+1:oprow=oprow+2
locate oprow, opcol:print " 2. Definitions of Terms"
oline(count)=oprow:count=count+1:oprow=oprow+2
option$(1, 1)= " 1. Definitions of diseases"
option$(2, 1)= " 2. Definitions of Terms"
longest=27
numops=2
ans=0
call getresp

if ans=67 then
goto mainmenu
end if

pause!=timer+.5
do while TIMER pause!
loop
dmenu=ans

IF dmenu=1 THEN
cls
call diseasedefinitions
elseif dmenu=2 THEN
cls
call definitionroutine
end if
GOTO defmenu

REM Display Dental Emergencies Menu, Not Trauma Related, and get users response

nottrauma:

call box (begr, begc, endr, endc)

1450 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines,attrib)
call initoptions 'initialize option$ array
locate 2, 18:color highlight, bground
PRINT "Dental Emergencies Menu, Not Trauma-related":color normal, bground

option$(1, 1)= "1. Tooth, Specific"
option$(2, 1)= "2. Teeth, Generalized or Multiple Adjacent"
option$(3, 1)= "3. Gingiva, Specific Area"
option$(4, 1)= "4. Gingiva, Generalized"
option$(5, 1)= "5. Oral Mucosa, Tooth-associated"
option$(6, 1)= "6. Other Oral Soft Tissues"
option$(7, 1)= "7. Temporomandibular Joint/Muscles"
option$(8, 1)= "8. Dental Extraction Site"
option$(9, 1)= "9. Tissue Swelling"

tempresponse=response(1)  'save response(1), response for main menu
before erasing response array
GOSUB 32400  'initialize answer variables to zero
response(1)=tempresponse

longest=40
numops=9
qrow=2
qcol=5
call prioptions
ans=0
call getresp
If F9 or F10 were pressed then branch to appropriate menu

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

x=ans
response(2)=X

pause! = timer+.5
do while TIMER  pause!
loop

Branch according to user's response from Not Trauma-related Menu

IF X=1 THEN GOTO 5300
IF X=2 THEN GOTO 3210
IF X=3 THEN GOTO 5250
IF X=4 THEN GOTO 5250
IF X=5 THEN GOTO 5300
IF X=6 THEN GOTO 1790
IF X=7 THEN GOTO 7140
IF X=8 THEN GOTO 1920
IF X=9 THEN GOTO 5250

Branch here if Other Oral Soft Tissues (option #6 from Not Trauma-related Menu) was chosen. Refer user to D.I.F.F program.

1790 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
LOCATE 7, 3:PRINT "This program can only diagnose conditions that are associated with the teeth":
LOCATE 8, 3:PRINT "or gingiva (gums) or otherwise specified on the Main Menu and which have";
LOCATE 9, 3:PRINT "signs or symptoms consistent with common dental emergency conditions. Please";
LOCATE 10, 3:PRINT "re-examine the patient and review your findings. Make sure you have not";
LOCATE 11, 3:PRINT "selected inconsistent answers to questions. You are"
being returned to the”;
LOCATE 12, 3:PRINT "Main Menu. The Soft Tissue Lesions Section (No. 3)
can be used to obtain”;
LOCATE 13, 3:PRINT "a differential diagnosis of the condition should this
be unsuccessful.”;
locate 25, 1:print space$(80);
LOCATE 25, 1: print "Press RETURN to continue.”;
x$=input$(1)

GOTO mainmenu

REM Run DIFF program (option #3 from Main Menu).

1880 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)

locate 25, 1:color normal, bground 'clear instruction line
print space$(80);
chain "DIFF"

REM Dental Extraction site Not Trauma-related (option #8 from NotTrauma-related
Menu)

1920 GOSUB 2530 'pain subroutine
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Which of the following most closely approximates when"
ques$=ques$+" the extraction was performed?”
option$(1, 1)=" 1. 3 to 5 days ago"
option$(2, 1)=" 2. 6 days to 4 weeks ago"
option$(3, 1)=" 3. From 4 to 8 weeks ago"
option$(4, 1)=" 4. None of the above"

longest=26
numops=4
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

D1=ans
response(3)=D1

pause!=timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Which of the following characterizes the problem associated"
ques$=ques$+" with the extraction site area?"
option$(1, 1)="1. A steady pain in the extraction site area. The patient may"
option$(1, 2)=" have an earache on the same side."
option$(2, 1)="2. A small, well-demarcated area that is tender to touch and which"
option$(2, 2)=" feels like there is something sharp or jagged under the tissue"
option$(3, 1)="3. A localized diffuse swelling which may be fluctuant or"
option$(3, 2)=" have purulence evident."
option$(4, 1)="4. None of the above/other"
longest=68
numops=4
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

D2=ans
response(4)=D2

pause!=timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Was the dental extraction site associated with a lower posterior tooth?"
option$(l, 1)=" 1. Yes"
option$(2, 1)=" 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

D3=ans
response(5)=D3

pause!=timer+.5
do while TIMER pause!
loop

REM Set cell in Z array that corresponds to a certain diagnosis to 1 (probable) or 2 (possible) depending on responses to previous questions.
IF (D1=1) AND ((D2=1) OR (PN 1) OR (D3=1)) THEN Z(1)=2
IF (D1=1) AND (D2=1) AND (D3=1) AND (PN 1) THEN Z(1)=1
IF (D2=2) AND ((D1 1) OR (PN 3)) THEN Z(2)=2
IF (D11) AND (D2=2) AND (D14) AND (PN3) THEN Z(2)=1
IF (D2=3) AND ((DU 3) OR (D1 3)) THEN Z(3)=2
IF (D2=3) AND (DU=1) AND (D1 3) THEN Z(3)=1
IF Z(3)=1 OR Z(3)=2 THEN GOTO 3170
GOTO 11810

2430 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="The patient has had a similar problem"
option$(1, 1)= " 1. Once previously"
option$(2, 1)= " 2. Off-and-on"
option$(3, 1)= " 3. Never before"
longest=21
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TM=ans
response(6)=TM

pause!=timer+.5
do while TIMER  pause!
loop

2530 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="How long has the immediate problem lasted?"
option$(1, 1)= " 1. For the last few days"
option$(2, 1)= " 2. For the last few weeks"
option$(3, 1)= " 3. Long standing"
longest=27
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=681 then
go to nottrauma
elseif ans=682 then
go to trauma
end if

DU=ans
response$(7)=DU

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
GOTO 2740

2650 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="When present, the pain has lasted"
option$(1, 1)= " 1. Less than an hour."
option$(2, 1)= " 2. An hour or longer."
longest=23
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

HR=ans
response(8)=HR

pause!=timer+.5
do while TIMER pause!
    loop

RETURN

2740 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="The degree of discomfort is"
option$(1, 1)= " 1. Mild."
option$(2, 1)= " 2. Moderate."
option$(3, 1)= " 3. Severe (interferes with sleep or work)."

longest=44
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

PN=ans
response(9)=PN
pause! = timer + .5
do while TIMER pause!
loop

REM branch here
IF G = 1 OR P10 OR X = 3 OR X = 4 OR X = 7 OR X = 8 OR X = 9 THEN
RETURN
end if

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "The pain or discomfort is"
option$(1, 1) = " 1. Continuous."
option$(2, 1) = " 2. Intermittent."

longest = 19
numops = 2
qrow = 2
qcol = 5
call priques((ques$))
call prioptions
ans = 0
call getresp

if ans = 67 then
goto mainmenu
elseif ans = 681 then
goto nottrauma
elseif ans = 682 then
goto trauma
end if

CI = ans
response(10) = CI

pause! = timer + .5
do while TIMER pause!
loop

RETURN

REM branch here
2850 IF X = 9 THEN GOTO 2870
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)

2870 call initioptions
ques$="Is there a history of or evidence in the patient's record of
prior diagnosis"
ques$=ques$+" or treatment for periodontal disease?"
option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

PB=ans
response(11)=PB

pause!=timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initioptions
ques$="Has the patient had a history of periodontal abscesses?"
option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

PC=ans
response(12)=PC

pause! =timer+.5
do while TIMER  pause!
loop

3050 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="In the area of concern, is the probing depth (with a periodontal
probe) "
ques$=ques$+" greater than 4 mm?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
option$(3, 1)= "3. Unable to determine"
longest=23
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

PE=ans
response(13)=PE
```plaintext
pause!=timer+.5
do while TIMER  pause!
  loop

REM branch here
RETURN

3170 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
  LOCATE 10, 6: PRINT "Some additional questions need to be asked about
teeth in the area.";
  locate 25, 1:print space$(80);
  locate 25, 2:print "Press RETURN to continue";
  x$=input$(1)
  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)

REM put key line back

  locate 25, 1:color keyline, keyline:print space$(80);
  locate 25, 5:color normal, bground:print "F9 ";color keylettr,
  keyline:print ". Main Menu";
  locate 25, 26:color normal, bground:print "F10 ";color keylettr,
  keyline:print ". Sub-menu";
  locate 25, 47::color normal, bground:print "F7 ";color keylettr,
  keyline:print ". Definitions";
  color normal, bground

REM Teeth Generalized or Multiple Adjacent Not Trauma-related (Option #2 from Not Trauma-related Menu)

3210 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
  IF (PN=1) OR (PN=2) OR (PN=3) THEN GOTO 3240
  GOSUB 2740

3240 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
  call initoptions
  ques$="Is there significant discomfort when the area is exposed to hot
  or cold?"
  option$(1, 1)= " 1. Yes"
  option$(2, 1)= " 2. No"
  option$(3, 1)= " 3. Not at present, but very recently"
  longest=38
  numops=3
  qrow=2
```

qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmen
elseif ans=681 then
go to nottrauma
elseif ans=682 then
go to trauma
end if

El=ans
response(14)=E1

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF (E1=2) THEN GOTO 3590

3350  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call intioptions
IF (E1=1) THEN
ques$="Does the discomfort linger after exposure to hot or cold (as opposed to"
elseif (E1=3) THEN
ques$="Did the discomfort linger after exposure to hot or cold (as opposed to"
end if
ques$=ques$+" going away immediately after removal of the hot or cold)?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E2=ans
response(15)=E2

pause! = timer+.5
do while TIMER pause!
loop

REM branch here
IF (E1=3) THEN GOTO 3590

3460 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is exposed dentin present or is the discomfort primarily to cold
or touch"
ques$=ques$+" and located near the gingival"
IF (X=2) OR (X=4) THEN
ques$=ques$+" (gum tissue) margins?"
else
ques$=ques$+" (gum tissue) margin?"
end if
option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E6=ans
response(16)=E6

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF X=2 THEN GOTO 3690

3590 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$= "Is the pain spontaneous (occur for no particular reason)?"
option$(1,1)= " 1. Yes"
option$(2,1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E3=ans
response(17)=E3
pause! = timer+.5
do while TIMER  pause!
loop

REM branch here
IF (E1=1) THEN GOSUB 2650

3690 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$= "Do eating sweets or sugar elicit the pain?"
option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
option$(3, 1)= " 3. Not known"

longest=14
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E4=ans
response(18)=E4

pause! = timer+.5
do while TIMER  pause!
loop

REM branch here
IF X=2 THEN GOTO 3910

3800 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$= "Do caries (decay) appear associated with the tooth either
clinically"

   ques$=ques$+" or on an old radiograph?"
   option$(1, 1)= " 1. Yes"
   option$(2, 1)= " 2. No"
   option$(3, 1)= " 3. Not known"
   longest=14
   numops=3
   qrow=2
   qcol=5
   call priques((ques$))
   call prioptions
   ans=0
   call getresp

   if ans=67 then
      goto mainmenu
   elseif ans=68 then
      goto nottrauma
   elseif ans=682 then
      goto trauma
   end if

   E5=ans
   response(19)=E5

   pause!=timer+.5
   do while TIMER pause!
   loop

3910 CALL SCROLLUP (BEG+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
   call initoptions
   IF X=2 THEN
      ques$="Are the teeth sensitive to percussion?"
   else
      ques$="Is the tooth sensitive to percussion"
   end if
   ques$=ques$+" (tapping with a metal instrument or biting)"

   option$(1, 1)= " 1. Yes"
   option$(2, 1)= " 2. No"
   longest=8
   numops=2
   qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

E7=ans
response(20)=E7

pause! =timer+.5
do while TIMER pause!
    loop
4030 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF (X=2) THEN
    ques$="Is there discomfort when the area near the apices (ends) of the
teeth are"
else
    ques$= "Is there discomfort when the area near the apex (end) of the
tooth is"
end if
    ques$=ques$+" palpated?"

option$(1,1)= " 1. Yes"

option$(2,1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

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if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E8=ans
response(21)=E8

pause! =timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF X=9 THEN
ques$= "Is the swelling primarily located near the apical areas (ends)
of adjacent" teeth or is a fistula present?"
else
ques$= "Is a fistula, fluctuant swelling, or localized diffuse inflammatory swelling"
IF (X=2) THEN
ques$= ques$+ " present near the apices (ends) of the teeth?"
else
ques$= ques$+ " present near the apex (end) of the tooth?"
end if
end if

option$(1,1)= "1. Yes"

option$(2,1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

E9=ans
response(22)=E9

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF (X=2) THEN GOTO 4600

4310 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Has the tooth had prior endodontic (root canal) treatment either
started or"
ques$=ques$+" completed?"
option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if
EB=ans
response(23)=EB

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF PF=1 THEN  GOTO  4910

4420 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does a restoration (filling) appear defective in the area of concern?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

EC=ans
response(24)=EC

pause!=timer+.5
do while TIMER  pause!
loop

4500 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is there clinical evidence of a fracture line or crack in the
tooth?"

option$(1, 1)= " 1. Yes"

option$(2, 1)= " 2. No"

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

EE=ans
response(25)=EE

pause! = timer+.5
do while TIMER  pause!
loop

REM branch here
IF EE=1 THEN TW=1
IF ZZ(3)=1 OR Z(3)=2 THEN GOTO 4860

4600  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is the problem located in the maxillary posterior teeth?"

option$(1, 1)= " 1. Yes"

option$(2, 1)= " 2. No"

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qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=68 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

EG=ans
response(26)=EG

pause! = timer+.5
do while TIMER pause!
loop

REM branch here
IF EG=2 THEN GOTO 4860

4690 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the discomfort increase when the patient bends over
(lowering the"
    ques$=ques$+" position of the head)?"

option$(1,1)= " 1. Yes"

option$(2,1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=68 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

EI=ans
response(27)=EI

pause!=timer+.5
do while TIMER  pause!
loop

4780 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Has the patient recently had a cold or sinus problem?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

EH=ans
response(28)=EH

pause!=timer+.5
do while TIMER  pause!
REM Set cell in Z array that corresponds to a certain diagnosis to 1 (probable) or 2 (possible) depending on responses to previous questions.

4860 IF (E9=1) THEN GOSUB 2850
4870 GOSUB 8210
  IF TF=1 THEN GOTO 4910
  IF ZZ=1 THEN GOTO 4910
  IF CI=1 AND PN<>1 AND E7=2 AND E9=2 AND EB=2 AND E8=2 THEN Z(6)=2
  IF (X=2) OR ((EA=1) OR (NF=1)) AND (M <> 1) AND (E9 <> 1) AND (EI <> 1) AND (E2 <> 1) THEN GOSUB 7900
  IF (P7=1) AND (E2 <> 1)) OR ((E9=1) AND (E2 <> 1) AND ((PE=1) OR (PB=1) OR (PC=1))) THEN Z(4)=2
    IF (((P7=1) AND (P8=1)) OR (E9=1)) AND ((PE=1) OR (PC=1)) AND (E2 <> 1) AND (E9=1) AND (E7=1) AND (E8=1) AND (EB=1) AND (E4=1) AND (E5=1) AND (E9=2) AND (HR=2) AND (P7 <> 1) AND (P8 <> 1) THEN Z(6)=2
      IF (EI=1) AND (E2=2) AND (E9=1) AND (E7=1) AND (E8=2) AND (EB<>1) THEN Z(6)=2
        IF (((P7=1) AND (E2=1)) OR ((E7=1) AND (E8=1)) AND ((PE=1) OR (PC=1)) AND (P7 <> 1) AND (P8 <> 1) AND (E9=2) THEN Z(6)=2
          IF (X<>2) AND ((E7=1) OR (E8=1)) AND ((EI=1) OR (EH=1) OR (E9=1) AND (P7 <> 1) AND (P8 <> 1) AND (E9=2) AND (E7=1) AND (E8=1) AND (EE<>1) AND (E1<>1) AND (E9=2) AND (P7 <> 1) AND (P8 <> 1) AND (E9=2) THEN Z(8)=2
            IF (X<>2) AND (E7=1) AND (E8=1) AND (EE<>1) AND (E1<>1) AND (E9=2) THEN Z(8)=1
              IF (E4=1) OR (E5=1) THEN Z(9)=2
                IF (E5=1) THEN Z(9)=1
                  IF (((EI=1) AND (E2=2) AND (E6=1)) OR (E4=1) AND (E9=2)) OR ((X=2) AND ((E4=1) OR (E6=1)) AND (E9=2) THEN Z(10)=2
                    IF (E1=1) AND (E2=2) AND (E3=2) AND ((E6=1) OR (E4=1)) AND (E7=2) AND (E8=2) AND (E9=2) AND (HR=1) THEN Z(10)=1
                      IF (E1=1) AND (EI=1) AND (E1=1) AND (EH=1) AND (EI<>1) AND ((E7=1) OR (E8=1) OR (NF=1)) AND (E9<>1) THEN Z(11)=1
                        IF (EC=1) THEN Z(13)=2

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IF (EC=1) AND ((E1=1) OR (E6=1)) THEN Z(13)=1
IF ((E9=1) OR ((P7=1) OR (P8=1))) AND ((E2=1) OR (E3=1) OR (EB=1)) AND ((PE=1) OR ((PC=1) OR (PB=1))) THEN Z(12)=2
IF ((E9=1) OR ((P7=1) AND (P8=1))) AND (E2=1) AND (E7=1) AND ((PE=1) AND ((PC=1) OR (PB=1))) THEN Z(12)=1
IF (E7=1) AND (NF=1) OR ((EA=1) AND (NF=1)) OR ((NF=1) AND (X9=1)) OR ((EA=1) AND (OW=1)) OR ((OW=1) AND (X9=1)) OR ((EA=1) AND (X8=1) AND (X9=1)) OR ((NF=1) AND (OW=1) AND (E7=1)) OR (E9 <> 1) AND (E1 <> 1) AND (E2 <> 1) THEN Z(21)=1
IF (E1=1) AND (EE=1) AND ((E7=1) OR (EB=1) OR (E9=2) OR (EC=1)) THEN
GOTO 11070
IF Z(11)=1 THEN Z(8)=0
IF Z(12)=1 THEN Z(4)=2
IF Z(12)=1 THEN Z(7)=2
IF Z(4)=2 THEN Z(7)=2
IF Z(7)=2 THEN Z(4)=2
IF Z(4)=1 THEN Z(7)=2
IF Z(7)=1 THEN Z(4)=2
IF Z(10)=1 THEN Z(5)=2
GOTO 11810

REM Gingiva Specific, Gingiva Generalized, and Tissue Swelling, not trauma-related (options 3, 4 and 9 from Not Trauma-related Menu).

5250 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
IF X=9 THEN GOTO 6010
GOSUB 2430
IF X=4 THEN GOTO 5510

REM Tooth specific and oral mucosa tooth-associated, not trauma-related (options 1 and 5 from Not Trauma-related Menu).

5300 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the area of concern appear to be either a flap of inflamed tissue "+ ques$="partially covering an erupting tooth or an area of tissue (not always grossly) inflamed) surrounding an erupting tooth?"
option$(1, 1)= " 1. Yes"

option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

P1=ans
response(29)=P1

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF ((X=1) OR (X=5)) AND (P1=2) THEN GOTO 3210
IF P1=2 THEN GOTO 5510

5420 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is the tooth a 3rd molar (wisdom tooth)"

option$(1, 1)= " 1. Yes"

option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
    call getresp

    if ans=67 then
        goto mainmenu
    elseif ans=681 then
        goto nottrauma
    elseif ans=682 then
        goto trauma
    end if

    UZ=ans
    response(30)=UZ

    pause!=timer+.5
    do while TIMER pause!
      loop

    REM branch here
    IF ((X=1) OR (X=5)) THEN GOSUB 2430

5510 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, ende-1, scrollines, attrib)
    call initoptions
    ques$="Aside from possible racial pigmentation, which"
    ques$=ques$+"is a normal finding if present, what is the color of"
    ques$=ques$+"the gingival tissues (gums)?"

    option$(1,1)="1. Pink"
    option$(2,1)="2. Red"
    option$(3,1)="3. Pink with red gingival margins"
    option$(4,1)="4. Either No. 2 or No. 3 above, but with areas having a"
    option$(4,2)="gray-white membranous coating that can be easily removed"
    longest=54
    numops=4
    qrow=2
    qcol=5
    call priques((ques$))
    call prioptions
    ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=681 then
go to nottrauma
elseif ans=682 then
go to trauma
end if

P2=ans
response(31)=P2

pause!=timer+.5
do while TIMER pause!
loop

5650 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF X=3 THEN
ques$="In the area of concern, do"
else
ques$="Do"
end if
ques$=ques$+ " the gingival (gum) tissues bleed when probed or does the patient"
ques$=ques$+" report bleeding when brushing?"

option$(1, 1)=" 1. Yes"

option$(2, 1)=" 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=681 then
go to nottrauma
elseif ans=682 then
goto trauma
end if

P3=ans
response(32)=P3

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF UZ=1 THEN GOTO 6990

5780 CALL SCRLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF X=3 THEN
ques$="In the area of concern, do"
else
ques$="Do"
end if
5790 ques$=ques$+" the gingival papillae appear"

option$(1, 1)= " 1. Scalloped and not swollen (normal)?"
option$(2, 1)= " 2. Swollen and enlarged?"
option$(3, 1)= " 3. Ulcerated or blunted?"

longest=41
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
P4=ans
response(33)=P4

pause!=timer+.5
do while TIMER pause!
loop

5910 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is an extremely foul odor present?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"

longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

P5=ans
response(34)=P5

pause!=timer+.5
do while TIMER pause!
loop

    REM branch here
GOTO 6130

6010 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$= "The swelling is located on the"
option$(1, 1)= " 1. Face."
option$(2, 1)= " 2. Oral mucosa or gingiva, near teeth."
option$(3, 1)= " 3. Other oral tissues, not near teeth."
longest=40
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

SW=ans
response(35)=SW

pause! = timer+.5
do while TIMER  pause!
loop

IF ((SW 1) OR (SW 3)) THEN GOTO 6010

REM branch here
IF SW=3 THEN GOTO 1790
IF X=9 THEN GOSUB 2530

6130 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, ende-1, scrollines, attrib)
call initoptions
ques$="Does the patient have an elevated temperature, palpable lymph
nodes of"
ques$=ques$+" the head and neck region, or malaise?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

P6=ans
response(36)=P6

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF (SW=2) THEN GOTO 6370
IF X=4 THEN GOTO 6810
IF SW=1 THEN GOTO 6370

6260 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is a very prominent, but localized, swelling of the gingival or
mucosal"
ques$=ques$+" tissues present?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

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if ans=67 then  
    goto mainmenu  
elsif ans=681 then  
    goto nottrauma  
elsif ans=682 then  
    goto trauma  
end if

P7=ans  
response(37)=P7

pause! = timer+.5  
do while TIMER pause!  
loop

REM branch here  
IF P7=2 THEN GOTO 6500

6370 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)  
call initoptions  
ques$="Does the swelling have a diffuse inflammatory appearance, or"  
ques$=ques$+" does the swelling appear to be fluctuant, or"  
ques$=ques$+" is there evidence of a purulent exudate (pus)?"  

option$(l, 1)= " 1. Yes"  
option$(2, 1)= " 2. No"  
longest=8  
umops=2  
qrow=2  
qcol=5  
call priques((ques$))  
call prioptions  
ans=0  
call getresp

if ans=67 then  
    goto mainmenu  
elsif ans=681 then  
    goto nottrauma  
elsif ans=682 then  
    goto trauma  
end if
P8=ans
response(38)=P8
pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF (P7=1) AND (P8=2) THEN GOSUB 2850
IF (P7=1) AND (P8=2) AND (PC=2) AND (PE1) AND (PB=2) THEN GOTO 1790
IF ((SW=2) OR (P7=1)) AND (P8=1) THEN GOTO 6910

6500 IF X=9 THEN GOTO 6990

6510 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Do the teeth feel tight or like"
ques$=ques$+" something is caught between them?"

option$(1, 1)="1. Yes"
option$(2, 1)="2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

P9=ans
response(39)=P9
pause!=timer+.5
do while TIMER pause!
loop
6610 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the patient relate a history of food being trapped or caught"
ques$=ques$+" between the teeth in the area of concern?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

PG=ans
response(40)=PG

pause!=timer+.5
do while TIMER pause!
loop

*REM branch here*
IF P5=1 THEN GOTO 6810

6720 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the patient complain of a bad taste or odor in his (or her) mouth?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

PV=ans
response(41)=PV

pause!=timer+.5
do while TIMER pause!
    loop

6810 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the patient have shallow, ragged, painful ulcers covered by
a gray/white"
ques$=ques$+" membrane and surrounded by a reddish halo?"

option$(1, 1)=" 1. Yes"
option$(2, 1)=" 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
goto trauma
end if

PH=ans
response(42)=PH

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
IF (P7=1) AND (P8=2) THEN GOTO 6920

6910 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
6920 IF X=9 THEN
   CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
loc ate 10, 6:color highlight, bg round:print "Note:";:color normal, bground
   PRINT " Some of the following questions refer to teeth in the immediate"
loc ate 11, 6:PRINT "area of the swelling.";
loc ate 25, 1:print space$(80);
loc ate 25, 2:print "Press RETURN to continue";
x$=input$(1)
   CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)

REM put key line back

locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, bground:print " F9 ";:color keylettr,
keyline:print "- Main Menu";
locate 25, 26:color normal, bground:print " F10 ";:color keylettr,
keyline:print "- Sub-menu";
locate 25, 47:color normal, bground:print " F7 ";:color keylettr,
keyline:print "- Definitions";
color normal, bground

end if

IF ((SW=2) OR (P7=1)) AND (P8=1) THEN GOSUB 2850
ZZ=1
PF=1
IF SW=2 THEN P7=1
IF (P7=1) AND (P8=2) AND ((PB=1) OR (PC=1) OR (PE=1)) THEN GOTO 3170

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IF (P7=1) AND (P8=2) THEN GOTO 1790
6990 IF (P1=1) AND (DU <> 3) THEN Z(15)=2
   IF (P1=1) AND (P2 <= 4) AND (DU=1) AND (UZ=1) THEN Z(15)=1
   IF (DU <> 3) AND ((P2=4) OR (P4=3) OR (P5=1)) AND (P3=1) AND (P7 <> 1) AND (P8 <> 1) THEN Z(15)=2

   IF (DU=1) AND (P2=4) AND (P3=1) AND (P5=1) AND ((P6=1) OR (P4=3) OR (P9=3)) AND (P7=1) AND (P8=1) THEN Z(15)=1
   IF (DU <> 3) AND ((P2=2) OR (P3=2) OR (P9=2)) AND (P6=1) AND (P7=1) AND (P8=1) THEN Z(15)=2

   IF (DU <> 3) AND (P3=1) AND (PH=2) AND (P2 <> 4) AND (P6=1) AND (P7=1) AND (P8=1) THEN Z(15)=1

   IF (X=3) AND ((P9=1) OR (PG=1) OR (PV=1)) AND (P2 <> 4) AND (P8=1) THEN Z(15)=2

   IF (DU=1) AND (P1=1) AND (PH=1) THEN Z(14)=1
   IF (SW=1) AND ((P6=1) OR (P8=1)) THEN Z(3)=2
   IF (X=9) AND (DU=1) AND ((PN=2) OR (PN=3)) AND (P6=1) AND (P8=1) THEN Z(3)=1
   IF (P7=1) AND (P8=1) THEN GOTO 3210
   GOTO 11810

REM Temporomandibular joint/muscles (option 7 from Not Trauma-relatedMenu).

