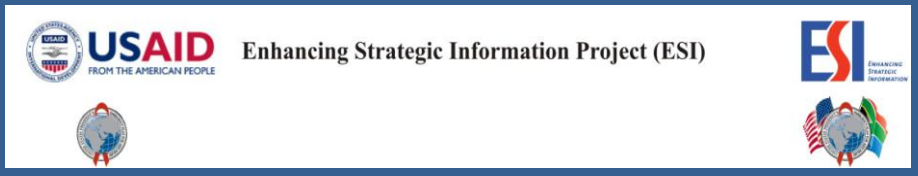
DHIS Level 2 Manual

Draft 3: March 2012



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1 ABOUT DHIS LEVEL 2 MANUAL

1.1 Introduction

The District Health Information System (DHIS) is a highly flexible, open-source health management information system and data warehouse. It is developed by the Health Information Systems Program (HISP) project in collaboration with universities and government administrations in SA and abroad.

The DHIS has been adopted as a National Routine Health Information System for South Africa in 1999. Depending on the level of implementation, the DHIS contains selected/prioritized aggregated routine data (by public health facility by month), semi-permanent data (staffing, equipment, infrastructure,

population estimates), survey/audit data, and certain types of case-based or patient-based data (for instance disease notification or patient satisfaction surveys).

The DHIS is translated into many international languages and used in different countries including South Africa, Malawi, Mozambique, India, Nigeria, Norway, Tanzania, Ethiopia, Vietnam, Namibia, Botswana, Swaziland, Zambia, Liberia, etc.

This manual has incorporated features of version DHIS140136 (Build 136).

1.2 Purpose of this manual

The manual has been developed and adapted for Office 2007 Users to provide a step-by-step guide to the use of some different advanced DHIS functions. It is presented in three (3) modules:

Maintenance

Data Entry Functions

Data Quality and Advanced Database Functions

1.3 Target groups for capacity building

- District and Facility Information Officers who are trained on DHIS Level 1 and use the DHIS on regular basis.
- Monitoring and evaluation staff who uses the DHIS.

N.B. Participants must have passed the DHIS Level assessment (Test normally done before the DHIS level2 training starts).

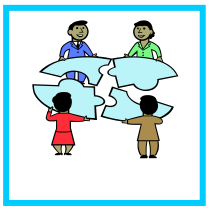
1.4 Duration

The course is presented over 4 days

1.5 Assessment

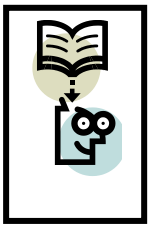
Continuous assessment will be done through practical exercises and a practical test done on the last day of the training.

The following icons are used in the manual to assist you in your studies:



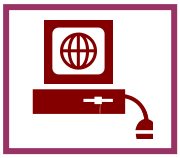
Group work

This is an opportunity for group members to communicate freely and openly with each other, to apply what they have learned.



Concept clarification / definition

This icon is included to clarify important terminology and key concepts.



Refer to internet link

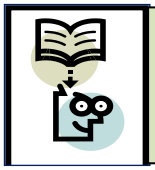
1.6 Abbreviations

DHIS	:	District Health Information Software
HISP	:	Health Information Systems Program
NDoH	:	National Department of Health
OrgUnit / Org Unit	:	Organizational Unit
SA	:	South Africa

2 MODULE 1: MAINTENANCE

2.1 ORGANIZATIONAL UNITS

2.1.1 OrgUnit Search



In the DHIS Level 1 training you learnt how to search for an organizational unit using the CTRL+O short cut. This can also be done using the OrgUnit Search function where you also specify the search criteria.

Steps:

i) Click **Maintenance** on control center.
ii) Click **Organizational Units.**
iii) Click **OrgUnit Search.**
iv) Select the search criteria by filling the search form (Figure 1 display all organizational units that were opened after 1996-01-01).
v) To change the root organizational unit, click **Browse**.
vi) To change the search criteria, click **New Search.**
vii) Click **Control Centre** to quit the search function.

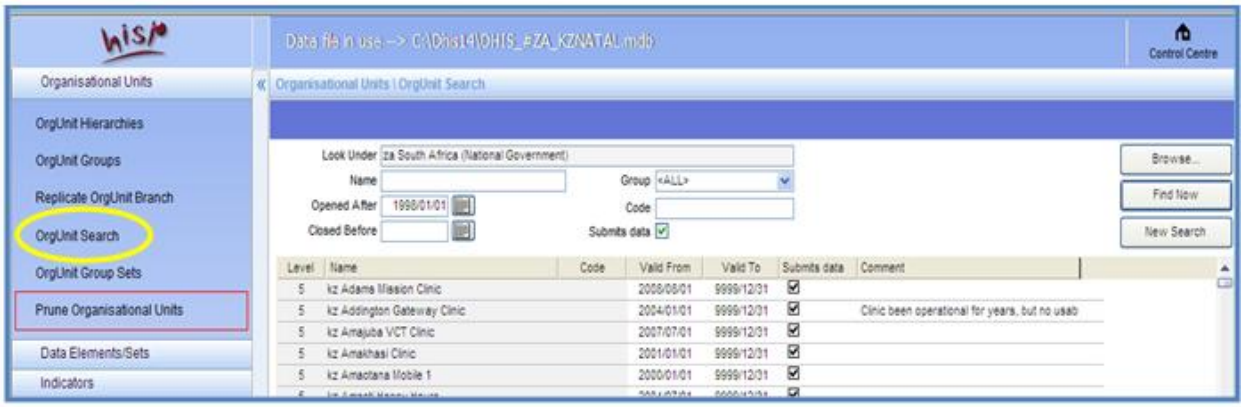


Figure 1: Searching for OrgUnits based on set criteria

2.1.2 Prune Organizational Units

Pruning of Org Units depends on login status. Make sure **Auto-cascade** is ticked on the pruning screen; this will ensure that all Org Units under the selected parent Org Unit are also selected. You may select up-to the lowest Org Unit level by clicking on the + sign next to the parent Org Unit. You may choose to keep the selected Org Units and prune all those not selected. This is done by ticking the **Non-selected** option on the pruning screen (Figure 2). You may also search for a specific Org Unit to prune by using the **Search for OrgUnit** function, the parent Org Units will be displayed in bold text and the specific Org Unit in blue. Pruning Org Units **cannot** be reversed; therefore extra care should be taken before running this function. Pruning can take several minutes to an hour depending on the number of Org Units selected and the speed of the computer used. The DHIS also provide an option to prune only data (Current and archived data is also pruned).

Steps

viii) Login as admin (Details on DHIS Level 1 manual)
ix) On Control Centre click Maintenance.
x) Click Organizational Units.
xi) Click Prune Organizational Units, the screen (Figure 2) below will appear.
xii) Click the  sign to expand the list.
xiii) Select the organizational units that you wish to prune by ticking in the appropriate boxes.
xiv) Tick the Selected OrgUnits option.
xv) Click the Prune button.
xvi) Click Yes on the Warning dialog box (Figure 3).
xvii) Click Yes to the Last Warning dialog box (Figure 4).
xviii) Click Yes to the Warning dialog box confirming the number of Org Units to be pruned to continue pruning (This warning shows if the number of Org Units to prune are more than 50% of the total Org Units in a data file).
xix) Click Control Centre to go back to the main screen.

Figure 2: Selecting Org Units to Prune

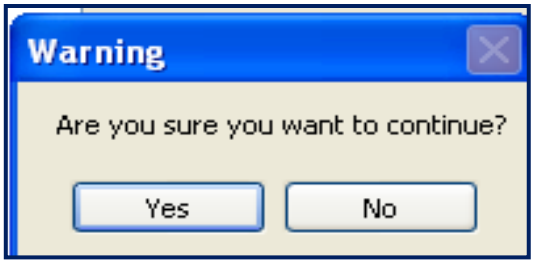


Figure 3: Prune Org Units 1st Confirmation

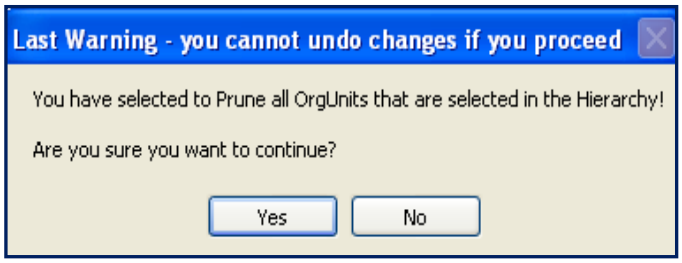
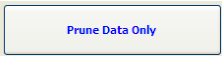


Figure 4: Prune Org Units Final Confirmation

Pruning Data Only

Steps

i) Login as admin (Details on DHIS Level 1 manual)
ii) On Control Centre click Maintenance.
iii) Click Organizational Units.
iv) Click Prune Organizational Units, the screen (Figure 2) below will appear.
v) Click the  sign to expand the list.
vi) Select the organizational units that you wish to prune data for by ticking in the appropriate box (es) (You can also use the Search for OrgUnit button).
vii) Tick the **Selected OrgUnits** option.
viii) Select the data set to prune data from by clicking the browse button  .
ix) Select the data period from and to from the date pickers  .

x) Click **Prune Data Only**  data for the selected OrgUnit and Data Set will be permanently deleted.

xi) Click Yes on the Warning dialog box (Figure 6).

xii) Click Control Centre to go back to the main screen.

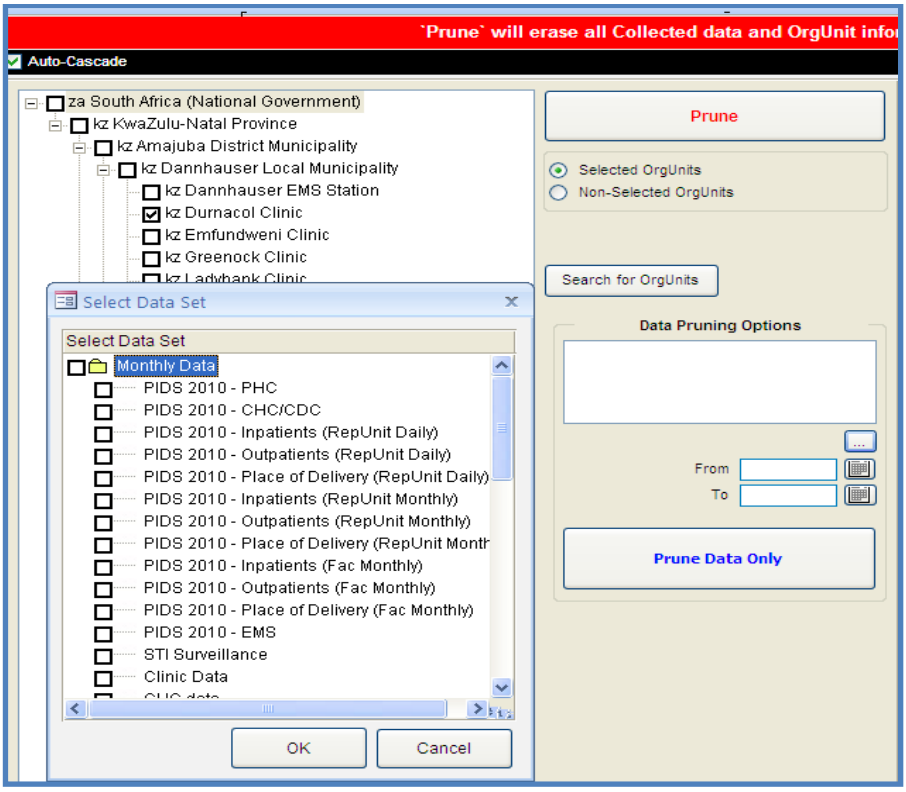


Figure 5: Select OrgUnit and Data Set to prune data

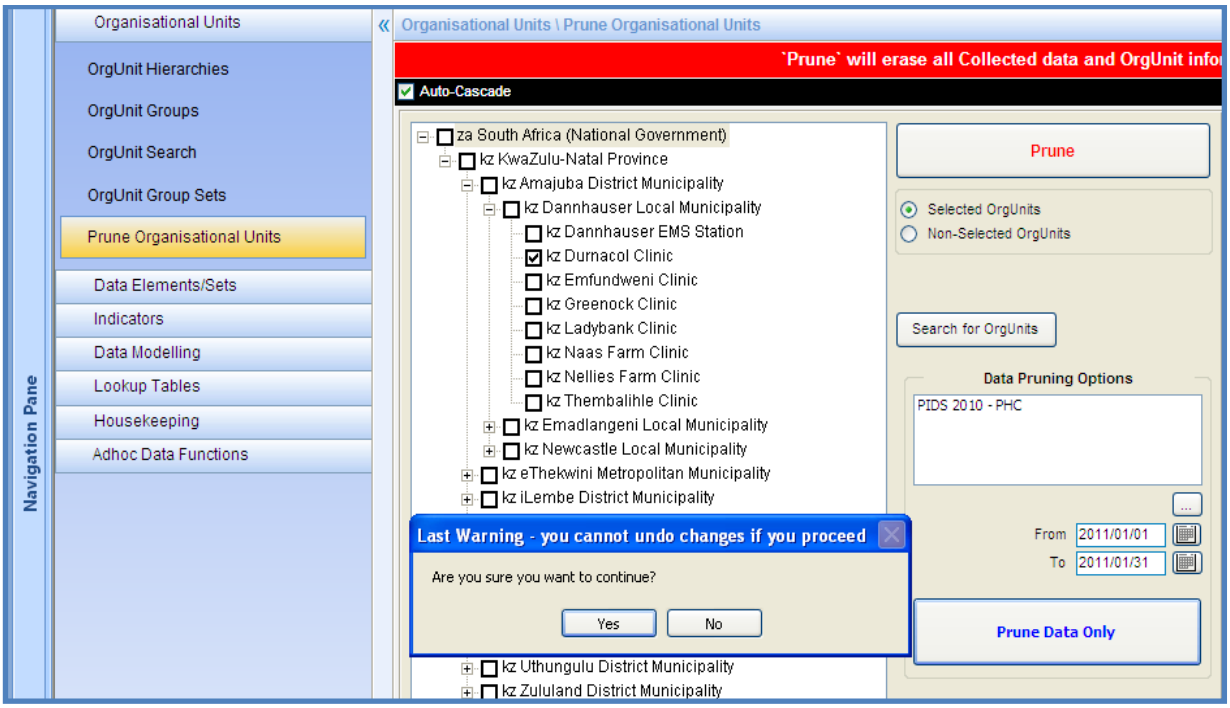
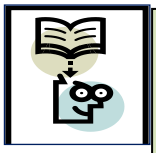


Figure 6: Pruning Data

2.1.3 OrgUnit Hierarchies



Selecting the country as parent OrgUnit provides an opportunity to create a new province which is the child OrgUnit to the country, selecting a province as a parent OrgUnit allows the creation of a new district as a child OrgUnit which is displayed in blue font. This list goes on up-to the least level of reporting unit. The following steps will guide you towards creating a new facility (OrgUnit level 5). The **Exclusive** (3) indicator on the **OrgUnit Classification** screen (Figure 9) means that **only** one group may be selected in that **Group Set** and the **Compulsory** (4) means that it is mandatory that a group is selected. To verify if the facility you just created exists, find it using the **Search** function in **Core Module** or use the **Ctrl+O** keyboard shortcut.

Steps

i) On Control Centre click Maintenance.
ii) Click Organizational Units.
iii) Click OrgUnit Hierarchies.
iv) Click the + sign next to each parent OrgUnit to expand the list.
v) Click on the level 4 (Municipality) OrgUnit and New Facility 2 will be displayed on the top bar / button.

vi) Click the New Facility button to create a new facility.

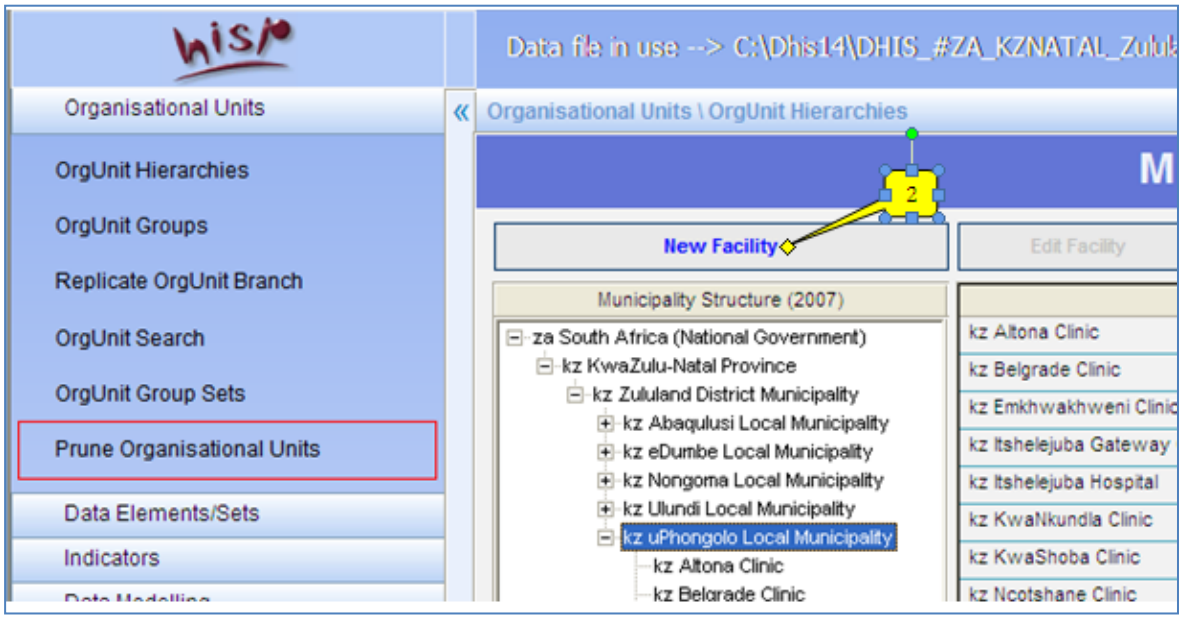


Figure 7: Adding a new facility

vii) When the OrgUnit form appears (Figure 8), start entering the OrgUnit details (Name, groups and modify date opened) paying attention to standard naming convention [Student Clinic is used as an example].

viii) You will be prompted to go through the 3 steps of allocating the OrgUnit to groups – from the Available Groups select Clinic, click **Next** and select Provincial Facility, click **Next** and select Rural for the 3rd step then click **Finish** (Figure 9).

ix) Click Save and Close, the new OrgUnit will be on the list as shown on figure 10 (The OrgUnit is now ready for Data Entry once data elements have been allocated).

x) Click Control Centre to go back to the main screen.

