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**WHO EAR AND HEARING DISORDERS
SURVEY**

**EARFORM
SOFTWARE
MANUAL**

Version 2.0

[To go with Earform Software Version 2.0]



WORLD HEALTH ORGANIZATION
PREVENTION OF BLINDNESS AND DEAFNESS (PBD)

Acknowledgement

The EARFORM software was developed by Lyn Roberts for the WHO Programme for Prevention of Blindness and Deafness, initially through the Hearing Impairment Research Group at the Liverpool School of Tropical Medicine, U.K.

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1. HOW TO INSTALL EARFORM

EARFORM comes on four disks, marked disk 1 of 4, disk 2 of 4, disk 3 of 4, and disk 4 of 4. It should be installed on drive C. To install EARFORM onto your machine place disk 1 into the drive and type A:\INSTALL in DOS at the C:\ prompt and press <<ENTER>>. The computer will tell you when to insert disks 2, 3 and 4. The installation program creates a directory on your machine called EARFRM, and loads the EARFORM software into that directory. The main file on Disk 4 is called EARFORM2.EXE. After installation in C:\EARFRM, this file should be re-named EARFORM.EXE.

EARFORM is not a Windows programme and should only be installed and, preferably, run in DOS. (See also Section 9 Troubleshooting, paragraph 9.2)

2. HOW TO START EARFORM

To start EARFORM you need to be in the EARFRM directory. This directory is created when you install the EARFORM software. If you have just installed EARFORM notice that you will be automatically left in the EARFRM directory. Your prompt should say C:\EARFRM. If EARFORM is already installed on your machine you need to change to the EARFRM directory by typing CD EARFRM at the C:\ prompt.

At the C:\EARFRM prompt type EARFORM. You will now see EARFORM's introductory screen in front of you. At the bottom of the screen you are instructed to press any key to continue.

On some computers in DOS, it may be necessary to activate the mouse by typing MOUSE <<ENTER>> at the C:\ prompt.

3. HOW TO USE EARFORM

EARFORM allows you to store and manipulate data in a database, and to analyse that data. At the beginning of a session you need to specify which database you want to use. This could be a database you created in a previous session, or it could be a new database. Whichever database you select now will be the one used throughout this session, i.e. until you QUIT from EARFORM. (To change to a different database, you must quit EARFORM and re-enter as described in paragraph 4.1)

On your screen should be a dialog box with the heading "Pick database to USE". This screen will allow you to select a database for use throughout the session. On the left hand side of the dialog box is a list of available databases. Notice that EARFORM saves all databases in the directory DATA. This needn't concern you now, but you will need to be aware of it if at any time you want to copy or delete database files in DOS.

When you use EARFORM for the first time there will be two databases already listed. The database named QUERY.DBF is used to hold any records which have probable mistakes on the paper form. We will look at the use of the QUERY database in more detail later. For now you should know that the QUERY database is **not** to be used for entering data directly from the

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paper forms. The other database supplied with the software is named SAMPLE2.DBF. This is a file containing sample records which has been created for you to practice using EARFORM. To open a database for use in the session, for example if you want to select SAMPLE2, highlight the filename SAMPLE2.DBF by either clicking on it with the mouse, or by moving to SAMPLE2.DBF with the down arrow key. When SAMPLE2.DBF is highlighted you should click on <<OPEN>> with the mouse. Please note that this is not real data and the results bear no relation to a real situation. If you prefer not to use the mouse you can access any of the available options in EARFORM by using the tab key and pressing ENTER. From now on in this guide whenever you are instructed to "click on" an option, you can also select the option using the tab key and ENTER (or vice-versa).

If you want to set up a new database, for instance if you want to store data for a new survey, click on "new". This will create an empty database. You will now be asked for the name of the new file. File names in EARFORM follow the same rules as DOS filenames. There is no need to put the file extension ".dbf" after the field name, as this will be done automatically. After you have entered the new file name you should click on "Create". The file will now be created, and will be the file in use throughout this session. Note that the "Cancel" option in this dialog, QUILTS EARFORM and returns to the directory C:\EARFRM\DATA. To return to EARFORM, go back to the C:\EARFORM directory by typing cd..<<ENTER>>, and proceed again, as in section 2.

When you have created a new file you will be asked to specify the three-digit UN code for the country where the survey has been conducted. This corresponds to the first question on the Hearing Assessment form. (A. Census: 1. Country number).

All the data you enter into a particular database file must be from the same country. The UN codes setup procedure lets you select the country to be used. That country number will then be entered automatically into every data entry form when you are entering data.

