



International Agency for
Research on Cancer
(IARC)



International Association of
Cancer Registries
(IACR)

CanReg4 Manual



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1. Introduction

1.1 Introduction



CanReg4 is a configurable computer programme designed for cancer registration in population-based registries. CanReg4 is provided as a service by the former Descriptive Epidemiology Unit (currently Descriptive Epidemiology Production Group / Data Analysis and Interpretation Group) of the International Agency for Research on Cancer (IARC) to members of the International Association of Cancer Registries (IACR) through the website <http://www.iacr.com.fr>.



CanReg4 includes the checks and conversions for the recently published ICD-O-3. The Data-Entry module provides consistency checking for impossible/rare cases, search for duplicate records/multiple primaries using probability matching, and conversion to ICD-10. Easy-to-use analysis options include frequency distributions, reports, incidence tables, and interface to the WHO programme Epi-Info6 for further analysis. CanReg4 allows for full integration in a Window-based network environment, and extends the language-swapping capability to other languages.

1.2 Cancer in the world

Cancer is a major health problem worldwide. According to Global Cancer Statistics 2002, there were 10.8 million new cases, 6.7 million deaths, and 24.6 million persons living with cancer (within 5 years of diagnosis) in 2002 (Globocan 2002).

1.2.1 The contribution of Cancer Registries

Cancer registries collect all new cancer cases within a particular region, providing information on occurrence and characteristics of cancer. This information is essential to assess the impact of malignant disease in the community and to plan and evaluate cancer control measures. Also, research based on data from cancer registries can give clues to possible causes of cancer, for example: chronic infection, diet, radiation, genetic traits, lifestyle etc.

1.2.2 CanReg4 usage around the World

This version was released in 2001 and is now established in more than 150 registries in 75 countries. Training courses have been held around the world in the use of the programme and in coding in the third edition of the International Classification of Diseases for Oncology (ICD-O-3).

1.3 Programme Overview

1.3.1 Data Entry



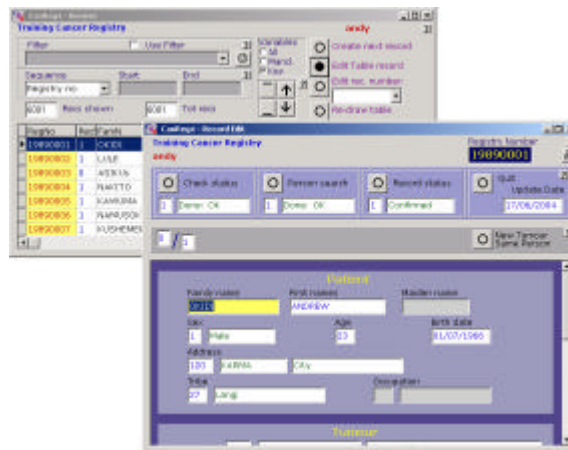
Data entry is the most essential function of CanReg4 used for entering information on new cancer cases and check validity of the data. You can enter data directly using 'Data entry' -> 'Browse / Edit records' or upload data in external file using the 'Data entry'->'Import' option. Files to be uploaded should be prepared in the following formats:

- Tab delimited
- Comma Separated Variables
- Bar | delimited

Once the details are entered, the user must check for rare or invalid combinations using 'Check Status' for direct entry or 'Do Checks' for importing (e.g. topography/morphology, sex/topography, sex/morphology,

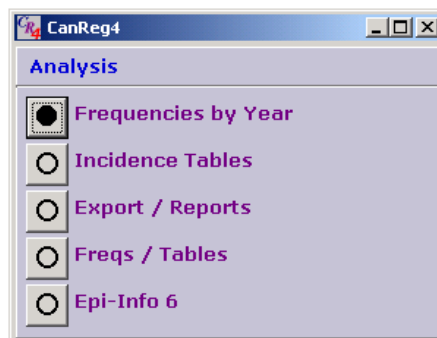
age/morphology, First name/sex etc). Also, users must perform ‘Person search’ to determine whether the same person has been already registered in the registry, either another notification of the same tumour (a duplicate), or a tumour of a different primary site occurring previously. Since people’s names can be written in different ways, phonetic name simplification and probability matching on all personal details are used to aid the search.

A new record can be saved as a ‘confirmed’ case only when it has passed the Check and the Person Search. ‘Pending’ cases will be excluded and only ‘confirmed’ cases will be used in analysis. Don’t forget to enter DCO (Death Certificate Only) cases as well to calculate incidence rates!



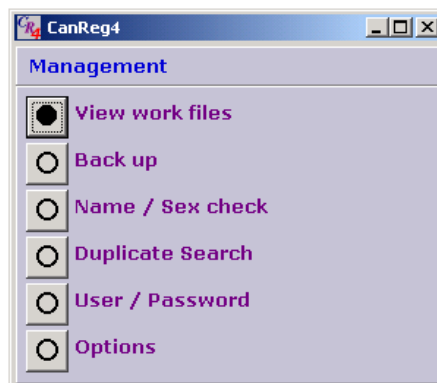
1.3.2 Analysis

CanReg4 provides some options for basic summary, analysis, calculating cancer incidence rates and performing the Epi-Info6 programme.



1.3.3 Management

Using the 'Management' option, users can view work files, back up database, and check/search for quality assurance. Also, users can change user name/password and user environment.



2. Getting started

2.1 CanReg4 installation

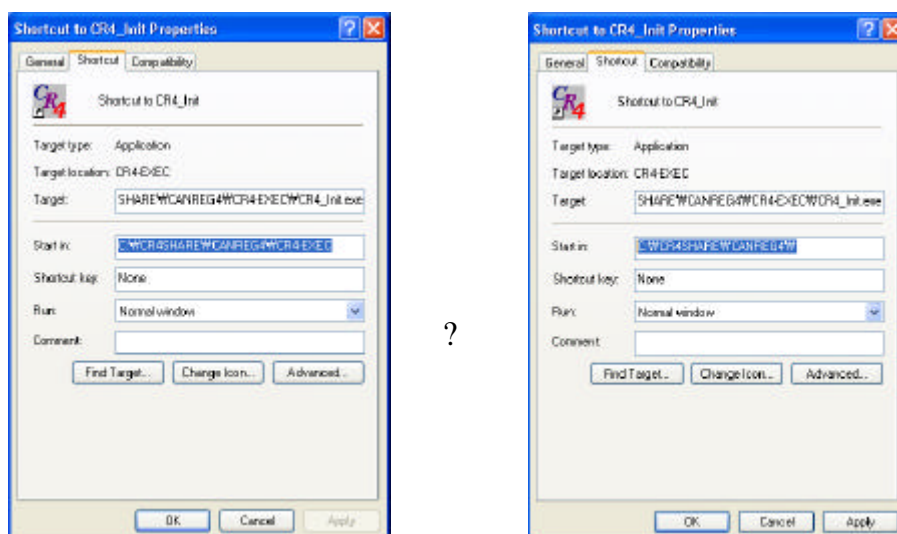
CanReg4 is downloadable from the IACR website (<http://www.iacr.com.fr/>). When CanReg4 is used for the first time, users need to request system backup files (.MB0, .OB, .DB) from IARC (canreg@iacr.fr). Users need to provide a three-character code representing corresponding registry (e.g. Korea Central Cancer Registry -> CCR).

2.1.1 Programme installation

CanReg4 is a configurable programme; it is set up according to the needs of each registry. In order to run it, you must install the common programme files, then “Restore” the particular files for your registry (System Definition, Dictionary codes, Data etc) from a “Backup” disk.

- 1) Create a temporary folder (e.g. CR4TEMP) in the drive where you wish CanReg4 to be installed.
- 2) Copy, or download, the following file into it: CR4-INST.ZIP.
- 3) Using Winzip, extract all the files into this same directory.
- 4) Double Click “Install.bat”; then hit any key when asked to start installation.
- 5) When installation is completed, the CR4SHARE folder is automatically created.
- 6) To create a CanReg4 icon on the desktop, find “CR4-Init.exe” from ‘CR4Share\CanReg4\CR4-Exec’ in “My Computer” or “Explorer” and right-click on it. Choose “Send To” ? “Desktop (Create Shortcut)”. Find it on your desktop, and rename it if you like. You should

right-click on the icon and, in “Properties”, enter CR4Share\CanReg4 to “Start in” and click OK.



7) Delete the temporary folder if you wish to save space.

2.1.2 Restore a system backup

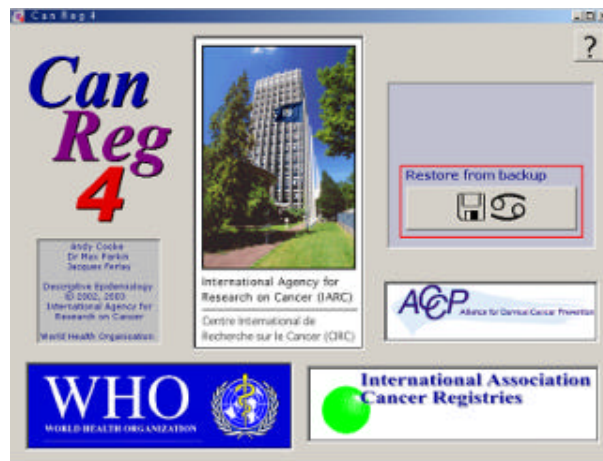
If CanReg4 has already been setup on this computer for your cancer registry, then click on "Use existing system" to pass to the "Login/Password" panel.

If the CanReg4 programme has been installed but never been used before, you need to restore system backup files using "Restore from backup" option, so that you can continue working. The types of CanReg4 system backup files are as follows :

- CR4-***.MBO: main database backup file (if there is no data registered, this file does not exist. This does not prevent you from using CanReg4)

- CR4-***.DB, CR4-***.OB: Dictionary backup and other files.

- 1) Locate your CanReg4 system backup files: CR4-TRN.MB0, CR4-TRN.DB, CR4-TRN.OB (“TRN” is the three-digit Registry code for training session; your registry code will be different)
- 2) Click the CanReg4 icon to start the programme.
- 3) Click the option ‘Restore from backup’



- 4) Enter your 3-digit registry code into the box on restore page and select the location where the system backup files are stored.

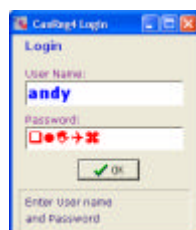


- 5) Select CR4-TRN.DB and click OK.
- 6) When all backup files are successfully restored, red smiley (☹) faces will appear. Click OK and the Login screen will appear (If

CR4-TRN.MB0 does not exist on your first use, frowney (☹) faces will appear for items ‘Decrypt Data’, ‘Expand Data, Dictionary’, and ‘Create Database’. This does not mean you have had a system error or failure; click OK to continue.).