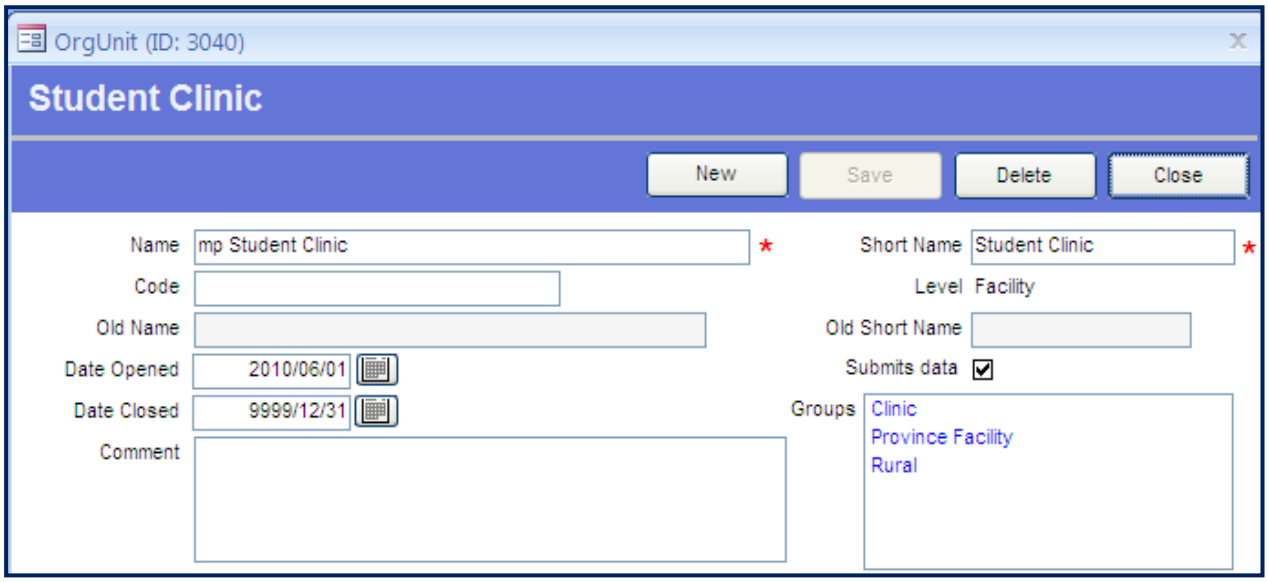


Figure 8: New OrgUnit form

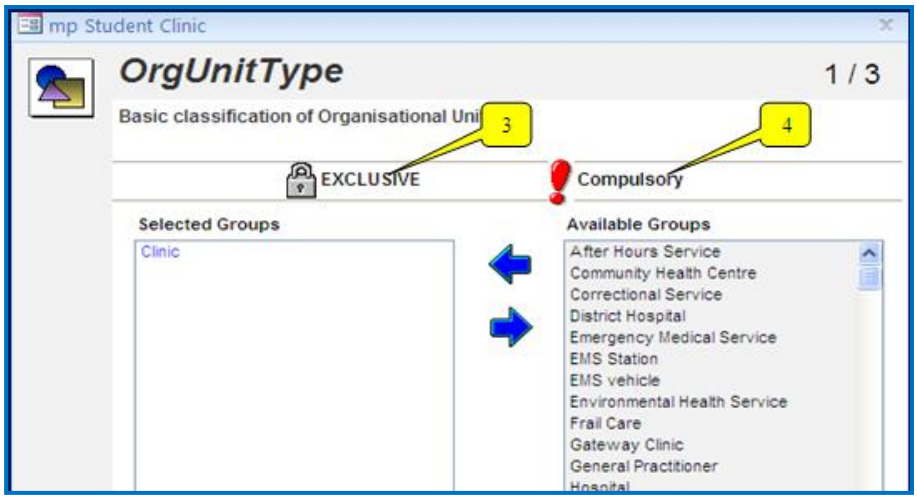


Figure 9: allocating an OrgUnit to groups

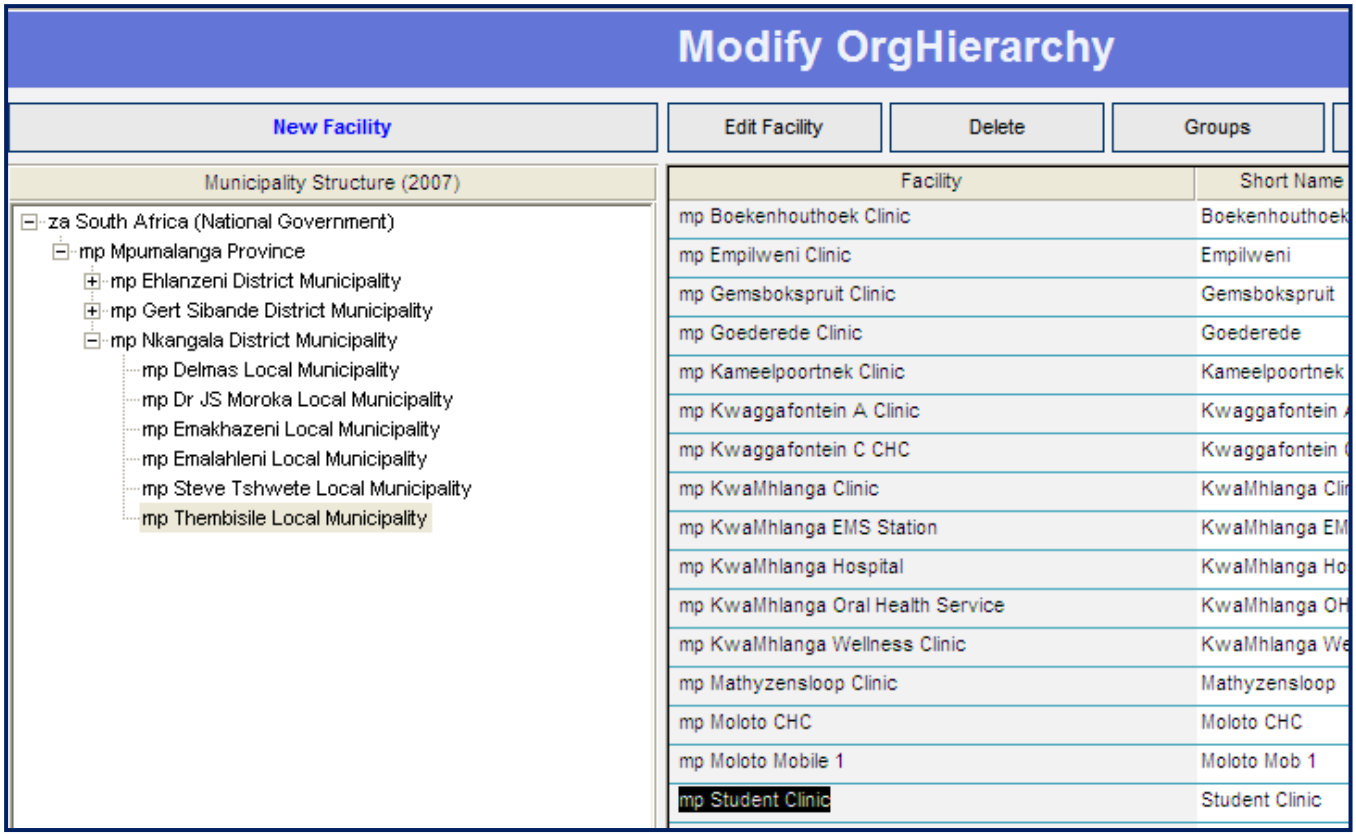


Figure 10: New OrgUnit is displayed at the end of the list

Create a new organizational unit (Level 5) with the name **Student Community Health Centre** for a Municipality chosen by the facilitator. Allocate it to the appropriate OrgUnit Group Sets. Student CHC is in the City Centre. You are free to discuss with a colleague next to you.

2.1.4 OrgUnit Groups

The **OrgUnit Groups (5)** on **figure 11** let you view the different OrgUnits and the **OrgUnit Groups (7)** allocated to them. Clicking on each OrgUnit (6) displays the **Selected Group (7)** from a **Group Set (10).** The **Available Groups (9)** are also displayed. **OrgUnit Groups** can also be modified (added or removed) here. This is done by clicking on the OrgUnit group from the **Selected Groups (7)** then click the green minus sign (8) to remove. To add, simply click a group from the **Available Groups (9)** then click on the green plus (+) sign, the group will be added to **Selected Groups.** Clicking the switch button gives a different view of the groups and OrgUnits allocated to them (Figure 12).

Steps

i) On Control Centre click Maintenance.

ii) Click OrgUnit Groups 5.

iii) Click the sign next to the default OrgUnit to expand its contents. Do the same with all the OrgUnit levels until facilities are displayed.

iv) Click on a facility 6 to view an allocated / selected group 7.

v) Click the drop-down list on the Group Set 10 to select another Group Set.

vi) Click the Switch button 11 to the Selected Groups differently (Figure 11).

vii) Click one of the Available Groups on figure 11 to display all OrgUnits that are associated with the selected group.

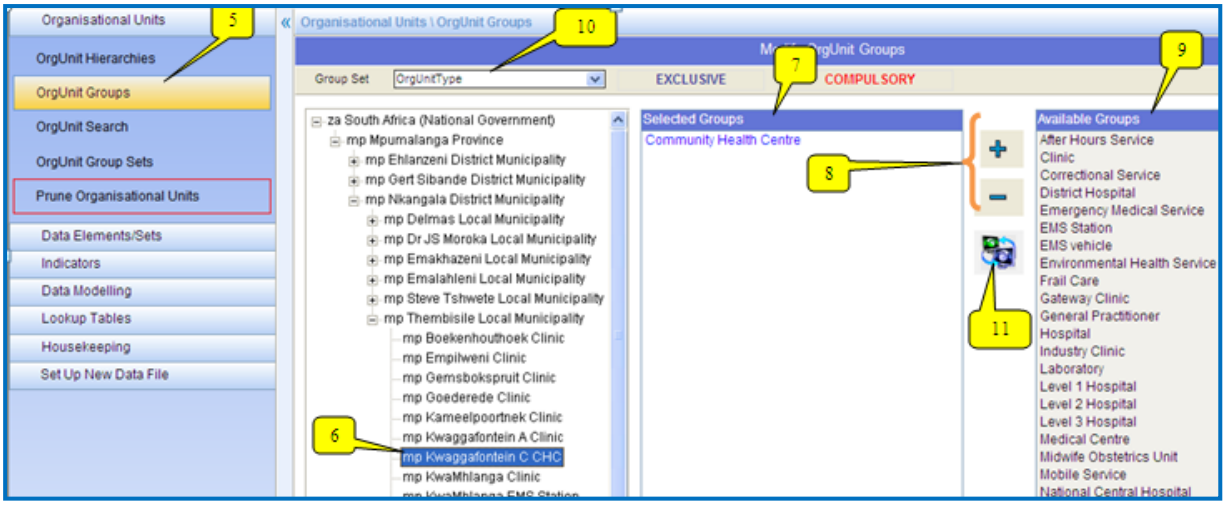


Figure 11: OrgUnit groups

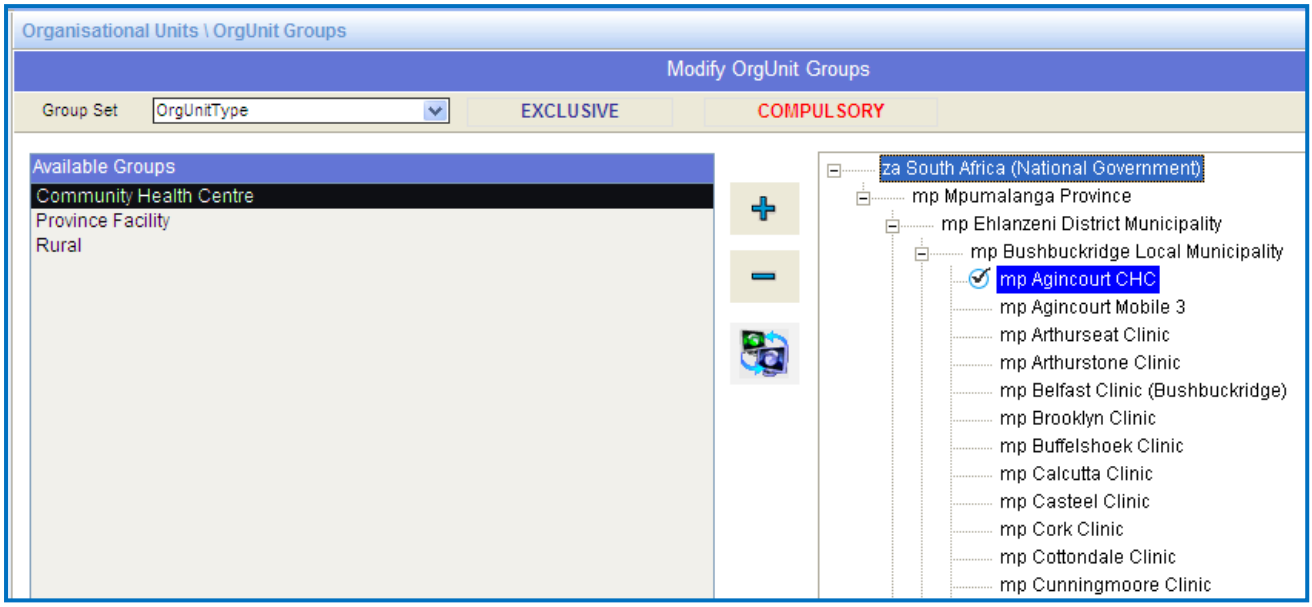


Figure 12: Different View of Available Groups

2.1.5 OrgUnit Group Sets

The **OrgUnit Group Sets** provides basic classification of OrgUnits. If you wish to view existing **Group Sets,** use the navigation buttons (**Previous / Next)** on the bottom of the form. If you want to add another **Group Set**, click **Add** and click **Delete** to delete a group set. Clicking the (?) sign next to each **OrgUnit Group** will display a report that can be printed in different formats (Word, Excel or HTML). To add an OrgUnit Group to a Group Set, select it from the **Available Groups** and click the **arrow** pointing left, double-clicking does. Any OrgUnit Group Set can be deleted even if there are records associated with it.

Steps

i) On Control Centre click **Maintenance**.

ii) Click **OrgUnit Group Sets** 12 to display modify or add a group set (Figure 13).

iii) Click Next 13 to view the next Group Set or Back to view previous Group Set.

iv) Click the **(?)** 14 next to an OrgUnit Group to view its contents (OrgUnit Group Set Level Summary) – Figure 14 (Clicking one of the default OrgUnit with a value above zero, displays a list of OrgUnit below which can be saved as word, excel or HTML and printed).

v) Close the OrgUnit Group Set Level Summary form.

vi) Click the **tick box** 15 next to an OrgUnit Group and the **arrow** pointing right 16 to remove it.

vii) Click **Add** 17 to add a new OrgUnit Group Set (Figure 15), add necessary details, OrgUnit Groups and decide to make it Exclusive or Compulsory or both then click save.

viii) Click the **Next** navigation button to view the OrgUnit Group Set that you just created and click Delete 18 to delete it.

