EpiDATA

INTRODUCTION TO EpiDATA 3.1
WHAT IS EpiDATA?

EpiData 3.1. Allows you to create a data collection form that you can use to enter, check, and export your data.

OPENING EPIDATA

EpiData 3.1 can be accessed through the Novell Application Window (in the RESEARCH group) when working at the School.

EpiDATA is not available in the Remote Desktop; however, EpiDATA is free and can be downloaded onto personal computers from this link: www.epidata.dk.

THE EpiDATA INTERFACE

Below is the EpiDATA interface:

EpiDATA FILES

There are three types of EpiDATA files:

When you create a questionnaire in EpiDATA this is saved as a .QES file

When you create a data file and enter data into it this file is saved as a .REC file

If you decide to include data checks that check data *during* the data entry process (to reduce the likelihood of making data entry errors) this is saved as a .CHK file.

If you make a questionnaire, enter data, and create data checks you will have three separate files. A .QES, .REC, and a .CHK file.

All of your files should have the same file name but with different file extensions (e.g. Diabetes.QES, Diabetes.REC, Diabetes.CHK).
CREATING AN EpiDATA FORM (.qes files)

There is a ‘work process’ for creating a data entry form in EpiDATA. The ‘work process’ is represented by the ‘define data’, ‘make data file’, etc buttons on the toolbar.

Before you begin

Create an EpiDATA folder on your H: drive. It is good file management practice to put all your EpiDATA files in the same place.

Creating a new questionnaire file

Click on DEFINE DATA at the top of the screen:

Select NEW.QES to start a new form or OPEN.QES to open an existing form. The file extension for questionnaire files is always .QES.

Once you have opened a new file you will need to save it. Click FILE and select SAVE AS in order to save the .QES file.

When you open a new form you will see several toolbar options below the work process tools.

Field Names

There are two field name settings in EpiDATA. You may have EpiDATA choose your field names for you by choosing the first word in your question (e.g. ‘Onset of dizziness?’ would be automatically given the variable name ‘Onset’). Alternately you can choose your own field names using curly brackets (e.g. ‘Onset of {dizziness}?’ would be given the variable name ‘dizziness’).
To change the field name settings click FILE and then OPTIONS and then select the CREATE DATA FILE tab and choose either FIRST WORD IN QUESTION IS FIELD NAME or AUTOMATIC FIELD NAMES. You may also choose the case of your field names by selecting from the list on the right of the CREATE DATA FILE tab.

Creating your questionnaire

When creating a questionnaire always follow conventions of good questionnaire design (e.g. avoid complicated or overly long questions, define concepts *very* clearly, avoid jargon, avoid double-barrelled questions, make sure the response lists include all possible choices).

Create your questionnaire in EpiDATA the way you would like it to appear on a piece of paper (even if you are only using it for data entry).

To create your questionnaire simply begin typing your questionnaire.

You will need to enter your editable answer field *after* the question (i.e. on the same line). For example:

**INCORRECT**

Did the patient have a confirmed negative test for Ebola?: <Y>  

This is the Y/N place holder

**CORRECT**

Did the patient have a confirmed negative test for Ebola?: <Y>

When you have finished writing your question you will need to insert a data place holder. To see a list of the available data place holders click on the FIELD PICK LIST button at the top of the screen.
When you have reached the end of your question simply select the type of field you wish to enter (i.e. numeric, text, date, other) and select INSERT.

You can leave the FIELD PICK LIST box open while you complete your questionnaire.

Below is an example of a questionnaire which has been created using AUTOMATIC FIELD NAMES (i.e. curly brackets have been used to select the field names).

Title
The curly brackets tell EpiDATA to name the variable ‘patientid’.
The six hash marks are the data place holder for a six digit number.

These are simply descriptors for the above question about final outcome. The variable name will be ‘outcome’ and the response must be a single digit (the descriptors indicate that the response to this question should be either 1, 2, or 3).

This question will be given the variable name ‘negativeebola’ and the Boolean data place holder (i.e. the <Y>) indicates that either ‘0’ or ‘N’ can be entered here to indicate NO, and either ‘1’ or ‘Y’ can be entered here to

This question will be given the variable name ‘medication1’ and the data place holder indicated that any text may be typed into

This question will be given the variable name ‘dateofdischarge’ and the data place holder indicates that a date must be entered here in the format day/month/year.
Previewing your questionnaire

To preview your questionnaire click on the PREVIEW DATA FORM button at the top of the screen.