You will now be shown a list of countries, with each country's three-digit United Nations (UN) code. The countries are grouped according to the WHO regions (African, Americas, Eastern Mediterranean, European, South-East Asian, Western Pacific; Algeria is listed (inadvertently) at the end of the whole list). You can scroll through the list one line at a time by using the up-arrow or down-arrow keys. To move through the countries one screen at a time use the page-up and page-down keys. Alternatively, use the mouse to move within the scroll bar on the right of the code numbers. Clicking on the up-arrow in the scroll bar scrolls up, and the down-arrow scrolls down. To scroll quickly through the countries use the mouse to drag the diamond in the scroll bar up or down. When the country you require is highlighted click on <OK> to accept it. At any point you can click on <Cancel> to abandon the procedure (in this case the Country Number box is labelled 'F').

The country number selected will now be automatically entered into each record you enter during the session. If the country name/code you require is not listed you can add to the list by selecting <New>. You will then be asked to enter the new country name and UN code. This will be added at the end of the whole list.

Deleting a database - leave earform, erase all 3 files in the EARFRM\DATA directory with the name of that database and the filename extensions .FPT, .DBF, and .CDX e.g. SURVEY2.FPT, SURVEY2.DBF, SURVEY2.CDX.

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4. OVERVIEW OF MENU OPTIONS

EARFORM gives four different menu options, which are displayed across the top of the screen. These main menu options can be selected either by clicking on one of them with the mouse, or by pressing ALT followed by the first letter of the menu choice. For instance, ALT-S will select the System menu. Each of the main menu options brings up a sub-menu. Each sub-menu option can be chosen either by *double-clicking with the mouse*, or by using the down arrow key to highlight the required item on the submenu, and then *pressing return twice*. Below is an overview of the facilities available from these menus. Each menu option will be described in more detail later.

4.1 The System Menu.

Calculator. Brings a calculator onto the screen.

Database details. This gives a break-down of the way in which each record is stored on the database. It shows a list of field names (as seen at the top of each column in the database/browse command) and their descriptions.

Quit. Allows you to leave the EARFORM system. (If a sub-menu choice, such as browse, is showing, press ESC to return to main menus, then press QUIT.) The programme quits to c:\earform\data. To return to EARFORM you must first re-enter the EARFRM directory. Type 'CD..' then press ENTER. Type 'EARFORM', then press ENTER. To change to a different database it is usually necessary to quit the programme, start again and then enter the desired database

4.2 The File Menu.

Print. Allows you to produce output.

Analyse All. Allows you to analyse the entire database, and output the results to the screen, to the printer, or to a file.

Analyse Subset. Allows you to select a subset of the database conforming to parameters which you set. For example, you could choose to analyse only those records from a certain district who do have some hearing impairment, or all of those females who are between the ages of 10-45. Once you have selected your subset you can specify the format of your output and say whether the output should go to the screen, to a file or to the printer.

EpiInfo Format. Allows the database to be exported into files that can be accessed by the programme EPI-INFO.

4.3 The Database Menu.

Find. Allows you to search the database for records fulfilling certain criteria which you specify. The selected records are then displayed on the screen.

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Queries. It is anticipated that some paper forms will contain errors which crept in when the form was filled in. When you enter records from forms on paper, EARFORM checks for errors. If an error is found a red error box will ask you to check the questionnaire. If the mistaken entry is on the form you will be asked to mark the form, and the record will be saved to a Query file for later editing. This menu option lets you view the QUERY file.

Browse. Allows you to see the entire database in a table form.

Sort. Lets you sort the data into any one of several orders. For instance you can sort the database in order of age, or of sex etc.

Append from . Allows you to attach all the records from another database onto the end of the current database in use.

4.4 The Record Menu.

Add. Allows you to add new records to the database.

View record. Allows you to view any records on the database.

The next four options help you to move through the database easily, to enable examination of data.

Top. Moves you to the top of the database (i.e. the beginning of the file)

Prior. Moves you to the record before the one you are at.

Next. Moves you onto the next record.

Bottom. Moves you to the bottom of the database (i.e. the end of file)

Delete. Allows you to delete a record.

5. THE SYSTEM MENU

5.1 Database details

Data is stored in the database in "fields". Generally speaking, each question on the form corresponds to one field of the database. However, because of restrictions on space, the names of the fields are not identical to the items on the form. For instance, "Age in Years" on the form is stored as "AGE" on the database, and "Household" on the form has the field name "HSEHLD" on the database. For most of the time when you are using EARFORM you need not be aware of this, but for some of the functions you need to specify which fields you wish to use by selecting from a list of field names. For example, on the **Print** option you can select which fields of the record to print out. The System/Database Details menu option gives the full list of field names and the corresponding form items, if you need to refer to them. When you have finished accessing this list, press ESC to come out and access other menu options.