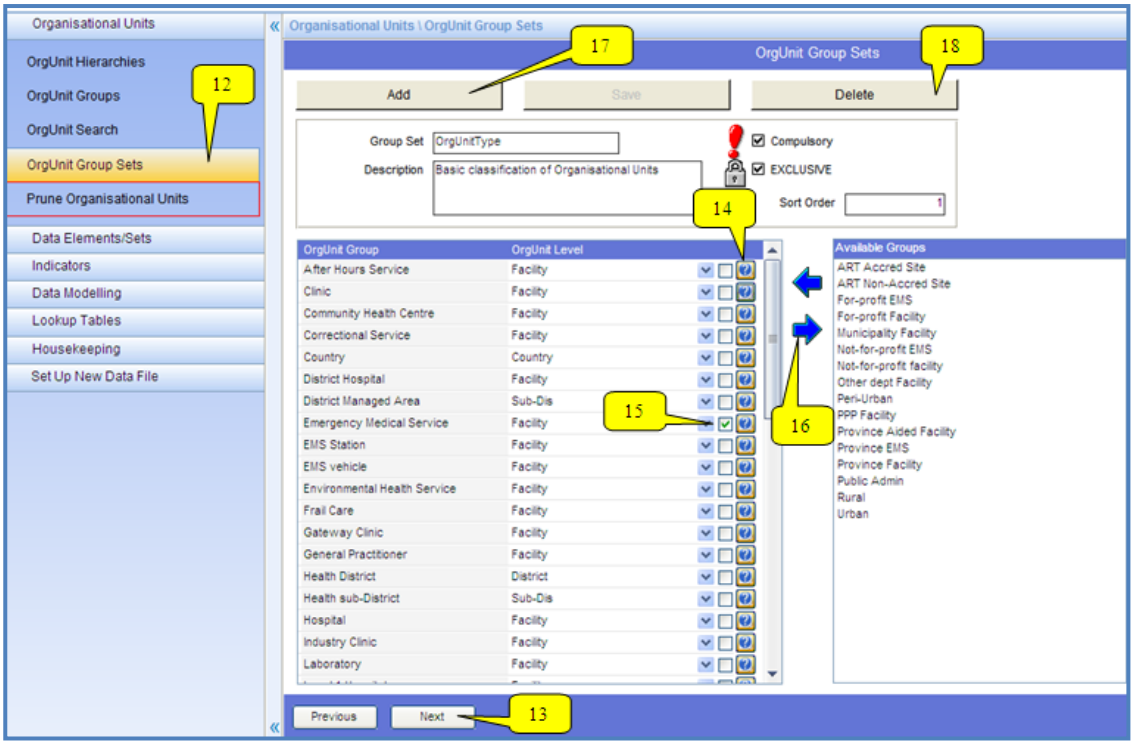


Figure 13: OrgUnit Group Sets

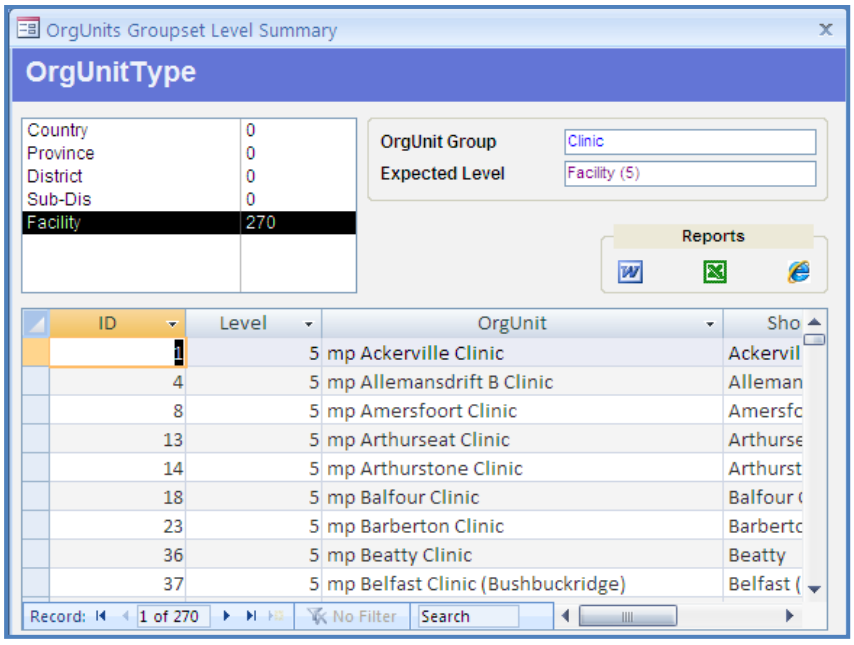


Figure 14: OrgUnit Group Set level summary

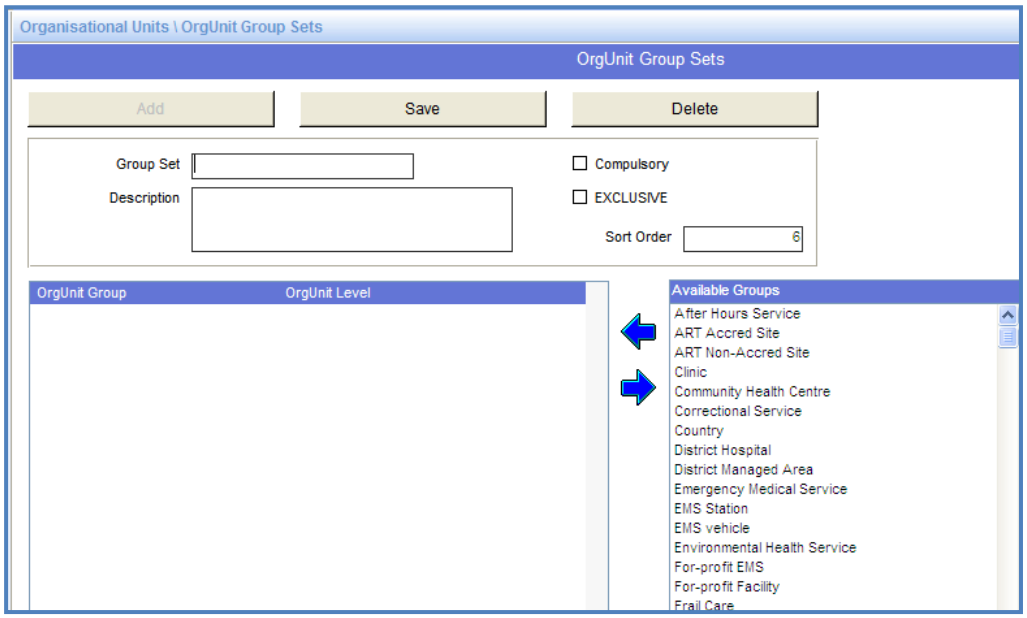


Figure 15: Adding New OrgUnit Group Set

Add a new organizational unit group set with the name **Student Set** and allocate the following OrgUnit Groups: **After Hours Service** and **For-Profit facility** all at **Facility** OrgUnit level. Set the Org Unit Group Set to be **compulsory** and **exclusive.** You are free to discuss with a colleague next to you.

2.1.6 Replicate OrgUnit Branch

The **Replicate OrgUnit Branch** function can be used when planning to add a new hierarchy or a new OrgUnit to the hierarchy. It allows you to check whether your action will not result in duplicates. (This functionality is still under development)

Steps:

i) Click **Maintenance** on control centre.
ii) Click **Organizational Units**.
iii) Click **Replicate OrgUnit Branch**.
iv) Select the organizational tree that you wish to copy and change the parent and child names on the 1st tab (**Long Name**) and on the **short name** tab (The names can be changed by replacing words (Figure 16).
v) Checks for duplicates for both, if the outcome is zero on both tabs then click **Add to Hierarchy** to add the new OrgUnit tree.
vi) Click **Control Centre** to quit the **Replicate OrgUnit** function.

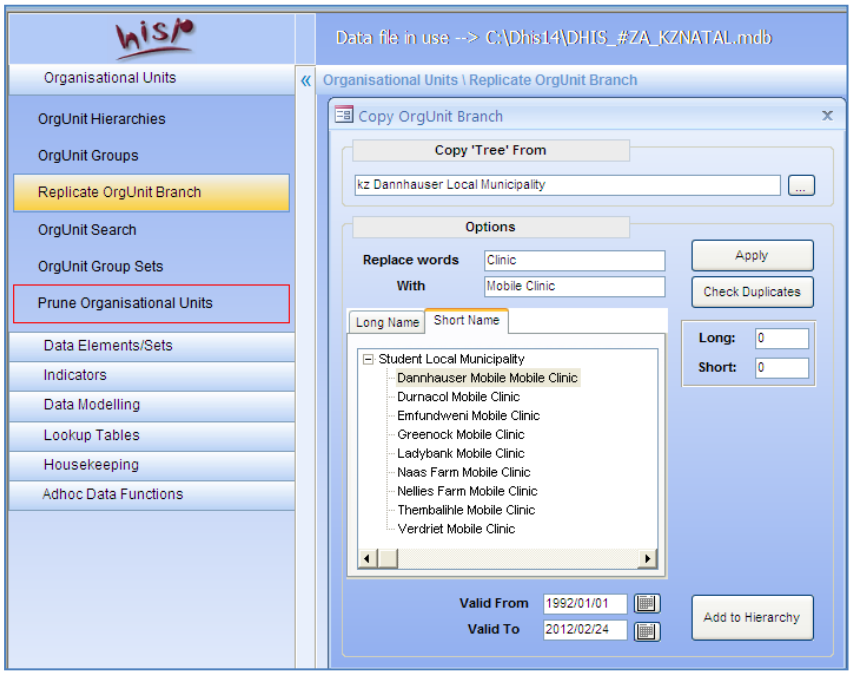


Figure 16: Replicate OrgUnit Branch

Practice the use of the **Replicate OrgUnit Branch** using data / criteria provided by the facilitator.

2.2.1 Data Elements

The NDoH **Data Elements** in the DHIS are standardized with standardized definitions. Some data elements may be added for local needs however these **must not** be exported to the next level of reporting. The steps below will guide you on how to create a **new** data element. New data elements can also be created by **replicating** an existing data element by **editing** and saving a replica. The fields marked with red asterisks are mandatory and therefore cannot be blanks. The aggregation start level is facility by default. If you want to add more than one data element at a time, **replicate** the one that you just added or click **new** on the one just added then follow the steps as previously done. To delete a data element, simply select it from the list (Figure 17) and click **Delete**. Data elements with data or used in validation rules / calculation of indicators cannot be deleted. Any new data element must be allocated to a data set to be available for data entry. If the **Auto-Activate Data Elements in Data Entry**, all the data elements will be active for the data set selected and the entry form can be manually customized by deactivating the data elements according to the services provided by the facility.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Data Elements / Sets**.
iii) Click **Data Elements** (Figure 17).
iv) Click **New** and the new data element form will open (Figure 18).
v) Fill in the new data element form ensuring that all the mandatory fields are complete.
vi) Click **Save**.

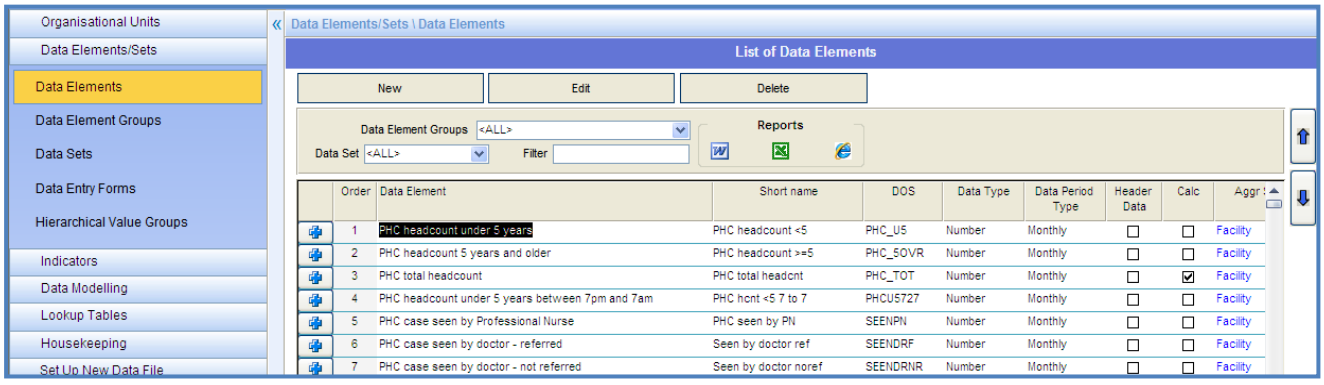
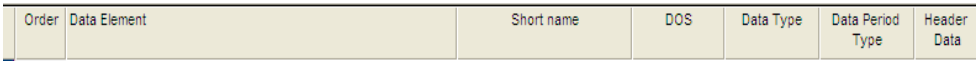


Figure 17: Data Elements View

vii) To replicate, click the data element that you want to replicate on the Data Element View form (Figure 18)
viii) Click **Edit** or double-click on the data element name.
ix) Click **Replicate** and the background color of the form will change.
x) Edit the fields as necessary.
xi) Click **Save**.
xii) Use these arrows  to move the data elements higher or lower in the list (The sort order is adjusted automatically.

xiii) To allocate a data element to a data set, click on the blue cross  next to the data element then select the data set from the drop-down list (Figure 19).

xiv) Click Apply and Close.

xv) Clicking any of the headings on the data elements list form, changes the data elements sort order. 

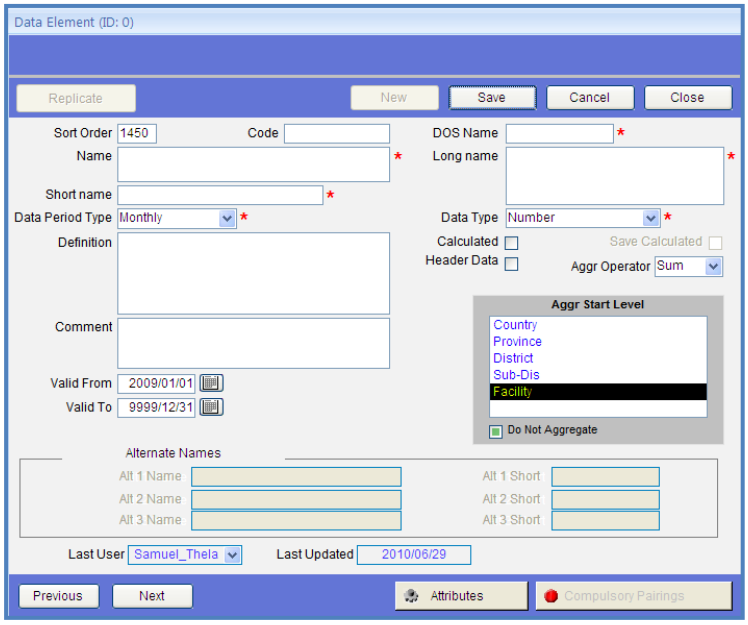


Figure 18: New Data Element Form

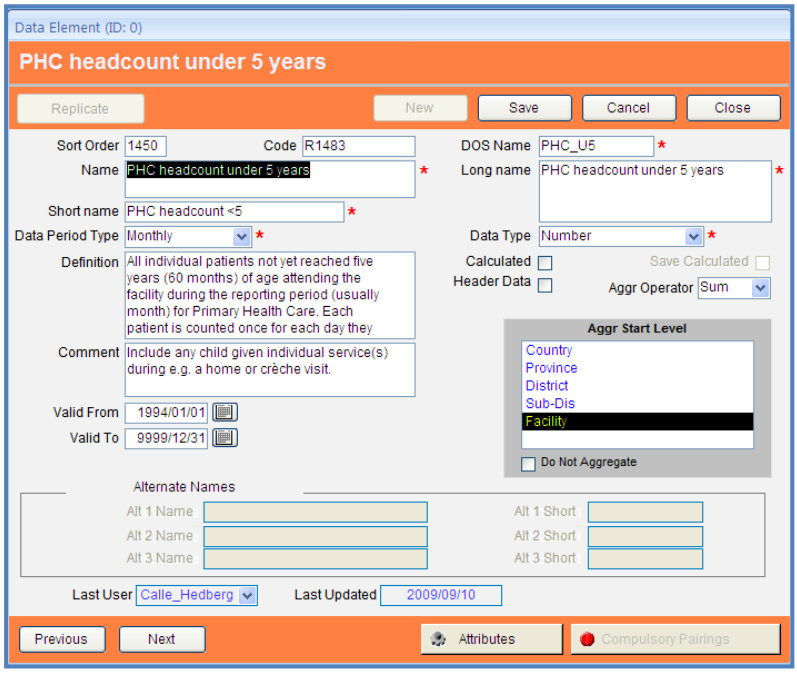


Figure 19: Replicating an Existing Data Element

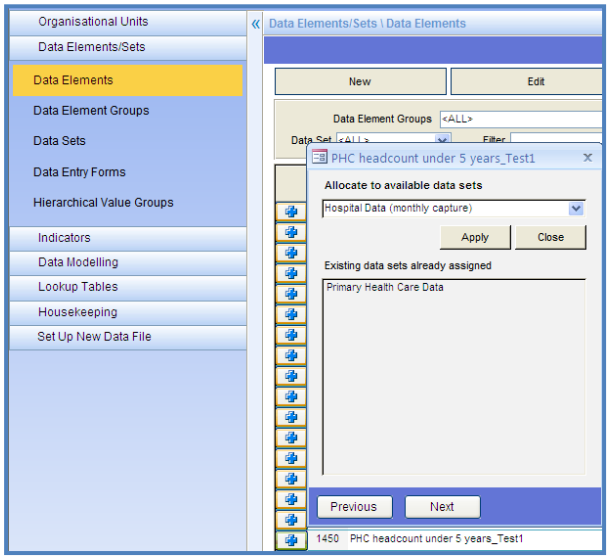


Figure 20: Allocating Data Element to Data Set (s)

2.2.2 Data Elements Groups

The **Data Elements Groups** (Figure 21) let you view the different Data Elements and their Groups. If a Data Element is **not** allocated to any Data Element group, it becomes an orphan. All orphaned data elements are displayed when the **Orphaned Data Elements** tick box is clicked. You may use the switch similar to figure 11 (Button No. 11) to view the Data Elements and Groups differently.