7) For new installation, type “andy” (lower case) for user and “cooke” (lower case) for password (You can change user name and password in “Management” option later).

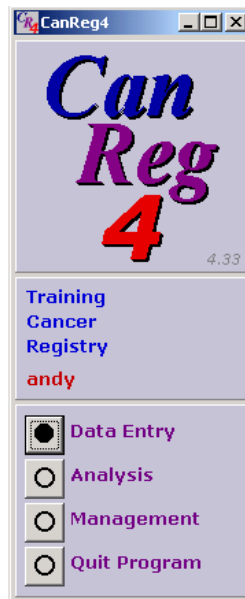


User name : andy

Password : cooke

8) The main menu as shown below will appear, and you can start using

the programme.



- 9) Many CanReg4 options will display a help button marked with a '?'.
(The other buttons are smaller than this one!)

2.2 Menu Structure

The various menu options are structured as follows :

- Data Entry

Browse / Edit records (See 3.2)

Dictionary (See 3.3)

Import (See 3.3)

- Analysis

Frequencies by Year (See 4.2)

Incidence Tables (See 4.3)

Export / Reports (See 4.4)

Freqs / Tables (See 4.5)

Epi-Info 6 (See 4.6)

- Management

View work files (See 5.2)

Back up (See 5.3)

Name / Sex check (See 5.4)

Duplicate Search (See 5.5)

User / Password (See 5.6)

Options (See 5.7)

- Quit Program

3. Data Entry

3.1 Data Entry Sub-Menu

The Data Entry has three submenus: Browse/Edit records, Dictionary and Import.



Browse / Edit records (see 3.2)

This is the option for entering data directly: when you want to edit a record that you have a Registration Number for when you want to add a new record, or when you want to delete a record.

Dictionary (see 3.3)

This is for changing the dictionary codes. Only the Supervisor is allowed to use this option!

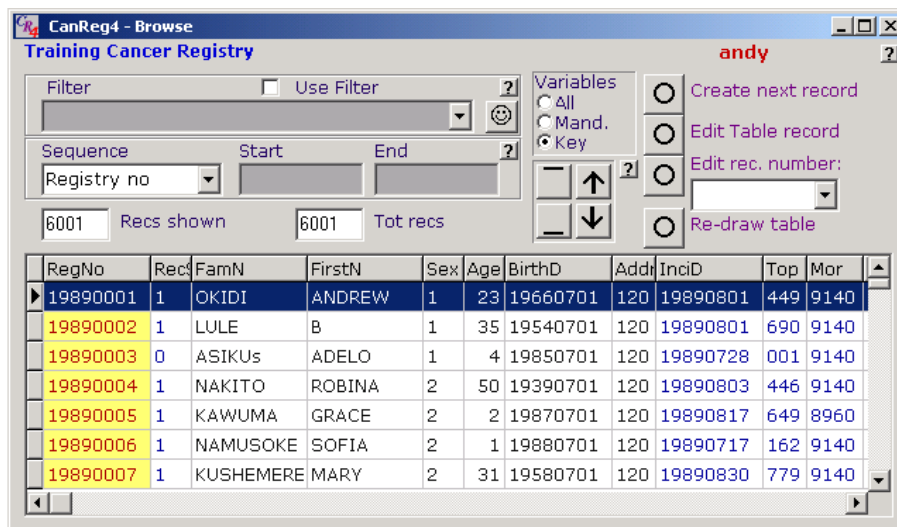
Import (see 3.4)

This is the option for importing data from external files. Files to be uploaded should be prepared in the following formats:

- Tab delimited
- Comma Separated Variables
- Bar | delimited.

3.2 Browse / Edit records

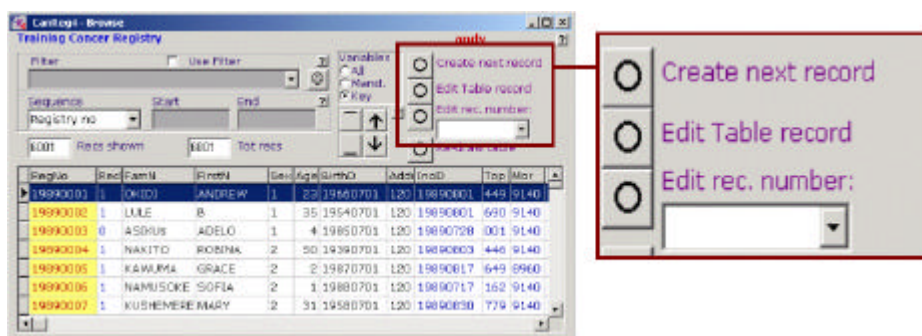
This is the option for entering data directly: when you want to edit a record and you know the Registration Number, or when you want to add a new record, or when you want to delete a record. This option also allows you to look for a particular record to edit, or to see if a particular person has a cancer notification already stored.



< Data Browse window >

3.2.1 Edit/Add /Delete Records

Using buttons located in upper right corner of the window, you can create a new record or edit the records previously registered.



If you have verified that the patient has no existing record, use 'Create

next record’ option to create a new blank edit form. The next available registry number will be assigned when you save the record.

If you select “Create next record”, the ‘Record Edit’ screen will appear. The registry number will appear as ‘????????’, but a new number will be assigned when the record is properly stored.

The screenshot shows the 'CanReg4 - Record Edit' window. At the top, it displays 'Training Cancer Registry' and the user 'andy'. The 'Registry Number' is 19890001. Below this are four control panels: 'Check status' (Done: OK), 'Person search' (Done: OK), 'Record status' (Confirmed), and 'Quit' (Update Date: 17/06/2004). A 'New Tumour Same Person' checkbox is also present. The main 'Patient' section contains the following fields:

Patient		
Family name	First names	Maiden name
OKIDI	ANDREW	
Sex	Age	Birth date
1 Male	23	01/07/1966
Address		
120	KARMA	City

1) Record Edit

In ‘Record Edit’ screen, there are sections for entering information on Patient, Tumour, Hospital, Follow up, and for validity checking such as Check status, Person search, and Record status.

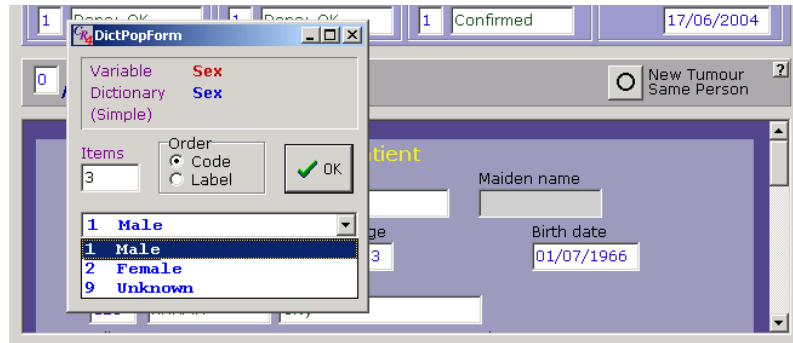
(1) Patient

This screenshot shows a detailed view of the 'Patient' information section. The fields are as follows:

Patient		
Family name	First names	Maiden name
Kizito	Alli	
Sex	Age	Birth date
1 Male	75	01/07/1915
Address		
120	KARMA	City
Tribe	Occupation	
07 Bagana		

You can enter personal information of new cancer patients such as name, sex, age at diagnosis, date of birth (dd/mm/yyyy), address, ethnicity and

occupation in Patient section. You can enter all variables directly into the blank boxes by simply clicking on the variable you wish to edit. For sex, address, tribe and occupation, you can select corresponding information from the popup of the valid dictionary codes appearing when you click the blank.



(2) Tumour

You can enter information on tumour such as Topography, Morphology, Behaviour, Incidence date, Basis diagnosis. Tumours are classified according to the third revision of the International Classification of Diseases for Oncology, (ICD-O-3). The tenth revision of the International Classification of Diseases (ICD-10) and the International Classification of Childhood Cancer (ICCC) codes are automatically created when new records pass the 'Check' procedure. You can also select corresponding information from the popup of the valid dictionary codes for some variables.

(3) Hospital and Follow up

The screenshot shows a data entry form with two main sections: 'Hospital' and 'Follow up'. The 'Hospital' section includes fields for 'Hospital' (with dropdown '01' and text 'St. Peter's Hosp.'), 'Unit' (with dropdown '10' and text 'Surgical'), 'Path lab n°' (with text 'B2069/89'), and 'Case n°' (with text '149639'). The 'Follow up' section includes a 'Date last contact' field and a 'Status' field (with dropdown '1' and text 'Alive').

In Hospital section, you can enter information on hospitals where the new cases were diagnosed, which can be used for ad hoc medical record review and to follow up the patients' status. In the Follow up section, you can enter the date of last contact and the patient's status. You can also select corresponding information from the popup of the valid dictionary codes for some variables.

-You can edit existing records as well as create new ones in this window by clicking 'Edit Table record' or 'Edit Rec. number'

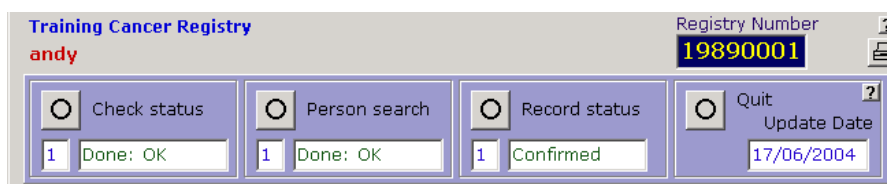
- 'Edit Table record': to edit the record highlighted by the blue bar in the data table.
- 'Edit Rec. number': to edit the record with the Registration number you provide. If the record exists already, you can edit it; if not, this number will be assigned to a new blank record. USE THIS OPTION TO SET THE REGISTRATION NUMBER FOR YOUR FIRST RECORD.

-When you have finished entering or editing the data, you must perform the "Checks" as described below!

2) Data Check, Storage/Deletion

After filling the data entry sections, you should perform 'Check status', 'Person search', and 'Record status' to save the record. In the case of editing

existing data, these validity-checking procedures should be done to save the changes. To delete any records, you should use Record status.