**NOTE:** After previewing your form you may wish to make further changes to your questionnaire. These changes will not be displayed on the data form you previously opened so you will need to close it, make changes to your questionnaire, and then preview the questionnaire to see your changes.

**NOTE:** To close the preview press F10!

**CREATING THE DATA ENTRY INTERFACE (.rec files)**

You will now need to create an interface so that you can carry out your data entry in EpiDATA. To create a data file make sure your questionnaire is open and then click MAKE DATA FILE at the top of the screen:

Select MAKE DATA FILE from the drop-down list and then make sure EpiDATA saves the data file (it will have the file extension .rec) to the same folder as your questionnaire file (with the file extension .qes).

Give your data file a label (e.g. ETC Discharge Form).

**Making edits to your data file**

If you make edits to your data file the old data file will be deleted – IF DATA HAVE BEEN ENTERED USING THE OLD DATA FILE THOSE DATA WILL BE DELETED!

To make edits to a data file WITHOUT DELETING YOUR DATA simply make changes to your questionnaire in the .qes file. Then select TOOLS at the top of the screen and choose REVISE DATA FILE in the drop-down menu.

**DATA CHECKING (.chk files)**

Before you begin inputting data you may wish to set up data checks as this will help to avoid data entry errors. You may set up several types of data checks:
1. You can restrict data entry to certain values (e.g. you can state that only a 0 or a 1 can be entered in response to a particular question). You can do this before data entry interactive checking or after data entry batch checking.

2. You can ask EpiDATA to display the associated data label when a value has been entered (i.e. if you enter a 1 it can display ‘FEMALE’ next to the value).

3. You can ask EpiDATA to only accept values on a certain condition (e.g. you can ask that certain fields are only fillable if the response to a question about whether or not someone has diabetes has been answered YES). These kinds of data checks are called jumps.

4. You can also do dual-entry data entry (e.g. two individuals enter data and discrepancies are flagged). This is called double entry validation.

In order to create data checks you will need to create a .CHK file. You may also use a .CHK file to create data entry calculations (e.g. you can ask EpiDATA to calculate someone’s age at the time of treatment from their date of birth and the day they were seen at the clinic).

To create a check file:

Make sure your .REC file is open and click on CHECKS in the menu at the top of the screen.

You will be prompted to save your check file. Make sure to change the file type to EpiDATA CHECK FILE (*.chk) and make sure it has the same name as the .REC file and click OPEN.

The check box will then open and you can use the drop-down menu to access the check options for each field.

In the example to the right I have changed the field in the drop-down menu so that I can add a check to the field ‘FINAL OUTCOME’. I used curly brackets when creating the questionnaire to indicate that I wanted the file name to be ‘OUTCOME’ - that is why it appears as such in the drop down menu.

There are only three possible responses to ‘OUTCOME’: 0= deceased, 1= discharged, 2= transferred to another facility therefore to minimise the possibility of a data entry error I have:

- Set the legal range for that field to 0-2.
Since there are sections of the form that relate only to a certain outcome I have included jumps. So, I have:

- Told EpiData that if ‘outcome’ is 0 (i.e. the patient died) then jump to the field DATEOFDEATH.
- Told EpiData that if the ‘outcome’ is 1 (i.e. the patient was discharged) then jump to the field DATEOFDISC.
- Told EpiData that if the ‘outcome’ is 2 (i.e. the patient was transferred to another facility) then jump to the field DATEOFTRANSFER.

As this is a discharge form it is necessary to know why the individual was discharged. So, I have:

- Made it so the ‘outcome’ (i.e. the reason for discharge) variable must be completed.

I have also made a value label and have applied it to this field.

**Value Labels**

You may wish to create value labels and apply them to your variables. If you have a field for sex (with the value 0=male and 1=female) you will enter the data as 0 or 1 but you may wish to apply a label so that when you export your EpiData file to a statistical package the data are already labelled as Male or Female. You can also label your data after you have exported it.

You may also create one label that can be assigned to multiple variables. Once a label is created use the drop down menu to apply it to other variables.