Steps

i) On Control Centre click Maintenance.
ii) Click Data Elements / Sets.
iii) Click Data Element Groups to display the form and add or remove a data element from a group (Figure 21).
iv) Click the Orphaned Data Elements tick box (Figure 22) to display data elements **not** allocated to a group.
v) Click an appropriate group from the Available Groups and the + sign to select a data element group to allocate the orphaned data element (Figure 23), double-clicking on the group also does the same function.

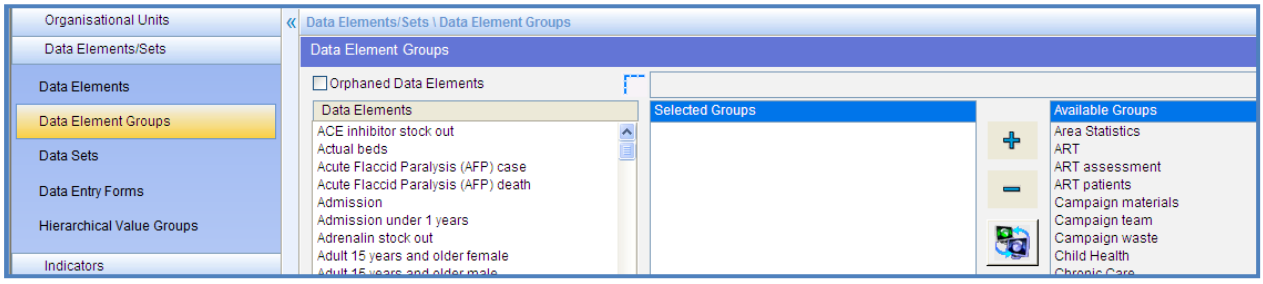


Figure 21: Data Element Groups Display

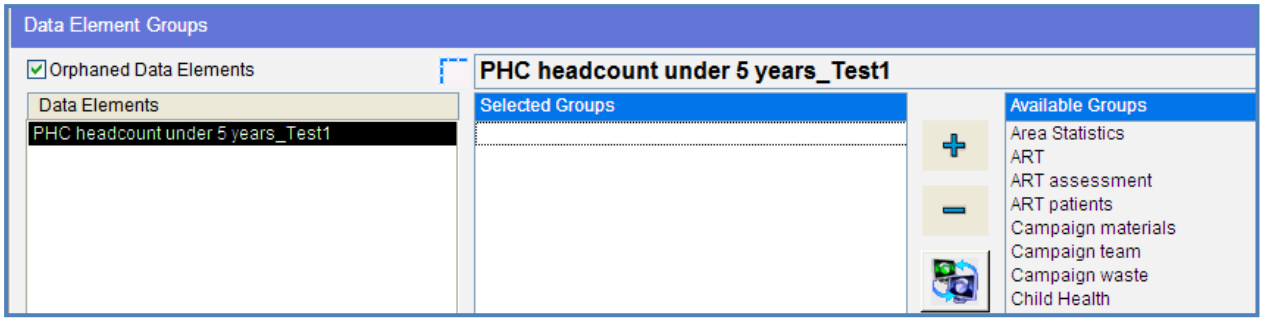


Figure 22: Orphaned Data Elements

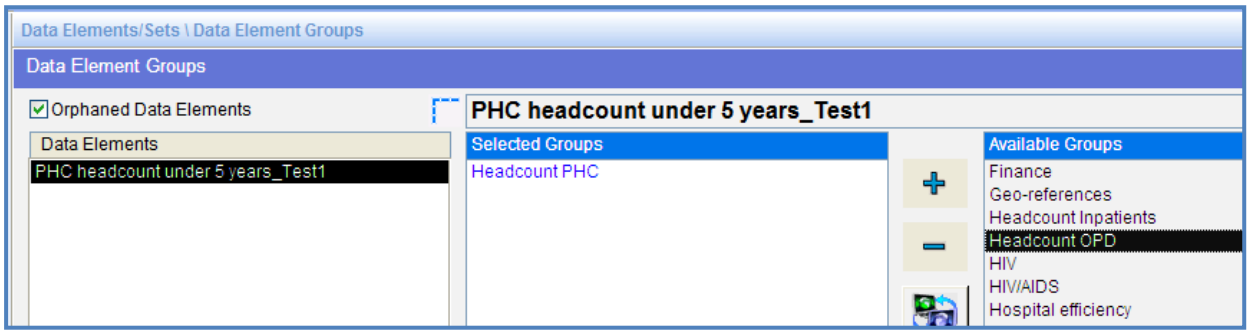
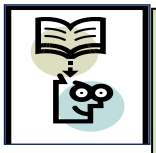


Figure 23: A Group Selected for a Data Element

2.2.3 Data Sets



Data Elements in the data base are many and may not be collected all at the same time by all facilities or reporting units. **Data Sets** therefore provides for a group of data elements that are similar to the summary form and can be arranged to follow the same sequence as in the summary form thus making data capturing an easy task e.g. PHC data set with only PHC data elements or CHC data set containing only CHC data elements. To create a new **Data Set**, follow the steps below. The new data set will be at the end of the list. To **edit**, **double-click** the data set and to **delete**, click on the data set and click delete from the data set list menu. If the **Auto-activate All Data Elements in Data Entry** option was selected or data has been entered or has data elements allocated, the data set cannot be deleted.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Data Element / Sets**.
iii) Click **Data Sets** and the list of Data Sets will be displayed (Figure 24).
iv) Click **New** and complete the new data set form (Figure 25).
v) Click **Save** if the Save button is active and Close.
vi) Click the  sign next to the data set you just created to allocate Data Elements to the Data Set (Figure 26).
vii) Click **Allocate to OrgUnits** button on the Data Set list menu to allocate your data set to all or specific OrgUnits.
viii) Click **Save** and a **Done** confirmation will popup.
ix) Click **Ok**.
x) Open a Data Entry form selecting the new data set and an OrgUnit allocated the data set to view / confirm what you have done.
xi) Close the data entry form.

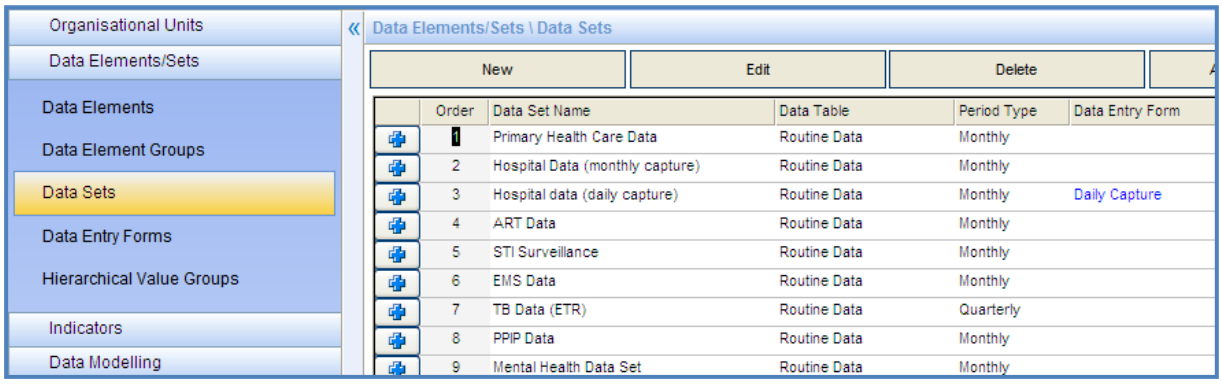


Figure 24: Data Sets View

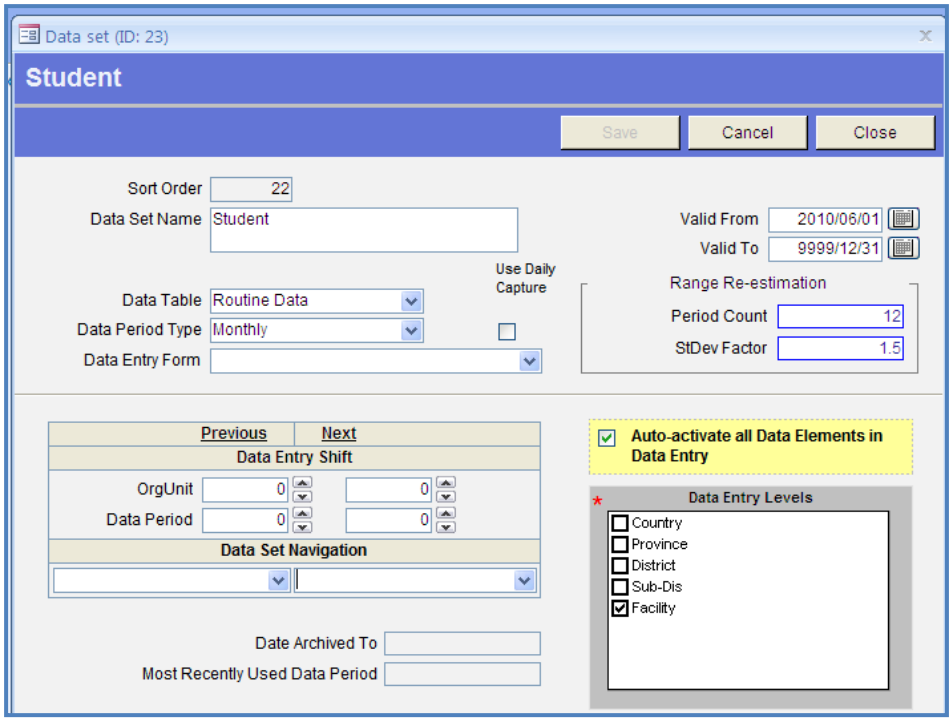


Figure 25: Creating a New Data Set

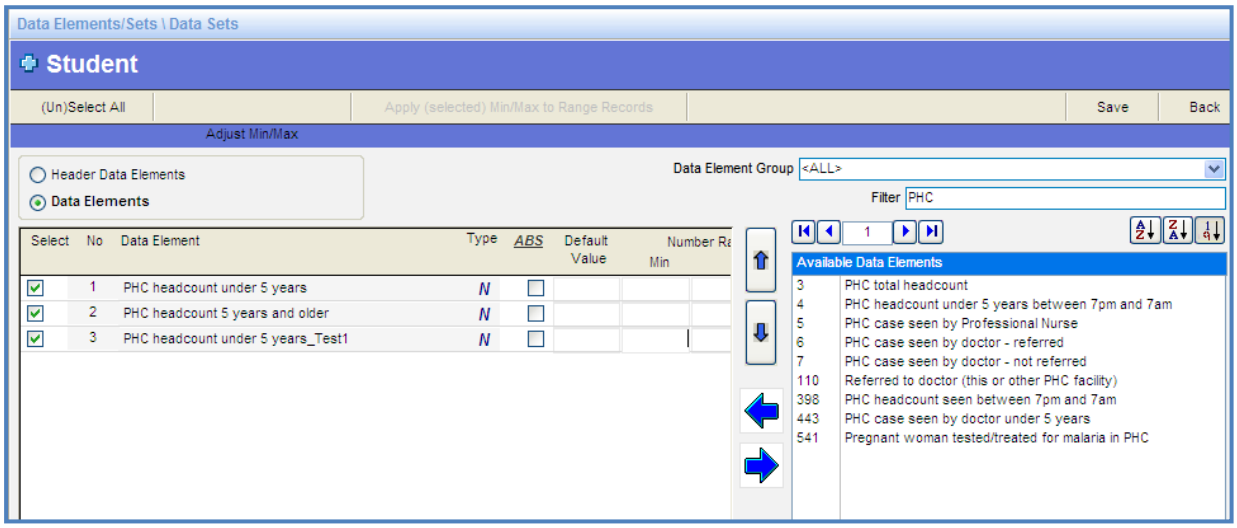


Figure 26: Allocating Data Elements to a Data Set

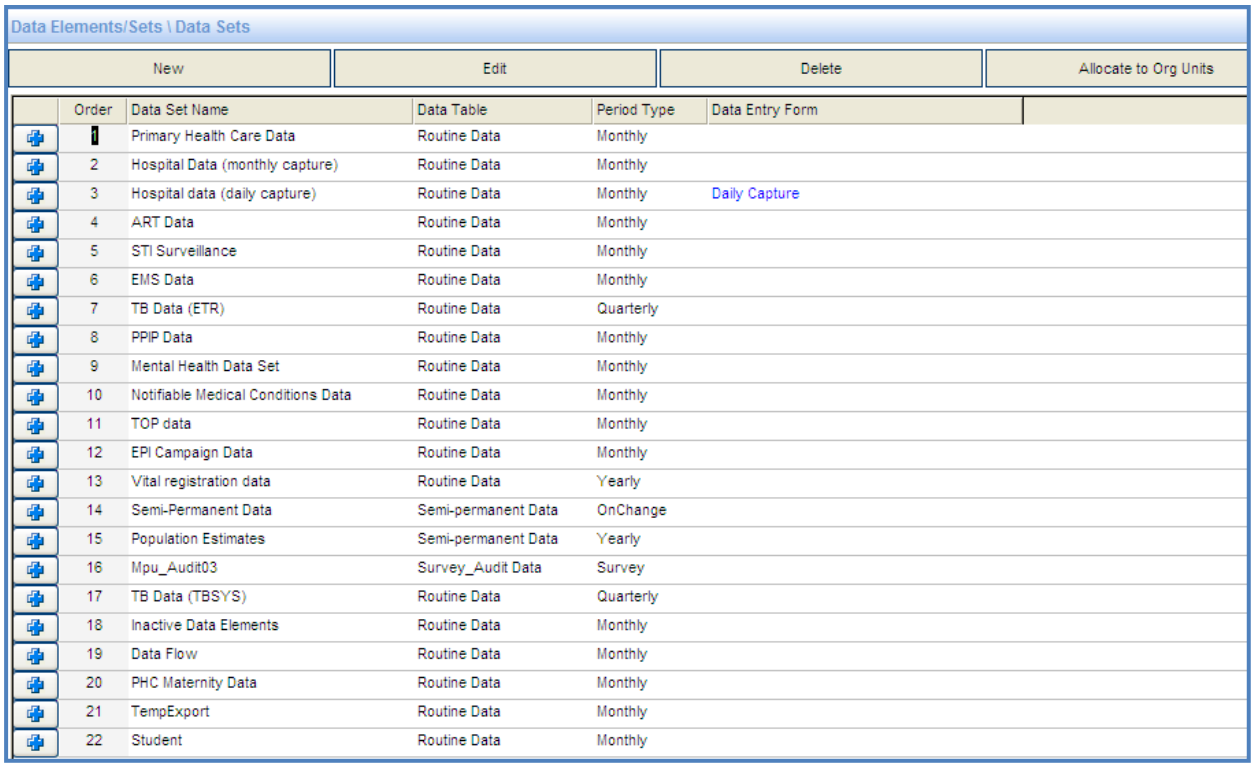
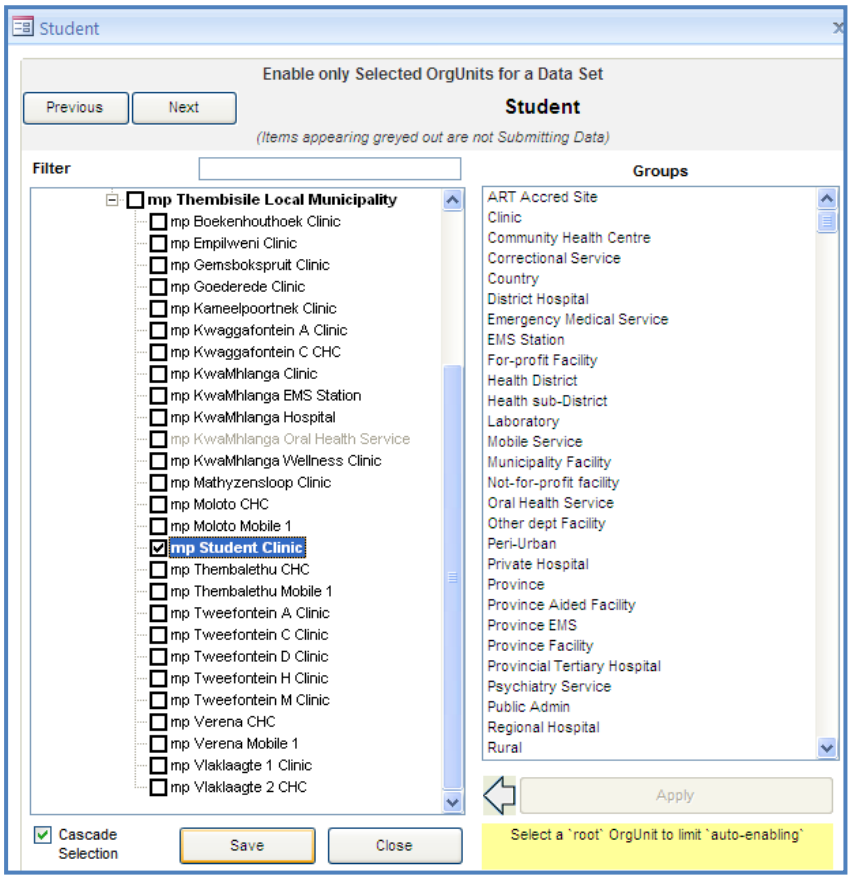