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6. THE FILE MENU

6.1 Print

EARFORM allows you to print out all of the database, the current record, or a selection from the database. When you select **Print** a dialog box appears on the screen to enable you to make this choice. You select the required option by clicking on it with the mouse, or by using the down-arrow key and pressing ENTER. When the white dot is indicating your selected option click on <<OK>>.

If you have indicated that you want to Select records to print you specify the criteria to be used in selecting records using the Find dialog box as described in the Find section (see section 7, page 8). Once you have specified how much of the database you want to print you will see the screen which enables you to select which fields you wish to print. The list on the left is the full list of fields in the database, and the list on the right (initially empty) shows which fields you have selected. To select fields, highlight each one you want using the mouse or the down arrow key, and click on <Move>. If you want to print out all of the record/s, with the columns in alphabetical order of field names, click on <Move All>, then click OK. If you want a full list of all fields in the order they are on the form, don't use <Move All>, just click on OK..

If you've made a mistake you can highlight any field in the Selected list and click on <Remove>. If you've specified that all the fields are to be printed, and then change your mind, you can click on <Remove All> to empty the Selected list.

Once you have selected the fields to be printed, click on <<OK>>. You will now be shown a large dialog box with the fields and records which are to be printed. To clear this dialog box and begin printing you should make sure the printer is ready and either press ESC, or click on the small box in the top left hand corner of the dialog box. This will reveal the items to be printed scrolling past (if the printer is not ready the programme will quit). Note that if the database is large and you have selected all fields it will take some time for the whole database to scroll past before printing starts. It is not possible to stop this process unless you crash the programme by going to Task Manage in Windows using CONTROL/ALT/DELETE. The name of the database is not printed so this should be written on the printed sheets to avoid mixing with another database.

6.2 Analyse all

The analyse dialog box allows you to send the results of analysis

To Screen

To Print

To File

You can also select whether to arrange the results of the Age-sex analysis using 10 year intervals or 5 year intervals. Initially, "Age-sex/10 year intervals" is displayed. To accept this arrangement you either press return, or click on "Age-sex/10 year intervals". To select 5 year intervals either move to "Age-sex 10 year intervals" and hold the mouse button down, then highlight "Age-sex/5 year intervals", or use the tab key to highlight "Age- sex/10 year intervals"

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and press ENTER, then use the down arrow key to highlight "Age-sex/5 year intervals" and press ENTER.

Once you have made your selections click on <<Run>>.

The name of the database is not printed so this should be written on the printed sheets to avoid mixing with another database.

Note that the analysis report states, in the second table that impairment is defined as a hearing threshold >25 dBHL, or, for children under 4 (7¹) years old, when "NO" is entered and no "YES" entered for any part of the hearing examination in section BI.

The column DHI and DHI % in the first table and the line "overall impairment" in the second table includes any subject who has a threshold of 26 DB or greater at any frequency whereas the line "disabling hearing impairment" for "26 dB or over" includes only those with an *average* hearing threshold (at 1,2,4 kHz) of 26 dB or over. It should be noted that averaging of thresholds is performed by the programme at the time of data entry.

If you want to analyse a different database, you must QUIT and re-enter the programme and then select the next database that you wish to analyse.

6.3 Analyse subset.

You can choose to Analyse any subset of the data, for instance all those records where hearing is impaired, all those records where the subject is under 12 years old etc. When you click on Analyse Subset you will be shown the Find dialog box, and you should specify your selection criteria as described in the Find section 7.1.

Once you've specified your criteria for selecting records you should click on analyse (when a box shows the number of records identified), then click on quit, and then follow the procedure for **Analyse all**.

Note that the analysis tables only analyse subjects who have been examined (Question A12 = 1) but does not analyse subjects who refused (A12 = 2) or were absent (A12 = 3). To discover the numbers of refusals and absentees, use the EXAM_STAT option set to 1 or 2 in analyse subset. The number of subjects will appear in a box above this dialog when <<Analyse>> is clicked. This can be combined with age, sex etc to find these details about this group of subjects. To find the total number of subjects entered, including those not examined, set EXAM_STAT > 0, and click on <<analyse>>.