7140 CALL SCROLLUP(BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call intoptions
ques$="Does the patient have clicking or popping of the
temporomandibular joint?"
TQ=1

   option$(1, 1)="1. Yes"
   option$(2, 1)="2. No"
   longest=8
   numops=2
   qrow=2
   qcol=5
   call priques((ques$))
call prioptions
ans=0
   call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

X1=ans
response(43)=X1

pause! =timer+.5
do while TIMER pause!
loop

7240 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is the temporomandibular joint tender to palpation either
facially or through"
ques$=ques$+" the external auditory canal?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

X2=ans
response(44)=X2
pause! = timer + .5
do while TIMER pause!
loop

7340 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "Are the muscles of mastication tender to palpation?"

option$(1, 1) = "1. Yes"
option$(2, 1) = "2. No"
longest = 8
numops = 2
qrow = 2
qcol = 5
call priques((ques$))
call prioptions
ans = 0
call getresp

if ans = 67 then
    goto mainmenu
elseif ans = 681 then
    goto nottrauma
elseif ans = 682 then
    goto trauma
end if

X3 = ans
response(45) = X3

pause! = timer + .5
do while TIMER pause!
loop

7430 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "Does the patient's mandible deviate laterally on opening?"

option$(1, 1) = "1. Yes"
option$(2, 1) = "2. No"
longest = 8
numops = 2
qrow = 2
qcol = 5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

X4=ans
response(46)=X4

pause!=timer+.5
do while TIMER = pause!
loop

7520 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is the patient’s ability to open his mouth compromised or limited?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
X5 = ans
response(47) = X5

pause! = timer + .5
do while TIMER pause!
loop

7610 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrolllines, attrib)
call initoptions
ques$ = "Does the patient have a history of previous temporomandibular
treatment?"
ques$ = ques$ + " or treatment?"

option$(1, 1) = "1. Yes"
option$(2, 1) = "2. No"
longest = 8
numops = 2
qrow = 2
qcol = 5
call priques((ques$))
call prioptions
ans = 0
call getresp

if ans = 67 then
go to mainmenu
elseif ans = 681 then
go to nottrauma
elseif ans = 682 then
go to trauma
end if

X6 = ans
response(48) = X6

pause! = timer + .5
do while TIMER pause!
loop

7710 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrolllines, attrib)
call initoptions
ques$ = "Has the patient recently been under increased stress (marital,
job,"
ques$ = ques$ + " financial, legal, health)?"
option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

X7=ans
response(49)=X7

pause!=timer+.5
do while TIMER  pause!
loop

REM branch here
TF=1
IF (X1=1) OR (X2=1) THEN Z(20)=2
IF (X1=1) AND (X2=1) THEN Z(20)=1
IF (X3=1) OR (X5=1) OR (X4=1) AND ((X6=1) OR (X7=1)) THEN Z(19)=2
IF (X3=1) AND (X5=1) AND ((X4=1) OR (X6=1) OR (X7=1)) THEN Z(19)=1
GOSUB 7900
IF (OW=1) OR (X8=1) OR (X9=1) THEN GOTO 4870
GOTO 11810

7900 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is there evidence of significant"
IF X=1 THEN
ques$=ques$+" wear on the occlusal surface"
else
ques$=ques$+" wear on the occlusal surfaces"
end if
ques$=ques$+" (flat spots, facets)?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

OW=ans
response(50)=OW

pause!=timer+.5
do while TIMER pause!
loop

8030 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the patient either grind or clench his teeth or chew gum regularly?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

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if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then

goto trauma
end if

X8=ans
response(51)=X8

pause!=timer+.5
do while TIMER pause!
loop

8110 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF (X=1) THEN
ques$="Is the tooth "+chr$(34)+"sore"+chr$(34)+"?"
elseif (X=2) OR (X=7) THEN
ques$="Are the teeth "+chr$(34)+"sore"+chr$(34)+"?"
end if

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=-O
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

X9=ans
response(52)=X9
pause! = timer+.5
  do while TIMER pause!
  loop

  REM branch here
  IF (EA=1) OR (EA=2) OR (NF=1) OR (NF=2) OR (X =2) OR (X=7) THEN RETURN

8210  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
    call initoptions
    IF ((X=2) OR (X=7)) and ZZ 1 THEN
      ques$="Do the teeth have increased mobility?"
    else
      ques$="Does the tooth have increased mobility?"
    end if
    option$(1, 1)= " 1. Yes"
    option$(2, 1)= " 2. No"
    longest=8
    numops=2
    qrow=2
    qcol=5
    call priques((ques$))
    call prioptions
    ans=0
    call getresp
    if ans=67 then
      goto mainmenu
    elseif ans=681 then
      goto nottrauma
    elseif ans=682 then
      goto trauma
    end if
    EA=ans
    response(53)=EA

    pause! = timer+.5
    do while TIMER pause!
    loop

8340  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
    call initoptions
    ques$="Does the patient have a brand new restoration (filling) or dental

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crown/
  ques$=ques$+"bridgework on or opposing the sore"
IF (X=2) OR (X=7) THEN
  ques$=ques$+" teeth?"
else
  ques$=ques$+" tooth?"
end if
option$(l,1)= " 1. Yes"
option$(2,1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
NF=ans
response(54)=NF
pause! =timer+.5
do while TIMER pause!
  loop
RETURN

REM Display Dental Emergencies Menu, Trauma-related and get users response.

trauma:
call box (begr, begc, endr, endc)
8470 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
  locate 2, 20:color highlight, bground:PRINT "Dental Emergencies Menu,
  Trauma-related":;color normal, bground

option$(1, 1)= "1. Tooth or Teeth (Evaluate Individually)"
option$(2, 1)= "2. Other Oral or Facial Tissues or Structures"
option$(3, 1)= "3. Both Teeth and Other Oral or Facial Tissues or Structures"

LOCATE 16, 5: color highlight, bground:PRINT "Note: ";:color normal, bground
locate 17, 7:PRINT "Trauma-related means associated with obvious physical trauma only. ";

  tempresponse=response(1)  'save response(1), response for main menu, before erasing response array.
  GOSUB 32400  'initialize answer variables to zero.
  response(1)=tempresponse

  longest=62
  numops=3
  qrow=2
  qcol=5
  call prioptions
  ans=0
  call getresp

  if ans=67 then
    goto mainmenu
  elseif ans=681 then
    goto nottrauma
  elseif ans=682 then
    goto trauma
  end if

  TA=ans
  response(55)=TA

  pause! =timer+.5
  do while TIMER  pause!
  loop

8610 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Ask the patient to open and close while looking in a mirror. Examine the"
ques$=ques$+" patient carefully. Is the occlusion (bite)"
option$(1, 1)= "1. Unchanged?"
option$(2, 1)= "2. Changed slightly?"
option$(3, 1)= "3. Changed appreciably?"
longest=26
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

TB=ans
response(56)=TB
pause! =timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the patient have a head injury or did he/she lose
consciousness, vomit, or"
ques$=ques$+" have a history of amnesia associated with the trauma?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

C=ans
response(57)=C
pause!=tuner+.5
do while TIMER pause!
loop

REM branch here

IF TA=1 THEN GOTO 9840

8830 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Paresthesia or anesthesia (partial or complete numbness), if
present, is"
ques$=ques$+" primarily associated with which one of the following:"

  option$(1, 1)=" 1. Lower teeth and/or lower lip and chin."
  option$(2, 1)=" 2. Upper teeth and/or upper lip."
  option$(3, 1)=" 3. Lower eyelid and/or lateral areas of nose and/or
  cheek."
  option$(4, 1)=" 4. None of the above/not applicable."
longest=60
numops=4
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if
goto trauma
end if

PZ=ans
response(58)=PZ

pause!=timer+.5
do while TIMER pause!
loop

8960 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="There is evidence of"

option$(1, 1)= "1. Enophthalmia or exophthalmia."
option$(2, 1)= "2. Visual disturbances (primarily diplopia)."
option$(3, 1)= "3. Subconjunctival hemorrhage (medial or lateral)."
option$(4, 1)= "4. Increased intercanthal distance (eyes look/feel
further apart)."
option$(5, 1)= "5. Visual asymmetry of the cheek."
option$(6, 1)= "6. Pain or crepitus when palpating high into the buccal
vestibule,"
    option$(6, 2)= " near the 2nd and 3rd molars, with your index
finger."
option$(7, 1)= "7. More than one of the above"
option$(8, 1)= "8. None of the above"
longest=67
numops=8
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
    goto mainmenu
elseif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if
ZY = ans
response(59) = ZY

pause! = timer + .5
do while TIMER pause!
loop

9170 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "Does the mandible deviate to the injured side when opening?"

option$(1, 1) = "1. Yes"
option$(2, 1) = "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TC = ans
response(60) = TC

pause! = timer + .5
do while TIMER pause!
loop

9250 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "Is it painful to open or close?"

option$(1, 1) = "1. Yes"
option$(2, 1) = "2. No"
longest=8
numops = 2
qrow = 2
qcol = 5

    call priques((ques$))
call prioptions
ans = 0
call getresp

if ans = 67 then
    goto mainmenu
elseif ans = 681 then
    goto nottrauma
elseif ans = 682 then
    goto trauma
end if

TG = ans
response(61) = TG

pause! = timer + .5
do while TIMER pause!
loop

9340 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$ = "If available, does a current radiograph suggest any fractured
bones?"

    option$(1, 1) = " 1. Yes"
    option$(2, 1) = " 2. No"

    option$(3, 1) = " 3. Not available"
longest = 17
numops = 3
qrow = 2
qcol = 5

    call priques((ques$))
call prioptions
ans = 0
call getresp

if ans = 67 then
    goto mainmenu
elseif ans = 681 then

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gototrauma

elseif ans=682 then
  gototrauma
end if

TI=ans
response(62)=TI

pause!=timer+.5
do while TIMER pause!
loop

9450 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Grasp the mandible with both hands using your thumbs and index fingers"
ques$=ques$+" (thumbs on teeth, fingers on skin adjacent to border of mandible)."
ques$=ques$+" Without using undue force, gently attempt to move different segments of"
ques$=ques$+" the mandible."
ques$=ques$+" Can bony segments of the mandible be displaced or easily moved?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goomainmenu
elseif ans=681 then
  gototrauma
elseif ans=682 then
  gototrauma
end if
TJ=ans
response(63)=TJ

pause!=timer+.5
do while TIMER  pause!
loop

9590 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Again, using your thumbs and index fingers (fingers and thumbs
on"
ques$=ques$+" facial and palatal surfaces of maxillary teeth segments),
attempt"
ques$=ques$+" to gently displace bony segments of the maxillary arch."
ques$=ques$+" Can bony segments of the maxilla be displaced or easily
moved?"
option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

TK=ans
response(64)=TK

pause!=timer+.5
do while TIMER  pause!
loop

DENTAL Programmer's Manual  A-75
ques$="Palpate the facial bones, including the zygomatic arch and infraorbital rims."
ques$=ques$+" Is there evidence of a stepping, displacement, or depression of the facial"
ques$=ques$+" bones?"
option$(1,1)= "1. Yes"
option$(2,1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
TL=ans
response$(65)=TL
pause!+timer+.5
do while TIMER pause!
loop
ques$="There is evidence of bleeding"
option$(1,1)= "1. From abrasions or lacerations."
option$(2,1)= "2. Into tissue spaces (ex. Floor of mouth, vestibule, etc.)"
option$(3,1)= "3. From the gingival margin(s)."
option$(4,1)= "4. #1 And #2"
option$(5, 1)= " 5. #1 And #3"
option$(6, 1)= " 6. #2 And #3"
option$(7, 1)= " 7. All of the above"
option$(8, 1)= " 8. None of the above"
longest=61
numops=8
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

TH=ans
response(66)=TH

pause! =timer+.5
do while TIMER pause!
loop

REM branch here
IF TA=2 THEN GOTO 11520

10060 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Traumatically involved teeth must be evaluated individually. The" queson=ques$+" particular tooth in question is"

option$(1, 1)= " 1. Displaced lingually or facially."
option$(2, 1)= " 2. Intruded into the socket."
option$(3, 1)= " 3. Partially extruded from the socket."
option$(4, 1)= " 4. Totally avulsed "$+chr$(34)+"knocked out"+chr$(34)+"."
option$(5, 1)= " 5. Not displaced."
longest=40
numops=5
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto notrauma
elseif ans=682 then
  goto trauma
end if

F1=ans
response(67)=F1

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF (F1=1) OR (F1=2) OR (F1=5) THEN GOTO 10520

10230 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Have more than 3 hours elapsed from the time of injury?"

option$(1, 1)= "1. Yes"
option$(2, 1)= "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
  goto trauma
end if

TN=ans
response(68)=TN

pause! = timer+.5
do while TIMER pause!
  loop

10320 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
  ques$="Is the tooth generally intact (no major fractures, cracks, chips)?"
  option$(1, 1)= "1. Yes"
  option$(2, 1)= "2. No"
  longest=8
  numops=2
  qrow=2
  qcol=5
  call priques((ques$))
  call prioptions
  ans=0
  call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

T0=ans
response(69)=T0

pause! = timer+.5
do while TIMER pause!
  loop

    REM branch here
IF (F1=4) THEN GOTO 10430
GOTO 10520

10430 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Does the socket of the avulsed tooth appear intact?"

option$$(1, 1)= " 1. Yes"
option$$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=681 then
go to nottrauma
elseif ans=682 then
go to trauma
end if

TP=ans
response(70)=TP

pause!=timer+.5
do while TIMER pause!
loop

10520 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="As related by the patient and from information in the dental record, "
ques$=ques$+" if available, was the tooth otherwise healthy?"

option$$(1, 1)= " 1. Yes"
option$$(2, 1)= " 2. No"
longest=8
numops=2
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TR=ans
response(71)=TR

pause!=timer+.5
do while TIMER pause!
loop

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Has the injured tooth ever had endodontic (root canal) treatment?"
treatment?"

option$(1,1)="1. Yes"
option$(2,1)="2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TS=ans
response(72)=TS

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF F1=4 THEN GOTO 11520

10720 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="The tooth in question"

option$(1, 1)= " 1. Is extremely mobile."
option$(2, 1)= " 2. Is slightly mobile."
option$(3, 1)= " 3. Has no increased mobility."
longest=31
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TT=ans
response(73)=TT

pause!=timer+.5
do while TIMER pause!
loop

REM branch here
IF TT=3 THEN GOTO 10920

10830 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Do adjacent teeth move when the injured tooth is moved?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TU=ans
response(74)=TU

pause!=timer+.5
do while TIMER pause!
loop

10920 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="There is"

option$(1, 1)= " 1. Definitely a fracture line, crack, or part of the"

option$(1, 2)= " 2. A possible fracture line or crack in the tooth."
option$(2, 1)= " 3. No evidence of a fracture line or crack in the
tooth."
longest=58
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

TW=ans
response(75)=TW

pause! = timer+.5
do while TIMER  pause!
loop

REM branch nere
IF TW=3 THEN GOTO 11520

11070 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
IF TW=2 THEN
ques$="Does the possible fracture line or crack involve the"
elself TW=1 THEN
ques$="Does the fracture line or crack or the part of the tooth missing involve the"
end if
ques$=ques$+"crown of the tooth?"
11100 option $ (1, 1)= "1. Yes"
option $ (2, 1)- "2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
anas=0
call getresp

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if ans=67 then
goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

TV=ans
response(76)=TV

pause!=timer+.5
do while TIMER pause!
  loop

11190 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollsines, attrib)
call initoptions
  IF TW=2 THEN
    ques$="Does the possible fracture line or crack extend below"
  elseif TW=1 THEN
    ques$="Does the fracture line, crack, or area where the part is missing extend below"
  end if
  ques$=ques$+" the gingival (gum) tissues?"

  option$(1, 1)= " 1. Yes"
  option$(2, 1)= " 2. No"
  longest=8
  numops=2
  qrow=2
  qcol=5
  call priques((ques$))
call prioptions
  ans=0
call getresp

  if ans=67 then
    goto mainmenu
  elseif ans=681 then
    goto nottrauma
  elseif ans=682 then
    goto trauma
  end if

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FL=ans  
response(77)=FL  

pause!=timer+.5  
do while TIMER pause!  
loop  

REM branch here  
IF ((EB=1) OR (TS=1)) THEN GOTO 11430

11310 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)  
call initoptions  
ques$="The pulp (nerve)"  

   option$(1, 1)= " 1. Has not been exposed."  
   option$(2, 1)= " 2. Has been exposed and is smaller than 1 mm in  
       diameter."  
   option$(3, 1)= " 3. Has been exposed and is larger than 1 mm in  
       diameter."  
   longest=60  
   numops=3  
   qrow=2  
   qcol=5  
call priques((ques$))  
call prioptions  
ans=0  
call getresp  

if ans=67 then  
goto mainmenu  
elseif ans=681 then  
goto nottrauma  
elseif ans=682 then  
goto trauma  
end if

TY=ans  
response(78)=TY  

pause!=timer+.5  
do while TIMER pause!  
loop
REM branch here
IF (TY=2) OR (TY=3) THEN GOTO 11520

11430 CALL SCROLLUP (BEG+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call initoptions
ques$="Is the dentin exposed?"

option$(1, 1)= " 1. Yes"
option$(2, 1)= " 2. No"
longest=8
numops=2
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

TZ=ans
response(79)=TZ

pause!=timer+.5
do while TIMER pause!
  loop

REM Set Z array, depending on responses to previous questions.

11520 IF (F1=4) AND (TN=2) AND (T0=1) AND (TP=1) AND (TR=1) THEN Z(24)=1
  IF (F1=4) AND ((TN=1) OR (T0=2) OR (TP=2) OR (TR=2)) THEN Z(25)=1
  IF ((F1=1) OR (F1=2) OR (F1=3)) AND (TT<>3) AND (FL<>1) AND (TR=1)
    AND (TU<>1) THEN Z(26)=1
    IF ((F1=1) OR (F1=2) OR (F1=3)) AND ((TR=2) OR (FL=1) OR (TT=1) OR (TU=1)) THEN Z(27)=1
    IF ((F1=2) OR (F1=3) OR (F1=5)) AND ((TW=1) OR (TW=2)) AND (TV=1) AND

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TY=1) AND (TZ=1)) OR ((E1=1) AND (EE=1) AND (TY =1) AND (TZ=1)) THEN Z(28) =1

IF (((F1=2) OR (F1=3) OR (F1=5)) AND ((TW=1) OR (TW=2)) AND (TV=1) AND
(TY=2) AND (TS<>1)) OR ((E1=1) AND (EE=1) AND (TV=1) AND (TY=2) AND (TS<>1)) THEN Z(22)=1

IF (((F1=2) OR (F1=3) OR (F1=5)) AND ((TW=1) OR (TW=2)) AND (TV=1) AND
(TY=3) AND (TS<>1)) OR ((E1=1) AND (EE=1) AND (TV=1) AND (TY=3) AND (TS<>1)) THEN Z(23)=1

IF (F1<>4) AND (T0=2) AND (TW<>3) AND (TV=1) AND (FL=2) AND (TY
<>1) THEN Z(29)=1

IF ((F1=1) OR (F1=2) OR (F1=3) AND (F1=5)) AND ((TT=1) OR (TT=2)) AND (FL=1) THEN Z(30)=2

IF ((F1=1) OR (F1=2) OR (F1=3) AND (F1=5)) AND (TS=1) OR (FL=1) AND (TW=1) AND
((TT=1) OR (TT=2)) THEN Z(30)=1

IF (TU=1) AND (TA<>2) THEN Z(31)=2

IF (TH<>8) AND (TU=1) AND (TB=1) OR (TB=2) AND (TA<>2) AND (TI<>1) AND (TK<>1) THEN Z(31)=1

IF (PZ=1) OR (TJ=1) OR (((TB=2) OR (TB=3)) AND ((TC=1) OR (TG=1))) THEN
Z(32)=2

IF ((TT=1) OR (TT=2)) THEN Z(33)=1

IF ((TB=2) OR (TB=3)) AND (TK=1) AND (TH=4) OR (TH=6) OR (TH=7))
AND ((PZ=1) OR (TJ=1) OR (TB=3)) THEN Z(32)=1

IF ((PZ=2) OR (TK=1)) THEN Z(33)=2

IF ((TB=2) OR (TB=3)) AND (TK=1) AND (PZ=2) AND (TH=4) OR (TH=6) OR (TH=7))
OR (TI=1)) OR ((PZ=2) AND (TK=1)) THEN Z(33)=1

IF (C=1) THEN Z(35)=2

IF ((TL=2) OR (PZ=3)) OR ((ZY<>0) AND (ZY<>8)) OR (TL=1) THEN Z(34)=2

IF ((TL=1) AND (ZY<>8) AND (ZT<>8)) OR (TY<>1) AND (ZT<>3) OR
(ZY=7) OR (((ZY<>8) AND (ZT<>0)) OR (PZ=3)) AND (TI=1)) THEN Z(34)=1

IF ((TZ=2) AND (TV=1) AND (TY=1)) OR (E1=1) AND (EE=1) AND (TY=1) AND
(TZ=2)) THEN Z(29)=1

IF (Z(32)=1 OR Z(33)=1) AND Z(31)=1 THEN Z(31)=2

IF (E1=1) AND (EE=1) AND (FL=1) THEN Z(30)=1

if z(25)=1 or z(25)=2 then z(24)=0

if z(27)=1 or z(27)=2 then z(26)=0

11810 call getuserdx 'get corpsman's diagnosis

if realcase=1 then 'save data for real case
    call wrtdat 'write responses to file
end if

REM Display Diagnosis

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11850 cls

REM Draw a box around the screen and divide it into two columns. One column for probable diagnoses, and the other for possible diagnoses.

color dotcolor, bground

call box (begr, begc, endr-2, endc)
locate begr, endc/2:print chr$(203);
locate begr+1, endc/2:print chr$(186);
locate begr+2, begc:print chr$(204);
for c=begc+1 to endc-1
locate begr+2, c:print chr$(205);
next c
locate begr+2, endc:print chr$(185);
locate begr+2, endc/2:print chr$(206);
for r=begr+3 to endr-3
locate r, endc/2:print chr$(186);
next r
locate endr-2, endc/2:print chr$(202);
color highlight, bground
locate begr+1, 1:print "Probable Diagnoses";
locate begr+1, 51:print "Possible Diagnoses";
color normal, bground

REM Display instruction line.

locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, bground:print " F9 ";:color keylettr,
keyline:print "- Main Menu";
locate 25, 26:color normal, bground:print " F10 ".;color keylettr,
keyline:print "- Sub-menu";
locate 25, 47:color normal, bground:print " F7 ";:color keylettr,
keyline:print "- Definitions";
color normal, bground

Z(0)=I 'test for no diagnosis
FOR I=1 TO NM
IF Z(I) <> 0 THEN
  Z(0)=0
end if
NEXT I

DENTAL Programmer's Manual  A-89
REM Can't make a diagnosis, print no diagnosis message.
if z(0) 0 then
    sound 100, 4
    color bground, normal
    for rr=0 to 4
        locate 11+rr, 9:print space$(59);
    next rr
    color resplettr, normal:locate 12, 10:print "Sorry, ":color bground,
    normal
    locate 14, 10:print dx$(0)
    color normal, bground
    locate 23, 5:print "Press RETURN to continue. ";

REM Wait for user to press a key. Also, check if F9 or F10 keys were pressed.
call pressret

REM Branch to appropriate menu if F9 or F10 keys were pressed.
if ans=67 then
    goto mainmenu
elsif ans=681 then
    goto nottrauma
elseif ans=682 then
    goto trauma
end if

REM Display treatment recommendation for no diagnosis.

nodg=1
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call box (begr, begc, endr-1, endc)
locate 24, 1:print space$(80);
    color highlight, bground:locate 2, 31:print "Recommended Action":color
    normal, bground
    call printtreatmts((nodg)) 'pass by value

REM Display Instruction line for Treatment Recommendations.

locate 24, 1:color keyline2, keyline2:print space$(80);
locate 24, 5:color normal, bground:print " Shift + PrtSc ":color
    keylettr2, keyline2:print ":- Print Screen";
locate 24, 45:color normal, bground:print " Return ":color keylettr2,
    keyline2:print ": To Continue";
    color normal, bground

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CALL SCROLLUP (BEGR+1, BEGC+1, ENDR, endc-1, scrollines, attrib)

call box (begr, begc, endr, endc)

if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if

goto mainmenu

else

REM Print probable and possible diagnoses
12020 FOR J=1 TO 2
   numd(g(j)=0 'counter for number of probable and possible diagnoses
dgrow=begr+3 'start printing on the third row after the box
   NK=1 'flag to indicate that there are no probable (if j=1) or no
        possible (if j=2) diagnoses
   IF J=1 THEN
      dgcol=probcol
   ELSE IF J=2 THEN
      dgcol=posscol
   end if
   count=0
   FOR I=0 TO NM 'go through the list of diseases
      IF Z(I)=J THEN 'print this one
         dgrow=dgrow+1
         count=count+1

REM If you get this far there must be a diagnosis, so set flag to zero.

NK=0
dgpos(count, j)=dgrow 'save position of diagnosis on the screen
numd(g(j)=numd(g(j)+1 'increment the number of diagnoses
   treatnum(count, j)=i 'keep track of treatment number
while len(a$) < dglmt
    b = dglmt + 1
    while mid$(a$, b, 1) = " "
        b = b - 1
    wend
    locate dgrow, dgcol
    print left$(a$, b);
    a$ = " " + right$(a$, len(a$) - b)
    dgrow = dgrow + 1
wend
locate dgrow, dgcol
print a$;
color normal, bground
end if
NEXT I

IF NK = 1 THEN
    REM if j=1 there are no probable diagnoses. If j=2 there are no possible diagnoses.
locate dgrow + 1, dgcol
color highlight, bground
print " NONE ";
color normal, bground
end if
NEXT J

12350 REM choose treatment plan

REM Print instructions at the bottom of the screen.

12360 color normal, bground:LOCATE 23, 9: print "For Treatment Recommendations, position ";
color ptrcolor, bground:print ptr$;:color normal, bground
print " then press RETURN.");
call getresp2 ' subroutine for user to select which treatment plan
if ans=67 then
  cls
goto mainmenu
elseif ans=681 then
  goto nottrauma
elseif ans=682 then
  goto trauma
end if

REM Display treatment recommendations.

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call box (begr, begc, endr-1, endc)
locate 24, 1:print space$(80);

color highlight, bground:locate 2, 27:PRINT "Treatment
Recommendations";:color normal, bground
call printtreatmts((treatidx(treatnum(ans, pcol))))  'pass by value
treatrow=treatrow+ 1

REM Print extra treatment text depending on responses to certain questions.

IF X=2 AND CI=1 AND treatnum(ans, pcol)<11 AND treatnum(ans, pcol)<>21 THEN
  locate treatrow, 4:color highlight, bground:PRINT "Also:";:color
  normal, bground
  locate treatrow, 11:PRINT "If you are unable to identify the specific
tooth that may be causing"
  treatrow=treatrow+1
  locate treatrow, 4:PRINT "the problem, look for a tooth with a large
restoration or crown. Examine";
  treatrow=treatrow+1
  locate treatrow, 4:PRINT "the area again for caries or other etiology
that may have been overlooked.";
  treatrow=treatrow+1
end if

IF (TH=1) OR (TH=4) OR (TH=5) OR (TH=7) THEN
  if treatnum(ans, pcol)=14 then
    treatrow=treatrow-1
  end if
  color highlight, bground
  locate treatrow, 4:PRINT "Also:";:color normal, bground

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locate treatrow, 11:print "Update tetanus vaccine as needed. If a
laceration is on the lip, ";
treatrow=treatrow+1
locate treatrow, 4:PRINT "align the vermillion border first. Evert
the edges of the tissue. Use 5-0";
treatrow=treatrow+1
locate treatrow, 4:PRINT "or 6-0 nylon sutures on skin.";

end if
IF ((E1=1) OR (E6=1)) AND (EB=1) THEN
locate treatrow, 4:color highlight, bgroud:print"Also:";:color
normal, bgroud
PRINT " A root canal and sensitivity to hot or cold are
inconsistent. Check";
treatrow=treatrow+1
locate treatrow, 4:PRINT "adjacent teeth. There may be a partially
completed root canal present.";
end if
locate 24, 1:color keyline2, keyline2:print space$(80);
locate 24, 5:color normal, bgground:print " Shift + PrtSc ";:color
keylettr2, keyline2:print ".- Print Screen";
locate 24, 45:color normal, bgground:print " Return ";:color keylettr2,
keyline2:print "- To Continue";
color normal, bgground
call pressret
if ans=67 then
goto mainmenu
elseif ans=681 then
goto nottrauma
elseif ans=682 then
goto trauma
end if
done

' go back to print diagnoses
goto 11850

REM The following data statements contain the data for the TREATIDX andThe DX$ arrays.
DATA 1, A diagnosis cannot be made from the information available.
DATA 11, Localized Alveolar Osteitis (Dry Socket)
DATA 20, Osseous Sequestrum

DATA 30, Abscess/Infection/Cellulitis
DATA 42, Periodontal Abscess
DATA 53, Reversible Pulpitis
DATA 64, Irreversible Pulpitis
DATA 75, Acute Apical Abscess
DATA 87, Acute Apical Periodontitis
DATA 99, Carious Lesion (Decay)
DATA 113, Dentin Hypersensitivity
DATA 124, Maxillary Sinusitis
DATA 136, Endodontic/Periodontic Combined Problem
DATA 148, Defective Restoration
DATA 159, Acute Herpetic Gingivostomatitis
DATA 176, Pericoronitis/Erupting Tooth
DATA 190, Necrotizing Ulcerative Gingivitis
DATA 203, Acute Gingivitis
DATA 213, Food Impaction
DATA 224, Myofascial Pain/Muscle Spasms
DATA 235, Internal Derangement of the Temporomandibular Joint
DATA 247, Occlusal Trauma
DATA 259, "Fractured Crown, Small Pulp Exposure"
DATA 271, "Fractured Crown, Large Pulp Exposure"
DATA 283, "Total Avulsion of Tooth, Good Candidate for Replantation"
DATA 298, "Total Avulsion of Tooth, Poor Candidate for Replantation"
DATA 310, "Displacement/Mobility of Tooth, Favorable Prognosis"
DATA 321, "Displacement/Mobility of Tooth, Guarded Prognosis"
DATA 331, "Fractured Crown, Pulp Not Exposed"
DATA 343, Enamel Fracture
DATA 352, Root Fracture
DATA 363, Fractured Alveolar Bone
DATA 373, Fractured Mandible
DATA 384, Fractured Maxilla
DATA 396, Fractured Facial Bones
DATA 407, Neurologic Injury

end

REM Display end page.

15230 CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
locate 5, 10:PRINT "Thank you. If you have any questions concerning
this program,"
locate 6, 10:PRINT "please contact:"

DENTAL Programmer's Manual  A-95
locate 9, 10:PRINT "Commanding Officer"
locate 10, 10:PRINT "Naval Submarine Medical Research Laboratory"
locate 11, 10:PRINT "Naval Submarine Base New London"
locate 12, 10:PRINT "Groton, Connecticut 06349-5900"
locate 14, 10:PRINT "(203) 449-2523 commercial"
locate 15, 10:PRINT "8-241-2523 autovon"

locate 23, 1, 1 'turn cursor back on
close 'close all open files
END

REM Subroutine to initialize all answer variables.