<table>
<thead>
<tr>
<th>smoking</th>
<th>bmi</th>
<th>bmicat</th>
<th>ursmoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 per day</td>
<td>23.62312</td>
<td>Normal</td>
<td>Yes</td>
</tr>
<tr>
<td>Never smoked</td>
<td>26.23581</td>
<td>Overweight</td>
<td>No</td>
</tr>
<tr>
<td>&lt;15 per day</td>
<td>21.76802</td>
<td>Normal</td>
<td>Yes</td>
</tr>
<tr>
<td>Ex&gt;5 years</td>
<td>32.35448</td>
<td>Obese</td>
<td>No</td>
</tr>
<tr>
<td>Ex&gt;5 years</td>
<td>24.86074</td>
<td>Normal</td>
<td>No</td>
</tr>
<tr>
<td>Ex 1-4 years</td>
<td>28.27753</td>
<td>Overweight</td>
<td>No</td>
</tr>
<tr>
<td>&lt;15 per day</td>
<td>27.62274</td>
<td>Overweight</td>
<td>Yes</td>
</tr>
<tr>
<td>&gt;15 per day</td>
<td>29.43693</td>
<td>Overweight</td>
<td>Yes</td>
</tr>
<tr>
<td>&gt;15 per day</td>
<td>24.98472</td>
<td>Normal</td>
<td>Yes</td>
</tr>
<tr>
<td>Ex&gt;5 years</td>
<td>26.83883</td>
<td>Overweight</td>
<td>No</td>
</tr>
</tbody>
</table>

If I had not applied that value label the data would have exported to Excel like this:

<table>
<thead>
<tr>
<th>smoking</th>
<th>bmi</th>
<th>bmicat</th>
<th>cursmoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 per day</td>
<td>23.62312</td>
<td>Normal</td>
<td>1</td>
</tr>
<tr>
<td>Never smoked</td>
<td>26.23581</td>
<td>Overweight</td>
<td>0</td>
</tr>
<tr>
<td>&lt;15 per day</td>
<td>21.76802</td>
<td>Normal</td>
<td>1</td>
</tr>
<tr>
<td>Ex&gt;5 years</td>
<td>32.35448</td>
<td>Obese</td>
<td>0</td>
</tr>
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<td>0</td>
</tr>
<tr>
<td>&lt;15 per day</td>
<td>27.62274</td>
<td>Overweight</td>
<td>1</td>
</tr>
<tr>
<td>&gt;15 per day</td>
<td>29.43693</td>
<td>Overweight</td>
<td>1</td>
</tr>
<tr>
<td>&gt;15 per day</td>
<td>24.98472</td>
<td>Normal</td>
<td>1</td>
</tr>
<tr>
<td>Ex&gt;5 years</td>
<td>26.83883</td>
<td>Overweight</td>
<td>0</td>
</tr>
</tbody>
</table>

To create a value label:
Click on CHECKS.

Click on the ‘+’ sign next to the value label drop down box.

An Edit Value Label window will open:

By default EpiData will put the name of the variable displayed in your check file as the label name (e.g. Label_patientid) but you can delete this to change the name of your label.

You will now need to enter the values and their labels (if your label includes a space you will need to put the label in quotes):

When you have finished adding your labels click ACCEPT AND CLOSE.
Then you can assign your labels to your variables in the check window.

**Type comment**

If you have assigned value labels to your fields you can ask EpiData to show you the label for the value you have entered after you have entered it using the ‘type comment’ command. This way you can check to make sure you have entered the correct value.

e.g. When the value ‘1’ is typed in the field ‘final outcome’ EpiData displays the label so that we can see that the value that has been entered indicates that the patient was ‘discharged’.

To insert the ‘type comment’ command:

1. Open your checks by clicking CHECKS at the top of the screen.

2. Select the variable in the drop-down menu for which you would like EpiData to display the label. Make sure your label has been applied in the value label box.

3. Click EDIT.
4. Under the command that begins ‘Comment Legal Use’ type ‘TYPE COMMENT’.

5. When you have finished click ACCEPT AND CLOSE.

**Jumps**

If filling in a field with a certain value means that you can skip some subsequent fields (e.g. if you indicate that a patient has died you might want to skip subsequent fields about the patient’s medical status. To insert a jump click on CHECKS.

Use the drop-down box to select the field whose value will determine the jump.