6.4 EPI-INFO & ACCESS format.

If you wish to analyse your database further using the EPI-INFO software program double-click on **Epi-Info format**. The program will create 2 files with the extensions .DBF and .DBT in a special sub-directory of EARFRM called EPI. The filename will be the same apart from the different extensions. When you use EPI-INFO, import the file *.DBF (use the DBF option in the import command under the PROGRAM menu). This will create a file called *.REC,

¹Children up to age 9 years (even though it states 7) can in fact be tested by the questions in panel BI and these appear in the analysis.

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which can then be analysed (in EPI-INFO use the READ command in the ANALYSIS menu, to access the database).

Databases can also be imported into Microsoft Access. Create a new database in Access and then use the command File/Get external data/Import/File type Microsoft FoxPro (*.dbf). Click on the EARFORM file with the .dbf extension and this will be imported into Access.

7. THE DATABASE MENU

7.1 Find

You can find and display a record or the set of records which satisfy one or more criteria, for instance:

Select **Find** from the Database menu. You can find records which satisfy one criterion, e.g Sex='M',

or a combination of criteria, e.g. Sex='M', Age<18, Exam status='1'.

You can choose however many combinations of criteria, and in whatever combinations you want. The combination of criteria is called, in this manual, an enquiry.

The screen displayed when you select the **Find** option is called the Find dialog box. The large rectangular area in the top half of the box is the "criteria area" where your criteria are displayed.

You build up your enquiry one line at a time, using the area underneath the "criteria area". The first step is to select the field you want to use in the search. Suppose you want to find all those records where Sex='M'. Notice the box beneath the criteria area which says "COUNTRY". This is the field box. If you have a mouse, click on this box, otherwise tab to it and press ENTER. You will see the list of all fields names displayed. Some field names are abbreviated, and you use the "database details" option (from the **System** menu) to see the full name of each field (the list of field names is also printed at the end of this manual). Use the mouse, or the down arrow key to highlight the SEX field name and press ENTER. In the next box along, the operator box, you should see = . Select this box and you will see the list;

=
=<
<
>
<=
>=
==
IN

You want those records where SEX = 'M', so you can leave the operator box as it is, with = selected. Move on to the typing area to the right of the = box, and type M, then press ENTER. You should now have

SEX = M

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and the <Add> button should be highlighted. Press ENTER, and your enquiry should be appear in the query dialog box as

SEX = 'M'

Notice that SEX is a character field, and EARFORM automatically puts the quote marks around the M in your criterion. Also note that if fields CIV_R, CIV_L, CVII_1, DI_MEDR, DI_MEDL are selected, the appropriate capital letter (the command is case-sensitive) must be inserted in the typing area, before using 'Add' to add the criterion to the Query dialog box (see section 7.3 Browse, for list of letters). For fields that only have T (=true), or F (=false) answers in them, selecting the field by itself (without typing 'T' or 'F') will enable the software to find all those records that are 'True' for that field.

To find the records which satisfy the criteria in the query dialog box, select <<Browse>> and EARFORM will display the records. Notice the box in the top right hand area of the screen which tells you how many records have been found which satisfy the criterion, and how long it has taken. To clear the display either press ESC, or click on the small box in the top left hand corner. You can also specify the order on which records are displayed. Click on the box marked Order, and you will see the list of fields on which you can order your data. By highlighting the relevant fields, you can choose to display the list in order of COUNTRY NUMBER, STUDY NUMBER, ADMIN AREA, CLUSTER NUMBER, HOUSEHOLD NUMBER, OPTIONAL, AGE IN YEARS, AGE IN MONTHS, SEX, EXAM STATUS, or DATE.

Now suppose you wanted to find records which satisfy a combination of criteria. Suppose you wanted to find all those in area 131 who are female and are aged under 18. Your enquiry will look like this;

ADMIN='131'

SEX='F'

AGE<18

Click on the field box and select ADMIN. The operator box will already be displaying = , so now go straight onto the rightmost area and type in 131. Select <Add>. ADMIN is a character type field, and EARFORM automatically puts quotes around the 131 in the criteria area.

Next, go back to the field box, and select SEX. Again, leave the operator at = , and type in F. Select <Add> again. SEX='F' will now appear as the second line in the criteria area, with the quotes automatically inserted.

Finally, you want those records where AGE < 18. Select AGE, and press ENTER, then click on the operator box, and select <. Now type in 18 to the area on the right, and select <Add>. AGE < 18 will appear as the third line in the criteria area.

If you want to change one of the criteria, highlight it in the 'criteria area', and then add a new criterion over it.

If, at any time you want to abandon the enquiry you are building, select <Reset>, and the criteria area will be cleared. To run your enquiry, as before, select <<Browse>>.

To stop displaying the records, and return to the Find dialog box press ESC, or click on the top left corner of the record display area.