32400 RESTORE:X=0:XX=0:TA=0:CI=0:G=0:LT=0:UZ=0:RX=0:PL=0:PV=0
PZ=0:ZY=0:NK=0
GX=0:D1=0:D2=0:D3=0:TM=0:DU=0:PN =0:PB=0:PC=0:PE=0
E1=0:E2=0:E3=0:E4=0:E5=0:E6=0:E7=0:E8=0:E9=0:EB=0:EC=0:EE=0
E1=0:EG=0:EH=0:ZZ=0:EA=0:XX=0:PQ=0:P1=0:P2=0:P3=0:P4=0:P5=0
P6=0:P7=0:P8=0:P9=0:PG=0:PH=0:PF=0:TQ=0:X1=0:X2=0:X3=0:X4=0
X5=0:X6=0:X7=0:X8=0:X9=0:TF=0:OW=0:SA=0:SB=0:SC=0:G=0:SZ=0:MW=0
MR=0:MB=0:MY=0:MP=0:SH=0:S1=0:SJ=0:SK=0:TB=0:TC=0:TG=0
TL=0:TJ=0:TK=0:TL=0:TH=0:F1=0:TN=0:T0=0:TP=0:TR=0:TS=0:TT=0:TU=0
TW=0:TV=0:FL=0:TY=0:TZ=0:C=0:J=0:NF=0:NT=0:LZ=0:domenu=0:GX=0

ERASE response, z

RETURN

Subroutine SEETRTMTS
called from: DENTAL (Main Menu)
calls: SCROLLUP, BOX, PRINTTREATMTS, PRESSRET

Display Treatment Recommendations Menu, allow user to select a diagnosis.
then display corresponding treatment plan.

sub seetrtmts static
shared DX$, NM, dot$, begr, begc, endr, ende, scrollines, attrib
shared highlight, tdline(), treatnum(), treatidx(), tptrcol
shared
ans2, page, firstdg, lastdg, keylettr, keyline, keylettr2, keyline2

  tptrcol=7:dgcol=10
  main=67

DENTAL Programmer's Manual A-96
dglmt=70
ans2=0

locate begr+1, 24
color quescolor, bground
print "Treatment Recommendations Menu";
color normal, bground
locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 3:color normal, bground:print " F9 ";:color keylettr,
keyline:print "- Main Menu";
locate 25, 21:color normal, bground:print " F7 ";:color keylettr,
keyline:print "- Definitions";
locate 25, 40:color normal, bground:print " PgDn ";:color keylettr,
keyline:print "- Next Page";
locate 25, 58:color normal, bground:print " PgUp ";:color keylettr,
keyline:print "- Previous Page";

page=1

while ans2 <> main 'do until user hits F9 key

ans2=0
dgrow=begr+2

IF page=1 THEN 'dx's 1-18 are on first page
  firstdg=1
  lastdg=18
elseIF page=2 THEN 'dx's 19-35 are on second page
  firstdg=19
  lastdg=NM
end if

count=0

REM List the diagnoses for this page.

FOR I =firstdg TO lastdg
  dgrow=dgrow+1
  count=count+1
tdline(count)=dgrow
  color highlight, bground
  a$=dot$+"+"+dx$(i)
  while len(a$)dglmt

DENTAL Programmer's Manual A-97
b=dglmt+1
while mid$(a$, b, 1) <> " "
    b=b-1
wend
locate dgrow, dgcol
print left$(a$, b);
a$=" "+right$(a$, len(a$)-b)
dgrow=dgrow+1
wend
locate dgrow, dgcol
print a$;
color normal, bground
NEXT I
locate 23, 65:print"(Page ";right$(str$(page), 1);" of 2)";
color normal, bground

REM choose treatment plan
call trtresp

REM print treatment plan
if ans2>= firstdg and ans2<= lastdg then
    CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
    color highlight, bground:locate 2, 27:PRINT "Treatment
Recommendations";:color normal, bground
    locate 25, 1:color keyline2, keyline2:print space$(80);
    locate 25, 5:color normal, bground:print " Shift + PrtSc ";:color
    keylettr2, keyline2:print ": - Print Screen";
    locate 25, 37:color normal, bground:print " Return ";:color
    keylettr2, keyline2:print " - To Continue";
    locate 25, 61:color normal, bground:print " F7 ";:color keylettr2,
    keyline2:print " - Definitions";
    color normal, bground
    call printtreatmts((treatidx(ans2))) \ 'pass by value
    call pressret
    CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
    call box(begr, begc, endr, endc)
end if
if ans2 <> main then
locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 3:color normal, bground:print " F9 ";:color keylettr,
keyline:print " - Main Menu";
locate 25, 21:color normal, bground:print " F7 ";:color keylettr,
keyline:print " - Definitions";
locate 25, 40:color normal, bground:print " PgDn ";:color keylettr,
keyline:print " - Next Page";
locate 25, 58:color normal, bground:print " PgUp ";:color keylettr,
keyline:print " - Previous Page";
end if

locate begr+1, 24
color quescolor, bground
print "Treatment Recommendations Menu";
color normal, bground
wend
end sub

Subroutine PRINTTREATMTS
 called from: DENTAL, SEETRMTMS
This routine opens the treatment recommendations file (TREATS.RND) and prints selected treatment plan.

sub printtreatmts (yu) static
shared treatrow

REM open random file for treatments
OPEN "R", #5, "trmtms.rnd", 75

FIELD #5, 75 AS A$
REM treatment #14
if yu=162 then
treatrow=2
else
treatrow=3
end if
while instr(a$, ";")=0
GET #5, YU
yu=yu+1
treatrow=treatrow+1
if instr(a$, ";")=0 then
locate treatrow, 4:PRINT a$;
end if
Subroutine TRTRESP

called from: SEETRTMTS
calls: SCROLLUP

This routine waits for a response to the Treatment Recommendations Menu. The user can press the up and down arrow keys to highlight a diagnosis, press return to select it, press page up and page down to view the two pages of diagnoses, press F9 to go back to the main menu, or press F7 to see the Term Definitions.

sub trtresp static
shared ans2, page, tdline(), firstdg, lastdg, tptrcol
shared dgcol, begr, begc, endr, endc, scrollines, attrib

begin:
count=1

locate tdline(count), tptrcol "put pointer at first probable or possible diagnosis"
color ptrcolor, bground:print ptr$;
color normal, bground

numdg=lastdg-firstdg+1

startpage=page

while ans2=0 and page=startpage

DO UNTIL z$="" "clear keyboard buffer"
z$=inkey$
LOOP

DO "now get response"
z$=inkey$
LOOP WHILE z$=""

if z$=chr$(13) then
ans2=firstdg+count-1
elseif len(z$)=2 then
z$=right$(z$, 1)
if z$=chr$(72) then "*** up"
REM print blanks where old ptr is

wend
CLOSE #5
end sub
locate tdline(count), tptrcol:print blanks2$;
count=count-1 :if count 1 then count=1
color ptrcolor, bgroun
locate tdline(count), tptrcol:print ptr$;
color normal, bgroun
elseif z$=chr$(80) then '*** down
   REM print blanks where old ptr is
   locate tdline(count), tptrcol:print blanks2$;
count=count+1:if count > numdg then count=numdg
   color ptrcolor, bgroun
   locate tdline(count), tptrcol:print ptr$;
color normal, bgroun
elseif z$=chr$(67) then
   *** F9 main menu
   ans2=67
elseif z$=chr$(65) then
   *** F7 term definitions
call definitionroutine2
count=1
elseif z$=chr$(73) then
   *** pgup
if page=2 then
   CALL SCROLLUP (BEGR+2, BEGC+1, ENDR-2, endc-1, scrollines, attrib)

   page=1
   end if
elseif z$=chr$(81) then
   *** pgdn
if page=1 then
   CALL SCROLLUP (BEGR+2, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
   page=2
   end if
end if
end if
wend
end sub

Subroutine PRESSRET
called from: DENTAL, SEETRTMTS
This routine is called after displaying "Press RETURN to continue" on the screen. Along with the return key, it also allows the user to press F9 for the Main Menu, F10 for a Sub-Menu, F7 for the Term Definitions and PgDn to view the next page of a treatment plan.

sub pressret static
shared page, npages, keyline2, keyletr2

DENTAL Programmer’s Manual A-101
ans=0
while ans=0

    getkey1:   ' clear keyboard buffer
    z$=inkey$
    if z$ <> "" then
goto getkey1
    end if
    getkey2:
    z$=inkey$
    if z$="" then
goto getkey2
    end if
    if z$=chr$(13) then
ans=13
    elseif len(z$)=2 then
z$=right$(z$, 1)
    if z$=chr$(67) and mmenu <> 5 then '*** F9 main menu
ans=67
    elseif z$=chr$(68) and mmenu <> 0 and mmenu <> 5 then '*** F10 sub menu
        if mmenu=1 then
ans=681
        elseif mmenu=2 then
ans=682
        end if
    elseif z$=chr$(65) then '*** F7 definitions
    call definitionroutine2
    elseif z$=chr$(81) then '*** PgDn
ans=81
    end if
end if
end if
wend
end sub

Subroutine GETRESP2
called from: DENTAL (diagnosis section)
This routine allows the user to choose a treatment plan to view
from the list of probable and possible diagnoses. To select a
diagnosis the user highlights it by pressing one of the direction
keys; then RETURN to select it. He can also press F9 to go back
to the Main Menu, F10 to go to a Sub-menu, and F7 to see the Term
Definitions.

sub getresp2 static
shared ans, dgpos(), numdg()
shared ptrcol, ptr$, ptrcolor, blanks2$, respbar, resplettr
shared normal, bground, probptr, possptr, pcol, mmenu

count=1
if numdg(1) 0 then
  pcol=1
  ptrcol=probptr
else
  pcol=2
  ptrcol=possptr
end if

locate dgpos(count, pcol), ptrcol
'put pointer at first probable or possible diagnosis
color ptrcolor, bground:print ptr$;
color normal, bground

ans=0
while ans=0

  getkey3:   ' clear keyboard buffer
    z$=inkey$
    if z$ <> "" then
      goto getkey3
    end if

  getkey4:   ' now get response
    z$=inkey$
    if z$="" then
      goto getkey4
    end if
    if z$=chr$(13) then
      ans=count
    elseif len(z$)=2 then
      z$=right$(z$, 1)
      if z$=chr$(72) then
        REM print blanks where old ptr is
        locate dgpos(count, pcol), ptrcol:print blanks2$;
        count=count-1:if count < 1 then count=1
        color ptrcolor, bground
        locate dgpos(count, pcol), ptrcol:print ptr$;
        color normal, bground
      elseif z$=chr$(80) then
        REM print blanks where old ptr is
        "*** down"
      end if

DENTAL Programmer's Manual A-103
locate dgpos(count, pcol), ptrcol:print blanks2$;
count=count+1:if count > numdg(pcol) then
    count=numdg(pcol)
    color ptrcolor, bgground
    locate dgpos(count, pcol), ptrcol:print ptr$;
    color normal, bgground
elseif z$=chr$(75) and numdg(1) <> 0 then '*** left
    locate dgpos(count, pcol), ptrcol:print blanks2$;
    if pcol=2 then
        pcol=1
        count=1
        ptrcol=probptr
    end if
    color ptrcolor, bgground
    locate dgpos(count, pcol), ptrcol:print ptr$;
    color normal, bgground
elseif z$=chr$(77) and numdg(2) <> 0 then '*** right
    locate dgpos(count, pcol), ptrcol:print blanks2$;
    if pcol=1 then
        pcol=2
        count=1
        ptrcol=possptr
    end if
    color ptrcolor, bgground
    locate dgpos(count, pcol), ptrcol:print ptr$;
    color normal, bgground
elseif z$=chr$(67) and mmenu <> 0 then '*** F9 main menu
    ans=67
elseif z$=chr$(68) and mmenu <> 0 then '*** F10 sub menu
    if mmenu=1 then
        ans=681
    elseif mmenu=2 then
        ans=682
    end if
elseif z$=chr$(65) then '*** definitions
    call definitionroutine2
end if
end if
wend
end sub

Subroutine GETUSERDX
called from: DENTAL
calls: DXRESP, SCROLLUP

DENTAL Programmer's Manual  A-104
The purpose of this routine is to get the Corpsman's diagnosis.

sub getuserdx static
shared DX$(), NM, dot$, begr, begc, endr, endc, scrollines, attrib
shared highlight, tline0, dotcolor, ans3, page, firstdg, lastdg
shared keylettr, keyline, selectdot$, tptrcol

  tptrcol=7:dgcol=10
  esc=270
  ans3=0
  erase corpresp

call SCROLLUP (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
color quescolor, bground
locate begr+1, 30
print "Corpsman's Diagnosis";
locate begr+3, 22
print "Select the Most Likely Diagnosis(es)";
color normal, bground
locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 2:color normal, bground:print " Esc ";:color keylettr,
keyline:print "- Exit this Menu";
locate 25, 24:color normal, bground:print " F7 ";:color keylettr,
keyline:print "- Definitions";
locate 25, 42:color normal, bground:print " PgDn ";:color keylettr,
keyline:print "- Next Page";
locate 25, 60:color normal, bground:print " PgUp ";:color keylettr,
keyline:print "- Previous Page";

page=1

while ans3 <> esc
  call SCROLLUP (begr+4, begc+1, endr-1, endc-1, scrollines, attrib)

  ans3=0
dgrow=begr+4

  IF page=1 THEN
    firstdg=1
    lastdg=18
  elsif page=2 THEN
    firstdg=19
    lastdg=NM+1
  end if

DENTAL Programmer's Manual  A-105
count=0
FOR I = firstdg TO lastdg
   dgrow = dgrow + 1
   count = count + 1
   tdline (count) = dgrow
   if corpresp(i) = 1 then
      dcolor = dotcolor
      whatdot$ = selectdot$
   else
      dcolor = highlight
      whatdot$ = dot$
   end if
   locate dgrow, dgcol
   color dcolor, bground
   print whatdot$;
   if I = nm + 1 then
      print "","Other";
   else
      print "", dx$ (i);
   end if
   color normal, bground
NEXT I
locate 23, 65: print"(Page ", right$(str$(page), 1); " of 2)");

REM get corpsman's response
call dxresp
wend
color normal, bground
end sub

Subroutine DXRESP
 called from: GETUSERDX
 calls: ENTEROTHER, SCROLLUP
 Allow the user to select one or more diagnoses. If he selects "Other", then call ENTEROTHER.

sub dxresp static
shared ans3, page, tdline(), firstdg, lastdg, tptrcol, dot$, dotcolor, NM

shared dgcol, begr, begc, endr, endc, scrolls, attrib, dx$(), highlight
shared selectdot$, other$, otherfram

DENTAL Programmer's Manual  A-106
esc=270
count=1

locate tdline(count), tptrcol 'put pointer at first probable or possible diagnosis
color ptrcolor, bgground:print ptr$;
color normal, bgground

numdg=lastdg-firstdg+1
dotcol=tptrcol+3

startpage=page

while ans3<>esc and page=startpage
DO UNTIL z$="" 'clear keyboard buffer
z$=inkey$
LOOP

DO 'now get response
z$=inkey$
LOOP WHILE z$=""

if z$=chr$(13) then
ans3=firstdg+count-1
if corpresp(firstdg+count-1)=0 then
    corpresp(firstdg+count-1)=1
    locate tdline(count), dotcol
    color dotcolor, bgground
    print selectdot$;
    if firstdg+count-1=NM+1 then
        print "Other";
        call enterother
    else
        print dx$(firstdg+count-1);
        end if
else
    corpresp(firstdg+count-1)=0
    locate tdline(count), dotcol
    color highlight, bgground
    print dot$;
    if firstdg+count-1=NM+1 then
        print "Other";
        other$=""
    else
        print dx$(firstdg+count-1);

DENTAL Programmer's Manual A-107
end if
end if
elseif z$=chr$(27) then '*** Esc
'Check if corpsman selected a dx. If not, ignore Esc key.
for x=1 to 36
  if corpresp(x)=1 then
    ans3=270
    exit for
  end if
next x
if ans3270 then 'corpsman hasn't selected a dx.
call pushwindow(abs(otherfram), otherfram, ",", 15, 18, 3, 43)
call wlocate (1, 2)
call fprint("You must select at least one diagnosis.", abs(otherfram))
  beep
  pause!=timer+1
  do while timer pause!
   loop
  call removewindow
end if
elseif len(z$)=2 then
  z$=right$(z$, 1)
  if z$=chr$(72) then '*** up
REM print blanks where old ptr is
   locate tdline(count), tptrcol:print blanks2$;
   count=count-1:if count 1 then count=1
   color ptrcolor, bground
   locate tdline(count), tptrcol:print ptr$;
   color normal, bground
elseif z$=chr$(80) then '*** down
REM print blanks where old ptr is
   locate tdline(count), tptrcol:print blanks2$;
   count=count+1:if count numdg then count=numdg
   color ptrcolor, bground
   locate tdline(count), tptrcol:print ptr$;
   color normal, bground
elseif z$=chr$(65) then '*** F7 definitions
   call definitionroutine2
   count=1
elseif z$=chr$(73) then '*** pgup
   if page=2 then
      CALL SCROLLUP (BEGR+4, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
      page=1
   end if

elseif s$=chr$(81) then *** pgun
    if page=1 then
        CALL SCROLLUP (BEGR+4, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
        page=2
    end if
    end if
end if
wend
end sub

Subroutine ENTEROTHER
called from: DXRESP
calls: FPRINT, PUSHWINDOW
Display a window on the screen next to "other" and allow the user
to enter up to 40 characters of text.

sub enterother static
shared other$, otherscm, otherfram

call pushwindow(otherscm, otherfram, "Enter Your
Diagnosis", 21, 30, 3, 46)
other$=""
otherptr=0 'string pointer

LOCATE 22, 33 + otherptr, 1
DO
    DO
        a$=INKEY$
        LOOP WHILE a$=""
        SELECT CASE ASC(LEFT$(a$, 1))
        CASE 32, 48 TO 57, 65 TO 90, 97 to 122 'alphanumerics and blank
            other$=other$ + a$
            otherptr=otherptr + 1
            if otherptr > 40 then
                otherptr=40
                beep
            else
                LOCATE 22, 32 + otherptr
                CALL fprint(a$, otherscm)
                LOCATE 22, 33 + otherptr, 1
            end if
        CASE 8 'backspace/delete
            otherptr=otherptr - 1

IF otherptr < 0 THEN otherptr=0
LOCATE 22, 33 + otherptr, 1
CALL fprint(" ", otherscrn)
other$=LEFT$(other$, otherptr)

CASE 13  'CR to accept
  call removewindow
CASE ELSE  
  BEEP
END SELECT
LOOP UNTIL a$=chr$(13)
LOCATE ., 0
end sub
DIFF.BAS

REM This program contains the Soft Tissue Lesions section of the Dental pain program. Control is passed to it from the main program (DENTAL) when the user selects "A Clinical Change in Oral/Facial Tissues" (#3) from the Main Menu.

REM This program was modified last on 2/13/89 by Cindy Burgess-Russotti.

DEFINT A-Z

REM Arrays for DENTAL and DIFF

dim option$(10, 2), opline(10)
dim z(35), response(92), corpresp(36)

REM Arrays for window routines.

DIM WINDscratt(5), WINDframatt(5), WINDheader$(5)
DIM WINDrow(5), WINDcol(5), WINDheight(5), WINDwidth(5)
DIM wind%(2000, 5)
DIM WINDrowptr(5), WINDcolptr(5)  'UL corner of frame

REM Arrays for definition routines.

DIM item$(120), dindx(120, 2), disease$(34), disindx(34, 2)

REM Include common statements for all modules.

rem $include: 'dentcomm.bas'
rem $include: 'windcomm.bas'

wherefrom$="diff"  'Set flag to show DIFF has been executed.
ptr$=chr$(16)+chr$(16)  'Pointer character
blanks2$=" "
col=0
bevr=1:bec=1:endr=24:endc=80:scrollines=0:attrib=0

REM Initialize variables for color or monochrome.
if mon$="m" or mon$="M" then
  blink=16:highlight=15:normal=7:bground=0:border=0:quescolor=15
  keyline=7:keyletrr=0:ptrcolor=15:respbar=7:resplettr=0:astrsk=15
  keyline2=15:keyletrr2=0

  REM definition routine colors
  defkeyline=7:defkeyletr=0:def1f=-112:def1s=7
def2f=-112:def2s=7:select1f=-112:select2f=-112:select2s=7
else
  blink=16:highlight=14:normal=7:bground=0:border=0:quescolor=15
  keyline=1:keyletr=7:ptrcolor=12:respbar=7:resplettr=1:astrsk=14
  keyline2=3:keyletrr2=1

  REM definition routine colors
  defkeyline=3:defkeyletr=0:def1f=-116:def1s=48
def2f=-32:def2s=113:select1f=-23:select2f=-116:select2s=48
end if

REM Print instructions page.

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
COLOR highlight, bground
locate 2, 26:PRINT "Soft Tissue Lesions Section"
color normal, bground
color highlight, bground
locate 5, 34:PRINT "Instructions"
color normal, bground
locate 7, 3:PRINT "Definitive diagnosis of a soft tissue lesion usually
cannot be made without"
locate 8, 3:PRINT "microscopic examination of biopsied tissue."
llocate 10, 3:PRINT "This section of the program will present a
differential diagnosis for various"
llocate 11, 3:PRINT "soft tissue lesions."
llocate 13, 3:PRINT "Diagnoses in the differential list that have an
asterisk (","
color astrsk, bground:print "*";
color normal, bground:print ") beside them"
llocate 14, 3:PRINT "should be investigated as possible life-threatening
or mission-threatening"
llocate 15, 3:PRINT "situations. This does not imply that the other
possible diagnoses will not"
llocate 16, 3:PRINT "or cannot lead to a mission-threatening situation."
All situations should be followed-up!
Please carefully select the primary area of concern on the soft tissue

When indicated, press Function key 9 (F9) or 10 (F10)

to go to the Main Menu or the Soft Tissue Lesions Menu, respectively.

Press RETURN to continue.

REM Clear screen, draw box, and display Soft Tissue Lesions Menu.

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call box (begr, begc, endr, endc)
call initoptions
color highlight, bgound
locate 2, 28:print "Soft Tissue Lesions Menu"
color normal, bgound
option$(1, 1)= "1. Gingival Changes"
option$(2, 1)= "2. Tissue Color Changes"
option$(3, 1)= "3. Vesicles, Bullae, or Ulcers"
option$(4, 1)= "4. Oral Nodules or Enlargements"
option$(5, 1)= "5. Tongue (Pain, Morphologic Changes)"
option$(6, 1)= "6. Neck/Face/Cheek Masses"
option$(7, 1)= "7. Quit"

REM Initialize variables.

SA=0:SB=0:SC=0:SZ=0:MW=0:MB=0:MY=0:MP=0
MR=0:SH=0:SI=0:SK=0:PL=0

tempresponse=response(1) 'save response(1), response for main menu
erase response 'before erasing response array
response(1)=tempresponse

longest=39
numops=7
call prioptions
oprow=oprow-(numops*2)

locate 20, 5:color highlight, bgound:print "Note: ";
locate 21, 7:color normal, background:print "Use No. 2 above for gingival color changes. For primary complaints"
locate 22, 7:PRINT "of gingival inflammation or pain, use the Main Menu first."

REM Display instruction line at bottom of screen.

locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, background:print " F9 ";:color keylettr,
keyline:print " Main Menu";
locate 25, 59:color normal, background:print " F7 ";:color keylettr,
keyline:print " Definitions";
color normal, background

ans=0

call getresp   'Get user's response.

softmenu=ans
SA=ans
response(80)=SA

if ans=67 then
  goto mainmenu   'If user pressed the "F9" key go back to the Main Menu in the main program (DENTAL).
end if

pause!=timer+.5
do while TIMER < pause!
loop

locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, background:print " F9 ";:color keylettr,
keyline:print " Main Menu";
locate 25, 26:color normal, background:print " F10 ";:color keylettr,
keyline:print " Soft Tissue Lesions Menu";
locate 25, 59:color normal, background:print " F7 ";:color keylettr,
keyline:print " Definitions";
color normal, background

REM branch according to user's response

IF SA = 1 THEN GOTO 20690
IF SA = 2 THEN GOTO 20970
IF SA = 3 THEN GOTO 21730
IF SA = 4 THEN GOTO 21870
IF SA = 5 THEN GOTO 22010
IF SA = 6 THEN GOTO 22160
IF SA = 7 THEN GOTO 20690

20690 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions
ques$="What is the nature of the gingival problem?"
option$(1, 1)=" 1. Desquamation"
option$(2, 1)=" 2. Atrophy or ulceration"
option$(3, 1)=" 3. Localized hyperplastic, hemorrhagic lesions"
option$(4, 1)=" 4. Generalized hyperplastic, hemorrhagic lesions"
option$(5, 1)=" 5. Localized hyperplastic, non-hemorrhagic lesions"
option$(6, 1)=" 6. Generalized hyperplastic, hemorrhagic lesions"
option$(7, 1)=" 7. Cystic lesions"
option$(8, 1)=" 8. None of the above"

longest=52
numops=8
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

SB=ans
response(81)=SB

pause!=timer+.5
do while TIMER < pause!
loop

IF SB = 8 THEN GOTO softmenu
IF (SB = 1) OR (SB = 2) OR (SB = 3) OR (SB = 4) OR (SB =5) OR (SB = 6)
OR (SB = 7) THEN GOTO printdg

20840 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions
ques$="What is the nature of the mucosal problem?"
option$(1, 1)="1. Tissue color changes"
option$(2, 1)="2. Vesicles, bullae, or ulcers"
option$(3, 1)="3. Nodules or enlargements"
option$(4, 1)="4. None of the above"

longest=32
numops=4
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

SZ=ans
response(82)=SZ

pause!=timer+.5
do while TIMER < pause!
loop

IF SZ = 1 THEN GOTO 20970
IF SZ = 2 THEN GOTO 21730
IF SZ = 3 THEN GOTO 21870
IF SZ = 4 THEN GOTO softmenu

20970 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions
ques$="What is the color of the tissue lesion(s)??"
option$(1, 1)=" 1. White"
option$(2, 1)=" 2. Red"
option$(3, 1)=" 3. Brown and/or black"
option$(4, 1)=" 4. Blue and/or purple"
option$(5, 1)=" 5. Yellow"
option$(6, 1)=" 6. None of the above"

longest=22
numops=6
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=68 then
go to softmenu
end if

SC=ans
response(83)=SC
pause!=timer+.5
do while TIMER < pause!
loop

IF SC = 1 THEN GOTO 21140
IF SC = 2 THEN GOTO 21300
IF SC = 3 THEN GOTO 21410
IF SC = 4 THEN GOTO 21530
IF SC = 5 THEN GOTO 21630
IF SC = 6 THEN GOTO softmenu

21140 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call iniptions

ques$="What is the nature of the white lesion(s)??"
option$(1, 1)=" 1. Keratotic non-sloughing, non-ulcerated, non-eroded, "
option$(1, 2)=" non-papillary lesion(s)"

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option$(2, 1)=" 2. Keratotic non-sloughing, non-ulcerated, non-eroded, "
option$(2, 2)=" papillary lesion(s)"
option$(3, 1)=" 3. Keratotic non-sloughing, ulcerated, eroded, "
option$(3, 2)=" non-papillary lesion(s)"
option$(4, 1)=" 4. Keratotic non-sloughing, ulcerated, eroded, "
option$(4, 2)=" papillary lesion(s)"
option$(5, 1)=" 5. Non-keratotic, sloughing lesion(s)"
option$(6, 1)=" 6. None of the above"

longest=56
numops=6
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

MW=ans
response(84)=MW

pause!=timer+.5
do while TIMER < pause!
loop

IF (MW = 6) THEN GOTO softmenu
IF (MW = 1) OR (MW = 2) OR (MW = 3) OR (MW = 4) OR (MW = 5) THEN GOTO
printdg

21300 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions
ques$="What is the nature of the red lesion(s)?"
option$(1, 1)=" 1. Single exophytic lesion"
option$(2, 1)=" 2. Single non-exophytic lesion"
option$(3, 1)=" 3. Generalized or multiple exophytic lesions"
option$(4, 1)="4. Generalized or multiple non-exophytic lesions"
option$(5, 1)="5. None of the above"

longest=50
numops=5
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

MR=ans
response(85)=MR

pause!=timer+.5
do while TIMER < pause!
loop

IF MR=5 THEN GOTO softmenu
IF (MR = 1) OR (MR = 2) OR (MR = 3) OR (MR = 4) THEN GOTO printdg

21410 call scrollup (begr+1, begc+1, endr-l1, endc-l1, scrollines, attrib)
call initoptions

ques$="What is the nature of the brown and/or black lesion(s)?"

option$(1, 1)="1. Single exophytic lesion"
option$(2, 1)="2. Single non-exophytic lesion"
option$(3, 1)="3. Generalized or multiple exophytic lesions"
option$(4, 1)="4. Generalized or multiple non-exophytic lesions"
option$(5, 1)="5. None of the above"

longest=50
numops=5
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=68 then
  goto softmenu
end if

MB=ans
response(86)=MB

pause! =timer+.5
do while TIMER < pause!
  loop

  IF MB = 5 THEN GOTO softmenu
  IF (MB = 1) OR (MB = 2) OR (MB = 3) OR (MB = 4) THEN GOTO printdg