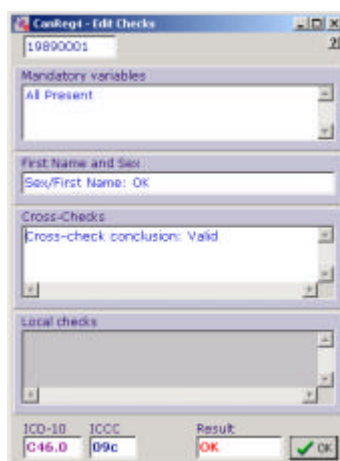


The screenshot shows a software interface for a Training Cancer Registry. At the top, it displays the name 'andy' and the Registry Number '19890001'. Below this, there are four main navigation buttons: 'Check status', 'Person search', 'Record status', and 'Quit'. Each button has a radio button next to it. Underneath these buttons, there are four input fields: '1 Done: OK' under 'Check status', '1 Done: OK' under 'Person search', '1 Confirmed' under 'Record status', and '17/06/2004' under 'Quit Update Date'.

(1) Check status

If you click “Check status” in the Record Edit screen, any variables with errors will be marked in red in the Record Edit screen and detailed error messages will appear in the Edit Checks pop-up window.

There are three sections to the checks: Mandatory variables, First Name and Sex, and Cross checks.



The screenshot shows a pop-up window titled 'CanReg - Edit Checks'. It contains several sections: 'Mandatory variables' with a dropdown menu showing 'All Present'; 'First Name and Sex' with a dropdown menu showing 'Sex/First Name: OK'; 'Cross-Checks' with a dropdown menu showing 'Cross-check conclusion: Valid'; and 'Local checks' which is currently empty. At the bottom, there are fields for 'ICD-10' (G46.0) and 'ICCC' (09c), and a 'Result' field showing 'OK' with a green checkmark icon.

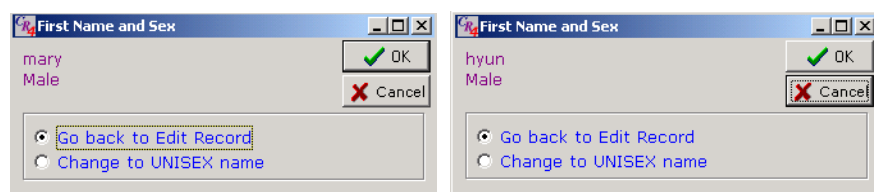
(1-1) Mandatory variables

Indicates any variables defined as mandatory for your Registry that have not been filled in. If the value is really not available, then fill in "9" or "99" etc. - the code for "Unknown".

(1-2) First Name and Sex

Checks the combination of First Name and Sex (e.g. "Mary", "male")

would probably be an error!). In the case of potential error, First Name and Sex pop-up window will appear and ask whether the name is correct or wrong if the name does not exist in the system database (“Right from the beginning, the programme makes an indexed list of first names, linked to the sex of the person concerned” in CanReg3). If you select ‘Correct New Name’, the name will be added to the database. When the name exists in database (e.g. Andrea as a male name), but mismatch is found (entered Andrea as a female), the First Name and Sex pop-up window will appear again with the options to ‘Go back to Edit Record’ (to correct sex or name in the case of an error) or to ‘Change to UNISEX name’. A name that is really used by both sexes can be defined as "Unisex" and be added to the database. If there is indeed an error, select ‘Wrongly written’ or ‘Go back to Edit Record’ and edit the information in Record Edit window.



(1-3) Cross checks

These are the same consistency checks as in the IARC Tools "Check" programme. Some combinations would be marked as “Invalid”: e.g. Sex = Female and Topography = Prostate, while others could be marked as "Rare". Only a Supervisor can confirm a Rare case. Invalid cases need to be corrected through reviewing the data sources.

If the record passes all three sections of “Check status”, ICD-10 code and ICCC will be automatically derived from the ICD-O Topography and Morphology.

(1-4) Check status result

The result of the validity check is displayed at the bottom right.

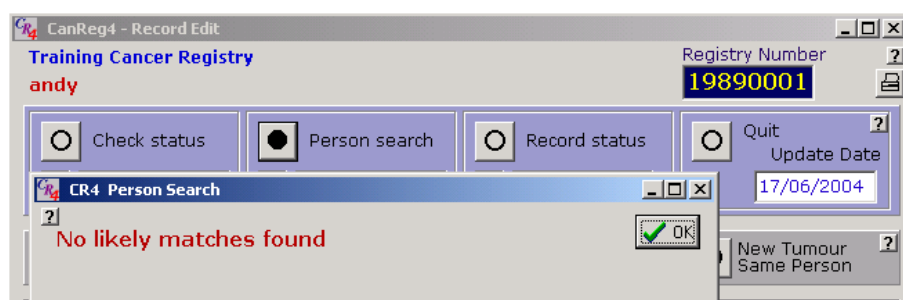
- OK: all correct
- Rare: not an error, but a rare combination that needs to be confirmed through review of data sources.
- Invalid: an apparent error that will be designated as 'Pending' and be excluded from further analysis such as calculation of incidence rates.

(2) Person Search

If you click 'Person Search' in the Record Edit screen, the whole database is searched using "Probability Matching" for any records that might belong to the same person. All personal data such as Date of Birth, Place of Residence and ID Number, plus a phonetically simplified form of the name, are used in this search. Any other records with a percentage match higher than the "Minimum Match" are displayed as a table in the 'Person Search' window. The top line of the table contains the original record you are editing, and other lines contain possible matches.

CanReg4 displays only matching possibilities (as Match %); the user must decide if it really is the same person or not.

(2-1) If no match is found, 'No likely matches found' will appear. Click 'OK'.

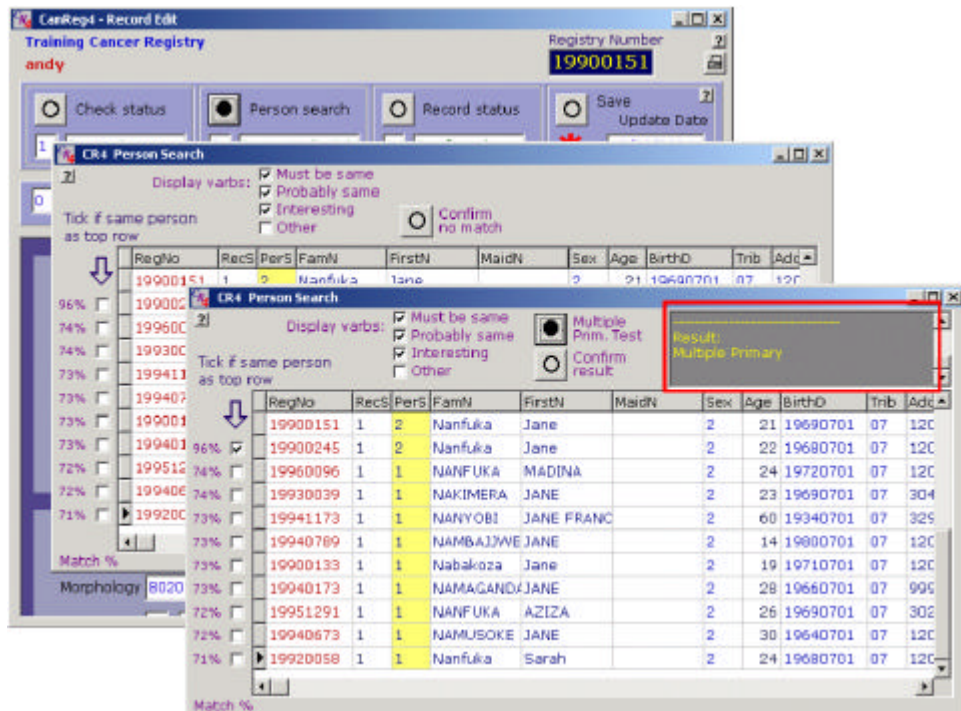


(2-2) If matching cases are displayed

You must tick the corresponding box on the left if you are sure it is the same person (Tick the appropriate "Display variables" boxes to adjust what variables are displayed.). Then "Multiple Primary Test" button will appear; select this to see whether these two cases are similar (and therefore duplicates) or not (multiple primaries). The multiple primary test in CanReg4 is based on the "International rules for multiple primary cancers (ICD-O-3, 2000 Lyon)"

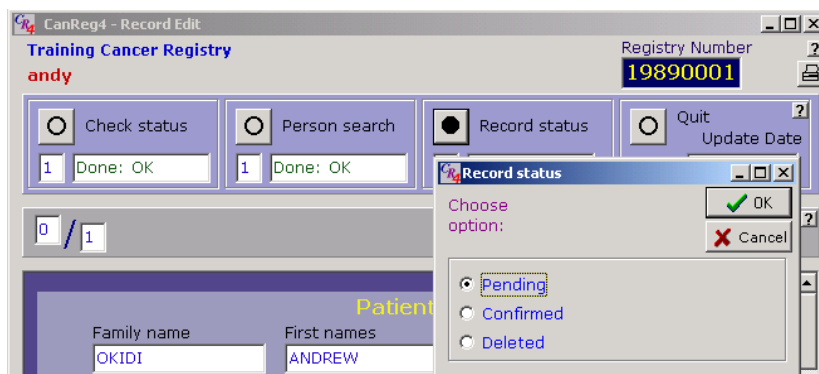
The result will appear in the Gray. Click 'Confirm result'.

- In the case of duplicates, you must make one good record with all new information updated, and delete the other.
- In the case of Multiple primaries, both records should be kept, and the MP sequence, Mpcode and Mptot boxes will be automatically filled in.



(3) Record status

You can assign Result Status using this option.



(3-1) Pending


For any record that you want to hold and recheck, select “Pending”. Typically these will be those records with invalid ‘Check Status’, or potential duplicates.

(3-2) Confirmed

For records that have been successfully passed ‘Check status’ and ‘Person search’, select “Confirmed”.

(3-3) Deleted

This is the ONLY way to delete records from the database in CanReg4. Be careful, since once deleted, records cannot be restored.

After Data Check, click ‘Save’ to save the record (Update date will be automatically filled in). If you do not want to save the changes you made, close the Record Edit window itself by clicking the close button ‘x’ ().

3) Multiple primaries

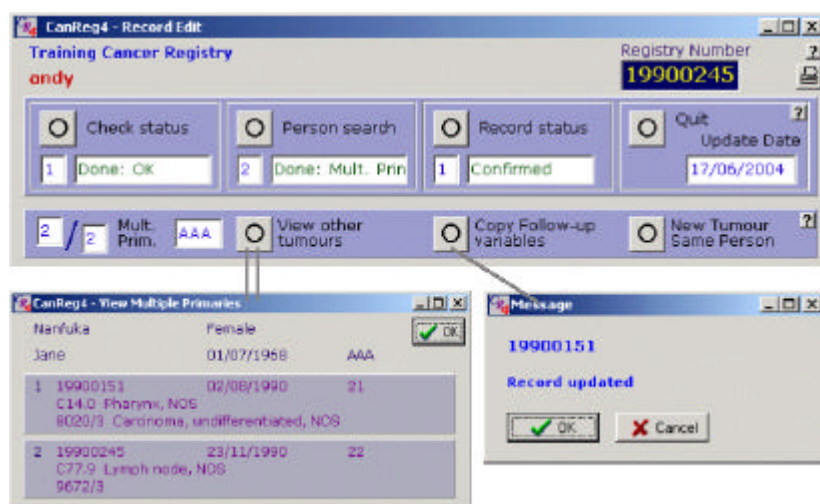
A person with more than one primary tumour is said to have "Multiple Primaries".