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Notice that once you've selected **Find** you cannot access any of the menu options. To leave the Find option you have to select <Quit> from the Find dialog box.

When you have selected a group of records satisfying your criteria, and you have them displayed on the screen in front of you, you may want to select one record to view in detail. To do this click on the required record, and press ESC or click on the top left corner to go back to the Find dialog box, <Quit> from the dialog box, and select View Record from the Record menu.

7.2 Queries

As described in the **Records / Add** section later in this guide, records which appear to have serious errors on the paper questionnaire can be saved to a Query file. To view the records in the Query file click on the Queries option. You will be shown the Query file in a Browse dialog box. For instructions on how to move around the file refer to the **Browse** section below.

Please note that after leaving Database/query, if you then select 'Record/add' or 'Record/view record', a 'select database' dialog appears. However, at present you can only select the database originally selected when you entered EARFORM, otherwise mislabelling of the database name may occur. The only way to change databases at present is to exit, then re-enter EARFORM as described in paragraph 4.1.

7.3 Browse

The Browse option displays the database contents in table form. To expand the browse table to cover the whole screen click on the ≡ symbol at the top right hand corner of the browse dialog box. Click on the same symbol to change the browse table back to its previous size.

You can move from record to record with the Up (▲) and Down (▼) arrow keys. You can move through the database a screen at a time using Page Up and Page Dn, or by using the mouse to move the diamond (◆) in the scroll bar on the right hand side of the dialog box.

Similarly, only a few of the database fields of each record can be shown on the screen at once. To scroll through the fields, either press tab to move to the field on the right, or use Shift +Tab to move to the left. Alternatively, you can use the mouse to move the diamond in the scroll bar along the bottom of the screen, or click on the left or right arrowheads to move one column for each click, or just to the side of the arrowheads to scroll one screen for each click.

You can vertically split the browse table by clicking on and dragging the ↔ symbol (at the left side of the lower border of the table) to the right. Each side of the split can be independently scrolled horizontally. This can be useful if you want to retain, for example, the person number in the left-hand partition whilst scrolling horizontally in the right-hand partition.

When the browse table is displayed, there is an additional menu choice, also called 'Browse' on the right side of the top line. With this you can click on 'go to' to move around the database, 'change' to show only one record at a time in a vertical format, and 'grid off/on' to remove or display table gridlines.

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In the browse table itself, T = True (i.e. a 'yes' answer), F = False (a 'no' answer). For questions with multiple answers, letters are used to identify the answer.

Question CIV	0=Normal, P=perforation, R=red & bulging, N= not seen, D=dullness & retraction, U=unsure or uncertain;
Question CVII_I	I=since infancy, A=since adulthood, O=since old age, U=uncertain;
Question DI-4 DI_4, 5, 6	A=acute (otitis media), C=chronic suppurative, S=serous (with effusion)

Some fields in BROWSE are called "memo". These correspond with the "specify" boxes on the form. If an entry has been made, "memo" changes to "Memo", and you can see the contents by clicking on it.

If there is no response to the BROWSE command after using ANALYSE you must select the database to be used again. Go into RECORD/ADD, and a dialog will request you to highlight a database. Click OK then ESC to leave ADD, and the BROWSE command should now respond.

To clear the Browse table either press ESC, or click on the small box (■) in the top left hand corner.

7.4 Sort

When you click on the Sort menu option you will be asked for the Index Order to be specified. In other words you must choose which field is to be used in ordering the database.

To select from the full list of available sort fields (listed in section 7.1 'find') move with the mouse onto the "Index order" box and hold the mouse button down, then highlight the required field name. Alternatively, use the TAB key to highlight the "Index order" box, then press ENTER and use the Up and Down arrow keys to highlight the required field and press ENTER again. Note that at present one cannot sort on the field 'person'. The closest would be to sort by household.

When you have selected the order you require click on <<OK>>. The Browse dialog box will appear with the database ordered in the way you have requested.

The sort order is not saved on quitting.

Note that if you are already in browse and you want to use sort, click on sort in the Database menu, then click outside the browse panel to bring up the Sort dialog.

7.5 Append From

You can add the records from another database onto the end of the current database by using **Append From**. When you click on the **Append From** menu option you will be shown a similar dialog box to the one you used to select the database to use at the start of the session.

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The list on the left hand side shows the files currently available on the drive and directory you are working in.

With some database files, when you try to access a file directly an error message is produced. In this case, CREATE a new database file and APPEND the records from the desired database file.