21530 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions

ques$="What is the nature of the blue and/or purple lesion(s)?"
option$(l, 1)=" 1. Single lesion"
option$(2, 1)=" 2. Generalized or multiple lesions"
option$(3, 1)=" 3. None of the above"

longest=36
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=68 then
goto softmenu
end if

MP=ans
response(87)=MP

pause!=timer+.5
do while TIMER < pause!
  loop

  IF MP = 3 THEN GOTO softmenu
  IF (MP = 1) OR (MP = 2) THEN GOTO printdg

21630 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions

ques$="What is the nature of the yellow lesion(s)?"
option$(1, 1)=" 1. Single lesion"
option$(2, 1)=" 2. Generalized or multiple lesions"
option$(3, 1)=" 3. None of the above"

longest=36
numops=3
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=68 then
  goto softmenu
end if

MY=ans
response(88)=MY

pause!=timer+.5
do while TIMER < pause!
  loop
IF MY = 3 THEN GOTO softmenu
IF (MY = 1) OR (MY = 2) THEN GOTO printdg

21730 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions

ques$="Which of the following describe the condition?
option$(1, 1)=" 1. Acute vesicles"
option$(2, 1)=" 2. Chronic vesicles"
option$(3, 1)=" 3. Acute bullae"
option$(4, 1)=" 4. Chronic bullae"
option$(5, 1)=" 5. Acute ulcers"
option$(6, 1)=" 6. Chronic ulcers"
option$(7, 1)=" 7. None of the above"

longest=21
numops=7
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
go to mainmenu
elseif ans=68 then
go to softmenu
end if

SH=ans
response(89)=SH

pause!=timer+.5
do while TIMER < pause!
loop

IF SH = 7 THEN GOTO softmenu
IF (SH = 1) OR (SH = 2) OR (SH = 3) OR (SH = 4) OR (SH =5) OR (SH = 6)
THEN GOTO printdg

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ques$="Which of the following descriptions applies?"
option$(1, 1)="1. Small firm non-hemorrhagic, lobulated lesions"
option$(2, 1)="2. Extensive firm non-hemorrhagic, lobulated lesions"
option$(3, 1)="3. Single firm non-hemorrhagic nodule"
option$(4, 1)="4. Multiple firm non-hemorrhagic nodules"
option$(5, 1)="5. Single bony lump or nodule"
option$(6, 1)="6. Multiple or extensive bony enlargements or nodules"
option$(7, 1)="7. None of the above"

longest=55
numops=7
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

SI=ans
response(90)=SI

pause!=timer+.5
do while TIMER < pause!
loop

IF SI = 7 THEN  GOTO softmenu
IF (SI = 1) OR (SI = 2) OR (SI = 3) OR (SI = 4) OR (SI = 5) OR (SI = 6) THEN  GOTO printdg

22010 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call initoptions
ques$="Which of the following categories applies?"
option$(1, 1)=" 1. Macroglossia (enlarged tongue)"
option$(2, 1)=" 2. Microglossia (small tongue)"
option$(3, 1)=" 3. Cleft in tongue"
option$(4, 1)=" 4. Fissured tongue"
option$(5, 1)=" 5. Supernumerary tongue"
option$(6, 1)=" 6. Smooth tongue"
option$(7, 1)=" 7. Glossodynia (pain in tongue)"
option$(8, 1)=" 8. None of the above"

longest=35
numops=8
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
  goto mainmenu
elseif ans=68 then
  goto softmenu
end if

SJ=ans
response(91)=SJ
pause! = timer+.5
do while TIMER < pause!
  loop

  IF SJ = 8 THEN GOTO softmenu
  IF (SJ = 1) OR (SJ = 2) OR (SJ = 3) OR (SJ = 4) OR (SJ = 5) OR (SJ = 6)
  OR (SJ = 7) THEN GOTO printdg

22160 call scrollup (begr+1, begc+1, endr-1, endc-1, scrollines, attrib)
call inioptions

ques$="Which of the following applies to the mass(es)?"
option$(1, 1)=" 1. Acute parotid swelling"

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option$(2, 1)="2. Chronic parotid swelling"
option$(3, 1)="3. Acute discrete nodules, non-parotid area"
option$(4, 1)="4. Chronic discrete nodules, non-parotid area"
option$(5, 1)="5. Acute extensive diffuse swelling, non-parotid area"
option$(6, 1)="6. Chronic extensive diffuse swelling, non-parotid area"
option$(7, 1)="7. None of the above"

longest=57
numops=7
qrow=2
qcol=5
call priques((ques$))
call prioptions
ans=0
call getresp

if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

SK=ans
response(92)=Sk

pause! = timer+.5
do while TIMER < pause!
loop

IF SK = 7 THEN GOTO softmenu
IF (SK = 1) OR (SK = 2) OR (SK = 3) OR (SK = 4) OR (SK = 5) OR (SK = 6)
THEN GOTO printdg

REM Write data to disk.

printdg:
call wrtdat

REM Clear screen, draw box, display differential diagnosis.

printdgagain:
call scrollup (begr+1, begc+1, endr, endc-1, scrollinzs, attrib)
call box (begr, begc, endr-1, endc)
color highlight, bground
locate 2, 28:PRINT "Differential Diagnosis"
locate 24, 1:color keyline2, keyline2:print space$(80);
locate 24, 5:color normal, bground:print " Shift + PrtSc ";:color keylettr2,
keyline2:print " Print Screen ";
locate 24, 37:color normal, bground:print " PgDn ";:color keylettr2,
keyline2:print " Next Page ";
locate 24, 59:color normal, bground:print " PgUp ";:color keylettr2,
keyline2:print " Previous Page ";
locate 25, 1:color keyline, keyline:print space$(80);
locate 25, 5:color normal, bground:print " F9 ";:color keylettr,
keyline:print " Main Menu ";
locate 25, 26:color normal, bground:print " F10 ";:color keylettr,
keyline:print " Soft Tissue Lesions Menu ";
locate 25, 59:color normal, bground:print " F7 ";:color keylettr,
keyline:print " Definitions ";
color normal, bground
if sb=1 then
  locate 4, 22:color highlight, bground:PRINT "Desquamative Lesions of
Gingiva":color normal, bground
  locate 6, 22:PRINT "1. " ;chr$(34);"Desquamative gingivitis";chr$(34)
  locate 7, 22:PRINT "2. Hormonal changes (ex. Puberty)"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 8, 22:PRINT "3. Bullous lichen planus"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 9, 22:PRINT "4. Benign mucous membrane pemphigoid"
  locate 10, 22:PRINT "5. Nutritional deficiencies"
  locate 11, 22:PRINT "6. Pernicious anemia"
  locate 12, 22:PRINT "7. Atopic and contact stomatitis"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 13, 22:PRINT "8. Drug idiosyncrasies"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 14, 22:PRINT "9. Erythema multiforme"
  locate 15, 22:PRINT "10. Primary herpes simplex"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 16, 22:PRINT "11. Pemphigus vulgaris"
  locate , 20:color astrsk, bground:print "*";:color normal, bground
  locate 17, 22:PRINT "12. Epidermolysis bullosa"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu

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elseif ans=68 then
goto softmenu
end if

elseif sb=2 then
23540 color highlight, bground
locate 4, 24:PRINT "Atrophy or Ulceration of Gingiva"
color normal, bground
locate 6, 8:PRINT "1. Necrotizing ulcerative gingivitis (NUG, ANUG)"
locate 7, 8:PRINT "2. Diabetes mellitus (uncontrolled)"
locate 8, 8:PRINT "3. Leukemia (late)"
locate 9, 8:PRINT "4. Cyclic neutropenia"
locate 10, 8:PRINT "5. Syphilis"
locate 11, 8:PRINT "6. Gonorrhea"
locate 12, 8:PRINT "7. Herpetic gingivostomatitis (primary)"
locate 13, 8:PRINT "8. Erythema multiforme"
locate 14, 8:PRINT "9. Habits/trauma"
locate 15, 8:PRINT "10. Nutritional deficiency"
locate 16, 8:PRINT "11. Lupus vulgaris"
locate 17, 8:PRINT "12. Porphyria"
locate 18, 8:PRINT "13. Aphthous stomatitis"
locate 19, 8:PRINT "14. Periadenitis mucosa necrotica recurrens (Sutton's disease)"
locate 20, 8:PRINT "15. ARC/AIDS"
page=l1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sb=3 then
23740 color highlight, bground
locate 4, 13:PRINT "Localized Hyperplastic, Hemorrhagic Lesions of Gingiva"
color normal, bground

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locate 6, 13:PRINT "1. Pyogenic granuloma"
locate 7, 13:PRINT "2. Peripheral giant cell granuloma"
locate 8, 13:PRINT "3. Food impaction (early)"
locate 9, 13:PRINT "4. Metastatic tumor"
locate 10, 13:PRINT "5. Mycotic infection"
locate 11, 13:PRINT "6. Fistulous tract from periapical abscess/parulis"
locate 12, 13:PRINT "7. Hyperparathyroidism (brown tumor)"
locate 13, 13:PRINT "8. Local malignancy"
locate 14, 13:PRINT "9. Pericoronitis"
locate 15, 13:PRINT "10. Epulis granulomatous"
locate 16, 13:PRINT "11. Antral polyp from oroantral fistula"
locate 17, 13:PRINT "12. Pulp polyp"
locate 18, 13:PRINT "13. Hemangioma"

elseif sb=4 then
23940 color highlight, bground
locate 4, 11:PRINT "Generalized Hyperplastic, Hemorrhagic Lesions of Gingiva"
color normal, bground
locate 5, 20:color astrsk, bground:print "*":color normal, bground
locate 5, 22:PRINT "1. Leukemia (early)"
locate 6, 22:PRINT "2. Gingivitis"
locate 7, 22:PRINT "3. Hormonal changes (ex. puberty)"
locate 8, 22:PRINT "4. Xerostomia (dry mouth)"
locate 9, 22:PRINT "5. Mouth breathing"
locate 10, 22:PRINT "6. Diabetes (uncontrolled)"
locate 11, 22:PRINT "7. Pulpitis"
locate 12, 22:PRINT "8. Periodontal disease"
locate 13, 22:PRINT "9. Traumatic injury"
locate 14, 22:PRINT "10. Fracture"
locate 15, 22:PRINT "11. Foreign body"
locate 16, 22:PRINT "12. Chemical or thermal injury"
locate 17, 22:PRINT "13. Tumor"
locate 18, 22:PRINT "14. Infection"
locate 19, 22:PRINT "15. Necrosis"
locate 20, 22:PRINT "16. Necrose (decalcification"
locate 21, 22:PRINT "17. Necrose (decalcification"
locate 22, 22:PRINT "18. Necrose (decalcification"
locate 23, 22:PRINT "19. Necrose (decalcification"
locate 24, 22:PRINT "20. Necrose (decalcification"
locate 25, 22:PRINT "21. Necrose (decalcification"
locate 26, 22:PRINT "22. Necrose (decalcification"
locate 27, 22:PRINT "23. Necrose (decalcification"
locate 28, 22:PRINT "24. Necrose (decalcification"
locate 29, 22:PRINT "25. Necrose (decalcification"
locate 30, 22:PRINT "26. Necrose (decalcification"
locate 31, 22:PRINT "27. Necrose (decalcification"
locate 32, 22:PRINT "28. Necrose (decalcification"
locate 33, 22:PRINT "29. Necrose (decalcification"
locate 34, 22:PRINT "30. Necrose (decalcification"
locate 35, 22:PRINT "31. Necrose (decalcification"
locate 36, 22:PRINT "32. Necrose (decalcification"
locate 37, 22:PRINT "33. Necrose (decalcification"
locate 38, 22:PRINT "34. Necrose (decalcification"
locate 39, 22:PRINT "35. Necrose (decalcification"
locate 40, 22:PRINT "36. Necrose (decalcification"
locate 41, 22:PRINT "37. Necrose (decalcification"
locate 42, 22:PRINT "38. Necrose (decalcification"
locate 43, 22:PRINT "39. Necrose (decalcification"
locate 44, 22:PRINT "40. Necrose (decalcification"
locate 45, 22:PRINT "41. Necrose (decalcification"
locate 46, 22:PRINT "42. Necrose (decalcification"
locate 47, 22:PRINT "43. Necrose (decalcification"
locate 48, 22:PRINT "44. Necrose (decalcification"
locate 49, 22:PRINT "45. Necrose (decalcification"
locate 50, 22:PRINT "46. Necrose (decalcification"
locate 51, 22:PRINT "47. Necrose (decalcification"
locate 52, 22:PRINT "48. Necrose (decalcification"
locate 53, 22:PRINT "49. Necrose (decalcification"
locate 54, 22:PRINT "50. Necrose (decalci
7. Wegener's granulomatosis

8. Cyclic neutropenia

9. Cushing's syndrome

10. Yellow fever

11. Scurvy

12. Vitamin A deficiency

13. Crohn's disease

14. Cushing's syndrome

15. Yellow fever

16. Scurvy

17. Cyclic neutropenia

18. Vitamin A deficiency

19. Crohn's disease
the Gingiva"
  color normal, bgground
locate 6, 13:PRINT "1. Idiopathic gingival fibromatosis"
locate 7, 13:PRINT "2. Hereditary gingival fibromatosis"
locate 9, 13:PRINT "4. Amyloidosis"
locate 10, 13:PRINT "5. Hemifacial hypertrophy"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
goto end if

elseif sb=7 then
24370 color highlight, bgground
  locate 4, 26:PRINT "Cystic Lesions of Gingiva"
  color normal, bgground
locate 7, 26:PRINT "1. Eruption cyst"
locate 8, 26:PRINT "2. Gingival cyst"
locate 9, 26:PRINT "3. Parulis"
locate 10, 26:PRINT "4. Nasoalveolar cyst"
locate 11, 26:PRINT "5. Nasopalatine duct cyst"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
goto end if

elseif mw=1 then
mw1:
  color highlight, bgground
  locate 4, 4:PRINT "Keratotic Non-sloughing, Non-ulcerated, Non-eroded, Non-papillary Lesions"
  color normal, bgground
locate 6, 23:PRINT "1. Linea alba"
2. Hyperkeratosis (leukoplakia)
3. Nicotine stomatitis
4. Snuff/tobacco pouch
5. Actinic cheilosis
6. Leukoedema
7. Scar tissue
8. Lichen planus
9. Syphilitic glossitis
10. White sponge nevus
11. Benign hereditary intra-epithelial dyskeratosis
12. Pachyonychia congenita
13. Dyskeratosis congenita
14. Acanthosis nigricans (buccal only)
15. Hyperkeratosis palmo-plantaris and gingivae
16. Submucous fibrosis
17. Skin graft
18. Hypovitaminosis A
19. Syphilitic glossitis (rare)
elseif mw=2 then
24750 color highlight, bgroud
locate 4, 5:PRINT "Keratotic Non-sloughing, Non-ulcerated, Non-eroded,
Papillary Lesions"
color normal, bgroud
locate 6, 25:PRINT "1. Fordyce granules"
locate 7, 25:PRINT "2. White hairy tongue"
locate 8, 25:PRINT "3. Verrucous hyperkeratosis"
locate 9, 25:PRINT "4. Papilloma/papillomatosis"
locate 10, 25:PRINT "5. Verruca vulgaris"
locate , 23:color astrsk, bgroud:print "*";:color normal, bgroud
locate 11, 25:PRINT "6. Verrucous carcinoma"
locate , 23:color astrsk, bgroud:print "*";:color normal, bgroud
locate 12, 25:PRINT "7. Koplick spots (measles)"
locate 13, 25:PRINT "8. Verrucous xanthoma"
locate 14, 25:PRINT "9. Epidermoid cyst"
locate 15, 25:PRINT "10. Lymphoepithelial cyst"
locate 16, 25:PRINT "11. Acanthosis nigricans"
locate , 23:color astrsk, bgroud:print "*";:color normal, bgroud
locate 17, 25:PRINT "12. Darier’s disease"
locate , 23:color astrsk, bgroud:print "*";:color normal, bgroud
locate 18, 25:PRINT "13. Hairy leukoplakia/ARC/AIDS"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
dif
endif

elseif mw=3 then
24930 color highlight, bgroud
locate 4, 6:PRINT "Keratotic Non-sloughing, Ulcerated, Eroded,
Non-papillary Lesions"
color normal, bgroud
locate 6, 20:PRINT "1. Hyperkeratosis (speckled leukoplakia)"
locate 7, 20:PRINT "2. Nicotine stomatitis"
locate 8, 20:PRINT "3. Actinic cheilosis"
locate 9, 20:PRINT "4. Chronic cheek biting"
locate 10, 20:PRINT "5. Geographic tongue"
locate 11, 20:PRINT "6. Benign migratory stomatitis (ectopic

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geographic tongue)
locate 12, 20:PRINT "7. Erosive lichen planus"
locate 13, 20:PRINT "8. Premalignant epithelial dysplasia"
locate 14, 20:PRINT "9. Carcinoma in situ"
locate 15, 20:PRINT "10. Squamous cell carcinoma"
locate 16, 20:PRINT "11. Syphilitic glossitis"
locate 17, 20:PRINT "12. Discoid lupus erythematosus"
locate 18, 20:PRINT "13. Reiter's disease"
locate 19, 20:PRINT "14. Oral psoriasis"

elseif mw=4 then
25130 color highlight, bground
locate 4, 8:PRINT "Keratotic Non-sloughing, Ulcerated, Eroded, Papillary lesions"
color normal, bground
locate 6, 24:PRINT "1. Verrucous carcinoma"
locate 7, 24:PRINT "2. Squamous cell carcinoma"

elseif mw=5 then
locate 4, 23:PRINT "Sloughing, Non-keratotic Lesions"
locate 6, 23:PRINT "1. Materia alba/plaque"
locate 7, 23:PRINT "2. Sloughing traumatic lesions"
locate 8, 23:PRINT "3. Candidiasis (moniliasis)"
locate 9, 23:PRINT "4. White-coated tongue"
locate 10, 23:PRINT "5. Chemical burn (ex. ASA)"
locate 11, 23:PRINT "6. Thermal burn"
locate 12, 23:PRINT "7. Stomatitis venenata"
locate 13, 23:PRINT "8. Stomatitis medicamentosa"
locate 14, 23:PRINT "9. Radiation mucositis"
locate 15, 23:PRINT "10. Diphtheria"
locate 16, 23:PRINT "11. Ulcer/bed (various diseases)"
locate 17, 23:PRINT "12. Noma (rare)"
locate 18, 23:PRINT "13. Heavy metal poisoning"
locate 19, 23:PRINT "14. Snuff-dipper’s lesion"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if
elseif mr=1 then
locate 4, 25:PRINT "Single Exophytic Red Lesions"
locate 6, 19:PRINT "1. Hematoma"
locate 7, 19:PRINT "2. Hemangioma"
locate 8, 19:PRINT "3. Pericoronitis"
locate 9, 19:PRINT "4. Pyogenic granuloma"
locate 10, 19:PRINT "5. Peripheral giant cell granuloma"
locate 11, 19:PRINT "6. Squamous cell carcinoma"
locate 12, 19:PRINT "7. Mycotic infection"
locate 13, 19:PRINT "8. Median rhomboid glossitis"
locate 14, 19:PRINT "9. Traumatic angiomatous lesion"
locate 15, 19:PRINT "10. Eruption cyst"
locate 16, 19:PRINT "11. Abscess (periodontal or endodontic)"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif mr=2 then
25580 color highlight, bg
locate 4, 23:PRINT "Single Non-exophytic Red Lesions"
color normal, bg
locate 6, 21:PRINT "1. Hemangioma, Sturge-Weber syndrome"
locate 7, 21:PRINT "2. Burns (thermal or chemical)"
locate 8, 21:PRINT "3. Non-specific inflammation"
locate 9, 21:PRINT "4. Trauma (ex. denture sore)"
locate 10, 21:PRINT "5. Carcinoma in situ"
locate 11, 21:PRINT "6. Squamous cell carcinoma"
locate 12, 21:PRINT "7. Erythroplakia"
locate 13, 21:PRINT "8. Ulcers (see ulcers)"
locate 14, 21:PRINT "9. Median rhomboid glossitis"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif mr=3 then
25730 color highlight, bg
locate 4, 16:PRINT "Generalized or Multiple Exophytic Red Lesions"
color normal, bground
locate 6, 18:PRINT "1. Gingivitis (see other gingival diseases)"
locate 7, 18:PRINT "2. Hemangiomas"
locate 8, 18:PRINT "3. Hematomas/purpuras"
locate 9, 18:PRINT "4. Lymphangioma"
locate 10, 18:PRINT "5. Papillary hyperplasia of the palate"
locate 11, 18:PRINT "6. Lingual varicosities"
locate , 16:color astrsk, bground:print "*";:color normal, bground
locate 12, 18:PRINT "7. Pyostomatitis vegetans"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
else if ans=68 then
goto softmenu
goto
end if
elseif mr=4 then
mr4:
color highlight, bground
locate 4, 15:PRINT "Generalized or Multiple Non-exophytic Red Lesions"
color normal, bground
locate 6, 19:PRINT "1. Hemangiomas, Sturge-Weber syndrome"
color normal, bground
locate 7, 19:PRINT "2. Hereditary hemorrhagic telangiectasia"
locate , 17:color astrsk, bground:print "*";:color normal, bground
locate 8, 19:PRINT "3. Erythema multiforme"
locate , 17:color astrsk, bground:print "*";:color normal, bground
locate 9, 19:PRINT "4. Allergic reaction"
locate 10, 19:PRINT "5. Non-specific inflammation"
locate 11, 19:PRINT "6. Radiation stomatitis/xerostomia"
locate 12, 19:PRINT "7. Denture sore mouth (candidiasis)"
locate , 17:color astrsk, bground:print "*";:color normal, bground
locate 13, 19:PRINT "8. Scarlet fever"
locate , 17:color astrsk, bground:print "*";:color normal, bground
locate 14, 19:PRINT "9. Measles"
locate 15, 19:PRINT "10. Geographic tongue"
locate 16, 19:PRINT "11. Vitamin deficiencies"
locate 17, 19:PRINT "12. Nicotine stomatitis (early)"
page=1:npages=2
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
color highlight, bgground
locate 4, 15:PRINT "Generalized or Multiple Non-exophytic Red Lesions"
color normal, bgground
locate 6, 22:color astrsk, bgground:print "*";:color normal, bgground
locate 6, 24:PRINT "13. Petechiae:
locate 7, 24:PRINT "  --  Leukemias"
locate 8, 24:PRINT "  --  Anemias"
locate 9, 24:PRINT "  --  Purpuras"
locate 10, 24:PRINT "  --  Hemophilies"
locate 11, 24:PRINT "  --  Mononucleosis"
locate 12, 24:PRINT "  --  Fellatio trauma"
locate 13, 24:PRINT "  --  Other trauma"
locate 14, 24:PRINT "  --  Chronic cough"
locate 15, 24:PRINT "14. Lupus erythematous"
page=2:npages=2
call diffpressret
if ans=67 then

goto mainmenu
elseif ans=68 then
goto softmenu
elseif ans=73 then

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
goto mr4
end if

elseif mb=1 then
26160 color highlight, bgground
locate 4, 18:PRINT "Single Exophytic Brown and/or Black Lesions"
color normal, bgground
locate 6, 15:PRINT "1. Hematoma"
locate 7, 15:PRINT "2. Pigmented nevi"
locate 8, 15:PRINT "3. Pigmented irritation fibroma"
locate 9, 15:PRINT "4. Malignant melanoma"
locate 10, 15:PRINT "5. Black hairy tongue"
locate 13:color astrsk, bgground:print "*";:color normal, bgground

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locate 11, 15:PRINT "6. Peripheral giant cell granuloma (long-standing)"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif mb=2 then
26280 color highlight, bgound
locate 4, 16:PRINT "Single Non-exophytic Brown and/or Black Lesions"
color normal, bgound
locate 6, 24:PRINT "1. Amalgam tattoo"
locate 7, 24:PRINT "2. Non-amalgam tattoo"
locate 8, 24:PRINT "3. Ephelis/lentigo (freckle)"
locate 9, 22:color astrsk, bgound:print "*";color normal, bgound
locate 10, 24:PRINT "4. Malignant melanoma"
locate 10, 24:PRINT "5. Graphite tattoo from pencil"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif mb=3 then
26390 color highlight, bgound
locate 4, 9:PRINT "Generalized or Multiple Exophytic Brown and/or Black Lesions"
color normal, bgound
locate 6, 23:color astrsk, bgound:print "*";color normal, bgound
locate 6, 25:PRINT "1. Malignant melanoma"
locate 7, 23:color astrsk, bgound:print "*";color normal, bgound
locate 7, 25:PRINT "2. Purpuras (long-standing)"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
else if ans=68 then
goto softmenu
end if

elseif mb=4 then
26470 color highlight, bg
locate 4, 7:PRINT "Generalized or Multiple Non-exophytic Brown and/or Black Lesions"
color normal, bg
locate 6, 21:color asterisk, bg:print "*";color normal, bg
locate 6, 23:PRINT "1. Malignant melanoma"
locate 7, 23:PRINT "2. Physiologic melanosis (racial pigmentation)"
locate 8, 23:PRINT "3. Peutz-Jeghers syndrome"
locate , 21:color asterisk, bg:print "*";color normal, bg
locate 9, 23:PRINT "4. Addison's disease"
locate , 21:color asterisk, bg:print "*";color normal, bg
locate 10, 23:PRINT "5. Heavy metal poisoning"
locate , 21:color asterisk, bg:print "*";color normal, bg
locate 11, 23:PRINT "6. Drug ingestion (chloroquine)"
locate 12, 23:PRINT "7. Syphilis (secondary)"
pag e=1:pages=1
call diffpressret
if ans=67 then
goto mainmenu
else if ans=68 then
goto softmenu
end if

elseif mp=1 then
26600 color highlight, bg
locate 4, 20:PRINT "Single Blue and/or Purple Lesions"
color normal, bg
locate 6, 22:PRINT "1. Mucocele"
locate 7, 22:PRINT "2. Ranula"
locate 8, 22:PRINT "3. Eruption cyst"
locate 9, 22:PRINT "4. Hematoma"
locate 10, 22:PRINT "5. Hemangioma"
locate 11, 22:PRINT "6. Traumatic angiomatous lesion"
7. Blue nevus
8. Mucoepidermoid carcinoma
9. Malignant melanoma
10. Cystic pleomorphic adenoma
11. Kaposi’s sarcoma/ARC/AIDS

Generalized or Multiple Blue and/or Purple Lesions
1. Lingual varicosities
2. Hemangiomas
3. Lymphangiomas
4. Purpuras
5. Cyanosis
6. Kaposi’s sarcoma/ARC/AIDS

Single Yellow Lesions
1. Single Yellow Lesions
1. Lipoma
2. Epidermoid/dermoid cyst
3. Lymphoepithelial cyst
4. Xanthoma
5. Superficial abscess/fistula
6. Benign lymphoid aggregate
7. Yellow hairy tongue
8. Benign lymphoepithelial cyst (floor of mouth)
9. Verrucous xanthoma

Generalized or Multiple Yellow Lesions

1. Fordyce granules
2. Jaundice/icterus
3. Crusting:
   -- Actinic cheilitis
4. Crusting from herpes
   -- Herpes zoster
5. Benign lymphoid aggregate
6. Tonsillar (keratotic) plugs
7. Lipoid proteinosis
8. Carotenemia
9. Pyostomatitis vegetans
else if sh=1 then
27200  color highlight, bground
 locate 4, 27:PRINT "Acute Vesicular Lesions"
color normal, bground
 locate 6, 24:PRINT "1. Herpes simplex"
 locate 7, 24:PRINT "2. Herpes zoster"
 locate 8, 24:PRINT "3. Herpangina"
 locate 9, 24:PRINT "4. Hand-foot-mouth disease"
 locate 10, 24:PRINT "5. Chickenpox"
 locate , 22:color astrsk, bground:print "*";:color normal, bground
 locate 11, 24:PRINT "6. Allergic reactions"
 locate 12, 24:PRINT "7. Dermatitis herpetiformis"
 locate , 22:color astrsk, bground:print "*";:color normal, bground
 locate 13, 24:PRINT "8. Erythema multiforme (early)"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sh=2 then
27340  color highlight, bground
 locate 4, 18:PRINT "Chronic Vesicular Lesions (Pseudovesicles)"
color normal, bground
 locate 6, 25:PRINT "1. Mucocele"
 locate 7, 25:PRINT "2. Parulis"
 locate 8, 25:PRINT "3. Benign lymphoid aggregate"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sh=3 then
27430  color highlight, bground
**Acute Bullous Lesions**