In the Record Edit page, there are two numbers indicating the multiple primary sequence and total number (e.g. 2/3 means this is the second of three tumours for this patient, 0/1 will appear without other options when there are no multiple primaries).

For multiple primary cases, three-letter code (from AAA to ZZZ) is automatically assigned to the variable "Mpcode" in all concerned cases.

In the case of that you are sure that the patient has another tumour apart from this one, there is an option "New Tumour Same Person" to create a new edit form with the patient's personal and follow-up information already filled in. Decision of multiple primary cases should follow the "International rules for multiple primary cancers (ICD-O-3, 2000 Lyon?)", on which the Multiple primary test in CanReg4 is based.

The following options are only visible if the case is a Multiple Primary.




- View Other Tumours: Displays details of all the MPs for this patient, in order.

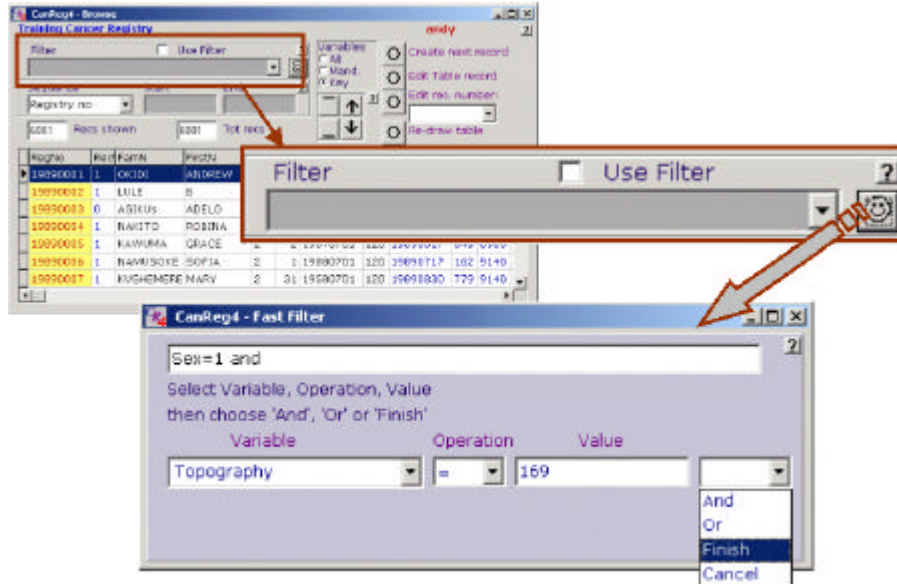
- Copy Follow-up variables: If you have edited any variables such as "Date Last Contact" or "Status", this option will copy this new information to the other multiple primary records.

3.2.2 Data Selection

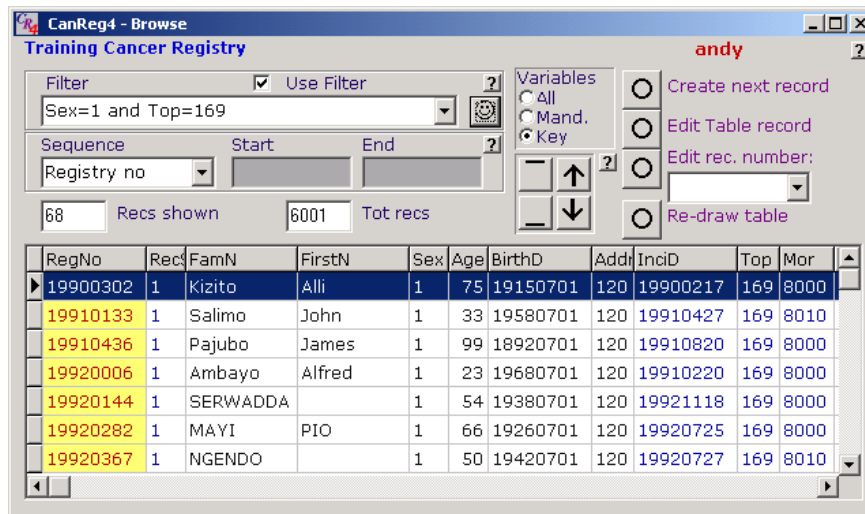
If you need to select particular records satisfying preset conditions, then this is the option to help you find them. CanReg4 has Filter and Sequence (range) options for data selection.

1) Filter

Click the  button in the Filter box. The 'Fast filter' window will appear. Choose variable and operation and enter the value. If you want to add or cancel filtering variables, then choose one from And/Or/Finish/Cancel. To cancel Filter, unselect 'Use Filter' in the 'Browse' window.

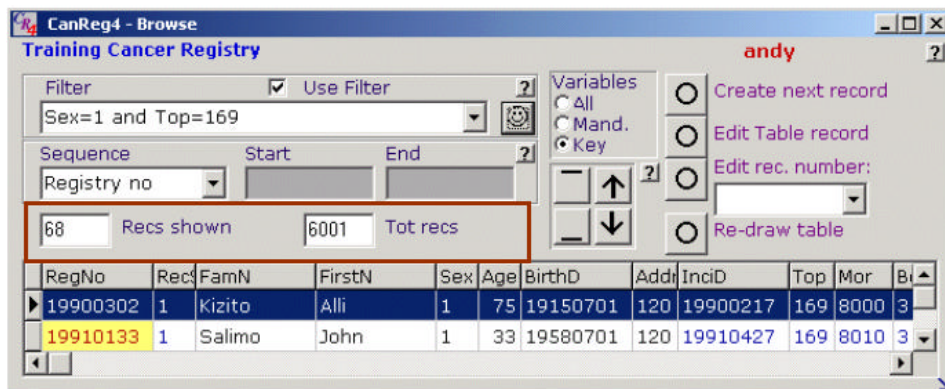


Example: subject is male and topography is C169



2) Sequence / Range

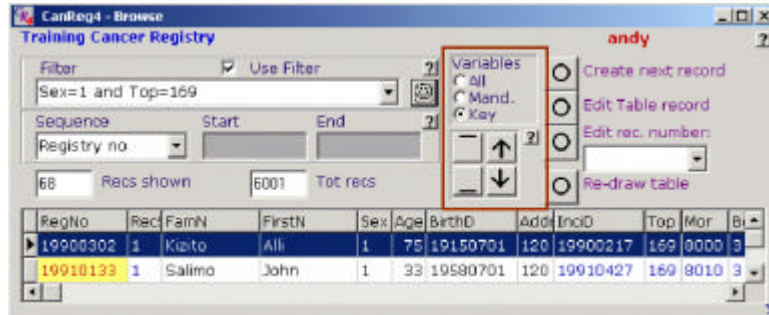
If you choose Sequence, the records will be ordered (or sorted) by the Sequence chosen. You can choose variables used for Sequence using the drop-down menu. You can also specify the Range start and end values for that sequenced (sorted) records. Filter can be used along with the Sequence option.



After data satisfying preset conditions are selected, 'Recs shown' shows the total number of selected data, and 'Tot recs' shows the total number of records stored in CanReg4 (the figure below shows 68 records selected out of 6001 total records stored).

3.2.3 Change record display format in 'Browse' window

Users can change record display format using the options in the red box below.



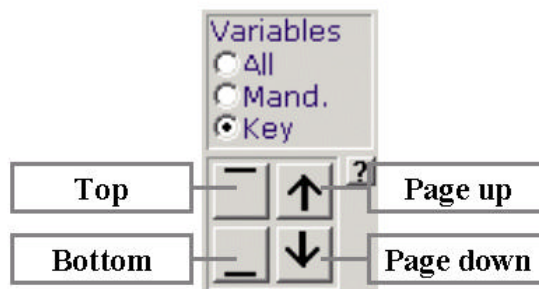
1) Change display variables

Select the types of variables you want to display.

- All: all variables
- Mand.: Mandatory variables (those that MUST be filled in the Edit form)
- Key: Key variables (Names, Age, Date Incidence, Topog., etc)

2) Select the location of records

Use the Navigation buttons to move the cursor location.



3) Re-draw table

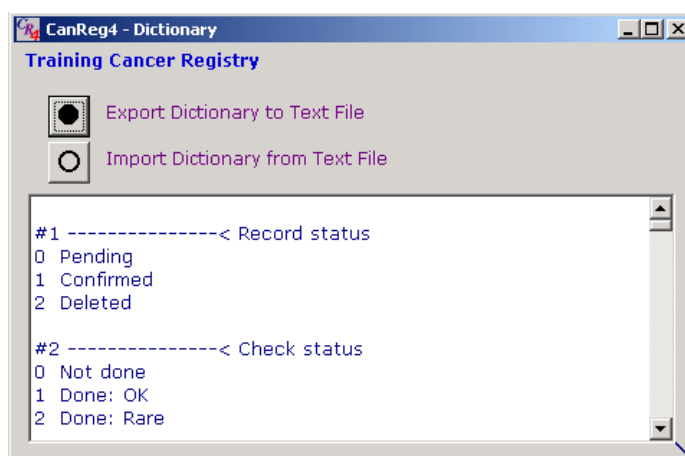
If you have made changes to the database, use this button to update the table displayed.

3.3 Dictionary

The dictionary is the list of codes used in CanReg4 programme. To meet the needs of individual registries, some codes can be edited by users.

Clicking Data entry-> Dictionary->'Export Dictionary to Text File', will display the current dictionary in the Dictionary window. You can edit dictionary codes in this window. The 'Import Dictionary from Text File' option is used for saving the Dictionary. Before you save the newly edited dictionary, close all other windows first.

You should put 2 spaces between Dictionary code and code description. If not, the code and description will disappear from the imported dictionary file.