Figure 27: New Data Set Displayed (Bottom of list)



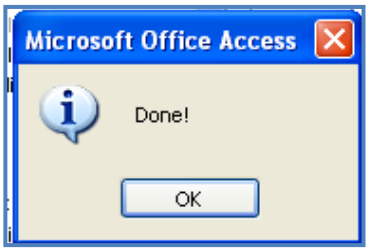


Figure 28: Save Confirmation

Figure 29: Allocating OrgUnits to a Data Set

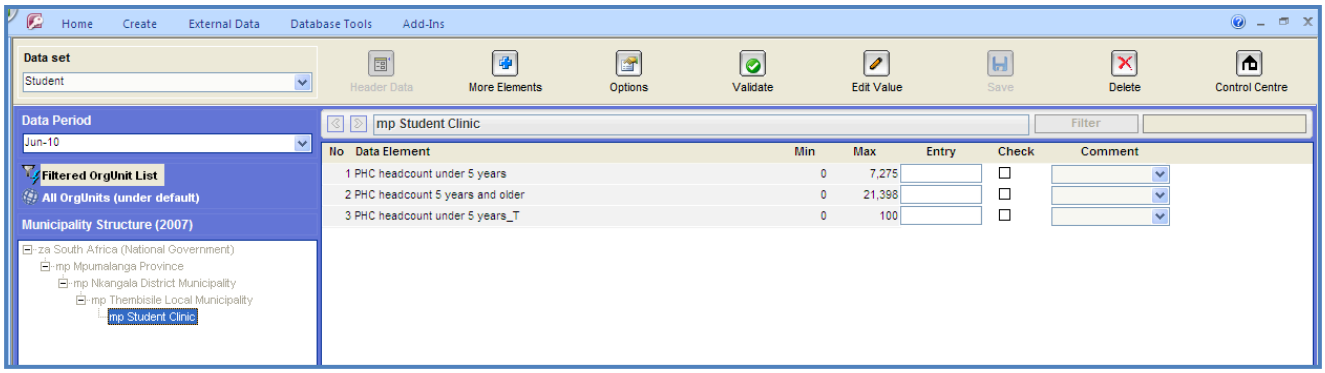


Figure 30: Data Entry Form Using the New Data Set

2.3 INDICATORS

2.3.1 Indicators

The routine data collected is used to calculate indicators in the DHIS. Indicators are only calculated on the 'fly' when data is exported to the Data Mart. They become available when the pivot tables are created or refreshed from the Data Mart. An indicator is a quantitative or qualitative variable (something that changes) that provides a simple and reliable measurement of one aspect of performance, achievement or change in a program or project. The Indicator Target, Indicator Benchmark & Indicator Target Explosion are all under development. Indicators like Data Elements can also be created using the **Replicate** function.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Indicators** navigation button.
iii) Click **Indicators** to open the indicator list form
iv) Click **New** on the Indicator List menu (Figure 31).
v) Fill in all the necessary details on the New Indicator form including description of the numerator and denominator.
vi) Click **Add Numerator** to select data element (s) that form part of the numerator (Figure 33).
vii) Click **Add Denominator** to select data element (s) that form part of the denominator.
viii) Click **Save** and close (The indicator will be at the end of the list and can be edited by double-clicking or by clicking the edit button or deleted by clicking the Delete button).

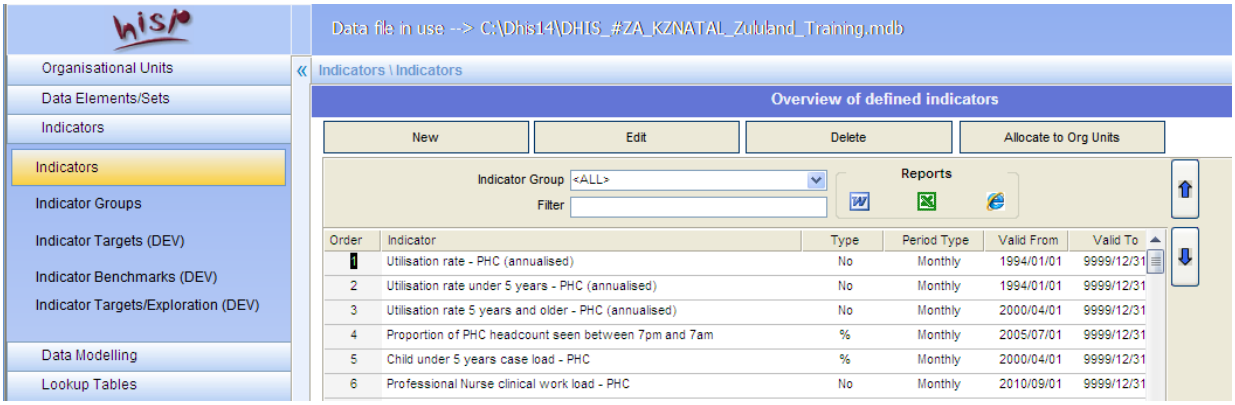


Figure 31: View List of Indicators

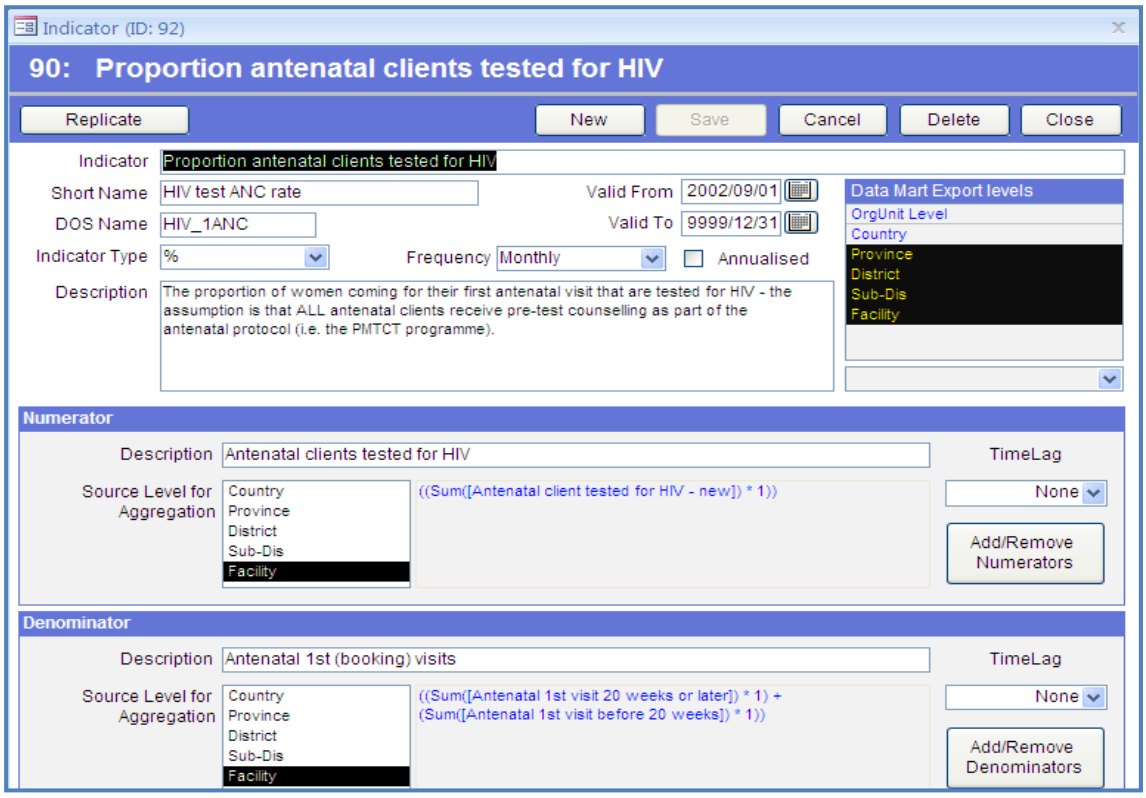


Figure 32: Creating a New Indicator

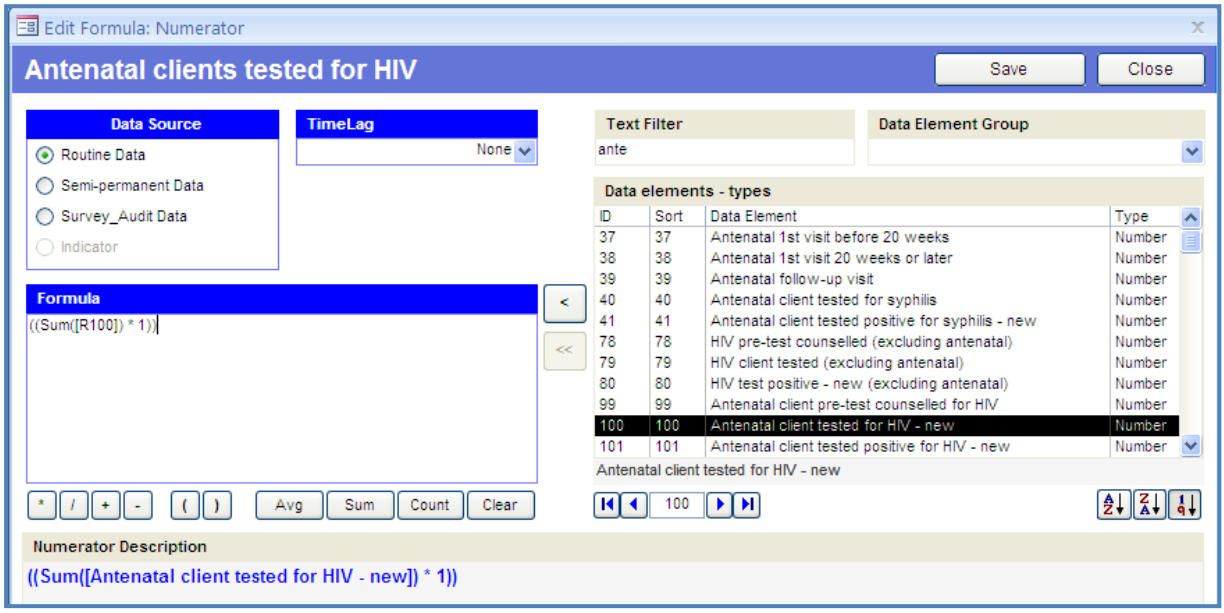


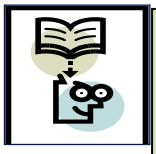
Figure 33: Add Numerator

Create an indicator using the following details:

- **Indicator Name:** Antenatal Clients 1st Visit Before 20 Weeks Rate
- **Description:** Proportion of Antenatal Clients who visit a health care facility for the 1st time in the current pregnancy before 20 weeks gestation.
- **Numerator:** Antenatal Clients 1st visit before 20 weeks.
- **Denominator:** Sum of Antenatal Clients 1st visit before 20 weeks and Antenatal Clients 1st visit 20 weeks or later.

Time: 10 Minutes

2.4 Indicator Groups



Indicator Groups are used to group indicators that are associated with a specific service or program, e.g. Immunization, Reproductive Health, etc. Indicators should be allocated to groups if not they become orphans and can be identified by ticking the **Orphan** tick box on the indicator group list and allocating the indicator to an appropriate group. As discussed earlier, the switch button enables you to view the indicator groups differently.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Indicators**.
iii) Click **Indicator Groups** to display existing indicators and their groups (Figure 34).
iv) Click on any indicator from the indicator list column to display its group on the **selected groups** column.
v) Click the **orphaned indicators** tick-box to display indicators not allocated to any indicator group.
vi) Click on an indicator group from **available groups** and the **+** (plus) sign to move it to the **selected groups** thus allocating the orphaned indicator to its appropriate group (double-clicking on a group does the same function).
vii) Click on an indicator group on the **selected groups** and the **–** (minus) sign to move it back to the **available groups** (double-clicking on a group does the same function).

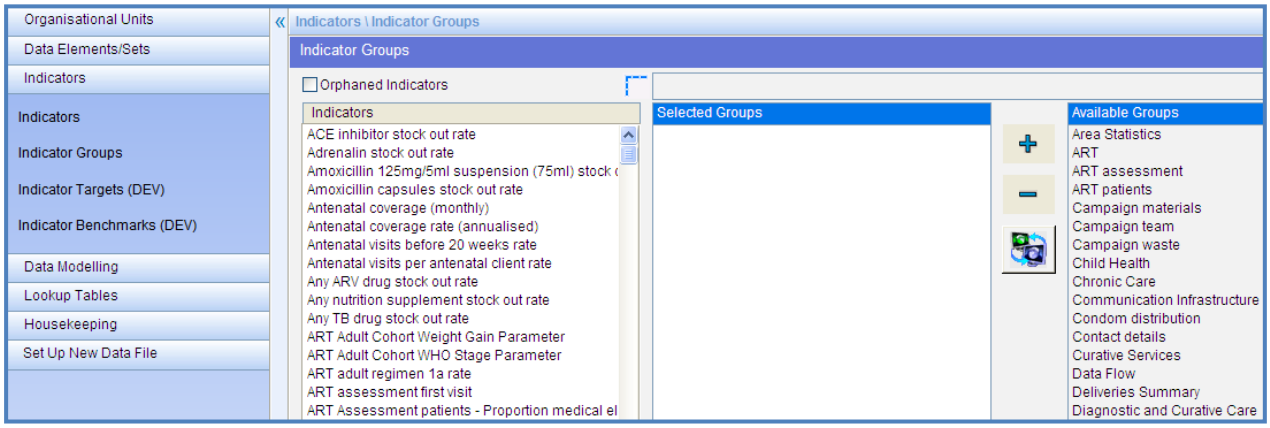


Figure 34: Indicator Groups List

In 10.1 above you created an indicator. Allocate it to an appropriate indicator group.

Time: 5 Minutes

2.5 DATA MODELING

2.5.1 Re-estimate Catchment Population

Population based Org Unit 5 indicators are calculated according to the data input coverage (for selected data elements – usually headcount data, use the population estimate setup to prepare the input coverage or use the global options function). Data input coverage determines the contribution each facility will have to the total coverage in a Sub-district or district. The calculation of this coverage is called **Re-estimation of Catchment Population**. There should be more than 6 month data available. The steps below will guide you through. The catchment population re-estimation wizard can also be accessed by **right-clicking** on the **control centre**, pointing to **wizards** and selecting **population re-estimation wizard** (Figure 41).

Steps

i) On Control Centre click **Maintenance**.
ii) Click Data Modeling.
iii) Click **Run Population Estimation** to start the wizard (Figure 35).
iv) **Browse** for an OrgUnit Area and **select the OrgUnit** (If a Municipality is selected, the re-estimation will affect all the facilities under that municipality) – Figure 36.
v) Click **Ok** and Click **next** to go to the next step of the wizard.
vi) Enter **Period** on both period fields (the longer the period the better the estimation, though it may take long to run) – Figure 37.
vii) Select the **OrgUnit Level** (Usually Facility is selected) and click next.
viii) Click **Finish** on the Summary form (Figure 39).
ix) Click **Ok** on the timed results box to close the wizard (Figure 40).