1. Allergic reaction

2. Erythema multiforme

**Chronic Bullous Lesions**

1. Desquamative gingivitis

2. Benign mucous membrane pemphigoid

3. Bullous pemphigoid

4. Pemphigus vulgaris

5. Familial benign chronic pemphigus

6. Bullous lichen planus

7. Epidermolysis bullosa

8. Acrodermatitis enteropathica

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27650 color highlight, bgound
locate 4, 33:PRINT "Acute Ulcers"
color normal, bgound
locate 6, 13:color astrsk, bgound:print "*";:color normal, bgound
locate 6, 15:PRINT "1. All acute vesicular and bullous diseases"
locate 7, 15:PRINT "2. Aphthous stomatitis"
locate 8, 15:PRINT "3. Syphilis (chancre)"
locate 9, 15:PRINT "4. Gonorrhea"
locate 10, 15:PRINT "5. Necrotizing ulcerative gingivitis (NUG, ANUG)"
locate 11, 15:PRINT "6. Traumatic ulcer"
locate 12, 15:PRINT "7. Chemical burn"
locate 13, 15:PRINT "8. Thermal burn"
locate 14, 15:PRINT "9. Herpetic gingivostomatitis"
page=1:npages=1
call diffpressret
if ans=67 then
  goto mainmenu
endif
else if sh=6 then
  sh6:
  color highlight, bgound
  locate 4, 32:PRINT "Chronic Ulcers"
color normal, bgound
locate 6, 18:PRINT "1. All chronic bullous lesions"
locate 7, 18:PRINT "2. Large aphthous ulcer"
locate 8, 18:PRINT "3. Periadenitis mucosa necrotica recurrens"
locate 9, 18:PRINT "4. Syphilis (gumma)"
locate 10, 18:PRINT "5. Granulomatous mycotic infections"
locate 11, 18:PRINT "6. Malignancy"
locate 12, 18:PRINT "7. Keratoacanthoma"
locate 13, 18:PRINT "8. Blood dyscrasias"
locate 14, 18:PRINT "9. Noma (rare)"
locate 15, 18:PRINT "10. Behcet's syndrome"
page=1:npages=2
call diffpressret
if ans=-67 then
  goto mainmenu
elseif ans=68 then
  goto softmenu
end if

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
  color highlight, bground
  locate 4, 32:PRINT "Chronic Ulcers"
  color normal, bground
  locate 7, 21:color astrsk, bground:print "*";color normal, bground
  locate 7, 23:PRINT "11. Midline lethal granuloma"
  locate 8, 21:color astrsk, bground:print "*";color normal, bground
  locate 9, 23:PRINT "12. Wegener’s granulomatosis"
  locate 10, 23:PRINT "13. Tuberculosis"
  locate 11, 23:PRINT "14. Draining fistula/parulis"
  locate 12, 23:PRINT "15. Lupus erythematosus"
  locate 13, 23:PRINT "16. Sarcoidosis"
  locate 14, 23:PRINT "17. Necrotizing sialometaplasia"
  locate 15, 23:PRINT "18. Warty dyskeratoma"
  locate 16, 23:PRINT "19. Traumatic ulcer"
page=2:npages=2
call diffpressret
if ans=67 then
  goto mainmenu
elseif ans=68 then
  goto softmenu
elseif ans=73 then
  CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
goto sh6
end if

elseif si=1 then
  28070  color highlight, bground
    locate 4, 17:PRINT "Small Firm Non-hemorrhagic Lobulated lesions"
    color normal, bground
    locate 6, 20:PRINT "1. Papilloma"
    locate 7, 20:PRINT "2. Verruca vulgaris"
    locate 8, 20:PRINT "3. Lingual tonsil"
locate 9, 20:PRINT "4. Folate papilla"
locate 10, 20:PRINT "5. Median rhomboid glossitis"
locate 11, 20:PRINT "6. Keratoacanthoma"
locate 12, 20:PRINT "7. Cutaneous horn"
locate 13, 20:PRINT "8. Nevi"
locate , 18:color astrsk, bground:print "*";:color normal, bground
locate 14, 20:PRINT "9. Basal cell carcinoma"
locate 15, 20:PRINT "10. Neurofibroma"
locate 16, 20:PRINT "11. Circumvallate papilla (taste bud)"
page=1: npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif si=2 then
28240 color highlight, bground
locate 4, 14:PRINT "Extensive Firm Non-hemorrhagic Lobulated Lesions"
color normal, bground
locate 6, 20:PRINT "1. Gingival fibromatoses (see gingiva)"
locate 7, 20:PRINT "2. Amyloidosis"
locate 8, 20:PRINT "3. Fissured tongue"
locate 9, 20:PRINT "4. Macroglossia"
locate 10, 20:PRINT "5. Buccal fat pads"
locate 11, 20:PRINT "6. Tori"
page=1: npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif si=3 then
28360 color highlight, bground
locate 4, 21:PRINT "Single Firm Non-hemorrhagic Nodules"
color normal, bground
locate 6, 22:PRINT "1. Irritation fibroma"
locate 7, 22:PRINT "2. Epulis fissuratum"
locate 8, 22:PRINT "3. Peripheral ossifying fibroma"
4. Lingual thyroid
5. Granular cell myoblastoma
6. Fibrolipoma
7. Benign neural tumors
8. Benign salivary tumors
9. Choristoma/hamartoma
10. Extraosseous odontogenic tumor
11. Rhabdomyoma
12. Oral-facial-digital syndrome
13. Lymph node

Multiple Firm Non-hemorrhagic Nodules
1. Papillary hyperplasia of the palate
2. Papillomatosis
3. Hairy tongue
4. Accessory tonsillar tissue
5. Focal epithelial hyperplasia
6. Neurofibromatosis
7. Multiple mucosal neuromas syndrome
8. Nicotine stomatitis (palate)
9. Amyloidosis
10. Sarcoidosis
11. Verruca vulgaris, multiple lesions
end if

CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
  color highlight, bgground
  locate 4, 20:PRINT "Multiple Firm Non-hemorrhagic Nodules"
  color normal, bgground
  locate 6, 21:PRINT "12. Focal dermal hypoplasia syndrome"
  locate 7, 21:PRINT "13. Darier's disease"
  locate , 19:color astrsk, bgground:print "*":color normal, bgground
  locate 8, 21:PRINT "14. Acanthosis nigricans"
  locate , 19:color astrsk, bgground:print "*":color normal, bgground
  locate 9, 21:PRINT "15. Crohn's disease"
  locate 11, 21:PRINT "17. Lipoid proteinosis"
  locate , 19:color astrsk, bgground:print "*":color normal, bgground
  locate 12, 21:PRINT "18. Pyostomatitis vegetans"
  locate 13, 21:PRINT "19. Pemphigus vegetans"
  locate 14, 21:PRINT "20. Condyloma acuminatum"
  locate 15, 21:PRINT "21. Fordyce granules"
  page=2:npages=2
  call diffpressret
  if ans=67 then
    goto mainmenu
  elseif ans=68 then
    goto softmenu
  elseif ans=73 then
    CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-2, endc-1, scrollines, attrib)
    goto si4
  end if

elseif si=5 then

28840  color highlight, bgground
  locate 4, 25:PRINT "Single Bony Lumps or Nodules"
  color normal, bgground
  locate , 18:PRINT "1. Torus palatinus (may appear lobulated)"
  locate , 18:PRINT "2. Torus mandibularis"
  locate , 18:PRINT "3. Osteoma/exostosis"
  locate , 16:color astrsk, bgground:print "*":color normal, bgground
  locate , 18:PRINT "4. Central expanding bone or odontogenic tumor"
  page=1:npages=1
  call diffpressret
  if ans=67 then
    goto mainmenu
  elseif ans=68 then

elseif si=6 then
28940 color highlight, bground
  locate 4, 14:PRINT "Multiple or Extensive Bony Enlargements or Nodules"

color normal, bground
locate 6, 10:PRINT "1. Torus mandibularis"
locate 7, 10:PRINT "2. Torus palatinus (may appear lobulated)"
locate 8, 10:PRINT "3. Multiple osteomas/Gardner's syndrome"
locate 9, 10:PRINT "4. Buccal exostoses"
locate 10, 10:PRINT "5. Central expanding bone or odontogenic tumor"
locate 11, 10:PRINT "6. Fibrous dysplasia"
locate 12, 10:PRINT "7. Paget's disease of bone"
locate 13, 10:PRINT "8. Cherubism"
locate 14, 10:PRINT "9. Acromegaly/gigantism"
locate 15, 10:PRINT "10. Hemifacial hypertrophy"
locate 16, 10:PRINT "11. Generalized cortical hyperostosis (Van Buchem disease)"
  page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sj=1 then
29110 color highlight, bground
  locate 4, 34:PRINT "Macroglossia"
  locate 6, 21:PRINT "1. Beckwith's hypoglycemic syndrome"
  locate 7, 21:PRINT "2. Melkersson-Rosenthal syndrome"
  locate 8, 21:PRINT "3. Multiple mucosal neuromas syndrome"
  locate 9, 21:PRINT "4. Isolated macroGLOSSIA"
  locate 10, 21:PRINT "5. Amyloidosis"
  locate 11, 21:PRINT "6. Neurofibromatosis"
  locate 12, 21:PRINT "7. Acromegaly/cretinism"
  locate 13, 21:PRINT "8. Pellagra"
locate 14, 21:PRINT "9. Thiamine (B1) deficiency"
locate 15, 21:PRINT "10. Adult hypothyroidism"
locate 16, 21:PRINT "11. Hemifacial hypertrophy"
locate 17, 21:PRINT "12. Angiomas"
locate 18, 21:PRINT "13. Xerostomia"
locate 19, 21:PRINT "14. Diabetes mellitus (uncontrolled)"
locate 20, 21:PRINT "15. Other tumors"
locate 21, 21:PRINT "16. Lymphangioma"
locate 22, 21:PRINT "17. Hemangioma"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if
elseif sj=2 then
29340 color highlight, bground
   locate 4, 33:PRINT "Microglossia":color normal, bground
   locate 6, 20:color astrsk, bground:print "*":color normal, bground
   locate 6, 22:PRINT "1. Progressive muscular atrophy"
   locate 7, 22:PRINT "2. Oral-facial-digital syndrome"
   locate 8, 22:PRINT "3. Lingual carcinoma, post-surgery"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if
elseif sj=3 then
29430 color highlight, bground
   locate 4, 36:PRINT "Clefts"
color normal, bground
   locate 6, 23:PRINT "1. Idiopathic cleft"
   locate 7, 23:PRINT "2. With cleft palate"
   locate 8, 23:PRINT "3. With median cleft of mandible"
   locate 9, 23:PRINT "4. Oral-facial-digital syndrome"

elseif sj=4 then
29530  color highlight, bground
   locate 4, 31:PRINT "Fissured Tongue"
   color normal, bground
   locate 6, 21:PRINT "1. Inherited"
   locate 7, 21:PRINT "2. Associated with geographic tongue"
   locate 8, 21:PRINT "3. Melkersson-Rosenthal syndrome"
page=1:npages=1
call diffpressret
   if ans=67 then
go to mainmenu
   elseif ans=68 then
go to softmenu
   end if

elseif sj=5 then
29620  color highlight, bground
   locate 4, 29:PRINT "Supernumerary Tongue"
   color normal, bground
   locate 6, 17:PRINT "1. First and second branchial arch syndrome"
page=1:npages=1
call diffpressret
   if ans=67 then
go to mainmenu
   elseif ans=68 then
go to softmenu
   end if

elseif sj=6 then
29690  color highlight, bground
   locate 4, 32::PRINT "Smooth Tongue"
   color normal, bground
   locate 6, 11:PRINT "1. Vitamin B complex deficiency"
locate 7, 11:PRINT "2. Pernicious anemia"
locate 8, 11:PRINT "3. Diabetes mellitus"
locate 9, 11:PRINT "4. Anxiety with hypertension"
locate 10, 11:PRINT "5. Cardiac decompensation"
locate 11, 11:PRINT "6. Plummer-Vinson syndrome"
locate 12, 11:PRINT "7. Xerostomia"
locate 13, 11:PRINT "8. Congenital absence of papillae"
locate 14, 11:PRINT "9. Geographic tongue"
locate 15, 11:PRINT "10. Median rhomboid glossitis"
locate 16, 11:PRINT "11. Epidermolysis bullosa/other vesiculo-bullous lesions"
locate 17, 11:PRINT "12. Other anemias"

elseif sj=7 then
29870 color highlight, bgroun
locate 4, 24:PRINT "Glossodynia (Pain in Tongue)"
locate 6, 19:PRINT "1. Vitamin B complex deficiency"
locate 7, 19:PRINT "2. Pernicious anemia"
locate 8, 19:PRINT "3. Iron deficiency anemia"
locate 9, 19:PRINT "4. Diabetes mellitus (uncontrolled)"
locate 10, 19:PRINT "5. Local irritants/habits"
locate 11, 19:PRINT "6. Drug reactions"
locate 12, 19:PRINT "7. Contact allergy"
locate 13, 19:PRINT "8. Excessive smoking, alcohol, or spices"
locate 14, 19:PRINT "9. Sjogren's syndrome"
locate 15, 19:PRINT "10. Psychosomatic"
locate 16, 19:PRINT "11. Inflamed lingual tonsil"
locate 17, 19:PRINT "12. Sprue"
locate 18, 19:PRINT "13. Hairy tongue"
14. Decreased intermaxillary space
15. Temporomandibular joint dysfunction
16. Candidiasis

elseif sk=1 then
73090 color highlight, bgroud
locate 4, 25:PRINT "Acute Parotid-area Swellings"
color normal, bground
locate 6, 26:color astrsk, bgroud:print "*";:color normal, bground
locate 6, 28:PRINT " 1. Mumps/other parotitis"
locate 7, 28:PRINT " 2. Sialolithiasis"
locate 8, 28:PRINT " 3. Drug reactions"
locate 9, 28:PRINT " 4. Mikulicz's syndrome"
locate 10, 28:PRINT " 5. Salivary malignancy"

elseif sk=2 then
30200 color highlight, bgroud
locate 4, 24:PRINT "Chronic Parotid-area Swellings"
color normal, bground
locate 7, 22:PRINT " 1. Recurrent subacute parotitis"
locate 8, 22:PRINT " 2. Chronic ductal obstruction"
locate 9, 22:PRINT " 3. Benign salivary tumor"
locate 10, 22:PRINT " 4. Sjogren's syndrome"
locate 11, 22:PRINT " 5. Diabetes mellitus"
6. Benign lymphoepithelial lesion
7. Chronic alcoholism
loc10, 18:PRINT "5. Epidermoid/dermoid cyst"
loc11, 18:PRINT "6. Thyroid enlargement"
loc12, 18:PRINT "7. Parathyroid enlargement"
loc13, 18:PRINT "8. Carotid body tumor"
loc14, 18:PRINT "9. Benign salivary tumor (submandibular)"
loc15, 18:PRINT "10. Tuberculosis"
loc16, 18:PRINT "11. Sarcoidosis"
loc17, 18:PRINT "12. Benign mesenchymal tumors"

page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sk=5 then
30630 color highlight, bground
    loc4, 13:PRINT "Acute Extensive Diffuse Swellings, Non-parotid Area"
    color normal, bground
    loc6, 20:color astrsk, bground:print "";color normal, bground
    loc6, 22:PRINT "1. Cellulitis"
    loc7, 20:color astrsk, bground:print "";color normal, bground
    loc7, 22:PRINT "2. Ludwig's angina"
    loc8, 22:PRINT "3. Ranula"
    loc9, 22:PRINT "4. Sialolithiasis (submandibular)"
    loc10, 22:PRINT "5. Cat-scratch disease"
    loc11, 22:PRINT "6. Lymphomas"
    loc12, 22:PRINT "7. Metastatic tumors"
    loc13, 22:PRINT "8. Primary cervical malignancies"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if

elseif sk=6 then
30770 color highlight, bgrouitd
locate 4, 12:PRINT "Chronic Extensive Diffuse Swellings, Non-parotid Area"
color normal, bgrouid
locate 6, 18:PRINT "1. Sialolithiasis (submandibular)"
locate 7, 18:PRINT "2. Benign salivary tumor"
locate 8, 18:PRINT "3. Cushing's syndrome (buffalo hump)"
locate 9, 18:PRINT "4. Benign hereditary cervical lipomatosis"
page=1:npages=1
call diffpressret
if ans=67 then
goto mainmenu
elseif ans=68 then
goto softmenu
end if
end if
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call box (begr,begc,endr,endc)
locate 25, 1:print space$(80);
locate 8, 3:PRINT "The preceding differential diagnosis should be of assistance. You should be"
locate 9, 3:PRINT "able to narrow this list considerably by using your knowledge, impressions,"
locate 10, 3:PRINT "and other references."
locate 12, 3:PRINT "Remember, diagnoses in the differential list that have an asterisk (";
color astrsk, bgrouid:print "*";
color normal, bgrouid:print ");"
locate 13, 3:PRINT "beside them should be investigated as possible life-threatening or"
locate 14, 3:PRINT "mission-threatening situations."
LOCATE 25, 1:print "Press RETURN to continue.";
x$=input$(1)

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mainmenu:

REM Clear screen, draw box then go back to main program.
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
call box (begr, begc, endr, endc)
chain "dental"
endit:

REM Display last page.
CALL SCROLLUP (BEGR+1, BEGC+1, ENDR-1, endc-1, scrollines, attrib)
locate 5, 10:PRINT "Thank you. If you have any questions concerning this program, "
locate 6, 10:PRINT "please contact:");
locate 9, 10:PRINT "Commanding Officer"
locate 10, 10:PRINT "Naval Submarine Medical Research Laboratory"
locate 11, 10:PRINT "Naval Submarine Base New London"
locate 12, 10:PRINT "Groton, Connecticut 06349-5900"
locate 14, 10:PRINT "(203) 449-2523 commercial"
locate 15, 10:PRINT "8-241-2523 autovon"
locate 23, 1, 1 'turn cursor back on
END

Subroutine DIFFPRESSRET
Called from: DIFF
This routine is called from DIFF after "Press RETURN to continue" is displayed at the bottom of the screen. Along with the RETURN key, it also allows the user to press F9 for the Main Menu, F10 for the Soft Tissue Lesions Menu, F7 for Term Definitions, and PgUp and PgDn to view the different pages of the differential diagnosis.

sub diffpressret static
shared page, npages, ans, normal, bground, quescolor

p$=str$(page)
np$=str$(npages)
color quescolor, bground:LOCATE 22, 66:print"(Page";p$;" of";np$;")";
color normal, bground
ans=0

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while ans=0

    getkey1:  'clear keyboard buffer
    z$=inkey$
    if z$="" then
        goto getkey1
    end if

    getkey2:
    z$=inkey$
    if z$="" then
        goto getkey2
    end if

    if z$=chr$(13) then  '*** RETURN/ENTER
        ans=13
    elseif len(z$)=2 then
        z$=right$(z$, 1)
        if z$=chr$(67) then  '*** F9 main menu
            ans=67
        elseif z$=chr$(68) then  '*** F10 sub menu
            ans=68
        elseif z$=chr$(65) then  '*** F7 definitions
            call definitionroutine2
        elseif z$=chr$(73) and page=2 then  '*** PgUp
            ans=73
        elseif z$=chr$(81) then  '*** PgDn
            ans=81
        end if
    end if
end sub
Appendix A
Program Listings

DENTCOMM.BAS

REM common statements used by DENTAL, DIFF, DEFRTNS, and DENTSUBS.

COMMON SHARED normal, bground, ssn$, age$, response(), z()

COMMON SHARED mon$, wherefrom$, option$(())., opline$(()), longest, numops

COMMON SHARED qrow, qcol, oprow, opcol, ptrcol, ptr$, ptrcolor, blanks2$

COMMON SHARED quescolor, ans, mmenu, softmenu, respbar, resplettr, ssnbox

COMMON SHARED realcase, corresp$(()), other$

COMMON SHARED dindx$(()), item$(()), disease$(()), disindx$(()), defkeyline, defkeylettr

COMMON SHARED selectlf, def1f, def1s, select2s, select2f, def2f, def2s
Appendix A
Program Listings

WINDCOMM.BAS

REM common statements used by window routines.

COMMON SHARED /WIND1/ WINDrow(), WINDcol(), WINDheight(), WINDwidth(), WINDheader$()

COMMON SHARED /WIND2/ WINDscratt(), WINDframatt(), WIND%(), WINDcurrent

COMMON SHARED /WIND3/ WINDrowptr(), WINDcolptr(), WINDcurrentrow, WINDcurrentcol
Appendix B
Utility File Listings

DEFBLD.BAS

REM After this prog creates DEF.RND, you must edit the index (DEF.IDX) to
REM take care of the words with slashes. (separate the words and have
REM them both reference the same record. Make sure they stay in alphabetical order.)
REM This version creates a random access file with 60 chars per record.
REM Each definition is terminated with a "l" (ASCII 124).

dim word$(100),def$(100),dindx(100,2)
open "r",#1,"def.rnd",60
open "def.idx" for output as #2
field#1, 60 as a$
linelimit=60
cls
for x=1 to 73
    read word$(x)
next x
r=1
for x=1 to 73
    read def$(x)
def$(x)=def$(x)+"."
linecount=0
    dindx(x,1)=r
while len(def$(x)) > linelimit
    b=linelimit
    while mid$(def$(x),b,1) <> " "
        b=b-1
    wend
    lset a$=left$(def$(x),b)
    put #1,r
    r=r+1
def$(x)=space$(5)+right$(def$(x),len(def$(x))-b)
linecount=linecount+1
wend
lset a$=def$(x)
put #1,r
r=r+1
linecount=linecount+1
Dindx(x,2)=linecount

next x
for x=1 to 73
    print#2,dindx(x,1), dindx(x,2)
    print#2,word$(x)
next x
close

data "Chronic", "Cleft", "Crepitus", "Cyst", "Dentin", "Desquamation"
data "Diffuse", "Diplopia", "Discrete", "Enamel", "Endodontic"
data "Enophthalmia", "Eroded", "Exophytic", "Exophthalmia", "Fissured"
data "Fluctuant", "Generalized", "Gingiva", "Glossodynia", "Hemorrhagic"
data "Hyperplastic", "Infraorbital Rim", "Intercanthal Distance"
data "Irreversible Pulpitis", "Keratotic", "Lobulated", "Localized"
data "Lingual", "Macroglossia", "Malaise", "Mandibular", "Maxillary"
data "Membranous", "Microglossia", "Mobility", "Mucosa", "Muscles of Mastication"
data "Myofacial", "Necrotic/Necrotizing", "Nodules", "Occlusion/Occlusal Surface"
data "Papillary", "Parotid-area", "Periodontal/Periodontic"
data "Periodontitis", "Preauricular", "Probing Depth", "Pulp"
data "Pulpitis", "Purulence", "Racial Pigmentation", "Restoration"
data "Reversible Pulpitis", "Sequestrum", "Sinusitis", "Spontaneous"
data "Supernumerary", "Temporomandibular Joint (TMJ)", "Ulcers/Ulcerated"
data "Vesicular", "Zygomatic arch"

data "Abscess:  Localized accumulation of purulent material or pus, usually acute"
data "Acute:  Sharp; having a short and relatively severe course"
data "Alveolar Bone:  The bone of the mandible or maxilla that supports teeth"
data "Anomaly:  Deviation from normal"
data "Apical:  Referring to the apex of a tooth; end of the tooth opposite the crown"
data "Atrophy:  A wasting away or diminution in the size of the tissue/organ"
data "Avulsed:  Separated or detached forcibly"
data "Blunted:  Flattened with loss of scalloped (pointed) shape"
data "Buccal:  Pertaining to the cheeks or the cheek side"
data "Bulla:  A large blister or cutaneous vesicle filled with serous fluid"
data "Cellulitis:  Diffuse, usually subcutaneous spreading inflammation of connective tissue"
data "Chronic:  Long-standing; not acute"
data "Cleft:  A longitudinal opening or fissure"
data "Crepitus:  Cracking or grating sound"
data "Cyst:  A sac-like structure filled with a liquid or semisolid substance"
data "Dentin:  The light-yellowish tooth substance that surrounds the pulp and is covered by enamel"
data "Desquamation:  The shedding of epithelial elements/cells in scales or sheets (surface layers of tissue)"
data "Diffuse: Not definitely limited or localized"
data "Diplopia: Double vision"
data "Discrete: Separate or distinct"
data "Enamel: The white, hard substance that covers and protects the dentin of the crowns of teeth"
data "Endodontic: Pertaining to the pulp of the tooth"
data "Enophthalmia: Retraction of the eye into the orbit"
data "Eroded: Worn away; destroyed over time"
data "Exophytic: Outwardly growing"
data "Exophthalmia: Abnormal protrusion of the eye"
data "Fissured: Having clefts or grooves"
data "Fluctuant: Having a wave-like motion or the sensation of being fluid-filled"
data "Generalized: Throughout; not localized"
data "Gingiva: Gum tissue; keratinized mucosal tissue that surrounds the necks of the teeth"
data "Glossodynia: Pain in the tongue"
data "Hemorrhagic: Pertaining to or characterized by bleeding"
data "Hyperplastic: Pertaining to an abnormal multiplication or increase in the number of normal cells in normal arrangement in a tissue"
data "Infraorbital Rim: Bony rim palpable just below the eye"
data "Intercanthal Distance: Distance between the medial corners of the eye"
data "Irreversible Pulpitis: A state of pulpal inflammation in which the pulp does not have the potential to return to a state of health"
data "Keratotic: Having a horny/keratinized/somewhat fibrotic nature; usually whitish in appearance; cannot be rubbed-off"
data "Lobulated: Made up of or divided into lobules"
data "Localized: Restricted to a limited region; not generalized"
data "Lingual: Pertaining to the tongue or tongue side"
data "Macroglossia: Enlarged tongue"
data "Malaise: Unlocalized body uneasiness, debility, or discomfort"
data "Mandibular: Pertaining to the lower jaw or mandible"
data "Maxillary: Pertaining to the upper jaw or maxilla"
data "Membranous: Pertaining to a membrane; pertaining to a thin layer of tissue which covers a surface"
data "Microglossia: Under size of the tongue"
data "Mobility: (Dental) pertaining to an increased buccal/lingual (sideways) or vertical movement of the teeth"
data "Mucosa: Mucous membrane; (oral) the tissue lining inside the mouth"
data "Muscles of Mastication: Primarily the masseter, temporalis, medial pterygoid and lateral pterygoid muscles"
data "Myofacial: Referring to muscles of the face"
data "Necrotic/Necrotizing: Having characteristics of necrosis or non-vitality"
data "Nodules: A small boss or node which is solid and detectable by touch"
data "Occlusion/Occlusal Surface: Pertaining to the bite or interdigitation of the teeth; the biting surface"
data "Papillary: Pertaining to or resembling small nipple-shaped projections or elevations"

data "Parotid-area: Pertaining to the area of the parotid salivary gland; anterior and inferior to the ear"

data "Periodontal/Periodontic: Pertaining to the supporting structures of teeth (i.e. gingiva, bone, periodontal ligament, and cementum)"

data "Periodontitis: Inflammation of the supporting structures of the teeth"

data "Preauricular: In front of the ear"

data "Probing Depth: Depth of a periodontal pocket/sulcus measured in mm from the gingival margin to the base of the pocket/sulcus"

data "Pulp: The vascular, nervous, and connective tissue contained within the pulp chamber in the center of the tooth"

data "Pulpitis: Inflammation of the pulp"

data "Purulence: The condition of having or containing pus"

data "Racial Pigmentation: (Dental) normal pigmentation of the mucosa/gingiva; characterized by a diffuse generalized appearance; more commonly found in dark-skinned persons"

data "Restoration: A dental filling"

data "Reversible Pulpitis: A state of pulpal inflammation in which the pulp has the potential to return to a state of health"

data "Sequestrum: That which is sequestered or given off; often refers to a small fragment of non-vital bone"

data "Sinusitis: Inflammation of a sinus or sinuses"

data "Spontaneous: Occurring for no particular reason or stimulus"

data "Supernumerary: Extra; above the normal number"

data "Temporomandibular Joint (TMJ): The joint(s) which connects the mandible to the temporal bone"

data "Ulcers/Ulcerated: A loss of substance on a cutaneous or mucous surface causing gradual disintegration and necrosis of the tissues"

data "Vesicular: Pertaining to small blisters or serous-filled elevations"

data "Zygomatic arch: The bony arch formed by zygomatic bone (malar/cheek bone)"
DISDFBLD.BAS

REM This prog creates DISDEF.IDX, DISDEF.RND FROM DXDEF.TXT.

dim def$(100),dindx(100,2),word$(100)
open "r",#1,"disdef.rnd",60
open "disdef.idx" for output as #2
open "dxdef.txt" for input as #3
field#1, 60 as a$
linelimt=60
cls
r=1:linecount=0:wordcount=0
while not eof(3)
  line input #3, txt$
  txt$=left$(txt$,linelimt)
  print txt$
  wordcount=wordcount+1
  dindx(wordcount,1)=r
  b=instr(txt$,".;")
  b=b-1       'get rid of :
  word$(wordcount)=left$(txt$,b)
  while txt$ "~~"
    lset a$=txt$
    put #1,r
    r=r+1
  linecount=linecount+1
  line input #3, txt$
  txt$=left$(txt$,linelimt)
  print txt$
wend
dindx(wordcount,2)=linecount
linecount=0
wend
print wordcount
for x=1 to wordcount
  print#2,dindx(x,1), dindx(x,2)
  print word$(x)
print#2,word$(x)
next x
close
TREATBLD.BAS

REM Read a text file (trtmts.txt) and create an index of the first record num for each treatment plan.