You can change the drive where the new database is to be found (for instance if the records to be added are on a database stored on floppy disk) by one of two methods. Move with the mouse onto the Drive box and hold the mouse button down, then highlight the required drive letter. Alternatively, use the TAB key to highlight the Drive box, then press ENTER and use the Up and Down arrow keys to highlight the required drive letter and press ENTER again. Use the same methods to change the Directory if necessary. When you have specified where the new database is to be found require click on <<Open>>. The new records will now be added to the end of your database.

8. THE RECORD MENU

8.1 Add

To **add** records to the database select **Add** from the Record menu. The form will appear one panel at a time. Some fields are mandatory, and the program will not let you go any further until a value is entered for that field. Error messages are displayed at the bottom of the screen. It may be that occasionally something has been wrongly entered on the paper form. For example, if NOT FULLY EXAMINED is crossed on section B even though the earlier section B answers show that the subject was fully examined you will see an error message at the bottom of the screen warning you:

NOT FULLY EXAMINED is incorrect. You can EITHER save this record to the query file OR re-enter the data.

<<Save to query file>> <Re-enter data>

You should check the questionnaire. If you discover that you've read the questionnaire wrongly you should select the answer <Re-enter data>. If, on the other hand you find the error is on the paper file you should select <<Save to query file>>. This record will now be saved to a "query" file for later examination or amendment. You should mark the paper questionnaire to show it needs attention.

It is not possible to return to an earlier panel to make changes; if you notice a change is required, abandon record (press ESC, yes) and start again.

The optional box A7 can be used for additional data according to your choice. If it is not to be used, insert 00 or 99, etc.

If box 12 (Exam status) is completed as 2 (refused) or 3 (absent) the record entry panels will finish when panel A is completed so that no entries can be made in panels B, C, D, E.

To move between panels, use PAGE DOWN or TAB, but do not use ENTER since this key is used to put a cross in a box.

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For children aged between 5 years and 9 years last birthday, there is a choice when entering section B of the form. Panel BI is shown first. If the child was tested by this method, complete this panel, using the down arrow keys to move down through the panel. If the child was tested by pure tone audiometry, press PAGE DOWN, use the mouse to go to the box for "screening examiners number", enter a number or "99", press ENTER, PAGE DOWN and the panel BII to record pure tone audiometry results will appear. This panel can now be completed.

Some questions require you to type in the answer, but for most you need to put a cross in a check box. For example, in Section C: Basic Ear Assessment you will see

I. Ear pain R L

You should put a cross into the R or L box depending on whether the paper form indicated pain in either of the R or L ears. To put a cross in a check box you simply left click the mouse or press ENTER.

Alternatively, you may need to select an item from a pop-up list. For example, again on Section C you will see:

IV. Ear drum(Right). Ear drum (Left)

Click on the oblong box, or press ENTER, and a list will pop up:

Perforation
Dullness/retraction
Red & bulging
Normal
Not seen
Unsure

Use the mouse, or the arrow keys to select one of the items from the pop up. The final type of data entry also appears on Section C

In Section VII, Additional Information, question 2:

Does any brother/sister/child/parent of the subject have difficulty hearing?

- No
- Yes
- Uncertain

The set of brackets which have a dot inside them is the answer selected. So, for these fields, No has been selected. To select one of the options you press ENTER, or click with the mouse button. If this question was left blank in the questionnaire, the option Uncertain should be selected.

In section D, there is only one "Specify" box, after question DV. This should be used to record the specify details recorded under question DII, DIII, DIV and DV.

Note that in Section E, the software requires you to check either the box EI, 'no action needed' or the box EII, 'action needed'. If you check 'action needed' you must also specify the type of action required from the list.

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Once you've entered the entire record it will be saved automatically and a new blank record will appear. At any point during data entry you can abandon the record you are entering or the new record, by pressing ESC yes, and the record will not be saved.

Note that the file name and full path address of the database in use is printed at the base of Panel A when selected via both the **Add** and the **View** options.

8.2 View Record

When you select the **View Record** option, the entire record appears on the screen, section by section, in the same format as the questionnaires. You display the next section by pressing the Down-arrow key. You can move a section around the screen, for instance if you want to look at the section beneath it, by moving the cursor to the top of the section (the section title line) and dragging the section with the mouse button held down.

You may find it helpful when viewing records to use the Browse option within the Record submenu to select a record to be viewed. Also the Top, Prior, Bottom and Next options on the Record submenu will help you to move around the database in order to view and edit records. Double-click on one of these options, then double-click on 'View Record' to view the record selected. You can also look at a record in a vertical format (see section 7.3. Browse).

To leave the View Record display, press ESC and click on 'yes' to abandon record (this does not delete the record, but only clears it from the screen).