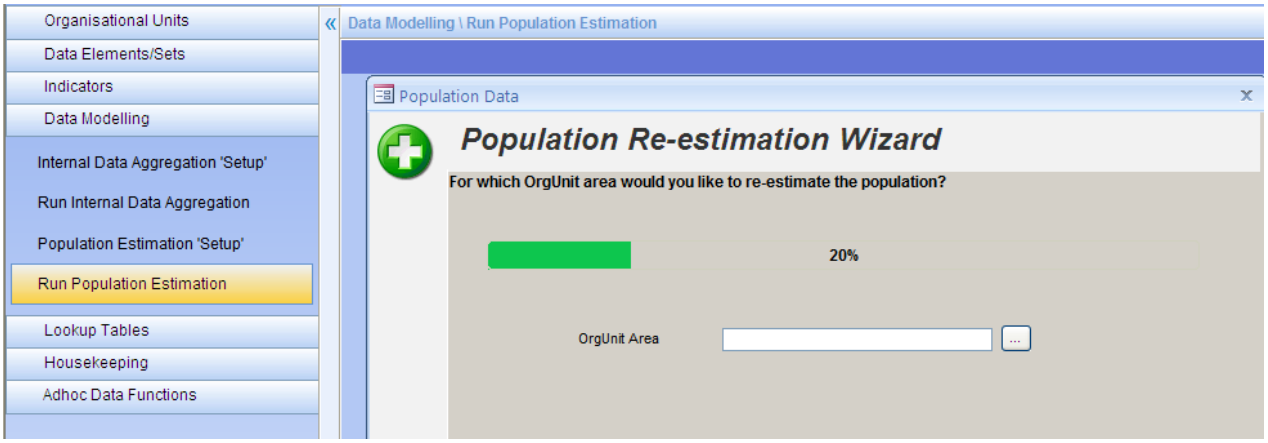


Figure 35: Re-estimating Catchment Population Form

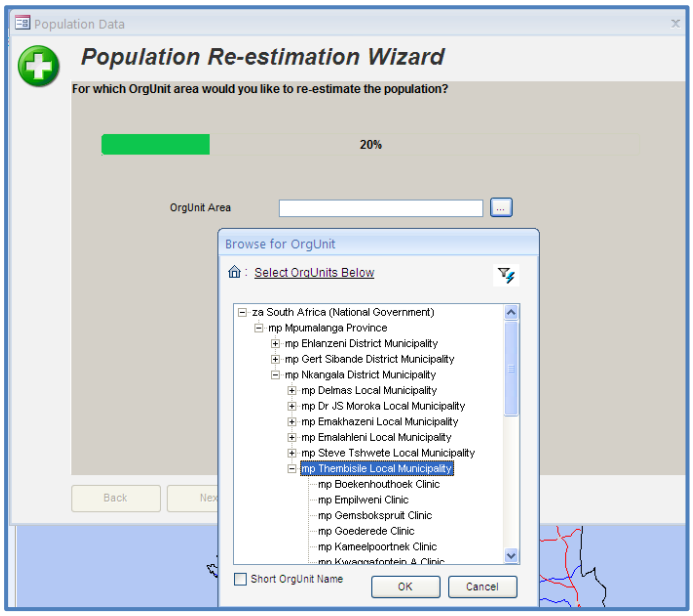


Figure 36: Selecting an OrgUnit Area

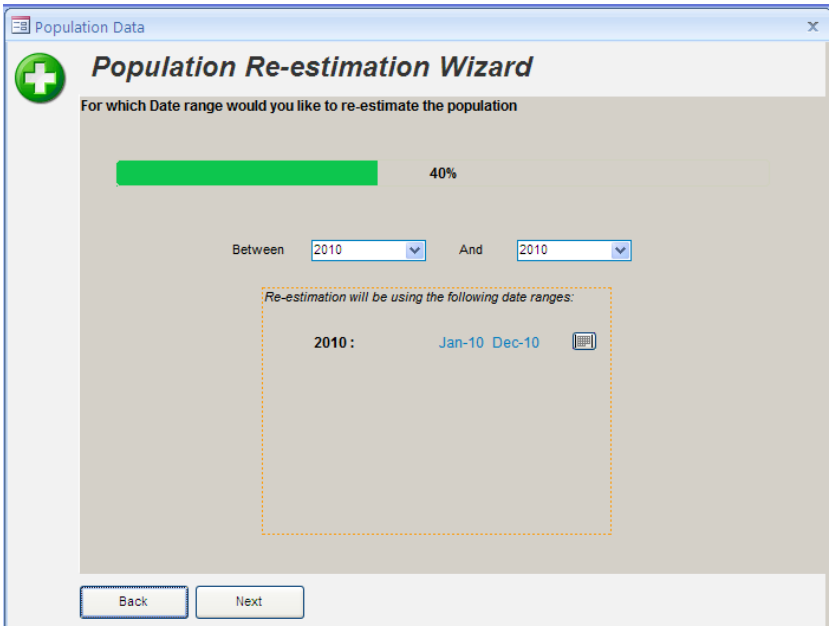


Figure 37: Select period

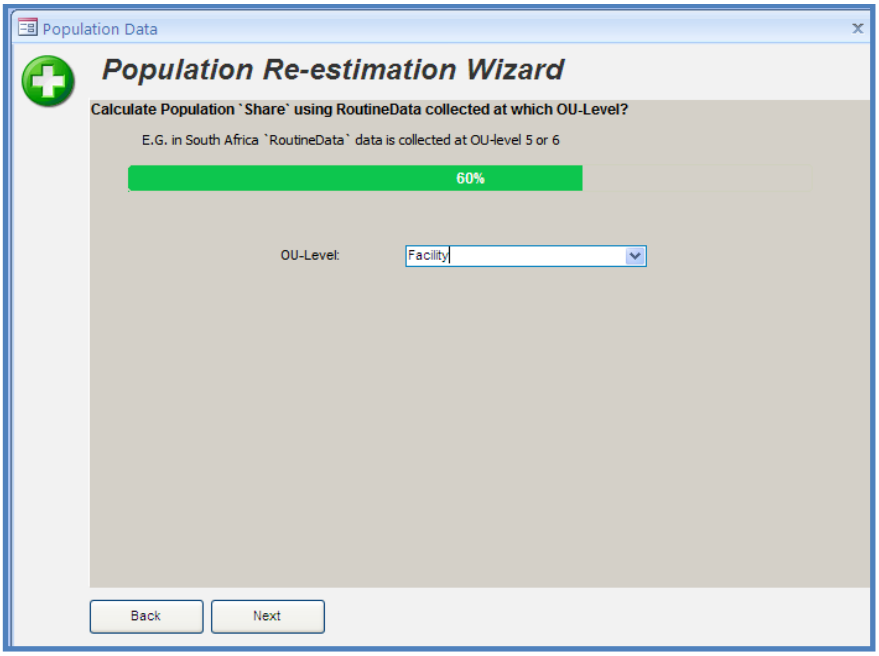


Figure 38: Select OrgUnit Level

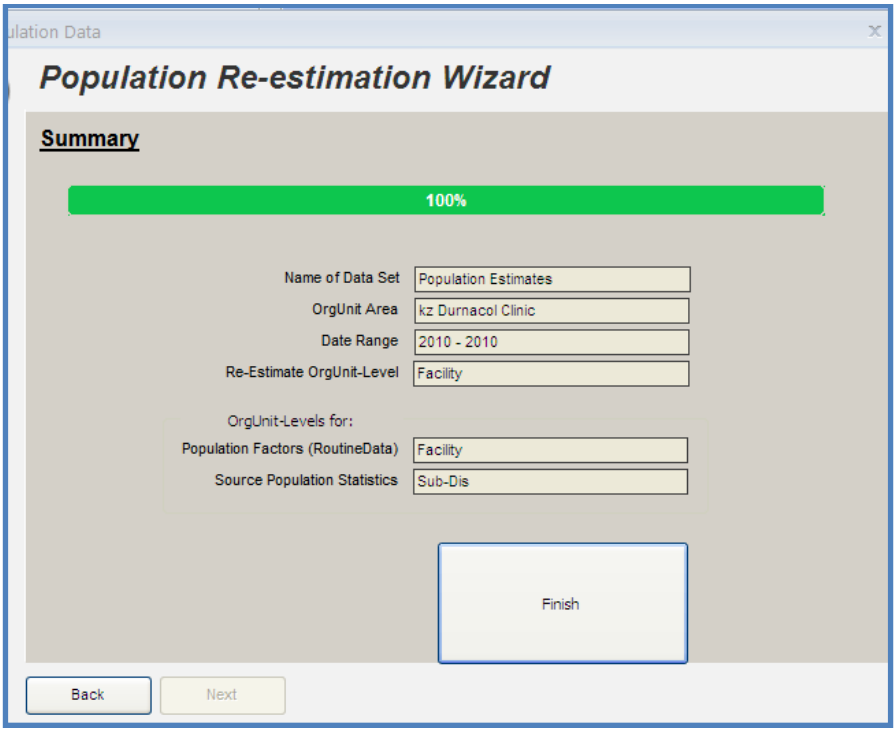


Figure 39: Catchment Population Estimation

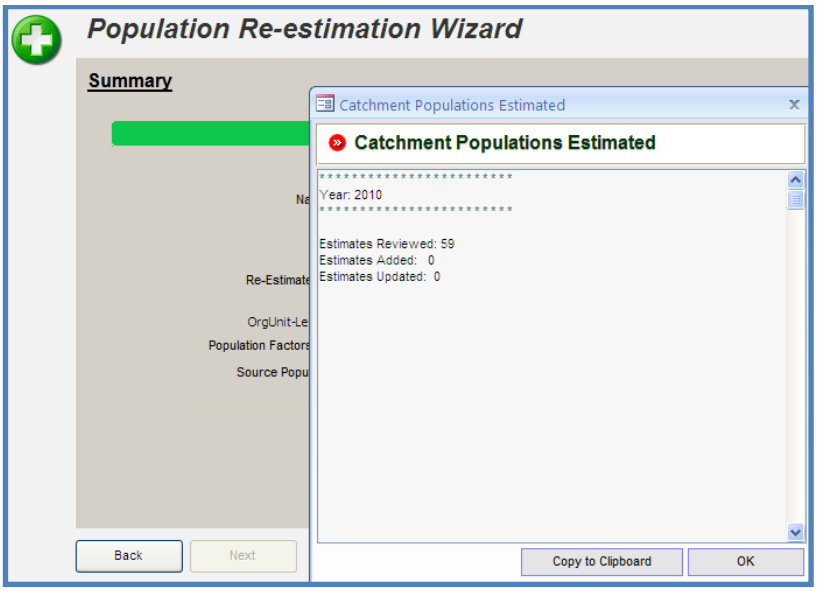


Figure 40: Calculation Results

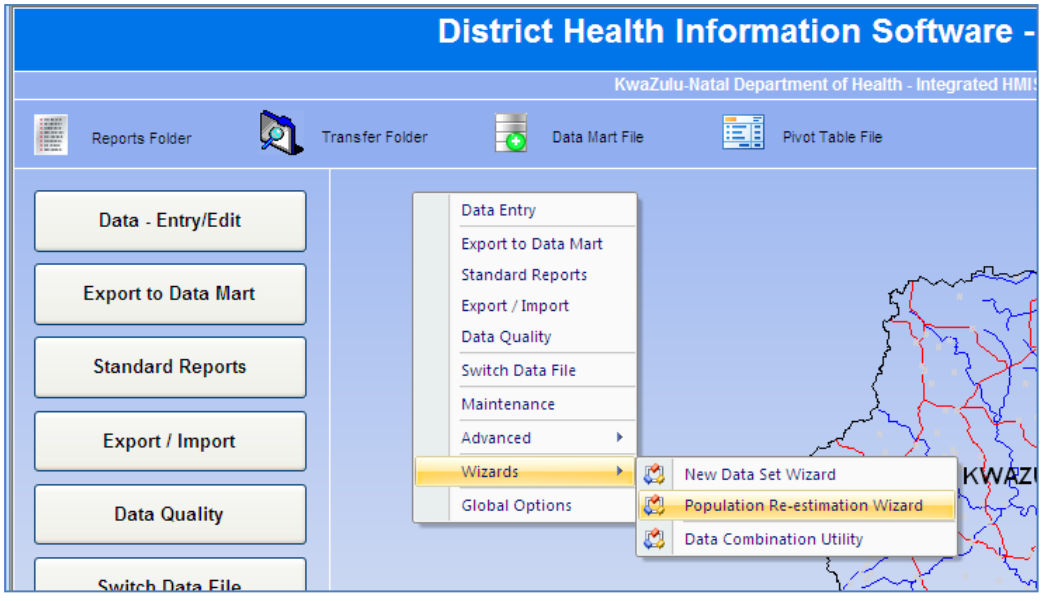
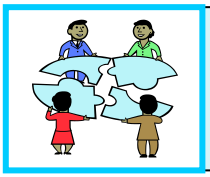


Figure 41: Population Re-estimation Wizard



Re-estimate Catchment Population for an OrgUnit given by the facilitator.

Time: 5 Minutes

2.5.2 Internal Data Aggregation

The **Internal Data Aggregation** function can be used to aggregate data entered daily per ward into hospital monthly totals. You need to run the Internal Data **Aggregation Setup** first to select the source OrgUnits and the destination OrgUnits and other criteria. Once this is done then future internal aggregations will be based on the criteria (schema) set. The hospital must have reporting unit (OU6).

2.5.3 Internal Data Aggregation setup

Steps

i) On the Control Centre click **Maintenance**.
ii) Click **Data Modeling**.
iii) Click **Internal Data Aggregation Setup** (Figure 42).
iv) Click **New** to display the setup form.
v) Complete the fields (all fields marked with asterisks are mandatory) – schema name, type, description source level (OrgUnit 6) and destination level (OrgUnit 5).
vi) Select the relevant data elements from the available side and move them across to the selected side (any applicable data elements not selected will not form part of the aggregation) – Figure 43.
vii) Click the Advanced OrgUnit settings to show OrgUnit data available in the schema (Figure 44).
viii) Click **Save** then **close** (A new schema will appear) – Figure 45.