20 NM = 35
25 OPEN "R",#1,"trtmts.rnd",75
30 FIELD #1,75 AS A$
   open "trtmts.txt" for input as #2
   r=1
35 FOR I=0 TO NM
   print "treat#";i," rec#";r
   par$=""n
45 line input #2, TX$
   if tx$="--" then 60
   par$=par$+tx$+" "
46 goto 45
60 REM break up lines
   limit=75
   while len(par$)limit
      b=limit+1
      while mid$(par$,b,1) <> " "
         b=b-1
      wend
      lset a$=left$(par$,b)
      print a$
      put #1
      r=r+1
      par$=right$(par$,len(par$)-b)
   wend
   lset a$=par$
   print a$
   put #1
   r=r+1
   lset a$="|
   put #1
   r=r+1
input rt$
65 NEXT I
70 CLOSE#1
DEF.TXT

Abscess: Localized accumulation of purulent material or pus, usually acute

Acute: Sharp; having a short and relatively severe course

Alveolar Bone: The bone of the mandible or maxilla that supports teeth

Anomaly: Deviation from normal

Apical: Referring to the apex of a tooth; end of the tooth opposite the crown

Atrophy: A wasting away or diminution in the size of the tissue/organ

Avulsed: Separated or detached forcibly

Blunted: Flattened with loss of scalloped (pointed) shape

Buccal: Pertaining to the cheeks or the cheek side

Bulla: A large blister or cutaneous vesicle filled with serous fluid

Cellulitis: Diffuse, usually subcutaneous spreading inflammation of connective tissue

Chronic: Long-standing; not acute

Cleft: A longitudinal opening or fissure

Crepitus: Cracking or grating sound

Cyst: A sac-like structure filled with a liquid or semisolid substance

Dentin: The light-yellowish tooth substance that surrounds the pulp and is covered by enamel

Desquamation: The shedding of epithelial elements/cells in scales or sheets (surface layers of tissue)

Diffuse: Not definitely limited or localized

Diplopia: Double vision

Discrete: Separate or distinct

Enamel: The white, hard substance that covers and protects the dentin of the crowns of teeth
Endodontic: Pertaining to the pulp of the tooth

Enophthalmia: Retraction of the eye into the orbit

Eroded: Worn away; destroyed over time

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Fissured: Having clefts or grooves

Fluctuant: Having a wave-like motion or the sensation of being fluid-filled

Generalized: Throughout; not localized

Gingiva: Gum tissue; keratinized mucosal tissue that surrounds the necks of the teeth

Glossodynia: Pain in the tongue

Hemorrhagic: Pertaining to or characterized by bleeding

Hyperplastic: Pertaining to an abnormal multiplication or increase in the number of normal cells in normal arrangement in a tissue

Infraorbital Rim: Bony rim palpable just below the eye

Intercanthal Distance: Distance between the medial corners of the eye

Irreversible Pulpitis: A state of pulpal inflammation in which the pulp does not have the potential to return to a state of health

Keratotic: Having a horny/keratinized/somewhat fibrotic nature; usually whitish in appearance; cannot be rubbed-off

Lobulated: Made up of or divided into lobules

Localized: Restricted to a limited region; not generalized

Lingual: Pertaining to the tongue or tongue side

Macroglossia: Enlarged tongue

Malaise: Unlocalized body uneasiness, debility, or discomfort

Mandibular: Pertaining to the lower jaw or mandible
Maxillary: Pertaining to the upper jaw or maxilla

Membranous: Pertaining to a membrane; pertaining to a thin layer of tissue which covers a surface

Microglossia: Under size of the tongue

Mobility: (Dental) pertaining to an increased buccal/lingual (sideways) or vertical movement of the teeth

Mucosa: Mucous membrane; (oral) the tissue lining inside the mouth

Muscles of Mastication: Primarily the masseter, temporalis, medial pterygoid and lateral pterygoid muscles

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Sequestrum: That which is sequestered or given off; often refers to a small fragment of non-vital bone

Sinusitis: Inflammation of a sinus or sinuses

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Supernumerary: Extra; above the normal number

Temporomandibular Joint (TMJ): The joint(s) which connects the mandible to the temporal bone

Ulcers/Ulcerated: A loss of substance on a cutaneous or mucous surface causing gradual disintegration and necrosis of the tissues

Vesicular: Pertaining to small blisters or serous-filled elevations

Zygomatic arch: The bony arch formed by zygomatic bone (malar/cheek bone)
### Appendix C

**Definition File Listings**

**DEF.IDX**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abscess</td>
</tr>
<tr>
<td>3</td>
<td>Acute</td>
</tr>
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<td>4</td>
<td>Alveolar Bone</td>
</tr>
<tr>
<td>6</td>
<td>Anomaly</td>
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<td>7</td>
<td>Apical</td>
</tr>
<tr>
<td>9</td>
<td>Atrophy</td>
</tr>
<tr>
<td>11</td>
<td>Avulsed</td>
</tr>
<tr>
<td>12</td>
<td>Blunted</td>
</tr>
<tr>
<td>13</td>
<td>Buccal</td>
</tr>
<tr>
<td>14</td>
<td>Bulla</td>
</tr>
<tr>
<td>16</td>
<td>Cellulitis</td>
</tr>
<tr>
<td>18</td>
<td>Chronic</td>
</tr>
<tr>
<td>19</td>
<td>Cleft</td>
</tr>
<tr>
<td>20</td>
<td>Crepitus</td>
</tr>
<tr>
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<td>Cyst</td>
</tr>
<tr>
<td>23</td>
<td>Dentin</td>
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<tr>
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<td>Desquamation</td>
</tr>
<tr>
<td>27</td>
<td>Diffuse</td>
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<td>Diplopia</td>
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<td>Eroded</td>
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<td>Exophytic</td>
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<td>Exophthalmia</td>
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<td>Fissured</td>
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</tr>
<tr>
<td>Fluctuant</td>
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</tr>
<tr>
<td>Generalized</td>
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</tr>
<tr>
<td>Gingiva</td>
<td>1</td>
</tr>
<tr>
<td>Glossodynia</td>
<td>1</td>
</tr>
<tr>
<td>Hemorrhagic</td>
<td>3</td>
</tr>
<tr>
<td>Hyperplastic</td>
<td>1</td>
</tr>
<tr>
<td>Infraorbital Rim</td>
<td>2</td>
</tr>
<tr>
<td>Intercanthal Distance</td>
<td>3</td>
</tr>
<tr>
<td>Irreversible Pulpitis</td>
<td>3</td>
</tr>
<tr>
<td>Keratotic</td>
<td>1</td>
</tr>
<tr>
<td>Lobulated</td>
<td>1</td>
</tr>
<tr>
<td>Localized</td>
<td>1</td>
</tr>
<tr>
<td>Lingual</td>
<td>1</td>
</tr>
<tr>
<td>Macroglossia</td>
<td>2</td>
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<tr>
<td>Malaise</td>
<td>2</td>
</tr>
<tr>
<td>Mandibular</td>
<td>1</td>
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<tr>
<td>Maxillary</td>
<td>2</td>
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Membranous

67  1

Microglossia

68  3

Mobility

71  2

Mucosa

73  3

Muscles of Mastication

76  1

Myofacial

77  2

Necrotic

77  2

Necrotizing

79  2

Nodules

81  2

Occlusal Surface

81  2

Occlusion

83  2

Papillary

85  2

Parotid-area

87  3

Periodontal

87  3

Periodontic

90  2

Periodontitis

92  1

Preauricular

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Probing Depth

96  3

Pulp

99  1

Pulpitis

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Purulence

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Restoration

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Temporomandibular Joint (TMJ)
Ulcerated
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Appendix C
Definition File Listings

DISDEF.TXT

Abscess/Infection/Cellulitis: As used in this program, this is a catch-all category. With any of the three areas, many of the classic signs of an infection are usually present and may include any or all of the following: swelling, redness, pus formation, elevated temperature, and malaise. An abscess is a localized accumulation of pus and may vary in size. An abscess may develop into a cellulitis which is a diffused, usually subcutaneous spreading of inflammation which may become life-threatening.

Acute Apical Abscess: An advanced exudative and profoundly symptomatic inflammatory response of the periapical connective tissues. It is caused by contaminants from the pulp canal that produce a steadily increasing amount of inflammatory exudate (edema) and later, pus. Radiographically the apical area of the tooth may appear normal. Pus often drains through the alveolar bone forming a clinically fluctuant swelling, often on the mucosa overlying the apex of the involved tooth. Some relief of pain is often experienced upon rupture or drainage of the abscess.

Acute Apical Periodontitis: The initial exudative and moderately symptomatic inflammatory reaction of the periapical connective tissues. It is usually caused by contaminants from the pulp canal which produce exudation in the periapical area, however, a milder form of acute apical periodontitis, unrelated to pulpal disease, can occur from occlusal trauma. There is no swelling but the tooth is tender to percussion. When caused by pulpal disease, this condition usually progresses to an acute apical abscess.

Acute Gingivitis: Acute inflammation of the gingiva characterized by red, painful, bleeding gingival tissues.

Acute Herpetic Gingivostomatitis: An acute viral disease characterized by multiple vesicle formation and gingival inflammation. The vesicles may form on most areas of the mouth, as opposed to aphthous ulcers (canker sores) which
form on non-keratinized tissue and are usually single in number. The vesicles are not usually seen as they rupture early and form whitish ulcers, each surrounded by a reddish halo. In its primary form, the condition is often quite painful and the patient may complain of a sore mouth. The patient may have an elevated temperature, malaise, and lymph node involvement. Because of the sore mouth, fluid intake needs to be maintained to avoid dehydration. In a recurrent form, small ulcers/sores are often found on the lateral areas of the palate, near the bicuspids and molars.

Caries Lesion (Decay): A microbial disease of the calcified tissues of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth. Clinically, it varies in color from orange to brown but is always soft and can be penetrated by a sharp instrument such as a dental explorer. Untreated, a carious lesion can progress to involve the pulp of the tooth and lead to pulpitis, acute apical periodontitis, and acute apical abscess. Sensitivity to sweets/sugar may suggest a carious lesion.

Defective Restoration: Imperfections, fractures, open margins or other undesirable attributes in dental restorations (ex. fillings, crowns, etc.) which are conducive to the development of dental caries. This in turn may lead to pulpal death and endodontic problems. A dental explorer placed in the restoration/tooth interface may detect the softer carious tooth structure.

Dentin Hypersensitivity: Excessive sensitivity of dentin, which is the light yellowish calcific tissue underlying the cementum or enamel that forms the body of a tooth. Clinically, dentin hypersensitivity usually occurs near the gingival margin. Dentin is often exposed near the gingival margin from gingival recession or from toothbrush abrasion of the relatively thin enamel layer in this area. The sensitivity is usually to cold, but may be to touch and hot as well. The sensitivity does not linger after the stimulus is removed.

Displacement/Mobility of Tooth, Favorable Prognosis: As a result of trauma, the prognosis for a displaced or mobile tooth is favorable when only relatively minor displacement or mobility of the tooth exists, the tooth was otherwise healthy prior to the trauma, and no other compromising conditions exist such as an alveolar fracture.
Displacement/Mobility of Tooth, Guarded Prognosis: As a result of trauma, the prognosis for a displaced or mobile tooth is guarded when the tooth is extremely mobile or was not otherwise healthy before the trauma or an alveolar fracture is present.

Enamel Fracture: This condition occurs when the crown of the tooth has been traumatized and the damage is confined strictly to the enamel. Although the tooth may be sensitive, this condition is of relatively minor importance.

Endodontic/Periodontic Combined Problem: In this situation both periodontal and endodontic etiologies exist. In order for healing to occur both root canal treatment and periodontal therapy are necessary.

Food Impaction: Forceful wedging of food between the teeth. Gingival tissues in an area of food impaction are usually red and bleed easily, and may be painful. A foul odor may be present.

Fractured Alveolar Bone: A fracture of the alveolar process which may or may not involve the alveolar socket. Commonly located in the anterior area, they can also affect other areas. The fracture line may be apical to the apices (ends) of the teeth, but in most cases involves the alveolar socket. In these cases associated dental injuries such as extrusive or lateral luxations and root fractures are common findings. Fractures of the alveolar process can usually be diagnosed by finding displacement and mobility of the fragment. Approximately 75% of teeth in the line of an alveolar fracture become devitalized and, if not extracted or treated with endodontics, can result in endodontically-related emergencies.

Fractured Crown, Large Pulp Exposure: A tooth that is fractured with its pulp exposed with a size greater than 1 mm in diameter is considered, for purposes of this program, to be a fractured crown with a large pulp exposure. A large pulp exposure cannot usually be treated predictably to retain pulp vitality and endodontic treatment (root canal) is usually ultimately necessary.
Fractured Crown, Pulp Not Exposed: This condition occurs when the crown of a tooth has been fractured exposing the dentin but not the pulp. Depending on the extent of the fracture, the tooth may be quite sensitive. Prolonged exposure of the dentin may result in pulpal death depending in part on the proximity of the fracture line to the pulp.

Fractured Crown, Small Pulp Exposure: A tooth that is fractured with its pulp exposed with a size less than 1 mm in diameter is considered, for purposes of this program, to be a fractured crown with a small pulp exposure. When a small pulp exposure is properly treated, pulpal vitality may be retained.

Fractured Mandible: Mandibular fractures are classified into various types, depending on the location of the fracture and whether or not the fracture is simple, compound, or comminuted. The incidence of fractures by sites is approximately as follows: angle 31%, condyle 18%, molar region 15%, mental region 14%, symphysis 8%, cuspid 7%, ramus 6% and coronoid process 1%.

Fractured Maxilla/Fractured Facial Bones: Maxillary/facial fractures are serious injuries because they involve important anatomical structures. The nasal cavity, maxillary antrum, orbit, and brain may be involved primarily by trauma or secondarily by infection. Cranial nerves, major blood vessels, vascular areas, thin bony walls, multiple muscular attachments, and specialized epithelia characterize this region in which injury can result in serious and life-threatening sequelae. There are multiple types of fractures that can occur in this area.

Internal Derangement of the Temporomandibular Joint: A broad category which includes any internal malrelationship of the temporomandibular joint, the articular disk, and associated structures. A malposed/diseased/degenerated articular disk may result in clicking, popping, or locking of the joint. Pain is usually in or around the joint and usually increases during mastication. This condition may be associated with myofascial pain/muscle spasms.

Irreversible Pulpitis: A condition of the pulp in which there are painful episodes which are spontaneous and
continuous and often aggravated by heat or cold. The patient may have had a previous history of pain in the same tooth.

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Localized Alveolar Osteitis (Dry Socket): A breakdown or improper formation of the clot that normally forms in an extraction site and which is necessary for healing. It most commonly develops on the third or fourth day after extraction and in conjunction with the extraction of a lower wisdom tooth. It is characterized by continuous pain in the general extraction site area which may radiate to the ear. A necrotic odor is frequently present. Irrigation with sterile saline and eugenol/iodoform gauze dressings are used to treat the condition.

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Maxillary Sinusitis: Inflammation of the maxillary sinus, the bony cavity in the body of the maxilla, superior to the alveolar process, lateral to the nasal cavity, and communicating with the middle meatus of the nose. Symptoms include percussion sensitivity of the maxillary bicuspid and molar teeth, often generalized rather than to a specific tooth. The pain usually increases when the position of the head is rapidly changed, such as lowering it. The patient usually reports having a recent cold or sinus problem.

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Myofascial Pain/Muscle Spasms: Discomfort or pain associated with the muscles of mastication and related to the temporomandibular joint. For treatment purposes, muscles may be viewed as being in a spastic state. This condition is often related to stress, habits, or occlusal malrelationships and patients need to be carefully questioned and examined. Parafunctional habits may include grinding or clenching of the teeth or gum chewing; pain related to night grinding is often more intense in the morning after waking up. Treatment is directed at reducing stress, physical therapy, and correcting habits. The occlusion can be addressed by a dentist. Bite splints are prosthetic devices often used by dentists to, among other things, deprogram the muscles and help them "relax." This condition may be associated with an internal derangement of the joint(s).

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Necrotizing Ulcerative Gingivitis: An acute gingival infection characterized by an extremely foul oral odor; bleeding, painful gingiva; development of a white, easily removable pseudomembrane over the gingival tissues; and
blunting of the interdental papillae (the tissue between the teeth). Malaise, elevated temperature, and lymph node involvement may be present. This condition is also called trenchmouth, Vincent’s infection, and NUG and ANUG.

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Neurologic Injury: Within the context of this program, after trauma to the head, the following usually indicate a neurologic injury: 1) loss of consciousness, 2) vomiting, or 3) amnesia.

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Occlusal Trauma: An abnormal occlusal force on a tooth, often resulting from a malocclusion or an improper (ex. "high") restoration. The involved tooth/teeth often feel sore and have an increased mobility. When the supporting structures of the teeth have been lost, for example bone and attachment loss from periodontal disease, then even normal occlusal forces acting on a compromised periodontium may act with traumatic results.

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Osseous Sequestrum: During extraction of a tooth, small fragments of bone may be fractured from the socket. These pieces of bone may become non-vital and work their way to the surface of the tissue one to two months after the extraction until they are sequestered.

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Pericoronitis/Erupting Tooth: Pericoronitis is classically an acute, painful inflammation of the tissues overlying a partially erupted lower third molar (wisdom tooth). The third molar may only appear on radiographs. Typical symptoms may include lymphadenopathy, trismus, pain in the region of the third molar, malaise, and elevated temperature. These symptoms may vary from mild to severe pain. The patient may develop a cellulitis capable of producing difficulty in swallowing, and the patient can have extreme tenderness to palpation extraorally and intraorally and edema visible in the submandibular and pharyngeal regions. Untreated, respiratory compromise and/or progression of the infection to the mediastinum may result.

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Periodontal Abscess: A localized area of pus formation originating from inflammation in the periodontal pocket or space and manifesting as a swelling on the gingival (gum) tissues. Periodontal abscesses rarely progress to a cellulitis and, although they may be uncomfortable, are somewhat self-limiting.
Reversible Pulpitis: A condition of the pulp in which there are painful episodes of short duration initiated by an external stimulus (ex. touch, cold, heat). A history of recent dental procedures (ex. new filling, root planing), a faulty restoration, or cervical erosion may help establish this as a possible diagnosis.

Root Fracture: Total or partial separation of an otherwise intact root. Fractures can be obvious or hairline and can be in horizontal or vertical directions. Although it depends on the direction, location on the root, and the extent of the fracture, the prognosis for teeth with root fractures is usually extremely guarded. Extraction of the teeth is often the ultimate sequelae.

Total Avulsion of Tooth, Good Candidate for Replantation: A tooth that is a good candidate for replantation is one that 1) was otherwise healthy before being avulsed; 2) has been avulsed for less than 3 hours; 3) is generally intact; and 4) has an intact socket into which to reimplant the tooth. It is best if the tooth is not allowed to dehydrate before reimplanting.

Total Avulsion of Tooth, Poor Candidate for Replantation: A tooth that is a poor candidate for replantation is one in which any of the following conditions have been met: 1) the tooth has been avulsed for longer than 3 hours; 2) the tooth is not intact; or 3) the socket to which the tooth should be reimplanted is not intact. In some cases, if the tooth was not healthy before being avulsed or was allowed to dehydrate, it is not usually a good candidate for replantation.
Appendix C
Definition File Listings

DISDEF.IDX

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Abscess/Infection/Cellulitis
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Acute Apical Periodontitis
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73 6
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79 5
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84 5
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89 4
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93 4
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97 14
Fractured Alveolar Bone
111 7
Fractured Crown, Large Pulp Exposure
118 6
Fractured Crown, Pulp Not Exposed
124 6
Fractured Crown, Small Pulp Exposure
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Fractured Mandible
137 10
Fractured Maxilla/Fractured Facial Bones
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Internal Derangement of the Temporomandibular Joint

DENTAL Programmer's Manual C-16
Irreversible Pulpitis
Localized Alveolar Osteitis (Dry Socket)
Maxillary Sinusitis
Myofascial Pain/Muscle Spasms
Necrotizing Ulcerative Gingivitis
Neurologic Injury
Occlusal Trauma
Osseous Sequestrum
Pericoronitis/Erupting Tooth
Periodontal Abscess
Reversible Pulpitis
Root Fracture
Total Avulsion of Tooth, Good Candidate for Replantation
Total Avulsion of Tooth, Poor Candidate for Replantation
TRTMTS.TXT

Please carefully review your information and repeat the program. If a diagnosis cannot be made after repeated attempts try using a related area on the menus (ex. try No. 1 "Tooth, Specific" on the Not Trauma-related Menu if a specific diagnosis was not obtained by using No. 2 "Teeth Generalized or Multiple Adjacent." Remember, the diagnostic outcomes produced by this program can be highly influenced by the answer of only one question. Read and answer each question carefully.

As a last resort try using the Soft Tissue Lesions Section of the program (No. 3 on the Main Menu) for a differential diagnosis.

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Localized Alveolar Osteitis -- Irrigate the socket with sterile saline. The extraction site should then be packed with a single 2 inch piece of 1/8 inch iodoform gauze to which a drop of eugenol has been added. Gently insert the gauze to the full depth of the site. Pack loosely. A dramatic decrease in symptoms should occur within 10 minutes. Replace eugenol/gauze pack every day for about a week. Remove the pack permanently after 2 weeks. Hot saline rinses and analgesics may provide additional relief during the 2 week treatment period.

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Osseous Sequestrum -- Treatment is generally palliative until such time as the sequestrum can be removed atraumatically with instruments or is exfoliated on its own. Hot saline rinses with analgesics and avoidance of the area by the patient when eating will help. If the sequestrum is not exposed, a few drops of local anesthetic can be deposited in the area and an attempt can be made to crush the spicule through the tissue using a blunt instrument. Observe the area closely and monitor for possible infection. A usually short-lived soft tissue defect may develop. Antibiotics are not usually indicated.

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Abscess/Infection/Cellulitis -- Maintain vital signs/airway. Correct the cause if possible. Establish drainage if purulence is suggested and if feasible, considering anatomic structures and individual abilities. Perform culture and sensitivity tests if possible. Administer antibiotics (penicillin is the drug of choice if not otherwise contraindicated). Use sedatives/analgesics cautiously as they can compromise respirations. Maintain hydration and nutrition. If a dental etiology...
is suspected review recommendations for periodontal and periapical abscesses. If the patient does not respond MEDEVAC in prone/lateral prone position to help maintain the airway. These patients can become very sick; do not hesitate to MEDEVAC.

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**Periodontal Abscess** -- Treatment consists primarily of establishing drainage through the gingival sulcus, if possible, using a periodontal curette or probe. If this is not possible, conservative I & D can be attempted by applying topical anesthetic and making a small (2-3 mm) shallow incision at the height of the fluctuant swelling. After the incision is made, explore the abscess area for purulence using a blunt instrument. Avoid surgical I & D on the lingual surfaces of the lower teeth as there are many important anatomical considerations. Hot saline rinses and analgesics will help. Antibiotics are not usually indicated. Refer the patient for a periodontal consult at the earliest convenience.

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**Reversible Pulpitis** -- Treatment consists of removal of the pain stimulus and/or protection of the tooth from the stimulus. In this case the stimulus may be transient thermal sensitivity. Sometimes only counseling is needed. Local anesthesia/analgesics may be necessary. If caries are present, anesthetize the area and isolate the tooth with 2 x 2 gauze and remove the caries until either discomfort is felt or hard tooth structure is encountered. Mix and place a zinc oxide and eugenol restoration. If a restoration cannot be placed, monitor the tooth for development of irreversible pulpitis. Antibiotics are not necessary. Refer the patient for definitive dental treatment at the earliest convenience.

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**Irreversible Pulpitis** -- If the tooth has caries, anesthetize and isolate the tooth with 2 x 2 gauze. Remove the caries until the pulp is exposed 1 mm or more then place a cotton pellet which has been lightly moistened with formocresol to the deepest part of the cavity. Mix a zinc oxide and eugenol restoration and place it to cover the cotton pellet. Use analgesics. After 3-6 hours continue to monitor closely if the situation improves. If not repeat above procedures and try to remove more caries or pulp tissue. If unable use analgesics and arrange for definitive care ASAP. Antibiotics are usually not needed. MEDEVAC of the patient may be necessary. Refer the patient for endodontic evaluation ASAP.

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**Acute Apical Abscess** -- If caries are present anesthetize and isolate the tooth with 2 x 2 gauze. Remove caries and pulp contents with spoon excavators to establish drainage through the crown of the tooth. Administer antibiotics (penicillin is the drug of choice if not otherwise contraindicated). If a fluctuant swelling is present apply topical anesthetic and I & D with a No. 12 blade by using a small (2-3 mm) shallow incision. Use hot saline rinses and analgesics. If you are unable to remove the caries/restoration and, therefore, unable to establish drainage through the tooth then only I & D the abscess. Refer the patient for definitive endodontic evaluation ASAP. MEDEVAC of the patient may be necessary if the situation does not respond.

DENTAL Programmer's Manual D-2
Acute Apical Periodontitis -- If you are able, vitality tests should be performed. If the tooth is vital then check the occlusion and relieve if able. If the tooth is non-vital and has caries, anesthetize and isolate the tooth with 2 x 2 gauze. Remove the caries with spoon excavators and expose the pulp. Place a cotton pellet lightly moistened with formocresol to the deepest part of the cavity. Mix a zinc oxide and eugenol restoration and place it over the cotton pellet. If the tooth is non-vital and the caries cannot be removed then use antibiotics and analgesics and monitor closely. This situation can progress to an acute apical abscess. Refer for endodontic evaluation ASAP. MEDEVAC of the patient may be necessary.

Carious Lesion (Decay) -- If the tooth is vital anesthetize and isolate the tooth with 2 x 2 gauze. Remove the caries with a spoon excavator until hard tooth structure is encountered. If a small pulp exposure (mm) is present, place a calcium hydroxide base. If a large exposure is present, remove as much pulp as possible and place a cotton pellet lightly moistened with formocresol over the pulp exposure. Mix and place a zinc oxide and eugenol restoration over the cotton pellet or hard tooth structure if no exposure was present. If the tooth is non-vital then follow recommendations for irreversible pulpitis. If you are unable to remove the caries then use analgesics. Symptomatic carious lesions usually imply that, at the very least, a pulpitis is present. This condition may progress to apical periodontitis or an apical abscess. Monitor closely and refer for definitive care ASAP.

Dentin Hypersensitivity -- Treatment consists of removal of the pain stimulus and treating the dentin to make it less responsive to the stimulus. Counsel the patient to avoid hot and cold foods or liquids in the area. The patient should temporarily avoid highly acidic foods such as oranges or pineapples as these may aggravate the condition. Recommend a desensitizing toothpaste to the patient and follow the manufacturer's instructions. If this is not available have the patient use a bland toothpaste and avoid super-whitening brands. Refer for definitive dental treatment when possible. Mild analgesics such as aspirin or acetaminophen may help.

Maxillary Sinusitis -- To corroborate the diagnosis take sinus series radiographs if you are able and palpate and percuss the sinus areas for sensitivity. The patient may complain of frontal headache pain or a sensation of supererupted dentition. Question the patient further about previous colds or sinus problems. A seropurulent or mucopurulent exudate may be present. Place the patient on decongestants. Place the patient on antibiotics if an exudate or fever or lymphadenopathy are evident (ampicillin is the drug of choice if not otherwise contraindicated). Monitor the patient closely. If radiographs reveal other pathological conditions, follow-up is required. MEDEVAC may be necessary if the condition is unresponsive.
Endodontic/Periodontic Combined Problem -- This exists when there are both endodontic and periodontal etiologies for the abscess. Review the treatment recommendations for both the periodontal abscess and the acute apical (endodontic) abscess. The endodontic component of the problem is the more likely source of the discomfort and should usually be treated first. Treat the problem as if it were an acute apical abscess with the exception of additionally trying to curette the periodontal pockets to remove any calculus or debris. Use antibiotics (penicillin is the drug of choice if not otherwise contraindicated) and analgesics. Monitor closely. MEDEVAC of the patient may be necessary. Refer for endodontic and periodontic evaluation ASAP.

Defective Restoration -- If caries are present, review treatment recommendations for carious lesions. If the restoration has become displaced or fractured or a part has been lost then protect the dentin if it is exposed to make it less responsive to painful stimuli. Isolate the tooth with 2 x 2 gauze. If a pulp exposure exists, review the treatments recommendations for small (1 mm) or large (1 mm) pulp exposures. If no pulp exposure is present then mix and place a zinc oxide and eugenol restoration. If this is not possible then use analgesics and observe closely. Local anesthesia is not usually required. Refer the patient for definitive dental care ASAP. MEDEVAC of the patient may be necessary.

Acute Herpetic Gingivostomatitis -- Treatment is generally palliative. As a primary condition vesicles and gray/white ulcers surrounded by a red halo can be found throughout the mouth. Adjacent gingival tissues are usually inflamed. Oral hygiene instructions should be given. Insure an adequate fluid intake by the patient. Analgesics are recommended. In severe cases rinses of viscous lidocaine or diphenhydramine elixir can be used. Antibiotics are only necessary if a secondary bacterial infection is suspected. The condition should resolve within 2 weeks. A more innocuous recurrent form of this condition may occur and it is commonly seen on lateral areas of the palate. The classic ulcers are not usually seen in the recurrent form. Rather you might see small vesicles or eroded areas. This condition is treated similarly to the primary condition although it is far less severe. If only one or two painful classic ulcers are noted on the oral mucosa then a diagnosis of aphthous ulcer(s) should be considered. There generally will not be any systemic involvement (i.e. fever or lymph nodes, etc.). Aphthous ulcers resolve spontaneously in 1-2 weeks.

Pericoronitis/Erupting Tooth -- Have the patient rinse with hot saline 4-6 times a day for a week or so. If an inflamed flap of tissue is present (pericoronitis) then debride the area under flap with a periodontal curette and follow with daily irrigation using sterile saline and a blunt irrigation needle. Pericoronitis can be a serious problem and antibiotics should be considered early in treatment. If the patient has fever/chills/lymphadenopathy/malaise, definitely give antibiotics, usually penicillin IV (8 million units per day) if not otherwise contraindicated. If the patient does not stabilize within 12-24 hours then MEDEVAC. Use analgesics as needed. Monitor and observe closely.
For an erupting tooth the situation is usually self-limiting if an infection or severely inflamed tissue is not present. Treat this condition with analgesics. Refer the patient for an oral surgery evaluation ASAP.