8.3 Delete

Delete permanently deletes the current record from the database. To see which record is currently selected choose Browse from the Database menu. The current record is the one which is highlighted. You can change the current record by moving in the browse table, by using Find and highlighting one particular record, or by using Top, Prior, Next or Bottom from the Record menu. When you have highlighted the record you want, click the Delete option from the Record menu, and, if browse table is displayed, click again with mouse pointer outside the browse table.

Deleting a record is a serious action. Once deleted, a record cannot be recovered. Therefore, you will be asked to confirm that you do want to permanently delete this record. If you do, click on <Delete>. Otherwise, click on <<Cancel>> or press ESC and the record will not be deleted.

To change the entries in a record, the whole record must be deleted and then the data re-entered.

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9. TROUBLESHOOTING

- 9.1 **Mouse clicking.** If you cannot access a menu item, it may be because you have not double-clicked with your mouse, or pressed enter twice. Sometimes the second mouse click needs to be outside the most recent panel to appear.
- 9.2 **Not enough memory.** If you set up your computer to access the program from within Windows you may find that your computer does not have enough memory to carry out the analysis options. The amount of memory allocated may need to be changed. In Windows 95 or 98 or NT, find the file EARFORM.EXE in the C:\Earfrm folder using Windows explorer. Right-click with the mouse on the file name and enter properties. Go to the Memory menu option. Use the arrow button to increase Extended (XMS) memory to total 12288. Other items in this panel will probably show Conventional memory: total=auto; Initial environment=auto; Expanded EMS memory: total=none; MS-DOS protected mode (DPMI) memory: total=auto. If increasing the memory does not work, it is better to leave windows and then use the program completely in MS-DOS.
- 9.3 **Database/Browse not working.** If you cannot use Database/browse, this may be because you need to select (or re-select) the database (this problem may occur after leaving File/analyse). To re-select the database, select Record/view record, and the database selection dialog box should appear. Select the required database, and then leave 'View record' by pressing ESC, and go into Database/browse.

10. SOFTWARE BUGS

- 10.1 In Panel C. Basic Ear Assessment it is possible to check all the normals boxes and enter abnormal findings in box CIV without getting an error message. Care should be exercised when checking all normal boxes that the subject really is normal (examine questionnaire to verify this).
- 10.2 With some printers the borders of the analyse table printouts are formed by different characters. This does not affect the display of actual results.
- 10.3 In the Analyse table the definition "average threshold 31 dB or over for ages 4 to 15 years" should read "average threshold 31 dB or over for ages 4 to 14 years". However the programme does correctly calculate the results for 4 to 14 years.
- 10.4 In the second table of the tables produced by ANALYSE ALL command, the %age given for under 4 years is incorrect if a child age over 3 years was tested using the BI panel questions rather than pure tone audiometry. However the %age is given correctly for this group in the first table in the right-most column (headed DHI %) if the analysis is done at 5 year intervals.

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ANNEX 1. LIST OF FIELD NAMES AND DESCRIPTIONS

Field Name	Description of item as it appears on EARFORM questionnaire
COUNTRY	Country number
STUDY	Study number
ADMIN	Administration division
CLUSTER	Cluster number
HSEHLD	Household number
PERSON	Person number
OPT	Optional field
AGE	Age in years
AGE_MTHS	Age in months
SEX	Sex
EXAM_STAT	Exam status
DATE	Date
REASON	Used in the query file. REASON for query.
IMPAIR_R	Right ear is impaired
IMPAIR_L	Left ear is impaired
IMPAIRED	Hearing (right or left ear) is impaired
DEFECT	
BL1_1Y	Child searches for sound direction etc. Answer=Yes
BL1_1N	Child searches for sound direction etc. Answer=No
BL1_1ND	Child searches for sound direction etc. Not done
BL1_2Y	Child can point to a parent etc. Answer=Yes
BL1_2N	Child can point to a parent etc. Answer=No
BL1_2ND	Child can point to a parent etc. Not done
BL1_3Y	Child can answer your question etc. Answer=Yes
BL1_3N	Child can answer your question etc. Answer=No
BL1_3ND	Child can answer your question etc. Not done
BL1_4Y	Child blinks to loud noise. Answer=Yes
BL1_4N	Child blinks to loud noise. Answer=No
BL1_4ND	Child blinks to loud noise. Not done
B2_1	Ambient noise level
B2_1R	Hearing threshold 1 kHz (right ear)
B2_2R	Hearing threshold 2 KHz (right ear)
B2_4R	Hearing threshold 4 KHz (right ear)
B1_1AR	Hearing threshold 1 KHz re-test (right ear)
B2_1L	Hearing threshold 1 KHz (left ear)
B2_2L	Hearing threshold 2 KHz (left ear)
B2_4L	Hearing threshold 4 KHz (left ear)
B2_1AL	Hearing threshold 1 KHz re-test (right ear)
BSCR_EXM	Screening examiner's number
BNT_FULL	Section B not fully examined
BREMARKS	Remarks
BAVGL	Average hearing threshold (left ear)
BAVGR	Average hearing threshold (right ear)