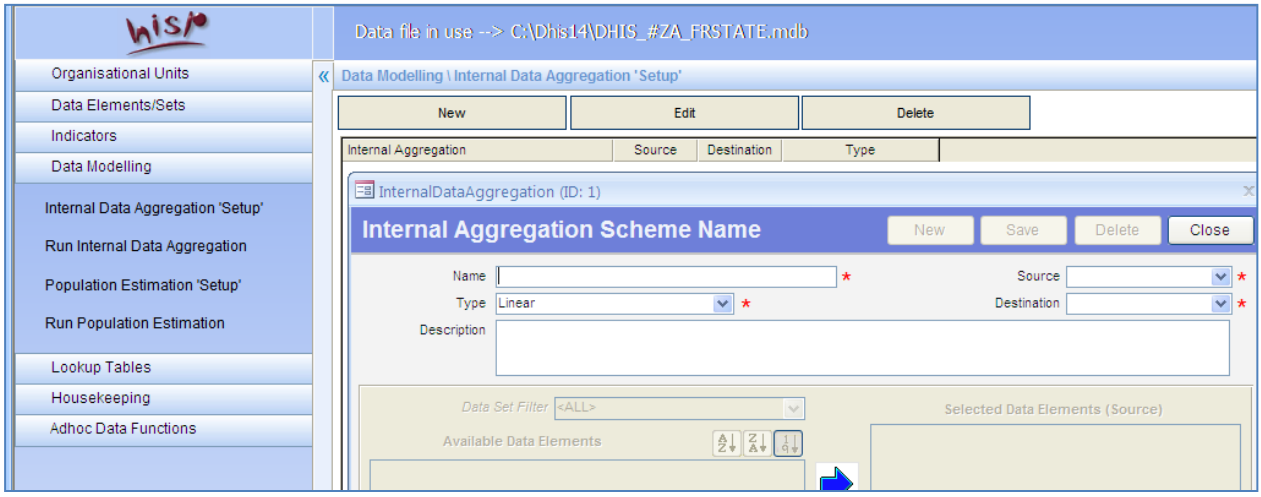


Figure 42: Internal data aggregation form

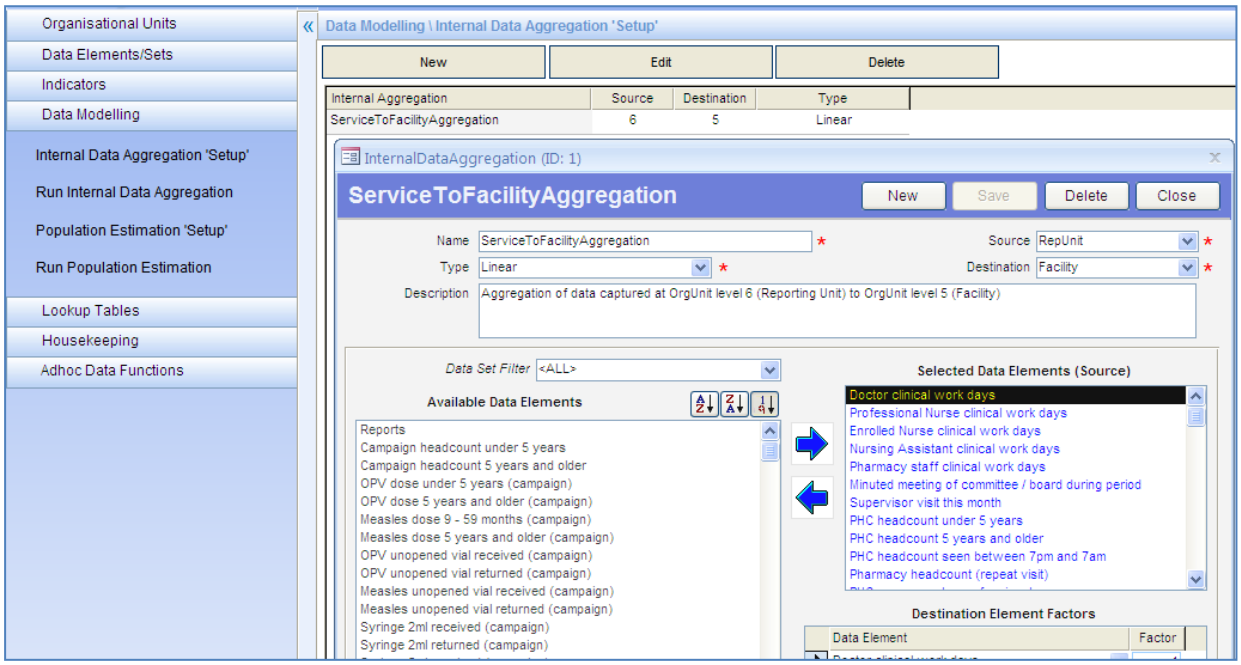


Figure 43: Completed Internal Aggregation Setup form

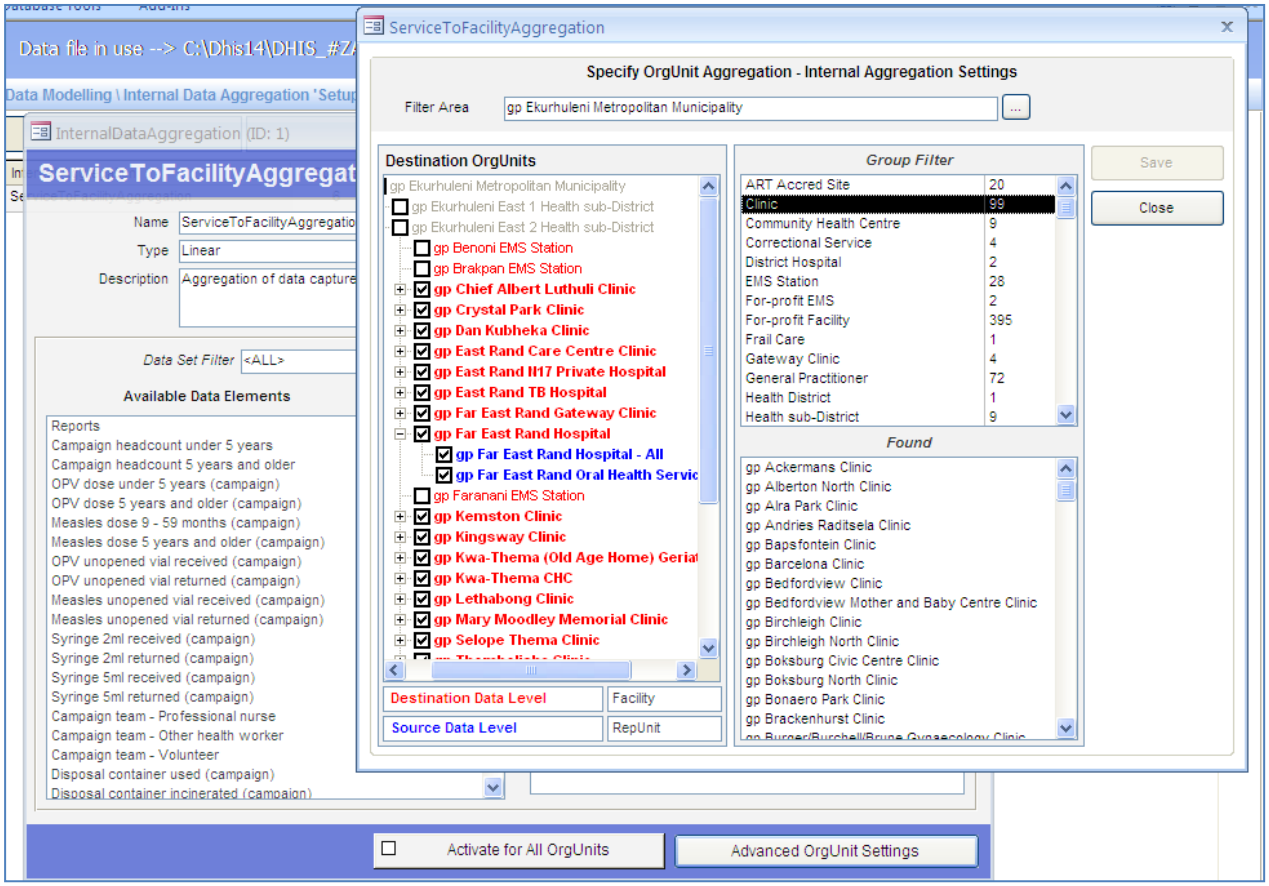


Figure 44: Display of OrgUnits forming part of the schema

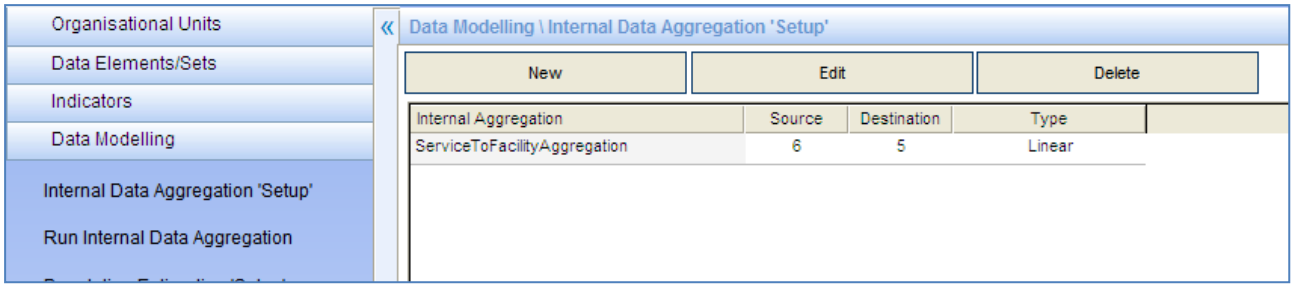


Figure 45: An Internal aggregation schema stored

2.5.4 Run Internal Data Aggregation

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Data Modeling**.
iii) Click **Run Internal Data Aggregation** the.
iv) Select the **OrgUnit area.**
v) Click Run Aggregation and the record results will appear below and they depends on whether there were changes made or not (You may be prompted to update the range records – click No to ignore it).
vi) Click the **Control Centre** button.

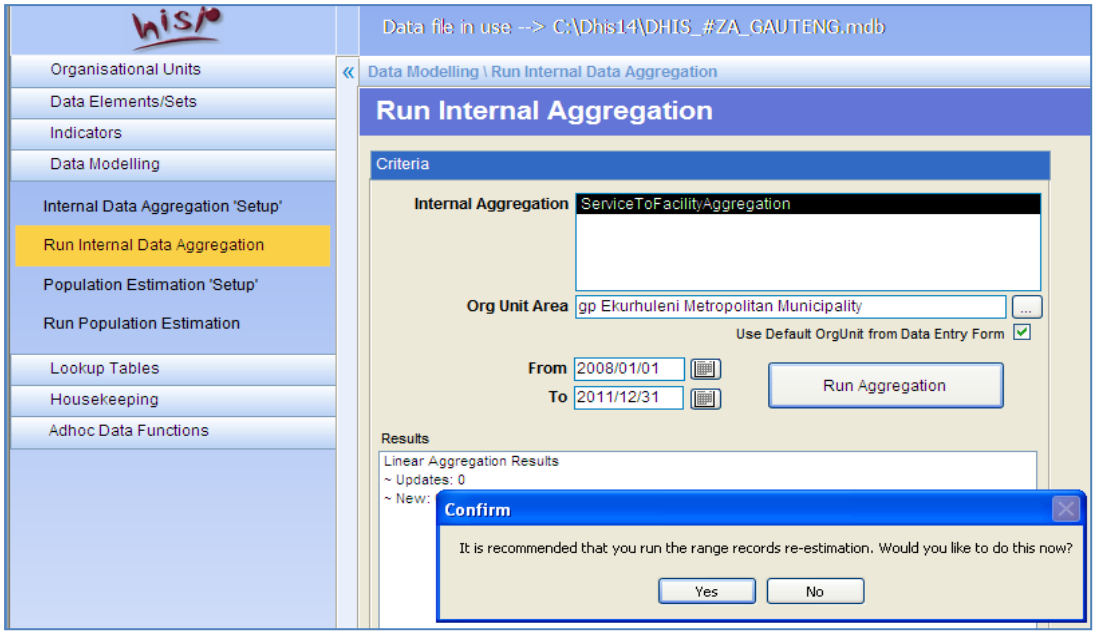


Figure 46: Run internal Data Aggregation

2.6 LOOK-UP TABLES

2.6.1 Data Set Groups, Data Elements & Indicator Groups etc.

Lookup tables form the basis for many of the drop-down lists. Additional items for these specific tables can be added here by clicking the Add button. Items can also be deleted by selecting the item to delete and click the Delete button on the Lookup table form. Some elements cannot be deleted as there is data associated with them.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Lookup Tables**.
iii) Click the lookup table that you want to view or edit (Try exploring the contents of each one of them).
iv) You may add or delete a lookup table record.
v) Data comments are the most commonly used and new comments can be added – it will appear in the drop down list in the data entry form

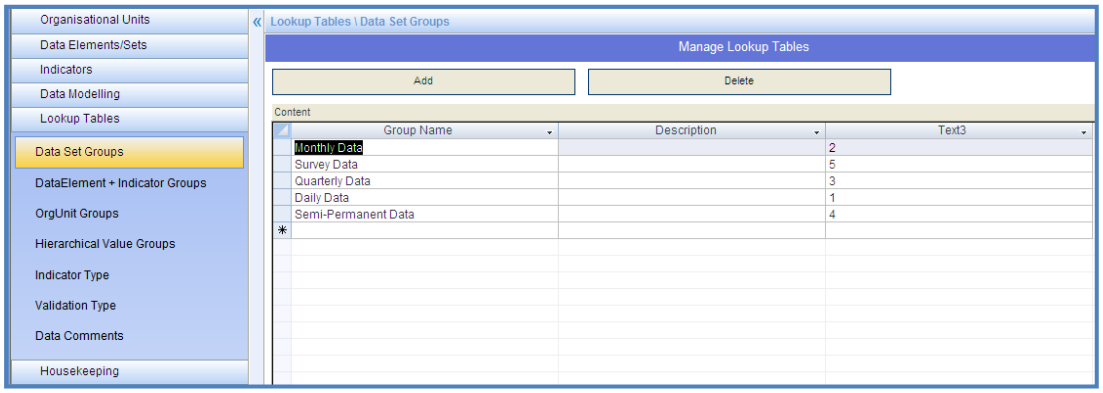


Figure 47: View of Data Set Groups Lookup Table

2.7 HOUSE KEEPING

2.7.1 Merge OrgUnit Data

Health Care facilities and services are ever changing. Clinics may amalgamate, services may be discontinued or facilities may close down. **Merging OrgUnit Data** allows the merging of two organizational units into a new facility, or merging of two facilities into an existing facility. Should two facilities merging into a new facility provide the same range of services, then merging the data is logical. If however the new clinic is going to provide different range of services, then it makes more sense to create a new facility and the former clinics will become inactive. If one or more Org Units merged into one Org Unit the Merge Org Unit Data function can be used.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Housekeeping**.
iii) Click **Merge OrgUnit Data** (The Merge OrgUnit Data provides some steps to follow when merging (Figure 48)
iv) Preview the new data against the previous then close the preview window.
v) Click finish
vi) Click **Ok** on the Merge Data Confirmation.

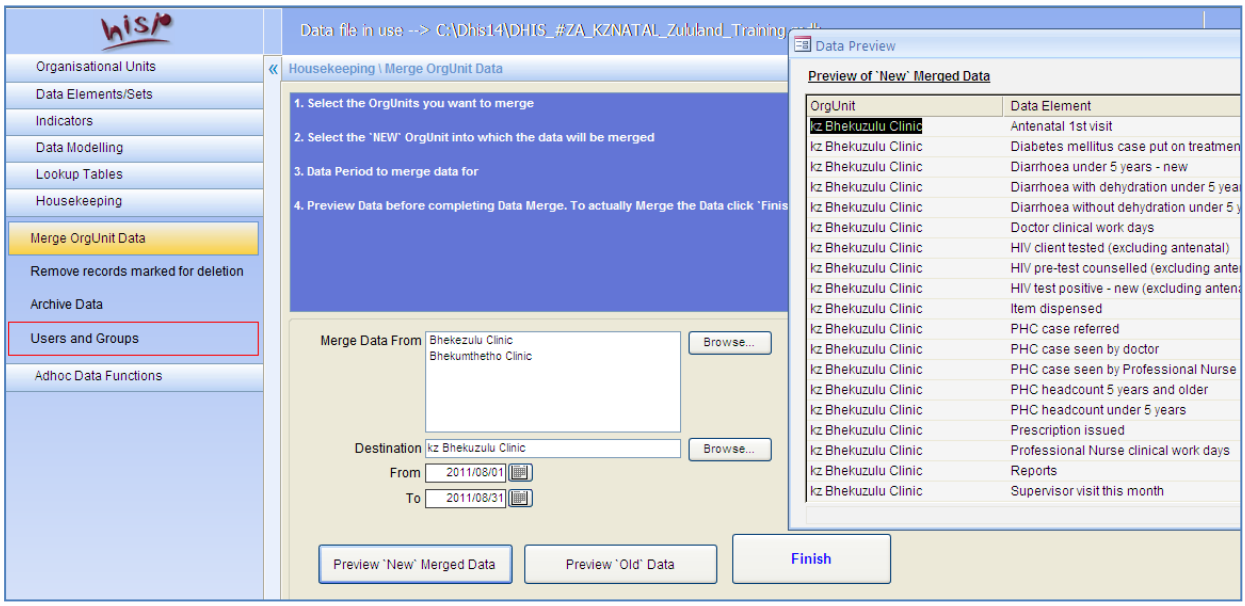


Figure 48: Merging OrgUnits

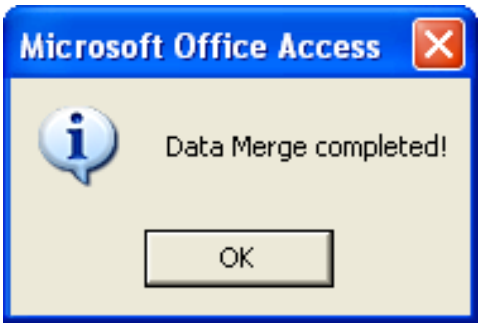


Figure 49: Data Merge Confirmation

2.7.2 Archive Data

The purpose of archiving data is to save space in the database. Data that is stable and more than 2 years old should be archived and can be un-archived should a need arise. PivotTables can be set up and 'kept' prior to archiving, which allows the data to still be available in PivotTable format. Once all the data is archived, there will be no data in the **Current Data** box unless only a few were selected. To un-achieve data, also follow the steps below however move the data from the **archived** box to the **Current Data** box.

Steps

i) On Control Centre click **Maintenance**.
ii) Click **Housekeeping.**
iii) Click **Archive Data** (Figure 50).
iv) Select **OrgUnits** by ticking appropriate boxes.
v) Choose **Source Data** option by ticking the option box, e.g. Routine Data.
vi) Select **Data Sets** by ticking the tick boxes.
vii) Enter **Period** From and Period To.
viii) Click **Show Records.**
ix) Select data to archive from the Current Data side and move it to the Archive Data side using the left pointing arrow.
x) Click **Control Centre** to close the Archive screen.

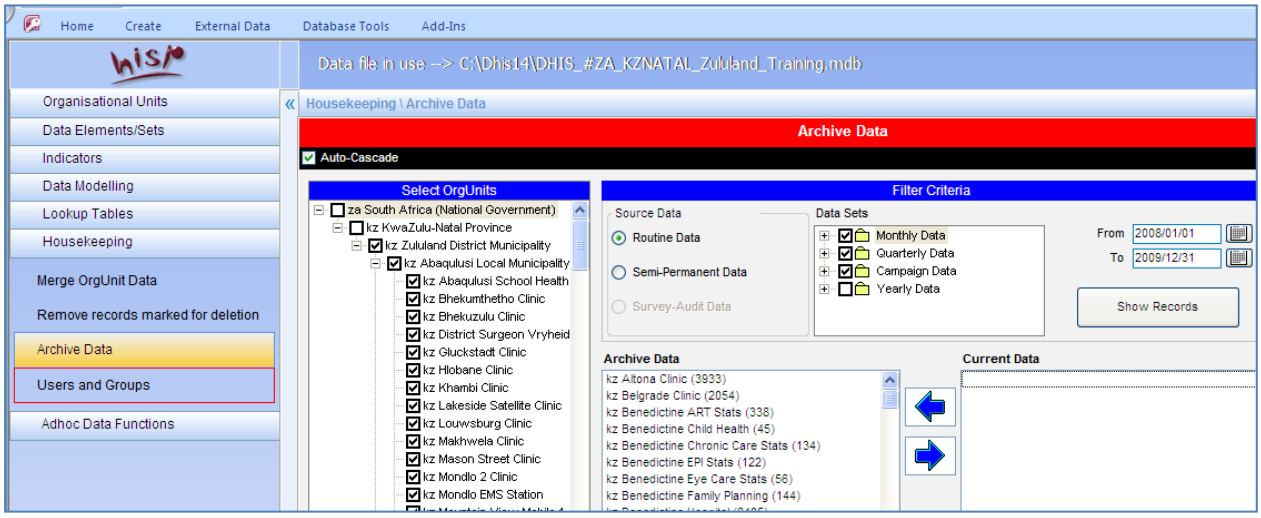
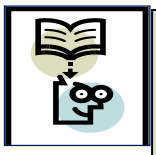


Figure 50: Archiving Data

3 MODULE 2: DATA ENTRY FUNCTIONS

3.1 Data Search



The Data Search function is used to have a quick view of the data. It display the number of data elements with data for the selected OrgUnit in the past few month, e.g. if a facility only reported on three data elements in a specific month, 3 will be displayed next to that facility. Clicking the little search button next to an OrgUnit, opens the OrgUnit data entry form for that specified period. Always click the **Search** button each time the search criteria are changed. **You must be logged in as a user and not admin.**

Steps

i) On Control Centre click **Data Entry** (You may also right-click and click **Data Entry**).
ii) Click **Add-Ins** to display Core Module and **Data Entry** menu and select a **Data Set**. (Figure 51).
iii) Click **Data Entry**
iv) Click **Data Search** – a search screen will appear (Figure 52).
v) Alternatively, click this button  and select Data Search.
vi) Browse for the OrgUnit under which the data is searched and click Search.
vii) Click the search  button next to an OrgUnit to view its data entry form for the period displayed (Figure 53).

viii) Click Close to close the search screen / window.