Example Dictionary Codes and description

Variable	Codes and description	
Record status	0 Pending 1 Confirmed 2 Deleted	System variable Non-editable
Check status	0 Not done 1 Done: OK 2 Done: Rare 3 Done: Invalid	System variable Non-editable

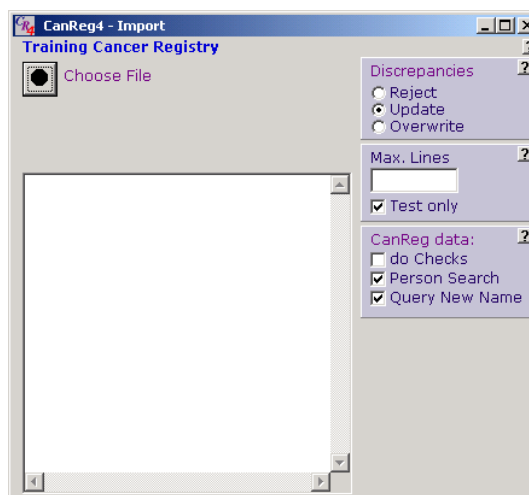
Variable	Codes and description	
Person search	0 Not done 1 Done: OK 2 Done: Mult. Prim. 3 Done: Duplicate 4 Done: Non-IARC MP	System variable Non-editable
Topography	00 LIP 01 TONGUE - BASE 02 TONGUE - OTHER ... 77 LYMPH NODES 80 UNKNOWN 000 C00.0 External upper lip 001 C00.1 External lower lip ... 779 C77.9 Lymph node, NOS 809 C80.9 Unknown primary site	International Classification of Diseases or Oncology, third edition (ICD-O-3) Non-editable
Morphology	8000 Neoplasm, malignant 8001 Tumor cells, malignant ... 9989 Myelodysplastic syndrome, NOS	ICD-O-3: Non-editable
Behaviour	0 Benign 1 Uncertain 2 In situ 3 Malignant	ICD-O-3 Non-editable
Sex	1 Male 2 Female 9 Unknown	Non-editable
Basis of Diagnosis	0 Death Certificate Only 1 Clinical only 2 Clin. Invest./Ult Sound 3 Surgery/Autopsy 4 Laboratory test 5 Cytology 6 Histology of metastases 7 Histology of primary 8 Autopsy/Histology 9 Unknown	Non-editable
Tribe	01 Acholi/Labwor	Editable (range 00-99)

Variable	Codes and description	
	02 Alur/Jonam ... 34 Other 99 Unknown	
Address	01 APAC 02 ARUA 03 BUNDIBUGYO ... 38 SOROTI 39 TORORO 40 OTHERS 99 UNKNOWN 010 Kole 011 Kwania 012 Maruzi 013 Oyam ... 399 unknown 400 OTHERS 999 UNKNOWN	- Editable - assigning an address code consists of two steps: Step 1 for larger geographical region and Step 2 for smaller region. (e.g. address code for Kole village in APAC county is 010(01 for APAC+ 0 for Kole)
Occupation	11 Farmer 12 Policeman 13 Nurse 99 Unknown	Editable (range 00-99)
Hospital	01 St. Peter's Hosp. 02 The Cancer Institute 03 Rubaga ... 42 VILLAMARIA 43 FORT PORTAL 99 unknown	Editable (range 00-99)
Unit	10 Surgical 11 Cancer Institute 12 Gynaecology ... 19 E.N.T 20 Pead 21 orthopaedic	Editable (range 00-99)

Variable	Codes and description	
	99 Unknown	
Status	1 Alive 2 Dead 9 Unknown	Editable (range 0-9)

3.4 Import

Data in an external file may be added to the CanReg4 database by importing. You should be careful when importing records, because you can only delete one record at a time in CanReg4.



(1) Prepare record files to import

Record files to be imported should be in one of the following formats: Tab delimited, Comma Separated Variables, or Bar | delimited. The programme will automatically detect what type it is. The structure of record files to import is provided in the table below.

Example: Variable names, Length and Description

Short Variable name	Long Variable name	Length	Description
RegNo	Registry Number	8	Registry Number. You can use options 'import> Discrepancies' in Import window to deal with cases with overlapped registry numbers.
FamN	Family name	15	
FirstN	First names	16	
MaidN	Maiden name	10	
Sex	Sex	1	See Dictionary
Age	Age	2	Age at diagnosis
BirthD	Birth date	10, 8	dd/mm/yyyy , yyyymmdd
Trib	Tribe	2	See Dictionary
Addr	Address	3	See Dictionary
Occu	Occupation	2	See Dictionary
InciD	Incidence date	10, 8	dd/mm/yyyy , yyyymmdd
Top	Topography	3	See Dictionary
Mor	Morphology	4	See Dictionary
Beh	Behaviour	1	See Dictionary
Bas	Basis diagnosis	1	See Dictionary
Hosp	Hospital	2	See Dictionary
Unit	Unit	2	See Dictionary
LabNo	Path lab n°	8	
CasNo	Case n°	6	
DLC	Date last contact	10, 8	dd/mm/yyyy , yyyymmdd
Stat	Status	1	See Dictionary

(2) Records import

Before importing the record file, you must first decide on several options: Discrepancies, Max lines and Test Only, and Validity Checking.

(2-1) Discrepancies

A discrepancy is found when a record is matched to a case with the same registration number in the database, but there are differences in some of the variables. You can choose to Reject (discrepancies will not be imported), Update (any new data will be copied over to the database record except for previously empty ones), or Overwrite discrepancies (ALL variables will be copied over, even empty ones).

(2-2) Max. Lines and Test only

You can set the maximum number of lines of the import file to read and the maximum number of records to be imported. With "Test only" ticked, NO data are actually added to your database; only a report is generated showing what WOULD happen. It lists discrepancies, possible matches, rare or error cases etc. To import all of the records, leave this option blank.

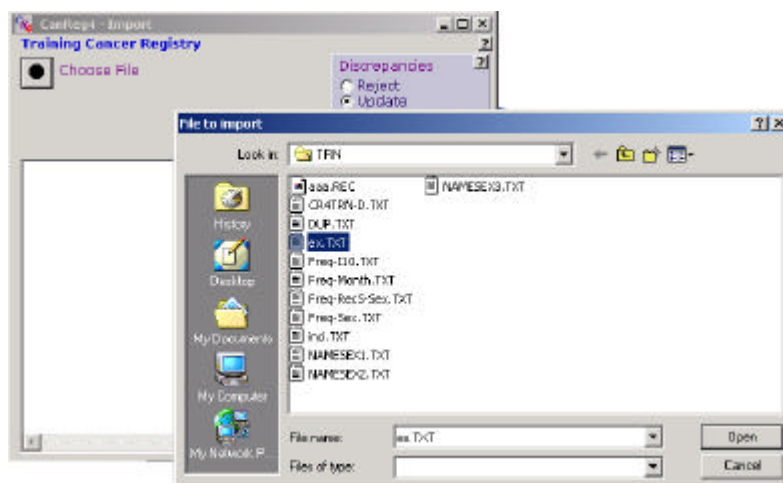
(2-3) CanReg4 Data: You can choose validity checking options.

- Do Checks: If the data to import were not created using CanReg4, or if there are Pending cases, then the Checks must and will be performed. If however, the case has already passed the Checks, the Checks will NOT be performed again unless specified by ticking this option.
- Person Search: Normally, when importing CanReg4 data, the Person Search will automatically be performed even if already done. If this option is NOT ticked, then the Person Search will NOT be repeated in this case. This is only advisable in the case of having no original data.

- Query New First Name: For data that have not already passed the checks, the First Name and Sex combination will be checked and automatically updated. Tick this option if you wish all NEW names to be set as pending, which allows you to recheck and add those names to the database. If you are starting a new registry, then you probably do not want all new names to be set as pending; however, if you already have several years of data, then it would be advisable to query names not already known.

Results of the validity checking procedure are saved in a 'Report file' (You can view this file in 'Management->View work files'). The record status of data requiring further validation will be 'Pending', which can be confirmed through reviewing data sources.

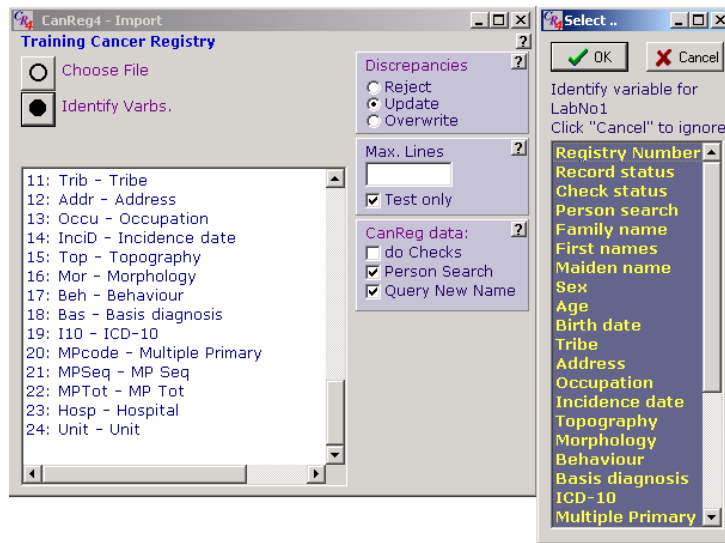
After setting the options, click the 'Choose File' button to select the file to read and open it.



(3) Identify variables to be imported

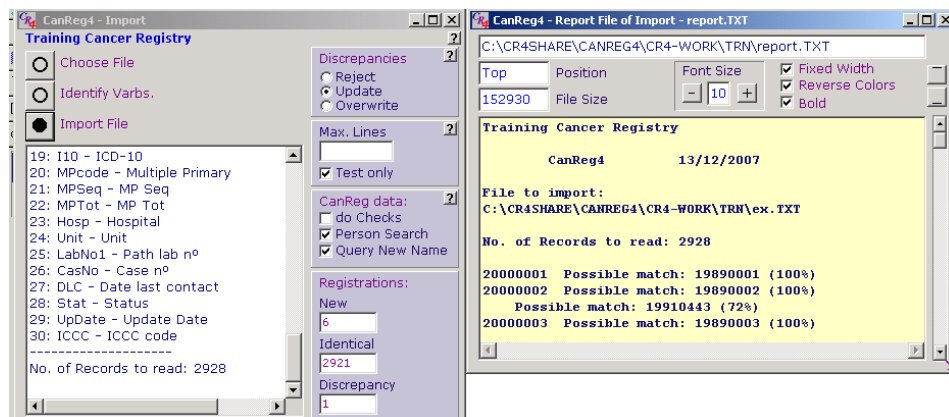
When the file is opened, click 'Identify varbs.' button to let CanReg4 match variable names of imported files to those of CanReg4. If discrepancies are found, 'Select window' will appear allowing you to

choose one from the list of CanReg4 variables.