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Field Name	Description
CNORM_R	Section C normal findings (right ear)
CNORM_L	Section C normal findings (left ear)
CABN_R	Spare
CABN_L	Spare
CI_R	Ear pain (right ear)
CI_L	Ear pain (left ear)
CII_1R	Auricle normal (right ear)
CII_1L	Auricle normal (left ear)
CII_2R	Auricle malformation (right ear)
CII_2L	Auricle malformation (left ear)
CIII_1R	Section C normal (right ear)
CIII_1L	Section C normal (left ear)
CIII_2R	Inflammation (right ear)
CIII_2L	Inflammation (left ear)
CIII_3R	Wax (right ear)
CIII_3L	Wax (left ear)
CREM_3L	Was removed (left ear)
CREM_3R	Wax removed (right ear)
CIII_4R	Foreign body (right ear)
CIII_4L	Foreign body (left ear)
CREM_4L	Foreign body removed (left ear)
CREM_4R	Foreign body removed (right ear)
CIII_5R	Otorrhea (right ear)
CIII_5L	Otorrhea (left ear)
CREM_5L	Otorrhea removed (left ear)
CREM_5R	Otorrhea removed (right ear)
CIII_6R	Fungi (right ear)
CIII_6L	Fungi (left ear)
CIII_7R	Not seen (right ear)
CIII_7L	Not seen (left ear)
CIV_R	Ear drum (right ear)
CIV_L	Ear drum (left ear)
CV_1R	Middle ear normal (right ear)
CV_1L	Middle ear normal (left ear)
CV_2R	Middle ear otorrhea (right ear)
CV_2L	Middle ear otorrhea (left ear)
CV_3R	Middle ear not seen (right ear)
CV_3L	Middle ear not seen (left ear)
CVI_R	Others (right ear)
CVI_L	Others (left ear)
CVI_SPEC	Others -specify
CNOT_EXR	Not examined (right ear)
CNOT_EXL	Not examined (left ear)
CVII_1	How long has the subject had difficulty hearing?
CVII_2	Does any close relative have difficulty hearing?
CVII_2BRO	Brother/sister of subject has difficulty hearing
CVII_2CHI	Child of subject has difficulty hearing.
CVII_2PAR	Parent of subject has difficulty hearing.
DEAR_R	Normal ear & normal hearing Section D (right ear)
DEAR_L	Normal ear & normal hearing Section D (left ear)

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Field Name	Description
DEAR_R	Normal ear and normal hearing. Section D (right ear)
DEAR_L	Normal ear and normal hearing. Section D (left ear)
DI_1R	Wax (right ear)
DI_1L	Wax (left ear)
DI_2R	Foreign body (right ear)
DI_2L	Foreign body (left ear)
DI_3R	Otitis externa (right ear)
DI_3L	Otitis externa (left ear)
DI_MEDR	Otitis media (right ear)
DI_MEDL	Otitis media (left ear)
DI_5R	Spare
DI_5L	Spare
DI_6R	Spare
DI_6L	Spare
DI_7R	spare
DI_7L	Dry perforation of tympanic membrane (right ear)
DI_8R	Dry perforation of tympanic membrane (left ear)
DI_8L	Other ear disease (right ear)
DII_R	Other ear disease (left ear)
DII_L	Infectious diseases (right ear)
DIII_R	Infectious diseases (left ear)
DIII_L	Genetic conditions (right er)
DIV_R	Genetic conditions (left ear)
DIV_L	Non-infectious conditions (right ear)
DV_R	Non-infectious conditions (left ear)
DV_L	Undetermined cause (right ear)
EI	Undetermined cause (left ear)
EII	No action needed
EII1	Action needed
EII2	Medication needed
EII3	Hearing aid needed
EII4	Language/speech rehabilitation needed
EII5	Special needs education needed
EII6U	Vocational training needed
EII6NU	Surgery referral needed-urgent
EII7	Surgery referral needed-non-urgent
EXNUM	Other action needed
DSPEC	Special examiner's number
ESPEC	Specify cause (section D) Special examiner's remarks