Necrotizing Ulcerative Gingivitis -- Give the patient thorough oral hygiene instructions and have the patient demonstrate plaque removal to you daily if necessary. This is mandatory! The patient will bleed when brushing. Debride the patient's mouth initially using curettes or a toothbrush or wet cotton balls or combination of these. Start the patient on 3% hydrogen peroxide rinses 4-6 times a day for a week. If the patient has fever/lymphadenopathy/malaise then give penicillin V-K 500 mg q6h for 7-10 days if not otherwise contraindicated. Analgesics are helpful. The patient should promptly improve but needs close follow-up. The bleeding of the gingival tissues may continue until more definitive care can be provided. Refer the patient for a periodontal evaluation ASAP. MEDEVAC of the patient may be necessary.

Acute Gingivitis -- Give the patient thorough oral hygiene instructions and have the patient demonstrate brushing and flossing to you daily if necessary. Hot saline rinses and analgesics will also help. Under conditions of strict plaque removal, the acute stage should resolve within 1-2 weeks. If not, check the Soft Tissue Lesions Section of this program for other possibilities such as a blood dyscrasia or acute herpetic gingivostomatitis or allergy or some other systemic condition. Antibiotics are not usually indicated. Refer the patient for a periodontal evaluation ASAP. MEDEVAC is not usually necessary.

Food Impaction -- Using a periodontal curette or probe or explorer, attempt to remove the impacted food debris. It is usually caught between the teeth and can be difficult to notice because of the facial and lingual gingival papillae. Once the debris is removed give the patient oral hygiene instructions with emphasis on flossing. Have the patient rinse with hot saline 4-6 times a day for a week or so. If all food debris is not removed there is the potential to develop a periodontal abscess or localized infection. Have the patient avoid chewing fibrous foods/meats until the acute condition is resolved. Refer the patient for definitive dental care ASAP. MEDEVAC is not usually necessary.

Myofascial Pain/Muscle Spasms -- Immediate care consists of: 1) analgesics asprin/acetaminophen/ibuprofen; 2) soft diet or liquid diet (if the patient has difficulty opening); 3) hot moist packs 4-6 times a day applied to the muscles of mastication (primarily masseter/temporomandibular joint/temporal areas); and 4) muscle relaxants (ex. diazepam PO). If the patient has severe trismus consider iM diazepam 5-15 mg. Eliminate or reduce any aggravating habits such as gum chewing/clenching/bruxism. Counsel the patient to reduce stress and anxiety which are often associated with the problem. Refer the patient for definitive dental evaluation when practical. MEDEVAC is not usually necessary.
Internal Derangement of the TMJ -- If you are able take a screening radiograph to rule out obvious pathosis. Immediate treatment consists of: 1) analgesics (aspirin/acetaminophen/ibuprofen); 2) soft diet (if the patient feels pressure in his joint when eating the diet is probably not soft enough); 3) hot moist packs to the joint area 4-6 times a day; 4) have the patient limit the range of motion of their mandible (do not have the patient open more than absolutely necessary when speaking/eating/yawning); 5) eliminate or reduce any aggravating habits such as chewing gum/clenching/bruxism; 6) counsel patient to decrease stress; and 7) use muscle relaxants (ex. diazepam PO). Refer the patient for dental evaluation when practical. MEDEVAC is usually not necessary.

Occlusal Trauma -- This can occur from excessive force placed on teeth and is usually from a "high" restoration or bruxism or occlusal discrepancies. If the teeth hurt primarily in the morning then suspect nocturnal bruxism and review the treatment recommendations for myofacial pain. Determine if there are factitious or parafunctional habits that contribute to the problem. Treatment consists of: 1) eliminating or reducing aggravating habits (counsel the patient to reduce stress which often predisposes to bruxism); 2) adjusting the occlusion if able (ex. a restoration that is too "high"); and 3) having the patient avoid masticating in the affected area if possible. Refer the patient for definitive dental care when practical. MEDEVAC is not usually necessary.

Fractured Crown, Small Pulp Exposure -- Use local anesthesia/analgesics. Remove any mobile tooth fragments if present and if you are able. Isolate the tooth with 2 x 2 gauze and place a calcium hydroxide base over the pulp and adjacent dentin. If you are able apply a resin temporary restoration. If unable, mix and place a zinc oxide and eugenol restoration to cover the calcium hydroxide base. If the restoration cannot be placed nor retained observe the area closely. The patient may develop irreversible pulpitis. Smooth any sharp edges on the tooth with wet/dry 220 aluminum oxide sandpaper or a small round-end metal file. Refer the patient for endodontic evaluation and definitive care when able. MEDEVAC may be necessary.

Fractured Crown, Large Pulp Exposure -- Use local anesthesia/analgesics. Remove any mobile tooth fragments if present and if you are able. Remove approximately 2 mm (depth) of pulp tissue with a spoon excavator. Good anesthesia is desirable. Lightly moisten a cotton pellet with eugenol or formocresol and gently place over the remaining pulp stump. Mix and place a zinc oxide and eugenol restoration. Check the occlusion. Remove any sharp edges on the tooth with wet/dry 220 aluminum oxide sandpaper or a small round-end metal file. Observe the patient closely as an apical abscess or acute apical periodontitis may develop. Refer the patient for an endodontic evaluation and definitive care as soon as practical. MEDEVAC may be necessary.
Total Avulsion of Tooth, Good Candidate for Replantation -- Ideally the tooth should be reimplanted immediately after avulsion. Use sterile saline to rinse any debris from the tooth then insert the tooth to its original position. If there is a time delay while awaiting replantation then store the tooth in saline or milk. Gently rinse the debris from the tooth with sterile saline. Preserve as much of the tissue on the tooth as possible. Remove any blood clots/foreign bodies/bone fragments from the socket. Local anesthesia is usually required if a time delay has occurred. Reposition the tooth in the socket with adequate pressure to reseat completely. Stabilize the tooth for 1-2 weeks using sutures/floss/light wire/fishline/or dental compound. Give the patient a tetanus booster and antibiotics (penicillin if not otherwise contraindicated) and refer for an endodontic evaluation and definitive care when able. MEDEVAC may be necessary.

Total Avulsion of Tooth, Poor Candidate for Replantation -- Inspect the tooth to determine if tooth fragments remain in the tooth socket. If so then anesthetize and attempt retrieval of the fragments. If you are unable to retrieve fragments, give antibiotics. Remove obvious small bone chips except any relatively large areas of cortical plate which remain intimately covered with soft tissue. Leave these intact and attempt to reposition them if necessary. Suture any lacerations and have the patient close on a few 2 x 2 gauze squares for 30 minutes. Use analgesics. Check adjacent teeth for trauma or fractures. Antibiotics are not usually necessary. Refer the patient for definitive dental care as soon as practical. If the tooth was avulsed cleanly then MEDEVAC will probably not be necessary.

Displacement/Mobility of Tooth, Favorable Prognosis -- Local anesthesia and analgesics may be needed. Debride and suture any lacerations. Gently reposition the tooth to its original position using the patient’s occlusion, adjacent teeth, and input from the patient to guide you. Stabilize the tooth in its original position for 1-2 weeks with sutures/light wire/floss/or fishline. Check to insure that the patient does not occlude heavily on the traumatized tooth. If so either reposition the tooth or adjust the occlusion if you are able. The patient will need dental evaluation and follow-up. Observe closely and refer when practical. Monitor for infection. MEDEVAC may be necessary.

Displacement/Mobility of Tooth, Guarded Prognosis -- Local anesthesia and analgesics are usually indicated. If the tooth has a loose fragment related to a fracture line then attempt to remove the fragment. If the remaining tooth structure is extremely mobile attempt removal of the tooth. If not then cover the patient with antibiotics (penicillin if not otherwise contraindicated) and check regularly. Debride and suture any lacerations. MEDEVAC may be necessary if an acute phase develops which cannot be resolved. Otherwise, refer for dental evaluation and treatment at the earliest opportunity.
Fractured Crown, Pulp Not Exposed -- Local anesthesia and analgesics may be necessary. Remove any mobile tooth fragments if you are able. Isolate the tooth with 2 x 2 gauze and mix and place a calcium hydroxide base to cover the exposed dentin. If you are able, apply a resin temporary restoration as per your IDT Syllabus. If you are unable then paint two layers of cavity varnish over the calcium hydroxide base (or dentin alone if a base cannot be placed). The base may be difficult to retain and may need frequent replacement. Smooth any sharp edges with 220 wet/dry aluminum oxide sandpaper or a small round-end metal file. Monitor the patient closely for development of a pulpitis. Refer the patient for definitive care when able. MEDEVAC is usually not necessary.

Enamel Fracture -- Local anesthesia and analgesics are not usually necessary. Check the location of the fracture or sharp edge by sight/feel/conversation with the patient. Remove any mobile tooth fragments if you are able. Smooth any sharp edges with wet/dry 220 aluminum oxide sandpaper or a small round-end metal file. Smooth the sharp edges until they feel smooth to your finger and to the patient's tongue. Refer the patient when practical for follow-up dental evaluation and treatment. MEDEVAC is usually not necessary.

Root Fracture -- Use local anesthesia and analgesics. Isolate the tooth with 2 x 2 gauze. If part of the tooth is extremely mobile then attempt its removal. If the tooth itself is extremely mobile consider its removal. If not, attempt to cover any exposed pulp tissue with a calcium hydroxide base followed by a zinc oxide and eugenol restoration. Place the patient on antibiotics (usually penicillin if not otherwise contraindicated). If a base or restoration cannot be placed then observe the patient closely as an apical abscess/apical periodontitis may develop. A periodontal abscess can also develop. MEDEVAC may be necessary. Refer for dental evaluation and treatment when able.

Fractured Alveolar Bone -- Use local anesthesia/analgesics/antibiotics (usually penicillin if not otherwise contraindicated). Debride the area of any small loose bone chips or spicules. Do not remove larger pieces of alveolar bone that are intimately covered with soft tissue. Gently pinch or mold the fractured alveolar bone through the gingival/mucosal tissues. Suture any lacerations and attempt to stabilize the bone by splinting teeth in the mobile segment with adjacent teeth using floss/light wire/suture/or fishline. Monitor closely for possible infection. MEDEVAC may be necessary.

Fractured Mandible -- Maintain airway function and control bleeding. Support the patient's vital signs. Use analgesics/antibiotics (usually penicillin if not otherwise contraindicated). Debride and irrigate any lacerations. Loosely approximate the wound edges with tacking sutures but do not attempt definitive soft tissue closure if the laceration coexists with facial fractures. Close through-and-through lacerations with a watertight closure of the oral mucosa.
followed by a layered closure to the skin. Improper use of external immobilization bandages is dangerous and can further embarrass the airway. MEDEVAC the patient as soon as possible.

Fractured Maxilla -- Maintain airway and control bleeding (temporary nasal packing may be needed). Support the patient’s vital signs. Use analgesics/antibiotics (usually penicillin unless otherwise contraindicated). Debride and irrigate any lacerations. Loosely reapproximate the wound edges with tacking sutures but do not attempt definitive soft tissue closure if the laceration coexists with facial fractures. Close through-and-through lacerations with a watertight closure of the oral mucosal followed by a layered closure to the skin. The improper use of external immobilization bandages is dangerous and can further embarrass the airway. MEDEVAC the patient in a head-up or lateral prone position.

Fractured Facial Bones -- Maintain the airway and control bleeding. Support vital signs. Use analgesics/antibiotics (usually penicillin unless otherwise contraindicated). Debride and irrigate any lacerations. Loosely reapproximate the wound edges with tacking sutures but do not attempt definitive soft tissue closure if the laceration coexists with facial fractures. Close through-and-through lacerations with a watertight closure of the oral mucosa followed by a layered closure to the skin. Evaluate ocular function and orbital/periorbital trauma. Check for paresthesias in infra- and supraorbital regions. MEDEVAC the patient in a head-up or lateral prone position.

Neurologic Injury -- Maintain the airway and control bleeding. Support vital signs. Perform neurologic examination and assess the level of consciousness. Assess the posture and movements and reflexes. Evaluate eye movements and pupils. Evaluate the gross focal neurological deficit. Determine the cause and time of injury and whether there are any associated injuries/shock/hypoxemia/or other medical complications. MEDEVAC is usually indicated.
DEFRTNS.BAS

REM The definition and window routines for DENTAL and DIFF are contained in this module.

REM This module was modified last on 2/23/89 by Cindy Burgess-Russotti

DEFINT A-Z

DIM WINDscratt(5), WINDframatt(5), WINDheader$(5)
DIM WINDrow(5), WINDcol(5), WINDheight(5), WINDwidth(5)
DIM wind%(2000, 5)
DIM WINDrowptr(5), WINDcolptr(5) 'UL corner of frame
DIM dindx(120, 2), item$(120), disease$(34), disindx(34, 2)
DIM option$(10, 2), opline(10)
DIM response(92), z(35), corpresp(36)

REM include common statements for all modules
rem $include: 'dentcomm.bas'
rem $include: 'windcomm.bas'

Subroutine UCASE
called from: DEFINITIONROUTINE
This routine converts a string from lower case to upper case.

SUB UCASE(x$) STATIC
length=LEN(x$)
IF length=0 THEN
x$=""
ELSE
FOR i=1 TO length
ch=ASC(mid$(x$, i, 1))
IF ch96 AND ch THEN
MID$(x$, i, 1)=CHR$(ch-32)
END IF
NEXT i

DENTAL Programmer’s Manual E-1
SUB subroutine CLEARWINDOW

called from: DEFINITIONROUTINE, MAKEWINDOW, DEFINITIONROUTINE2,
DISEASEDEFINITIONS, PRIDISEASEDEFS.
calls: SCROLLUP
This routine clears the current window of text.

SUB clearwindow STATIC

wno = WINDcurrent
lur = WINDrow(wno) + 1
luc = WINDcol(wno) + 1
rur = WINDrow(wno) + WINDheight(wno) - 2
rlc = WINDcol(wno) + WINDwidth(wno) - 2
attr = WINDscratt(wno)
linewidth = WINDwidth(wno) - 2
scrollines = 0
CALL scrollup (lur, luc, rur, rlc, scrollines, attr)
WINDrowptr = 1
WINDcolptr = 1
END SUB

SUB subroutine COMPUTEROWCOL

called from: DEFINITIONROUTINE, DISEASEDEFINITIONS
This routine computes the relative row and column for item$$(counter).

SUB computerowcol (counter, row, col) STATIC

numline = WINDheight(WINDcurrent) - 2
modecount = (counter - 1) MOD numline
row = modecount + 1
'IF row = 0 THEN row = numline
col = INT((counter - 1) / numline) * 25 + 1
END SUB

SUB subroutine DEFINITIONROUTINE

called from: main program (DENTAL)
calls: PUSHWINDOW, WLOCATE, WPRINT, UCASE, FPRINT, COMPUTEROWCOL,
HELPDEFINITIONS, REMOVEWINDOW, CLEARWINDOW.
This routine is called when the user selects term definitions from the
definition menu. All the words that can be defined are displayed in a

DENTAL Programmer's Manual E-2
window on the screen. The user can then use the direction keys to highlight the word he wants to have defined or he can type it on the command line at the bottom of the screen. Once the word is selected, a window is created and the definition is displayed in the window.

SUB definitionroutine STATIC
defint a-z

'make window and throw items in window
'routine to move cursor and update bottom command line.
'select item
'clean up and exit

attr% = 7
'This window in effect acts as a CLS statement, which can print outside the definition list window without overprinting other stuff

CALL pushwindow(attr%, 0, "", 1, 1, 25, 80)
'This window is the actual definition selection window.
CALL pushwindow(attr%, selectlf, "Definition Selection", 4, 4, 15, 75)

'compute normal attribute and inverse of it.
nl = WINDscratt(WINDcurrent)
nlfor = nl MOD 16
nlbak = INT(nl / 16)
inverse = nlfor * 16 + nlbak

frame = abs(WINDframatt(WINDcurrent))
fg = frame MOD 16
bg = INT(frame / 16)

'show command line
LOCATE 24, 5, 0
PRINT "Definition ";

'Print directions
locate 25, 1:color defkeyline, defkeyline:print space$(80);
locate 25, 3:color normal, bground:print " Esc ";:color defkeylettr,
defkeyline:print "- Quit";
locate 25, 40:color normal, bground:print " PgDn ";:color defkeylettr,
defkeyline:print "- Next Page";
locate 25, 58:color normal, bground:print " PgUp ";:color defkeylettr,
defkeyline:print "- Previous Page";
color normal, bgroud

page=1
printnewpage:
locate 18, 35:color fg, bg:print "Page";page;" of 2";:color normal, bgroud
if page=1 then
    firstword=1
    lastword=39
else
    firstword=40
    lastword=77
end if

counter = firstword 'Print terms on screen

FOR c = 1 TO 78 STEP 25
    FOR r = 1 TO 13
        CALL wlocate(r, c)
        if len(item$(counter)) 23 then 'If item$ is too long, print the
            leftmost 23 characters
                CALL wprint(left$(item$(counter), 23))
            else
                CALL wprint(item$(counter))
            end if
            counter = counter + 1
            IF counter > lastword THEN EXIT FOR
        NEXT r
    IF counter > lastword THEN EXIT FOR
NEXT c

' initialize certain variables
counter = firstword ' number of word highlighted
localrow = 1 'coordinates relative to window
localcol = 1
commanditem$ = item$(counter) 'word typed on command line
call ucase (commanditem$)
commandptr = LEN(commanditem$) 'string pointer for word on command line
arrowflag = 1 '1 if arrow key was last pressed

REM Highlight first word on screen

CALL wlocate( localrow, localcol)
if len(item$(counter)) 23 then
CALL fprint(left$(item$(counter), 23), inverse)
else
CALL fprint(item$(counter), inverse)
end if
LOCATE 24, 17
CALL fprint(item$(counter), inverse)
LOCATE 24, 17 + commandptr, 1

REM Get input from user

DO
DO
a$ = INKEY$
LOOP WHILE a$ = ""
IF LEN(a$) = 2 THEN 'arrow keys or pgup, pgdn pressed
CALL wlocate (localrow, localcol)
if len(item$(counter)) 23 then
CALL fprint(left$(item$(counter), 23), nl)
else
CALL fprint(item$(counter), nl)
end if

code2key = ASC(RIGHT$(a$, 1))
SELECT CASE code2key
CASE 72 'up arrow
counter = counter - 1
IF counter firstword THEN counter = lastword
CASE 80 'down arrow
counter = counter + 1
IF counter lastword THEN counter = firstword
CASE 75 'left arrow
IF (page=1 and counter 14) or (page=2 and counter 53) THEN
counter = counter + 26
IF counter lastword THEN counter = lastword
ELSE
counter = counter - 13
END IF
CASE 77 'right arrow
IF page=1 then
SELECT CASE counter

DENTAL Programmer's Manual E-5
CASE 1 TO 25
  counter = counter + 13
CASE 26
  counter = lastword
CASE 27 TO 39
  counter = counter - 26
END SELECT
else
SELECT CASE counter
CASE 40 TO 64
  counter = counter + 13
CASE 65
  counter = lastword
CASE 66 TO 78
  counter = counter - 26
END SELECT
end if

CASE 71  'home arrow
  counter = firstword
CASE 79  'end arrow
  counter = lastword
CASE 73  'PgUp
  if page = 2 then
    page=1
  end if
CASE 81  'PgDn
  if page = 1 then
    page=2
  end if
CASE ELSE
  BEEP
END SELECT

REM If page up or page down was pressed, then blank out command line, otherwise highlight word that corresponds with counter.

  if (code2key = 73) or (code2key = 81) then  'PgUp or PgDn
LOCATE 24, 17
CALL fprint(space$(50), nl) 'Blank out command line
else
CALL computerowcol(counter - firstword + 1, localrow, localcol)
CALL wlocate (localrow, localcol)
if len(item$(counter)) 23 then
  CALL fprint(left$(item$(counter), 23), inverse)
else
  CALL fprint(item$(counter), inverse)
end if

REM Print highlighted word on command line

LOCATE 24, 17
CALL fprint(space$(50), nl)
CALL fprint(item$(counter), inverse)
commanditem$ = item$(counter)
call ucase(commanditem$)
commandptr = LEN(commanditem$)
LOCATE 24, 17 + commandptr, 1
arrowflag = 1
end if

REM User entered a letter or blank at command line

ELSE
  'other keys
  call UCASE (a$)
SELECT CASE ASC(LEFT$(a$, 1))
  CASE 32, 48 TO 57, 65 TO 90 'alphanumerics and blank
    IF arrowflag = 1 THEN
      arrowflag = 0
      commanditem$ = ""
      commandptr = 0
      LOCATE 24, 17
      CALL fprint(space$(50), nl)
    END IF
    commanditem$ = commanditem$ + a$
    commandptr = commandptr + 1
    if commandptr 63 then
      commandptr=63
      beep
    end if
    LOCATE 24, 16 + commandptr
CALL fprint(a$, inverse)
LOCATE 24, 17 + commandptr, 1

CASE 8  
  'backspace/delete
  IF arrowflag = 1 THEN arrowflag = 0
  commandptr = commandptr - 1
  IF commandptr 0 THEN commandptr = 0
  LOCATE 24, 17 + commandptr, 1
  CALL fprint(" ", nl)
  commanditem$ = LEFT$(commanditem$, commandptr)

CASE 27  
  'Esc to exit
  LOCATE 24, 17
  CALL fprint(" ", inverse)

CASE 13  
  'CR to accept
  IF arrowflag = 0 THEN
    oldcounter = counter
    counter = 0
  FOR i = 1 TO 77
    tempitem$=item$(i)
    call UCASE (tempitem$)
    IF commanditem$ = tempitem$ THEN
      CALL computerowcol(oldcounter - firstword + 1, localrow, localcol)
      CALL wlocate (localrow, localcol)
      if len(item$(oldcounter)) 23 then
        CALL fprint(left$(item$(oldcounter), 23), nl)
      else
        CALL fprint(item$(oldcounter), nl)
      end if
      counter = i
    end if
  NEXT i
  IF counter = 0 THEN
    locate 24, 17, 0
    call fprint("NO MATCH FOR "+commanditem$, inverse)
    BEEP
    pause!=timer+.75
    do while timer pause!
    loop
    counter=oldcounter
  END IF
  IF counter = 0 THEN
    locate 24, 17
    CALL fprint(space$(50), nl)
    CALL fprint(item$(counter), inverse)
commanditem$ = item$(counter)
call ucase(commanditem$)
commandptr = LEN(commanditem$)
LOCATE 24, 17 + commandptr, 1

ELSE
if arrowflag = 0 then
    CALL computerowcol(counter - firstword + 1, localrow, localcol)
    CALL wlocate(localrow, localcol)
if len(item$(counter)) > 23 then
    CALL fprintf(left$(item$(counter), 23), inverse)
else
    CALL fprintf(item$(counter), inverse)
end if
commandptr = LEN(commanditem$)
end if

CALL helpdefinitions(counter, item$(counter)) 'Print definition of word
LOCATE 24, 17 + commandptr, 1
END IF
arrowflag = 1

CASE ELSE
BEER

END SELECT

END IF
REM loop until Esc, PgDn or PgUp
LOOP UNTIL a$ = CHR$(27) or (code2key=81) or (code2key=73)

code2key = 0

if a$ = chr$(27) then
    CALL removewindow 'containing definition list
    CALL removewindow 'blank window
    LOCATE , , 0
else
    call clearwindow
goto printnewpage
end if

END SUB

DENTAL Programmer's Manual E-9
**Subroutine EXPLODE**
called from: MAKEWINDOW
calls: SCROLLUP, EXPLOSION, DUD
This routine explodes the window onto the screen.

SUB explode (wno) STATIC
  ' tlr - top left hand corner of the window frame.
  ' tlc - top left hand column of the window frame.
  ' numline - number of lines (rows) in the window.
  ' numcol - number of columns in the window.
  ' NOTE: numline and numcol include the window frame, tlr and tlc are the 
  coordinates for the top left hand corner of the frame.

DEFINT A-Z

tlr = WINDrow(wno)
tlc = WINDcol(wno)
numline = WINDheight(wno)
numcol = WINDwidth(wno)
title$ = WINDheader$(wno)
screenattr = WINDscratt(wno)
frameattr = WINDframatt(wno)

' If Frameattr = 0 Blank window
' If Frameattr 0 Print exploding frame
' If Frameattr 0 Don't print exploding frame

' No need to draw window if window is blank.
IF frameattr = 0 THEN
  rlr = WINDrow(wno) + WINDheight(wno)
  rlc = WINDcol(wno) + WINDwidth(wno)
  scrollines = 0
  CALL scrollup (tlr, tlc, rlr, rlc, scrollines, screenattr)
ELSEIF frameattr 0 then
  ' Print exploding frame
  CALL explosion(tlr, tlc, numline, numcol, frameattr)
else
  ' Don't print exploding frame
  CALL dud (tlr, tlc, numline, numcol, frameattr)
end if

if frameattr 0 then
' Print heading on window frame.
oklen = numcol - 2
okstartcol = tlc + 1
title$ = MID$(title$, 1, oklen)
titlelen = LEN(title$)
surplus = oklen - titlelen
titleoffset = INT(surplus / 2)
LOCATE tlr, okstartcol + titleoffset
CALL fprint(title$, frameattr)
END IF

END SUB

Subroutine EXPLOSION
called from: EXPLODE
calls: FPRINT
This routine draws the exploding window using the following:
ulrow - upper left row of window (includes frame).
ulcol - upper left column of window (includes frame).
umline - number of rows in the window (includes frame).
umcol - number of columns in the window (includes frame).
frameattr - attribute of frame.

SUB explosion (ulrow, ulcol, numline, numcol, frameattr) STATIC

maxline = numline - 2
maxcol = numcol - 2
startrow = ulrow + INT(numline / 2)
startcol = ulcol + INT(numcol / 2)
horiz = -2
vert = -2
deltarow = startrow
deltacol = startcol
DO
horiz = horiz + 2
IF horiz maxcol THEN horiz = maxcol
vert = vert + 2
IF vert maxline THEN vert = maxline
deltarow = deltarow - 1
IF deltarow ulrow THEN deltarow = ulrow
deltacol = deltacol - 1
IF deltacol ulcol THEN deltacol = ulcol
topbuffer$ = STRING$(horiz, 196)
buffer$ = SPACE$(horiz)
SUB dud (ulrow, ulcol, numline, numcol, frameattr) STATIC

frameattr = abs (frameattr)
startrow = ulrow
startcol = ulcol
horiz = numcol - 2
vert = numline - 2

topbuffer$ = STRING$(horiz, 196)
buffer$ = SPACE$(horiz)
topstring$ = CHR$(218) + topbuffer$ + CHR$(191)
botstring$ = CHR$(192) + topbuffer$ + CHR$(217)
midstring$ = CHR$(179) + buffer$ + CHR$(179)

LOCATE startrow, startcol
CALL fprint(topstring$, frameattr)
FOR dummy = 1 TO vert
LOCATE startrow + dummy, startcol
CALL fprint(midstring$, frameattr)
NEXT dummy
LOCATE startrow + vert + 1, startcol
CALL fprint(botstring$, frameattr)

END SUB

Subroutine DUD
called from: EXPLODE
calls: FPRINT
This routine draws the window without exploding using the following:
ULROW - upper left row of window (includes frame).
ULCOL - upper left column of window (includes frame).
NUMLINE - number of rows in the window (includes frame).
NUMCOL - number of columns in the window (includes frame).
FRAMEATTR - attribute for frame (starts out as negative number).
Subroutine HELPDEFINITIONS

called from: DEFINITIONROUTINE
calls: PUSHWINDOW, REMOVEWINDOW
This routine creates a window and displays a definition in it.

SUB helpdefinitions (counter, item$) STATIC

field#1, 60 as record$
linelimit=60:defcol=1:linecount=2

title$ = "Definition of " + item$
CALL pushwindow(defIs, deflf, title$, 8, 10, 10, 62)

' routine to get definition string.

r=dindx(counter, 1)
for r2 = r to r+dindx(counter, 2)-1
get#1, r2
call wlocate(linecount, defcol)
call wprint (record$)
linecount=linecount+1
next r2

scrn=WINDscratt(WINDcurrent)
fg = scrn mod 16
bg = int(scrn / 16)
locate 16, 24:color fg, bg:print "Press any key to continue...";:color normal,
bground
a$ = INPUT$(1)

CALL removewindow

END SUB

Subroutine MAKEWINDOW

calls: SETWINDOWDEFS, WINDOWSAVE, EXPLODE, SHIFTWINDOW
This procedure creates the window.
wno = window number, used to identify the window.
s = screen attribute for within the window.
f = attribute for frame.
h$ = title which is centered and printed on the top frame line.
r = top left row number (actually points to corner of frame).
c = top left column number (actually points to corner of frame).
h = height of window, including frame itself.
w = width of window, including frame itself.

SUB makewindow (wno, s, f, h$, r, c, h, w) STATIC
    lurf = r + 1
    lucf = c + 1
    rlrf = r + h - 1
    rlcf = c + w - 1
    IF lurf 1 OR lucf 1 OR rlrf 25 OR rlcf 80 THEN
        CLS
        PRINT "Attempting to draw window number "; wno; "is illegal."
        BEEP
        STOP
    END IF

' get rid of cursor
LOCATE , , 0

' update global window variables
CALL setwindowdefs(wno, s, f, h$, r, c, h, w)

' save background
CALL windowsave(wno)

' draw frame
CALL explode(wno)

' put cursor in the top left corner of writable region of window and
' restore blinking aspect.
LOCATE r + 1, c + 1, 1
CALL shiftwindow(wno)
CALL clearwindow
END SUB

Subroutine PUSHWINDOW
called from: DEFINITIONROUTINE, DEFINITIONROUTINE2, DISEASEDEFINITIONS
calls: MAKEWINDOW
This routine is like makewindow, except that you don’t have to keep track of the window number. Just be sure that you do not use more than five windows at one time.

s = screen attribute for within the window.
f = attribute for frame. If a negative number the window will not explode.
h$ = title which is centered and printed on the top frame line.
r = top left row number (actually points to corner of frame).
c = top left col number (actually points to corner of frame).
h = height of window, including frame itself.
w = width of window, including frame itself.