(4) Import file

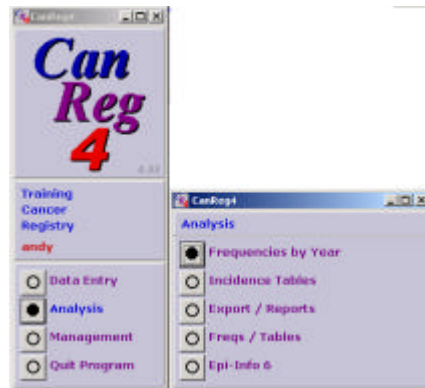
Click 'Import file', then records will be imported. The Registration section in the left bottom corner of the Import window shows the results of the importation: 'New' is the number of newly added records, 'Identical' represents the number of imported records that overlap pre-existing records without discrepancies and 'Discrepancy' provides the number of imported records that overlap pre-existing records, but have discrepancies.



4. Analysis

4.1 Analysis Sub-Menu

The Analysis sub-menu has four options: Frequencies by Year, Incidence Tables, Export/Reports, Freqs/Tables, and Epi-Info6.



Frequencies by Year (see 4.2)

This option is used to show basic statistics about your database: how many cases by sex by year, frequencies of cancer sites by year, etc.

Incidence Tables (see 4.3)

This option is used to draw tables presenting the rates of occurrence of cancers by site and by age, and include age-standardised rates to enable you to compare your data with other registries around the world.

Export/Reports (see 4.4)

This option is used to save your database in various formats such as tab delimited, comma-separated variables, and vertical bar (|) delimited.

Freqs/Tables (see 4.5)

This option is used to draw frequency tables.

Epi-Info 6 (see 4.6)

Provides a direct interface into the “Epi-Info6” programme.

4.2 Frequencies by Year

This option creates text files showing the number of cases by year for different variables. When you click 'Frequencies by year', 'Filter/Range' and 'Frequencies by year' windows will appear together.

If you restrict analysis to part of data, define records using 'Filter' and 'Sequence' (range) options. Three Files are created by default: Sex/Record status, Month, and ICD-10 group. For the remaining variables, choose from 'Choose Variables...'. The text files are created in your CR4-WORK directory. Use the "View Work Files" option of "Management" to view them (tick "Fixed Width").

The 'Filter / Range' window shows the following data:

RegNo	Recs	Chec	PerS	FamN	FirstN
19960605	1	1	1	KAYONDO	ABDU (HAJI
19960606	1	1	1	SIMBWA	SAM
19960607	0	1	3	WAPOKURW	CHRISTOPH
20010001	0	0	0		
20010002	0	0	0	ssgd	
20010003	0	0	0	GOMBYA	S S
20010004	0	0	0	KAGOLO	JANE ROSE

The 'Frequencies by Year' window shows the following 'Files created':

```
Record status / Sex
Month
ICD-10 group
Sex
```

The 'View Work Files - Freq-Sex.TXT' window shows the following data:

```

1901 1939 1977 1980 1984 1986 1987 1989
1: Male: 1: 0 1 0 1 0 0 0 1 83 ...
2: Female: 2: 0 0 1 0 1 1 1 0 93 ...
3: Unknown: 9: 0 0 0 0 0 0 0 0 0 ...

Errors: 0 0 0 0 0 0 0 0 0 ...
Missing: 0 0 0 0 0 0 0 0 0 ...

1990 1991 1992 1993 1994 1995 1996 1999
1: Male: 1: 179 302 372 430 455 818 282 0 : 2924
2: Female: 2: 217 363 335 406 541 825 284 0 : 3068
3: Unknown: 9: 0 0 0 0 0 0 0 1 0 : 1

Errors: 0 0 0 0 0 0 0 0 0 : 0
Missing: 0 0 0 0 0 0 0 0 0 : 0
```

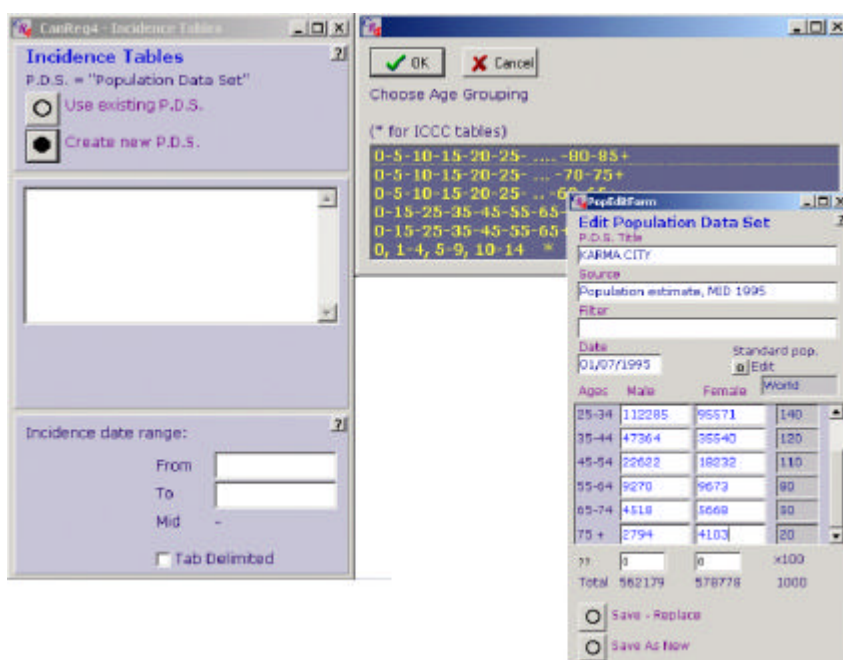
4.3 Incidence Tables

Tables consist of incidence rates by sex, age group and ICD-10 cancer type. In order to create tables of incidence rates, the size of the population at risk must be known. Therefore, a Population Data Set (P.D.S.) is needed. In CanReg4, there are two options: 'Use existing P.D.S.' or 'Create new P.D.S.'

1) Use existing P.D.S

2) Create new P.D.S

Click 'Create new P.D.S' and select age grouping. The 'PopEditForm' window will appear.



(1) Filter

Enter "Filter" or selection criteria directly, so the programme only selects registered records meeting the criteria for calculating incidence rates.

(2) Date

Enter the date (dd/mm/yyyy) when the population was collected.

(3) Edit Standard pop.

"Age Standardised" rates are calculated in order to compare rates from different countries that have different age profiles. The default standard population in CanReg4 is the world standard population (Segi 1960) modified by Doll et al., 1966. Click on the 'Standard pop. Edit' button and edit the numbers. (The numbers are in 100s. Note that the total must always be 1000.)

3) Edit this P.D.S.

You can edit the existing P.D.S. using this option. The same 'PopEditForm' window will appear. You can save the edited P.D.S. as new.

4) Delete P.D.S.

Use to delete the selected P.D.S.

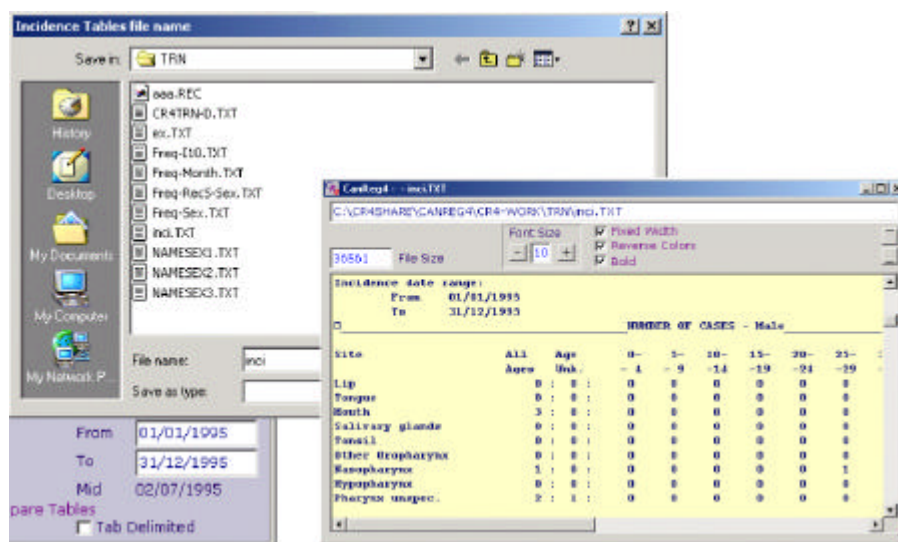


5) Incidence date range

Define the time period for which the incidence rates are to be calculated by filling in the "From" and "To" dates (dd/mm/yyyy) to define the time period (the incidence date range). Generally, because of natural fluctuations, it is best to use a period of around 5 years.

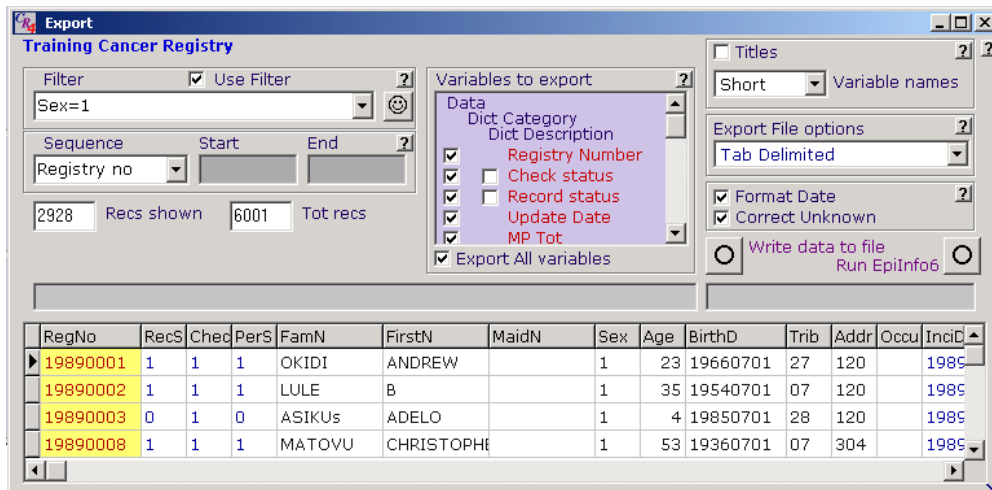
6) Prepare Tables

The tables will be prepared as a fixed-width text file (suitable to print with Microsoft Word); otherwise, tick "Tab delimited" to create a file suitable for use with "Excel".



4.4 Export / Reports

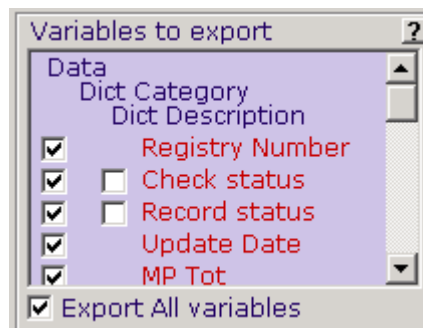
The Export/Report menu is used to export (write out) all, or part of, your CanReg4 data to an external text file. There are two principal reasons for doing this: To be able to import the file into another computer programme (e.g. Microsoft Excel or Access) for further analysis, and to produce a report or case listing that could be read into Microsoft Word and printed out.