In the JUMPS section of the checks box indicate the values that can be entered in the field and to which field you wish to ‘jump’ based on those values.
e.g. If the patient was not given any medication on discharge then it is unnecessary to fill in the following four questions - it would be quicker to skip to the field asking about condoms.

The syntax to use the jumps box is #value#>#jump to field#. Separate commands with a comma (see below).

Filling in skipped fields

If filling in one field with a certain value means that other fields can be automatically completed then it is faster, and potentially more accurate, to ask EpiData to auto-complete fields and then put your cursor onto the next fillable field.
e.g. If I fill in ‘0’ in response to the question *Was the patient provided with medication on discharge* then I would ask EpiData to auto-complete the following four fields with ‘0’ and place my cursor in the field for *Was patient provided with condoms*.

* 0—No 1—Yes

To auto-fill fields click CHECKS and then select the field that will determine if subsequent fields will be auto-filled (e.g. ‘MEDICATION’ or *Was the patient provided with medication on discharge*):

Click EDIT.
The correct syntax for the auto-fill command is:

```
AFTER ENTRY
  IF MEDICATION=0 THEN
    COAMOXICLAV=0
    AMOXICILLIN=0
    AMODIAQUIN=0
    CIPROFLOXacin=0
  ENDIF
END
```

NOTE: You will have to use a jump command if you want the cursor to appear in the field following the last auto-filled field.

DATA ENTRY

When you have created your questionnaire and have completed your checks you may begin entering your data. To enter your data click ENTER DATA.

Browse to your .rec file and click OPEN.

Enter your data by typing in the empty fields. Once you have entered your data the cursor will go to the next field. If you are entering text you may have to select ENTER or TAB when you have finished entering your text.

When you click in an empty field EpiData will show you the checks for that field at the bottom of the screen. If you have attached value labels you can see them by clicking F9.

When no value is entered in a field this will be recognised as a missing value and will be given a ‘.’ in the output.

When prompted to save your data click YES to save your record or click NO to make further changes.
Finding, deleting and undeleting records

To find a record using the record number:

1. In the ENTER DATA screen select GOTO (top left).
2. Select GOTO RECORD.
3. Enter the record number and click OK.

To find a record using specific values:

1. In the ENTER DATA screen select GOTO.
2. Select FIND RECORD.
3. In the top left cell select F4 to see a list of fields.

4. Double-click on the field you wish to search.
5. Type the search criteria in the criteria column.
6. Click OK.

EpiDATA will show you the first record that meets your search criteria. To scroll through the remaining records that also meet your search criteria press F3.
To delete a record:

1. Locate the record you wish to delete.
2. Click the red ‘x’ in the bottom left of the screen.
3. Tab through the record until you are prompted to save. Select OK.

The record will still be visible (it will appear as ‘DEL’) when you browse through your records but will not export when you export your data.

To undelete a record:

1. Locate the record you wish to undelete.
2. Click the red ‘x’ in the bottom left of the screen.
3. Tab through the record until you are prompted to save. Select OK.
DOUBLE ENTRY VALIDATION

Double entry is a good way to identify mistakes made during data entry. EpiDATA allows you to make a copy of your .rec file, save it with a different name, enter the data a second time, and check both files for inconsistencies.

Setting up double entry

Before you carry out double-entry you will need to create a second .rec file and give it a different name. To create a second .rec file:

1. Click TOOLS and select COPY STRUCTURE.
2. Browse to the .rec file you wish to duplicate and click OPEN.
3. Type a different file name into the end of the file path and click OK.
Carrying out double entry

1. Click ENTER DATA and browse to your new .rec file.
2. Enter your data a second time (or have someone else enter the data).

Comparing your .rec files

1. Click DOCUMENT and select VALIDATE DUPLICATE FILES.
2. Browse to the original .rec file and then to the second .rec file and click OK.
3. Make sure you tick the ‘primary key’ which is usually the ID number or unique identifier for each record.
4. Click OK.
5. EpiDATA will now give you a validation report which will indicate the discrepancies between the two files.
6. You will now have to go back to the questionnaires to decide which is the correct response and then ensure that you make any necessary changes to the original .rec file before you export your data.
EXPORTING DATA

To export a .rec file:

1. Click EXPORT DATA.

2. Choose from the list of file formats.

3. Choose the .rec file you wish to export and click OPEN.

4. Select the records you wish to export (or select ALL RECORDS to export everything) and the fields you wish to export and select OK.