SUB pushwindow (s, f, h$, r, c, h, w) STATIC
    wno = WINDcurrent + 1
    CALL makewindow(wno, s, f, h$, r, c, h, w)
END SUB

Subroutine REMOVEWINDOW
called from: DEFINITIONROUTINE, HELPDEFINITIONS, DEFINITIONROUTINE2,
DISEASEDEFINITIONS
calls: WINREST, SHIFTWINDOW
This routine removes the current window and restores the screen beneath it. It also decrements WINDcurrent so that the previous window is the current one. WINDcurrent=0 if no windows exist.

SUB removewindow STATIC
    wno = WINDcurrent
    tlr = WINDrow(wno)
    tlc = WINDcol(wno)
    numline = WINDheight(wno)
    numcol = WINDwidth(wno)

    ' QB 3.0 routine
    CALL ptr86(segment, offset, VARPTR(wind%(O, wno)))
    CALL winrest(segment, offset, tlr, tlc, numcol, numline)

    ' QB 4.0 routine
    ' CALL winrest(VARSEG(wind%(O, wno)), VARPTR(wind%(O, wno)), tlr, tlc, numcol, numline)
wno = wno - 1
IF wno 0 THEN wno = 0
CALL shiftwindow(wno)
END SUB

Subroutine SETWINDOWSDEFS
called from: MAKEWINDOW, PUSHWINDOW
This procedure sets the global variables.

SUB setwindowdefs (wno, s, f, h$, r, c, h, w) STATIC

WINDistcratt(wno) = s
WINDeframatt(wno) = f
WINDheader$(wno) = h$
WINDrow(wno) = r
WINDcol(wno) = c
WINDheader$(wno) = h$
WINDwidth(wno) = w
WINDcurrent = wno
WINDrowptr(wno) = 1
WINDcolptr(wno) = 1
END SUB

Subroutine SHIFTWINDOW
called from: MAKEWINDOW, REMOVEWINDOW
This routine shifts to current window wno. If wno=0 then
the whole screen 80X25 is used.

SUB shiftwindow (wno) STATIC

IF wno 0 OR wno 5 THEN wno = 0
WINDcurrent = wno
IF wno 0 THEN
  WINDcurrentrow = WINDrowptr(wno)
  WINDcurrentcol = WINDcolptr(wno)
END IF
END SUB

Subroutine WINDOWSAVE
called from: MAKEWINDOW
Calls: WINSAVE
This routine saves the background screen beneath the upcoming window.

SUB windowsave (wno) STATIC

tlr = WINDrow(wno)
tlc = WINDcol(wno)
numline = WINDheight(wno)
umcol = WINDwidth(wno)

' QB 3.0 routine
CALL ptr86(segment, offset, VARPTR(wind%(0, wno)))
CALL winsave(segment, offset, tlr, tlc, numcol, numline)

' QB 4.0 routine
' CALL winsave(VARSEG(wind%(0, wno)), VARPTR(wind%(0, wno)), tlr, tlc,
umcol, numline)

END SUB

Subroutine WLOCATE
called from: DEFINITIONROUTINE, HELPDEFINITIONS, DEFINITIONROUTINE2,
DISEASEDEFINITIONS, PRIDISEASEDEFS
This routine acts like locate, except that all locations
are relative to the current window. The top left corner of the window
(not including frame) would be 1, 1.

SUB wlocate (row, col) STATIC
wno = WINDcurrent
lur = WINDrow(wno) + 1
luc = WINDcol(wno) + 1
rlr = WINDrow(wno) + WINDheight(wno) - 2
rlc = WINDcol(wno) + WINDwidth(wno) - 2

' Check if a window is open.
IF wno 0 THEN
physrow = row + lur - 1
IF physrow rlr THEN physrow = rlr
physcol = col + luc - 1
IF physcol rlc THEN physcol = rlc
ELSE
physrow = row
physcol = col

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END IF
LOCATE physrow, physcol, 0

END SUB

Subroutine WPRINT
called from: DEFINITIONROUTINE
calls: FPRINT
This routine prints text$ within the current window.

SUB wprint (text$) STATIC

    wno = WINDcurrent
    lur = WINDrow(wno) + 1
    luc = WINDcol(wno) + 1
    lnr = WINDrow(wno) + WINDheight(wno) - 2
    lrc = WINDcol(wno) + WINDwidth(wno) - 2
    attr = WINDscratt(wno)
    linewidth = WINDwidth(wno) - 2

    'will add stuff later. For now, just use fprint.
    CALL fprint(text$, attr)

END SUB

Subroutine WSCROLLPRINT
Calls: scrollup
This routine prints a string of text in the current window scrolling as necessary.

SUB wscrollprint (text$) STATIC

    wno = WINDcurrent
    lur = WINDrow(wno) + 1
    luc = WINDcol(wno) + 1
    lnr = WINDrow(wno) + WINDheight(wno) - 2
    lrc = WINDcol(wno) + WINDwidth(wno) - 2
    attr = WINDscratt(wno)
    linewidth = WINDwidth(wno) - 2

    scrollines = 1
    CALL scrollup (lur, luc, lnr, lrc, scrollines, attr)
    IF LEN(text$) linewidth THEN
WHILE LEN(text$) linewidth
    newtext$ = LEFT$(text$, linewidth)
    text$ = RIGHT$(text$, LEN(text$) - linewidth)
    CALL scrollup (lur, luc, rlr, rlc, scrollines, attr)
    LOCATE rlr, luc, 0
    CALL fprint(newtext$, attr)
WEND
END IF
IF LEN(text$) 0 THEN
    CALL scrollup (lur, luc, rlr, rlc, scrollines, attr)
    LOCATE rlr, luc, 0
    CALL fprint(text$, attr)
END IF

END SUB

Subroutine DEFINITIONROUTINE2
called from: GETRESP, TRTRESP, PRESSRET, GETRESP2
calls: PUSHWINDOW, FPRINT, UCASE, WLOCATE, CLEARWINDOW,
REMOVEWINDOW
In this routine, a window is created where the user can enter a word he
wants to have defined. A second window is created where the
corresponding definition is displayed.

SUB definitionroutine2 STATIC
defint a-z

    dim defptr(100), startrec(40), endrec(40)
    pagelimit=5
    selectrow=18: selectcol=10: selectth=5: selectwid=62
    field#1, 60 as record$
    CALL pushwindow(select2s, select2f, "Definition of Terms", selectrow,
selectcol, selectth, selectwid)
    nl = WINDscratt(WINDcurrent)
    nlfor = nl MOD 16
    nlbak = INT(nl / 16)
    inverse = nlfor * 16 + nlbak
    locate selectrow+selectth-1, selectcol+26
    call fprint("Esc - Quit", abs(select2f))
    searchdef$=""
    searchdefptr=0
    ptcouunter = 1: numlines = 0
    call wlocate (2, 5)
call fprintf ("Enter letter(s) or word ", select2s)
locate selectrow+2, selectcol+29 + searchdefptr, 1

do
do
t$s=inkey$
loop while t$s=""

call UCASE (t$s)
SELECT CASE ASC(LEFT$(t$s, 1))
   CASE 48 TO 57, 65 TO 90 'alphanumerics
   searchdef$ = searchdef$ + t$s
   searchdefptr = searchdefptr + 1
   if searchdefptr > 32 then 'word can't be longer than 32 characters
      searchdefptr=32
      beep
   end if
locate selectrow+2, selectcol+28 + searchdefptr
CALL fprintf(t$s, inverse)
locate selectrow+2, selectcol+29 + searchdefptr, 1

   CASE 8 'backspace/delete
   searchdefptr = searchdefptr - 1
   IF searchdefptr 0 THEN searchdefptr = 0
   locate selectrow+2, selectcol+29 + searchdefptr, 1
   CALL fprintf(" ", nl)
   searchdef$ = LEFT$(searchdef$, searchdefptr)

   CASE 27 'Esc to exit
   locate selectrow+2, selectcol+29
   CALL fprintf(space$(32), nl)
   CASE 13 'CR to accept
   if searchdef$ "" then
      for defcounter = 1 to 110 'look for a match
         if (defcounter=52) or (defcounter=54) or (defcounter=59) or
            (defcounter=74) then 'These words must be an exact match (Necrotizing,
            Occlusal surface, Periodontic and Ulcerated).
            tempdef$=item$(defcounter)
            call ucase(tempdef$)
            if searchdef$=tempdef$ then
               defptr(ptrcounter)=defcounter
               ptrcounter = ptrcounter + 1
               numlines = numlines + dindx(defcounter, 2)
            end if

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else
  tempdef$=left$(item$(defcounter), len(searchdef$))
call ucase(tempdef$)
if searchdef$=tempdef$ then
  defptr(ptrcounter)=defcounter
  ptrcounter ptrcounter + 1
  numlines = numlines + dindx(defcounter, 2)
end if
end if
next defcounter
numofwords = ptrcounter - 1

IF numofwords = 0 THEN  'no match
  nomatch$="No Match for "+searchdef$
  locate selectrow+3, selectcol + int((60-len(nomatch$))/2), 0
call fprint(nomatch$, nl)
pause! =timer+.75
do while timer pause!
  loop
  BEEP
  locate selectrow+3, selectcol+int((60-len(nomatch$))/2)
call fprint(space$(len(nomatch$)), nl)
ELSE
  if numlines pagelimit then
    'Determine how many pages of definitions, and the first and last record number
  for each page.
    numofpages = int(numlines/pagelimit)
    linesonlastpage=numlines mod pagelimit
    if linesonlastpage 0 then
      numofpages=numofpages+1
    end if
    linesonpage=pagelimit
  else
    numofpages=1
    linesonlastpage=0
    linesonpage=numlines
  end if
  firstrec=dindx(defptr(1), 1)
  lastrec=dindx(defptr(numofwords), 1)+dindx(defptr(numofwords), 2)-1
  page=1
  startrec(page)=firstrec
  endrec(page)=startrec(page)+linesonpage-1

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page = page + 1

do while page  numofpages
   startrec(page) = endrec(page-1) + 1
   endrec(page) = startrec(page) + linesonpage - 1
   page = page + 1
loop

if linesonlastpage  0 then
   startrec(page) = endrec(page-1) + 1
   endrec(page) = startrec(page) + linesonlastpage - 1
else
   startrec(page) = endrec(page-1) + 1
   endrec(page) = startrec(page) + linesonpage - 1
end if

CALL pushwindow (def2s, def2f, "", 5, 10, linesonpage+3, 62)

'Create window and display
locate linesonpage+7, 15
call fprint ("PgUp - Previous Page  PgDn - Next Page  Esc - Quit", abs(def2f))
color normal, bground
page = 1
do
   l = 1; c = 1
   for r = startrec(page) to endrec(page)
      get#l, r
      call wlocate(l, c)
      call fprint (record$, def2s)
      l = l + 1
   next r
   call wlocate(linesonpage+1, 48)
   whatpage$ = "Page" + str$(page) + " of" + str$(numofpages)
call fprint (whatpage$, def2s)
do
   z2$ = inkey$
   loop while z2$ = ""
   select case asc(right$(z2$, 1))
case 81  'PgDn
      page = page + 1
   case 73  'PgUp
      page = page - 1
      if page  1 then
         page = 1
      end if
   case else
      if asc(z2$)  27 then
Subroutine DISEASEDEFINITIONS
called from: main program (DENTAL)
calls: PUSHWINDOW, WLOCATE, FPRINT, PRIDISEASEDEFS
This routine is called when the user selects disease definitions from
the definitions menu. All 33 diseases are displayed in a window on the
screen. A disease is selected by using the direction keys to highlight
it. Once the disease is selected, a window is created and the
corresponding definition is displayed in it.

SUB diseasedefinitions STATIC
defint a-z

field#3, 60 as record$

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attr%=7
'make window and throw items in window
'routine to move cursor
'select item
'clean up and exit
'This window in effect acts as a CLS statement, so that can print outside
'the definition list window without overprinting other stuff
'(locate 24, x)
CALL pushwindow(attr%, 0, "", 1, 1, 25, 80)
'This window is the actual definition selection window.
CALL pushwindow(attr%, selectIf, "Disease Definition Selection", 3, 11, 19, 58)
'compute normal attribute and inverse of it.
nl = WINDscratt(WINDcurrent)
nlfor = nl MOD 16
nibak = INT(nl / 16)
inverse = nlfor * 16 + nibak
frame = abs(WINDframatt(WINDcurrent))
fg = frame MOD 16
bg = INT(frame / 16)
'Print directions
locate 25, 1:color defkeyline, defkeyline:print space$(80);
locate 25, 3:color normal, bground:print " Esc ";:color defkeylettr,
defkeyline:print " - Quit";
locate 25, 40:color normal, bground:print " PgDn ";:color defkeylettr,
defkeyline:print " - Next Page";
locate 25, 58:color normal, bground:print " PgUp ";:color defkeylettr,
defkeyline:print " - Previous Page";
color normal, bground
page=1

printnewpage2: 'The first 17 diseases are displayed on page 1
if page=1 then
  firstword=1
  lastword=17
else
  firstword=18 'The rest are displayed on page 2
  lastword=34
end if
counter=0
localrow=1
localcol=1
FOR I = firstword TO lastword  
  'Display diseases
    call wlocate (localrow, localcol)
    call fprint (disease$(i), nl)
    localrow=localrow+1
NEXT I
locate 21, 33
call fprint("(Page "+right$(str$(page), 1)+" of 2)", abs(selectlf))

  'initialize certain variables
  counter = firstword  
  'number of disease highlighted
  localrow = 1  
  'coordinates relative to window
  localcol = 1

CALL wlocate (localrow, localcol)
CALL fprint(disease$(counter), inverse)

DO  
  'allow user to select
DO
  a$ = INKEY$
  LOOP WHILE a$ = ""
  IF LEN(a$) = 2 THEN
    'pgup, pgdn pressed
    CALL wlocate (localrow, localcol)
    CALL fprint(disease$(counter), nl)
    code2key = ASC(RIGHT$(a$, 1))
    SELECT CASE code2key
      CASE 72  
        'up arrow
        counter = counter - 1
        IF counter firstword THEN counter = lastword

      CASE 80  
        'down arrow
        counter = counter + 1
        IF counter lastword THEN counter = firstword

      CASE 73  
        'PgUp
        if page = 2 then
          page=1
        end if
CASE 81
   'PgDn
   if page = 1 then
   page=2
   end if

CASE ELSE
   BEEP

END SELECT

if (code2key 73) and (code2key 81) then
   CALL computerowcol(counter - firstword + 1, localrow, localcol)
   CALL wlocate (localrow, localcol)
   CALL fprint(disease$(counter), inverse)
   end if

ELSE
   'other keys
   SELECT CASE ASC(LEFT$(a$, 1))
      CASE 27
         'Esc to exit
      CASE 13
         'CR to accept
         call pridiseasedefs(counter) 'call subroutine to display definition
   CASE ELSE
      BEEP
   END SELECT

END SELECT

END IF

REM loop until Esc, PgDn or PgUp
LOOP UNTIL a$ = CHR$(27) or (code2key=81) or (code2key=73)

   code2key=0
   if a$=chr$(27) then
      CALL removewindow 'containing definition list
      CALL removewindow 'blank window
      LOCATE , , 0
   else
      call clearwindow
      goto printnewpage2
   end if
Subroutine PRJDISEASEDEFS
called from: DISEASEDEFINITIONS
calls: PUSHWINDOW, WLOCATE, FPRINT, CLEARWINDOW, REMOVEWINDOW
This routine creates a window and displays the selected disease definition.

SUB pridiseasedefs(counter) STATIC

    dim startrec(40), endrec(40)
    pagelimit=11
    field#3, 60 as record$
    numlines=disindx(counter, 2)
    if numlines pagelimit then
        numofpages = int(numlines/pagelimit)
        linesonlastpage=numlines mod pagelimit
        if linesonlastpage 0 then
            numofpages=numofpages+1
        end if
        linesonpage=pagelimit
    else
        numofpages=1
        linesonlastpage=0
        linesonpage=numlines
    end if
    firstrec=disindx(counter, 1)
    lastrec=disindx(counter, 1)+disindex(counter, 2)-1
    page=1
    startrec(page)=firstrec
    endrec(page)=startrec(page)+linesonpage-1
    page=page+1
    do while page numofpages
        startrec(page)=endrec(page-1)+1
        endrec(page)=startrec(page)+linesonpage-1
        page=page+1
    loop
    if linesonlastpage 0 then
        startrec(page)=endrec(page-1)+1
        endrec(page)=startrec(page)+linesonlastpage-1
    else
        startrec(page)=endrec(page-1)+1
        endrec(page)=startrec(page)+linesonpage-1
    end if
end if
CALL pushwindow(def2s, def2f, "", 6, 7, linesonpage+3, 66)
locate linesonpage+8, 15
call fprint ("PgUp - Previous Page  PgDn - Next Page  Esc - Quit",
abs(def2f))
color normal, bground
page= 1
do
  l=1:c=4
  for r=startrec(page) to endrec(page)
    get#3, r
    call wlocate(l, c)
    call fprint (record$, def2s)
    l=l+1
  next r
  call wlocate (linesonpage+1, 48)
  whatpage$="Page"+str$(page)+" of"+str$(numofpages)
call fprint (whatpage$, def2s)
do
  z2$=inkey$
loop while z2$="" select case asc(right$(z2$, 1))
case 81  'PgDn
    page=page+1
case 73  'PgUp
    page=page-1
    if page=1 then
      page=1
    end if
case else
    if asc(z2$)=27 then
      beep
    end if
end select
CALL clearwindow
loop until (page numofpages) or (asc(z2$)=27)
call removewindow
for page= 1 to numofpages
  startrec(page)=0
  endrec(page)=0
next page
numlines = 0

END SUB
Appendix E
User Library File Listings

DENTSUBS.BAS

REM All the subroutines for DENTAL and DIFF, except for the window and
definition routines, are contained in this module.

REM This module was last modified on 1/30/89 by Cindy Burgess-Russotti

DEFINT A-Z

REM Dimension arrays for DENTAL and DIFF programs.

DIM Z(35)
DIM DX$(35)
DIM response(92)
dim option$(10,2), opline(10)
dim dgpos(35,2), treatnum(35,2), numdg(2), treatidx(35)
dim tdline(35), corpresp(36)

REM Dimension arrays for definition routines.

DIM item$(120), dindx(120,2), disease$(33), disindx(33,2)

REM include common statements for all modules

rem $include: 'dentcomm.bas'

Subroutine PRIQUES
called from: main program (DENTAL) and DIFF.
This routine prints a question on the screen.

sub priques(q$) static

REM print question

charlimit=70
color quescolor,bground
start:
if len(q$) charlimit then 'Break up the question if it is longer than
the limit (charlimit).
b=charlimit
while asc(mid$(q$,b,1)) 32
  b=b-1
wend

temp$=left$(q$,b)
q$=right$(q$,len(q$)-b)
locate qrow,qcol
print temp$;
qrow=qrow+1
goto start
else
locate qrow,qcol
print q$;
end if
color normal,bground
end sub

subroutine PRIOPTIONS

called from: DENTAL and DIFF
This routine displays the responses to each question and it displays the
pointer in front of the first response.

sub prioptions static

oprow=qrow+3:opcol=int((80-longest)/2)+5 ' add 2 for ptr,2 for ast 1 blink

ptrcol=opcol-5

for x=1 to numops
  if x=1 then
    color ptrcolor,bground
    locate oprow,ptrcol:print ptr$
    color normal,bground
  end if
  locate oprow,opcol
  opline(x)=oprow
  print option$(x,1);
  oprow=oprow+2
  if option$(x,2)" then
    locate oprow-1,opcol
    print option$(x,2);
    oprow=oprow+1
  end if

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Subroutine GETRESP
Called from: DENTAL and DIFF
calls: PRINTOP
This routine waits for a response from the user. To respond, the user
can press a number that corresponds to a response or he can use the
direction keys to move the pointer to the desired response then press
return to select that response. This routine also allows the user to
press F7 for the main menu and F10 for a submenu.

sub getresp static
    astcol=opcol-2
    count=1
    ans=0
    while ans=0
        DO UNTIL z$=""
           ' clear keyboard buffer
           z$=inkey$
           LOOP
        DO
           ' now get response
           z$=inkey$
           LOOP WHILE z$=""
        if val(z$) = 1 and val(z$) numops then ' entered valid number
           REM print blanks where old ptr is
           locate opline(count),ptrcol:print blanks2$;
           count=val(z$)
           color ptrcolor,bground
           locate opline(count),ptrcol:print ptr$;
           color resplettr,respbar
           call printop(count)
           color normal,bground
           pause!=TIMER+1
           do while TIMER pause!
           loop
           ans=val(z$)
           elseif z$=chr$(13) then
           color resplettr,respbar
           call printop(count)
color normal,bground
ans=count
elseif len(z$)=2 then
z$=right$(z$,1)
if z$=chr$(72) then '*** up

REM print blanks where old ptr is
locate opline(count),ptrcol:print blanks2$;
count=count-1:if count then count=1
color ptrcolor,bground
locate opline(count),ptrcol:print ptr$;
color normal,bground
elseif z$=chr$(80) then '*** down

REM print blanks where old ptr is
locate opline(count),ptrcol:print blanks2$;
count=count+1:if count numops then count=numops
color ptrcolor,bground
locate opline(count),ptrcol:print ptr$;
color normal,bground
elseif z$=chr$(65) then '*** F7 definitions
call definitionroutine2
elseif z$=chr$(67) and mmenu 0 and wherefrom$="dental" then '*** F9 main menu
ans=67
elseif z$=chr$(67) and wherefrom$="diff" then '*** F9 main menu
ans=67
elseif z$=chr$(68) and mmenu 0 and wherefrom$="dental" then '*** F10 sub menu
if mmenu=1 then
ans=681
elseif mmenu=2 then
ans=682
end if
elseif z$=chr$(68) and softmenu 0 and wherefrom$="diff" then '*** F10 sub menu
ans=68
end if
end if
wend
end sub

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**Subroutine PRINTOP**
called from: GETRESP
This routine is called after the user selects a response. The response is displayed in inverse colors. The colors are set in getresp.

```vba
sub printop(count) static
    locate opline(count),opcol
    print option$(count,1);" ";
    if option$(count,2)"" then
        locate opline(count)+1,opcol
        print option$(count,2);
        if len(option$(count,1)) len(option$(count,2)) then
            print space$(len(option$(count,1))-len(option$(count,2))+1);
        else
            print " ";
            end if
    end if
end sub
```

**Subroutine INITOPTIONS**
called from: DENTAL and DIFF.
This routine resets the elements of the option array to null strings.

```vba
sub initoptions static
    erase option$
end sub
```

**Subroutine BOX**
called from: DENTAL and DIFF
This routine draws a box around the screen.

```vba
SUB BOX (begrow,begcol,endrow,endcol) STATIC
URCNRS=CHR$(187)
ULCRS=CHR$(201)
SIDES=CHR$(186)
LRCRS=CHR$(188)
LLCNS=CHR$(200)
TOP=205:BOT=205

LOCATE BEGROW,BEGCOL;PRINT ULCRNRS;
STRING$(endcol-begcol-1,TOP);URCNRS;
X = endrow-begrow-1
WHILE X 0
```
LOCATE BEGROW+X,BEGCOL:PRINT SIDE$;LOCATE BEGROW+X, end COL:PRINT SIDE$;
   X = X - 1
WEND
LOCATE endrow,BEGCOL:PRINT LLCNR$;STRING$(endcol-begcol-1,BOT);LRCNR$;
END SUB

subroutine WRTDAT
called from: DENTAL and DIFF
This routine writes the responses to all the questions in DENTAL and DIFF
to a file (DENTAL.DAT). If the file does not exist, it is created.

' subroutine to write data to file
' file name is dental.dat

' needs ssn,age and z array from main

SUB wrtuat static

open "dental.dat" for random as #2 len=374

field #2, 9 as ss$, 2 as ag$, 10 as dt$, 5 as tm$, 92 as r$,...
   2 as npb$, 2 as nps$, 70 as pb$, 70 as ps$, 72 as cpdx$,...
   40 as othr$

'find out last rec num in file
fs=lof(2)
recnum=fs/374
recnum=recnum+1

'init
nprob=0:nposs=0
prob$="": poss$=""
corpdx$=""

'create prob$ and poss$ from z array
for x=1 to 35
   if z(x)=1 then
      nprob=nprob+1
      prob$=prob$+right$(str$(x),2)
   elseif z(x)=2 then
      nposs=nposs+1
      poss$=poss$+right$(str$(x),2)
   end if
next x
for x=1 to 36
  if corpresp(x)=1 then
    corpdx$=corpdx$+right$(str$(x),2)
  end if
next x

' make response array into a string
for x=1 to 92    ' 92 responses dental+diff
  response$=response$+right$(str$(response(x)),1)
next x

' load buffer and print
lset ss$=ssn$
lset ag$=age$
lset dt$=date$
lset tm$=left$(time$,5)
lset r$=response$
lset npb$=mki$(nprob)
lset nps$=mki$(nposs)
lset pb$=prob$
lset ps$=poss$
lset cpdx$=corpdx$
lset othr$=other$

put #2, recnum
close #2
END SUB

Subroutine GETSSN
 called from: DENTAL
 In this routine the user is asked to enter the patient’s social security
 number and age.

SUB getssn static

ssn$=""
age$=""
color ssnbox,background
lc=21:llen=38:rc=llen+lc-1
row=10:locate row,lc:print string$(llen,176)
for row = 11 to 15
  locate row,lc:print chr$(176);:print string$(llen,30);:locate row,rc:print
chr$(176);
next row
row=16:locate row,lc:print string$(llen,176);
color quescolor,bground
locate 12,24:print"Enter patient’s SSN: ___-__-____"
color normal,bground
ssncol=45

DO
locate 12,ssncol,1,5,6
DO
s$=inkey$
LOOP while s$=""
if asc(s$)=8 then
ssncol=ssncol-1
if ssncol< then
ssncol=45
elseif len(ssn$)=3 or len(ssn$)=5 then
ssncol=ssncol-1
end if
locate 12,ssncol
color quescolor,bground
print "_";
color normal,bground
if len(ssn$)>0 then
ssn$=right$(ssn$,len(ssn$)-1)
end if
elseif asc(s$)>47 and asc(s$); and len(ssn$) then
print s$;
ssn$=ssn$+s$
if len(ssn$)=9 then
locate ,,6,7
end if
ssncol=ssncol+1
if len(ssn$)=3 or len(ssn$)=5 then
ssncol=ssncol+1
end if
elseif asc(s$)=13 then
if len(ssn$) then
beep
end if
else
beep
end if
LOOP until len(ssn$)=9 and asc(s$)=13
' get patient age
color quescolor,bground
locate 14,24:print"Enter patient's AGE: __"
color normal,bground
agecol=45
s$=""
DO
locate 14,agecol,1,5,6
DO
s$=inkey$
LOOP while s$=""
if asc(s$)=8 then
  agecol=agecol-1
if agecol- then
  agecol=45
end if
locate 14,agecol
color quescolor,bground
print "/";
color normal,bground
if len(age$)O then
  age$=right$(age$,len(age$)-1)
end if
elseif asc(s$)47 and asc(s$); and len(age$) then
  print s$;
age$=age$+s$
if len(age$)=2 then
  locate ,,6,7
end if
agecol=agecol+1
elseif asc(s$)=13 then
  if len(age$) then
    beep
  end if
else
  beep
end if
LOOP until len(age$)=2 and asc(s$)=13
'turn cursor off
locate ,,0
color normal,bground

END SUB
The following flowchart depicts the decision-making process of the original program produced by the Naval Dental Research Institute, Great Lakes, IL. It does not include any changes made to the user interface by the Naval Submarine Medical Research Laboratory, Groton, CT. The numbers in the diagram which follow do not refer to the present program.
Program Flowchart

GOSUB 32400

SET VARIABLES TO 0

DENTAL EMERGENCIES MENU, NOT-TRAUMA RELATED

X

X = 1

Y 5300 TOOTH SPECIFIC

N 3210 TEETH, GENERALIZED OR MULTIPLE

X = 2

Y 5250 GINGIVA, SPECIFIC AREA

N 5250 GINGIVA, GENERALIZED

X = 3

Y 5300 ORAL MUCOSA, TOOTH-ASSOCIATED

N 1790 OTHER ORAL SOFT TISSUES

X = 4

Y 7140 TEMPMORANDBULAR JOINT/MUSCLES

N 1920 DENTAL EXTRACTION SITE

X = 5

Y 5250 TISSUE SWELLING

N 8
PRINT "WRONG PROGRAM. SELECT "3" FROM MAIN MENU." Refer to DIFF

CHAIN DIFF1

GOSUB 2540

D1 4
D2 4
D3 2

2340
PRINT  
"SOME ADDITIONAL QUESTIONS NEED TO BE ASKED."

3210

PH = 0

Y

3240

E1 = 3

Y

3590

E6 = 2

Y

3690

E1 = 2

N

E2 = 2

Y

3590

E1 = 3

N

3590

E6 = 2

N

3590

X = 2

Y

3690

F-6
F-11
(P7 = 1) AND (PB = 1)

7110

7120

GOSUB 11810

11870

7140

x1^2

7240

x2^2

7340

x3^2

7440

x4^2

7540

x5^2

7610

3210

F-15