4.4.1 Specify the records to export

Use the Filter /Range options

4.4.2 Select variables to export

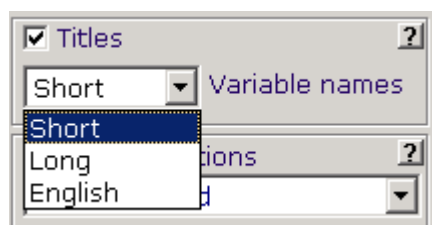


Click on the variable name to select (or deselect). If you check in the first box, only codes (numbers) will be exported. If you check in other boxes in the same variable, the code descriptions will be exported as well. They will appear in the data grid. Click on "All variables" to select them all.

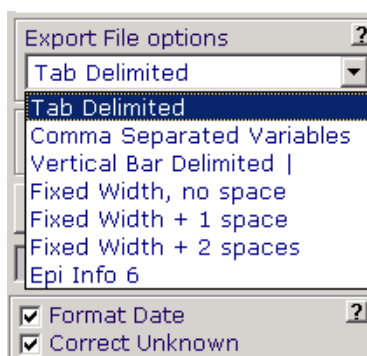
4.4.3 Choose the File Format and Export

1) Title and Variable names

If you select 'Titles', the filter criteria and ranges used, with today's date will be written at the top of your export file. This option is useful if you are writing a report, or case listing. You can define the length of variable names: "Short" puts the abbreviated names of the variables at the top of each column "Long" includes the full name of the variable.



2) Export File Options



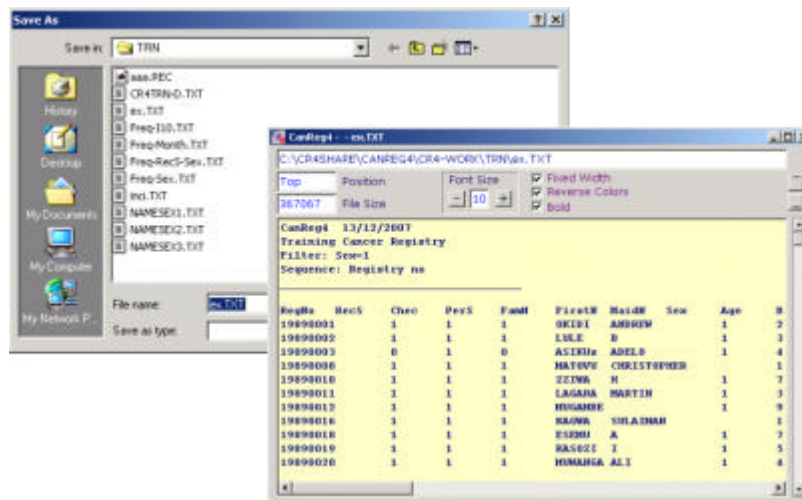
You can choose the format of your export file using this drop-down menu. Usually, Tab-Delimited, Comma-Separated variables, and Vertical Bar Delimited formats are used for importing to Microsoft Access or Microsoft Excel.

- Tab-Delimited: Each variable is separated by the TAB character.
- Comma-Separated Variables: Each variable is enclosed in quotes, and separated by a comma.

- Fixed Width, no space: Pads each variable with trailing blanks up to its maximum width. This will produce aligned columns when viewed as a text file using a fixed-width font e.g. Courier.
- Fixed Width + 1 space: As above, but with an extra space to separate the columns for easier reading.
- EpiInfo6: To export records for EpiInfo6 use.
- Format Date: to export dates in 'dd/mm/yyyy' format instead of numeric form yyyyddmm.
- Correct Unknown: Unknown days will be written as "01" and unknown months as "07". This is necessary if you wish to import the data into Excel, or any other software that will reject invalid dates.

3) Write data to file

Use this to create a file name and save the file wherever you want.



4) Run Epi-Info6

If you select "Epi-Info6" format as your file format, you can run Epi-Info6

on your exported file using this button. Detailed instruction for Epi-Info6 will be included in 4.6 Epi-Info6.

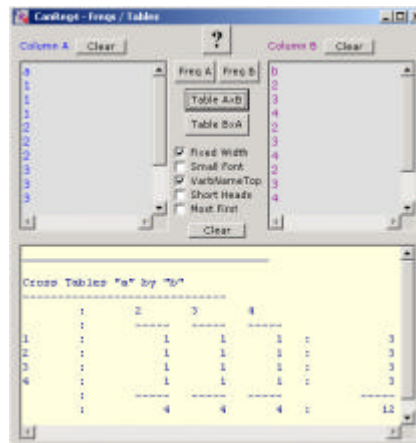
4.5 Freq / Tables

1) Frequencies

From Excel (or a text file) cut a column of data and paste it into Column A. Click on "Freq A" to produce a frequency distribution on the result (lower) box.

2) Tables

Cut and paste data into column A. From the SAME RECORDS of the dataset, paste a second column into B. Click on "Table AxB" to produce cross-tables with A as rows, B as columns. Click on "Table BxA" to produce cross-tables with B as rows, A as columns.



3) Options

- Fixed Width: Show the result with fixed width
- Small font: Show the result in smaller font
- VarbName Top: Tick if the column's top line contains the variable name.

- Short Heads: To truncate the column headers
- Most First: To change order from alphabetical by label, to listing the most frequent first (use Column B in the same way to produce frequencies).

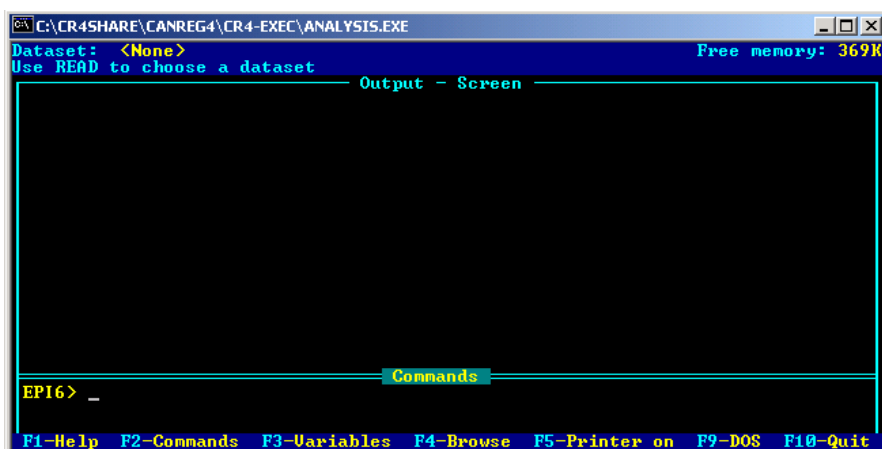
4) Clear

You can cut and paste from the results box back into Excel to create graphics. Click on the "Clear" button to empty any box. Resize the window to change the size of the boxes.

4.6 Epi-Info 6

CanReg4 links users to the “Epi-Info6” analysis programme. Epi-Info6 is a flexible statistics programme provided by CDC, USA with which you can create your own tables, frequency distributions, graphs and pie charts (programme and detailed manual available at <http://www.cdc.gov/epiinfo/Epi6/ei6.htm>). To use Epi-Info6, users need to export the records to be analyzed in Epi-Info6 format (See 4.4 Export / Reports).

4.6.1 Epi-Info6 Screen



In the upper large window the results or output are displayed. Commands are entered in the small lower window you type your commands. The following Function keys are useful:

F1: Help to look up any command you are not sure about.

F2: Choose from the available commands.

F3: Choose from your variables.

F4: "Browse" your data.

F10: Quit Epi-Info6

4.6.2 Basic Epi-Info6 analysis

1) Read your file

The command that tells ANALYSIS what file to use is:

```
EPI6> READ <file name>
```

This is usually the first command given in ANALYSIS. To see a list of available files, type "READ". To see the files in another directory, such as c:\Data\, type READ c:\Data\.

2) Scan the data

Before analysis, it is useful to gain an overall impression of the dataset, i.e. the variables available are a good indication of what further analysis can be done. To produce a listing of the records in the file, type:

```
EPI6>LIST
```

The command LIST will display only as many variables as will fit across the current screen width. If you would like to list all variables, use

```
EPI6>LIST*
```

The "*" is shorthand for "all fields." LIST followed by one or more variable names lists only those variables, or can be used to omit the names and addresses from a data listing.

```
EPI6>LIST * NOT NAME ADDRESS
```

The command LIST * NOT NAME ADDRESS will list all fields except NAME and ADDRESS.

3) Frequencies

The frequencies command (FREQ) will count each category for a specified variable and give the absolute and relative frequencies for each category. For example, the command

```
EPI6>FREQ SEX
```

produces results like those below:

```
=====> read aaa
=====> freq sex

SEY | Freq | Percent | Cum.
1 | 2928 | 48.8% | 48.8%
2 | 3070 | 51.2% | 100.0%
9 | 1 | 0.0% | 100.0%
Total | 5999 | 100.0%

EPI6> read aaa
EPI6> freq sex
EPI6>
```

In Epi-Info6, there are other commands to print the sum, mean, and standard deviation.

The command FREQ * will produce frequencies for all the variables in your file. FREQ with a series of variable names following, separated by spaces, will generate separate frequencies for each of the variables listed.

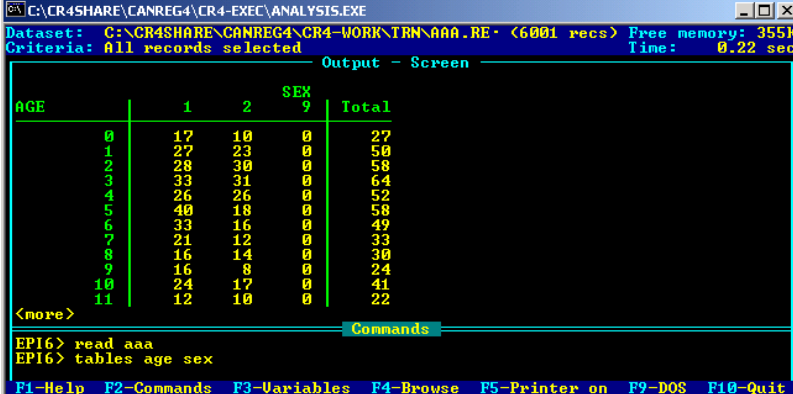
Placing /C after the FREQ command will add confidence limits to the output.

4) Cross Tabulations

The TABLES command will count the records in which the values fulfil criteria for two fields at the same time. Thus, the command

```
EPI6>TABLES SEX ILL
```

will result in:



Output - Screen

AGE	1	2	SEX 9	Total
0	17	10	0	27
1	27	23	0	50
2	28	30	0	58
3	33	31	0	64
4	26	26	0	52
5	40	18	0	58
6	33	16	0	49
7	21	12	0	33
8	16	14	0	30
9	16	8	0	24
10	24	17	0	41
11	12	10	0	22

Commands

```
EPI6> read aaa  
EPI6> tables age sex
```

F1-Help F2-Commands F3-Variables F4-Browse F5-Printer on F9-DOS F10-Quit

5) Charts and Graphs

ANALYSIS produces histograms, scatter plots, pie charts, and bar and line graphs directly from data files. Making a graph requires a single command, as in the following examples:

HISTOGRAM variable name

PIE variable name

BAR variable name

LINE variable name

SCATTER variable name1 variable name2

4.6.3 Output Epi-Info6 to a work file

By default, all output (the results of your commands) goes only to the screen. If you have produced a frequency, table, etc. that you would like to keep or print, use the “ROUTE” command.

For example:

ROUTE MYTABLE.EPI

Now repeat the command that produced the desired output, to send it to the work file. The filename “mytable” can be any name you like up to 8 characters long. Note the file extension “.EPI”. This is so that CanReg4 will recognize it as Epi-Info6 output.

To close the file, and return output to the screen only, type:

ROUTE SCREEN

When you later use View Work Files, you will find your file listed under “Epi-Info6 Output”.

4.6.4 Saving Epi-Info6 Programmes

Any series of Epi-Info6 commands can be saved as a “Programme” in a space called the Command Stack (normally saves the last 20 commands, but this can be increased by resetting the size of the Command Stack). This is very useful for definitions, etc. that are often repeated.

- Go into Epi-Info6.
- Type a series of commands that you often use.

For example

DEFINE YEAR

LET YEAR =YEARDIAGNOSIS[3,2]

DEFINE AGEGROUP

RECODE AGE TO AGEGROUP BY 5

- TYPE SAVE MYPROG

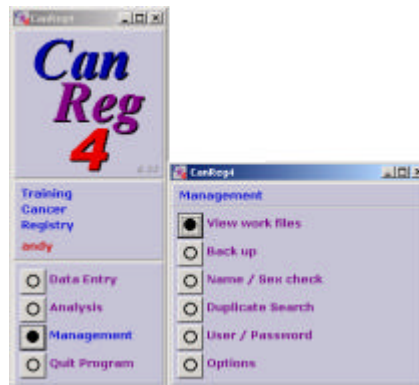
(“myprog” is any filename you want. The file name extension .PGM will automatically be added.)

- Next time you enter Epi-Info6, type RUN MYPROG to execute all the commands you saved as “myprog” in one go!
- View your programme in “View Work Files”, “Epi-Info6 Programmes”.
- To repeat the previous command, pressing the <up arrow> key will bring back previous commands when the cursor is at the EPI6> prompt.

5. Management

5.1 Management Sub-Menu

The Management menu has 6 sub-menu options.



View work files (see 5.2)

All the reports, tables etc. that you produce can be viewed from here.

Backup (see 5.3)

Compresses and encrypts all the data, and copies your dictionary codes, population data, CanReg4 system definition, etc. onto another disk for safety.

Name / Sex check (see 5.4)

Inspects and recreates Male, Female, and Unisex names in your data.

Duplicate Search (see 5.5)

Searches duplicates using Minimum match %.

User / Password (see 5.6)

Manages user details, user and database password, etc.

Options (see 5.7)

Selects language and font size.

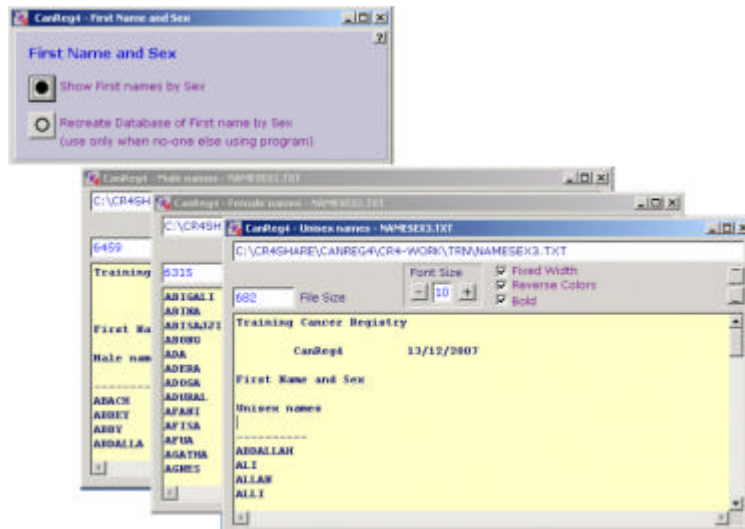
5.3.2 Copy backup files

You can copy backup files in C:\CR4SHARE\CANREG4\CR4-BACK into other locations using the two buttons ('Copy backup to A:' and 'Copy elsewhere') that appear after backup procedures are successfully finished.

5.4 Name/Sex Check

5.4.1 Show first names by sex

You can view First Name by sex in your database. New names are automatically added to the lists. When you run this option, NAMESEX1.txt (Male names), NAMESEX2.txt (Female names), and NAMESEX3.txt (Unisex names) files are automatically generated and saved in 'C:\CR4SHARE\CANREG4\CR4-WORK\'. You should periodically review these lists to check for obvious errors.

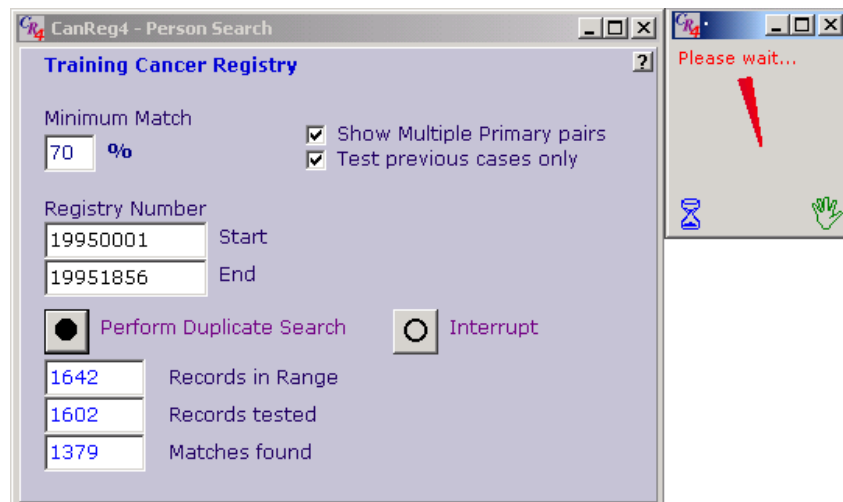


5.4.2 Recreate database of first names by sex (Supervisor Only)

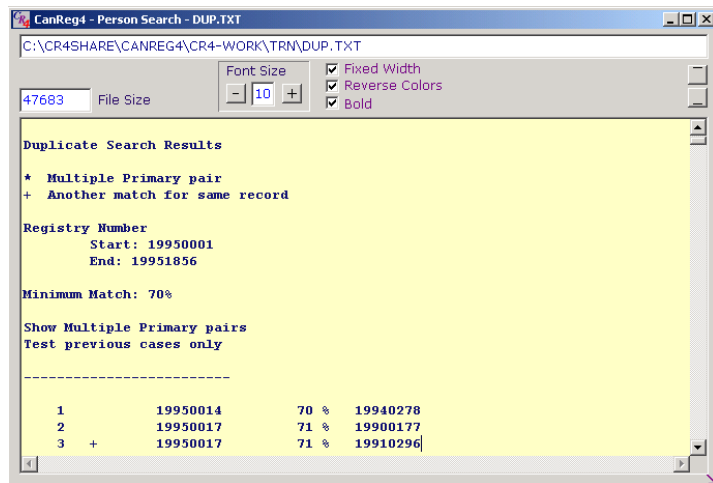
Use to recreate First name by sex database. In a network environment, do this only when nobody else is using the programme.

5.5 Duplication Search

You can search duplicates using Minimum match %. You can restrict records to search using registry number range and other options.



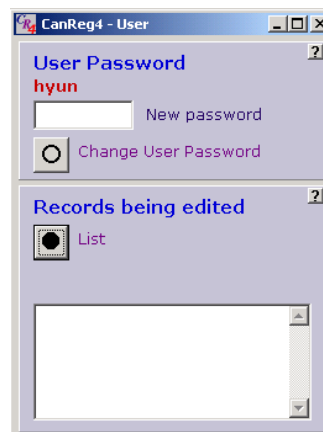
- If you check 'Show Multiple Primary pairs', CanReg4 expands its search to multiple primary cases, and asterisks will be added to multiple primary pairs.
- If you restrict your duplicate search to the part of your records (using "Start", "End"), you should NOT check 'Test previous (registry numbers) cases only'. If so, the duplicate search will not be done bi-directionally and the results will not be complete.
- You can view the result of the Duplicate search in C:\CR4SHARE\CANREG4\CR4- WORK\



5.6 User / Password

5.6.1 User Password and Records being edited

You can manage user details, user and database passwords etc. Remember that the CanReg4 password is case-sensitive.



- Records being edited: This option is mainly useful for people working in a network environment. The "List" button allows you to see what other records are being edited and by whom. The "Clear" button allows a supervisor to reset this list of users (in case of error, for example if a computer was switched off during data entry).

5.6.2 Database Password (Supervisor only)

For extra security of confidentiality of the database, this option allows for a password to be set to lock the database. Do not perform this while other users are using the programme. Once set, you will be asked to type the password before using any option that accesses the database (Browse, Export etc). **BE VERY CAREFUL NOT TO LOSE OR FORGET THIS PASSWORD!** If you wish to cancel the password, leave the box empty and click "Change Password".



5.6.3 Users (Supervisor only)

This option allows a Supervisor to manage the other users of the programme. Each user has a unique login name, password and permission level.

- A Supervisor can use all options.
- A Registrar can perform most of data entry except to confirm rare cases or possible duplicates. Changing the Dictionary and User Administration are also prohibited.
- An Analyst cannot make any changes to the database. Only browsing or analysis options are available.

The drop-down list box shows the users currently authorised and their

permission levels.

To add a new user, fill in the user's login name, choose a suitable permission level, then hit the "Update" button. You can change a permission level for a user and also hit "Update", or delete a user by putting the name in the box and then clicking the "Delete" button.

5.7 Options

You can use these options to change language and screen/font size.