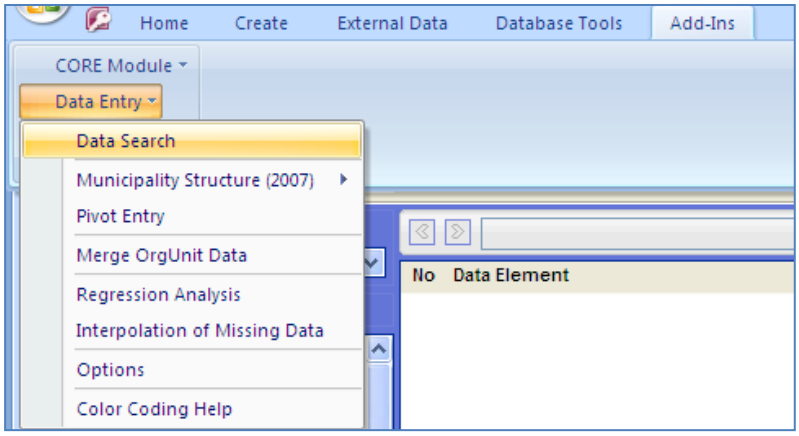


Figure 51: Selecting Data Search function from the menu

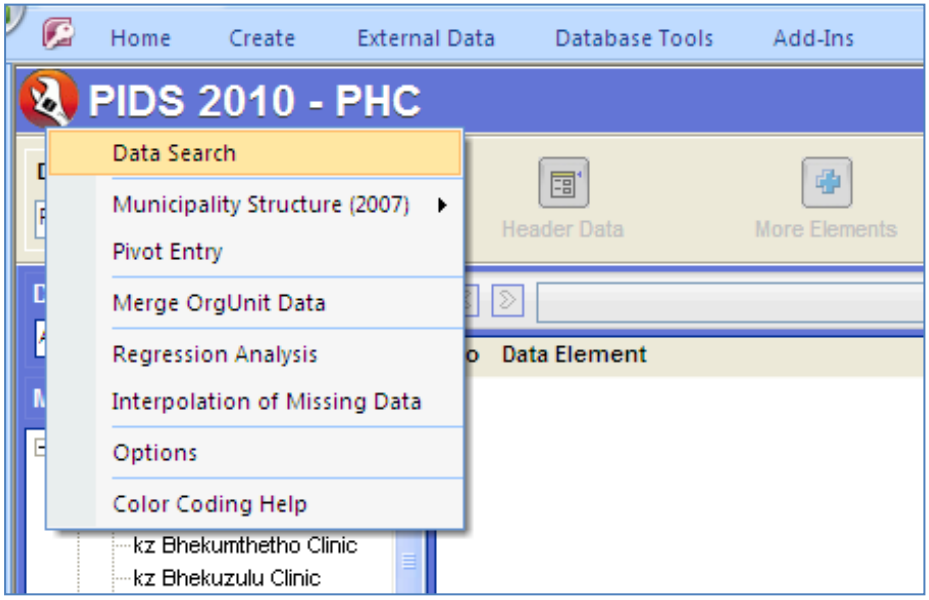


Figure 52: Data Search

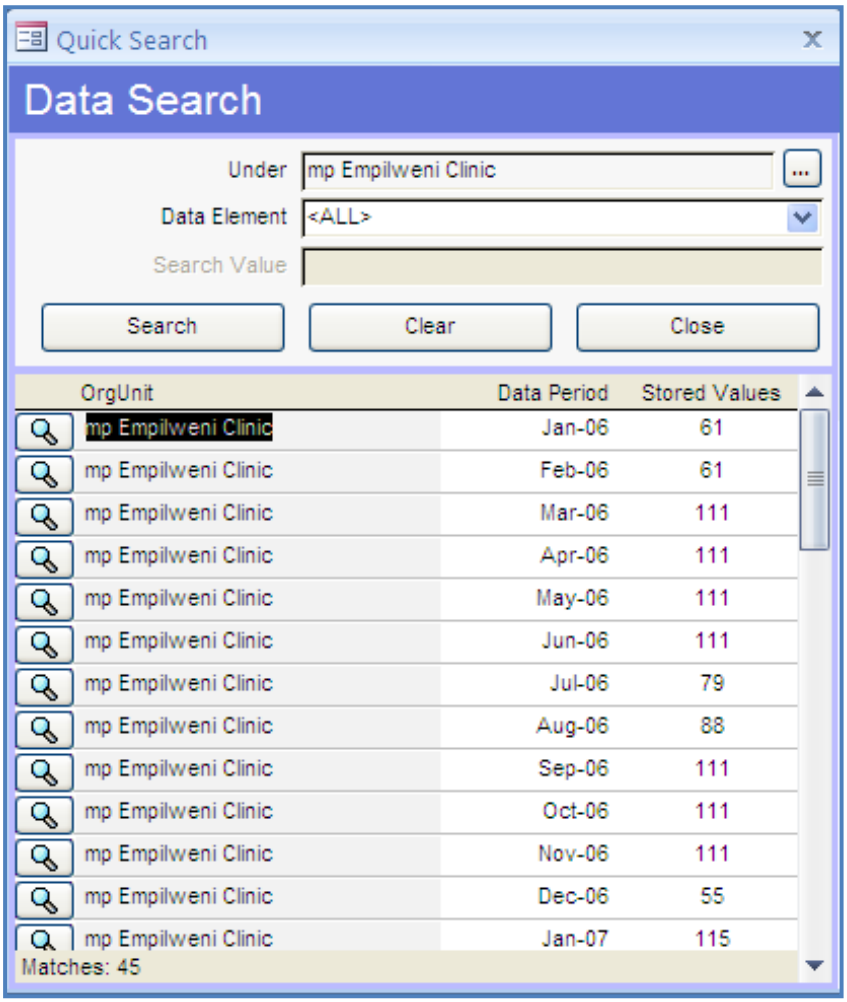


Figure 53: Data Search Window Displaying No. Data Elements Reported on

Search for the number of data elements reported on for an OrgUnit identified by the facilitator and identify any stored value of reported data elements which is below 10.

3.2 MUNICIPALITY STRUCTURE

3.2.1 Search for OrgUnit

The Search for OrgUnit function is the easiest way of finding any OrgUnit in the DHIS by just typing in a few letters that are part of the OrgUnit name. You may type in the whole word or part thereof. If you know the province under which a facility belongs, start with the provincial prefix then a few letters or the whole facility name and click **Ok.** The province, district or municipality under which the facility falls will be displayed in bold text (Figure 57).

Steps

i) On Control Centre click **Data Entry** and select a **Data Set**.
ii) Click **Add-Ins** to display Core Module and **Data Entry** menu (Figure 54).
iii) Point to **Municipality Structure** (2007).
iv) Click **Search for OrgUnits** (Figure 55)
v) Alternatively, click this button  and point to Municipality Structure then Search for OrgUnit.

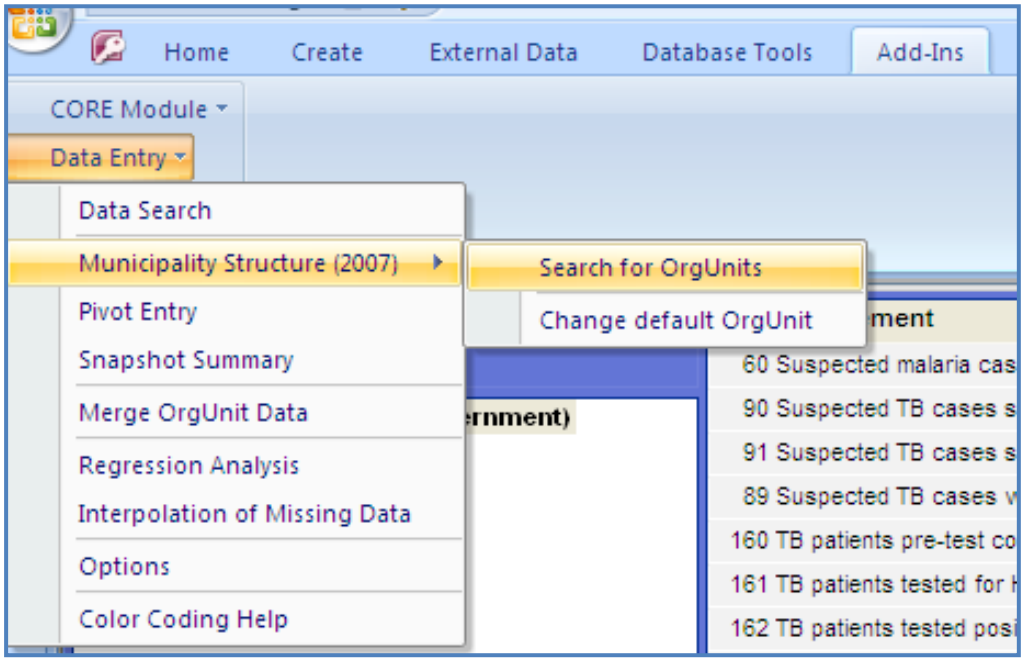


Figure 54: Search for OrgUnits

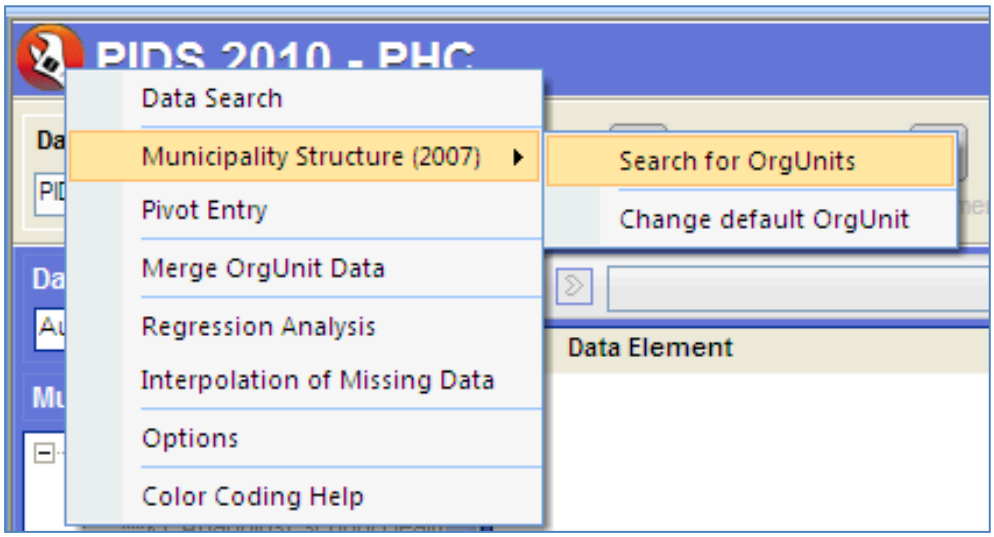


Figure 55: Search for OrgUnit

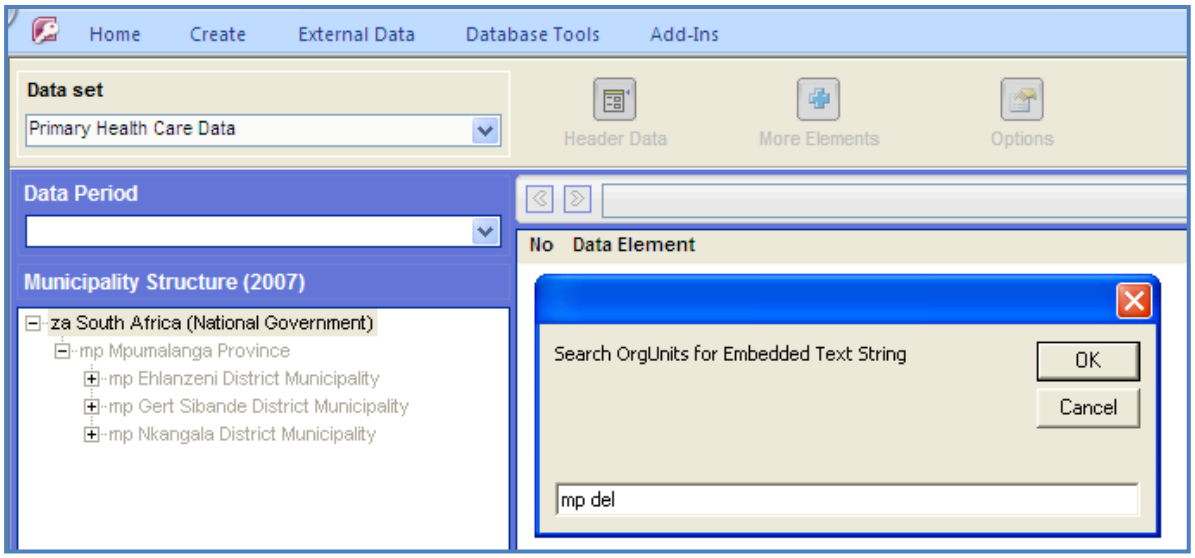


Figure 56: OrgUnit Search Window

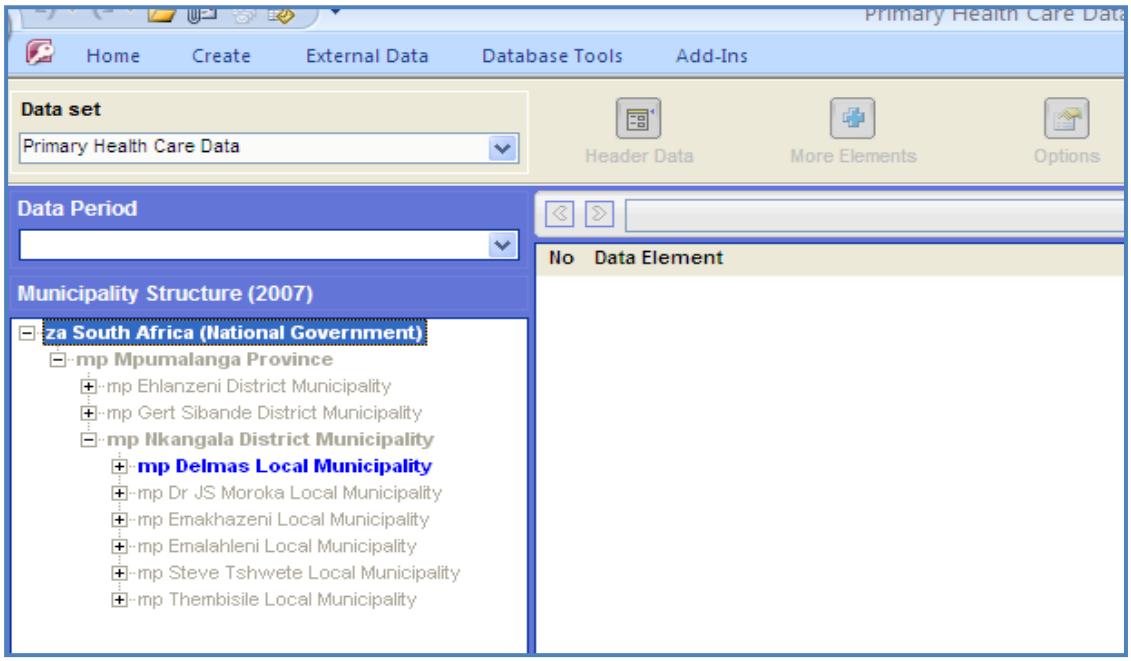


Figure 57: OrgUnit Displayed in Bold Blue Text

3.2.2 Change Default OrgUnit

The **Default OrgUnit** is the root OrgUnit. This is the OrgUnit that is seen at the top as an 'Umbrella' OrgUnit of the **Data Entry** form where all the others expands from. The country is normally a **Default OrgUnit** however this can be changed to a lower level like a province or district or sub-district e.g. if routine data is captured at a district level, the district is chosen and if at a sub-district level then the sub-district is selected. This would save time of the data capturer trying to expand the list from the top up-to the facility to capture data.

Steps

i) On Control Centre click **Data Entry** and select a **Data Set**.
ii) Click **Add-Ins** to display Core Module and **Data Entry** menu (Figure 58).
iii) Point to **Municipality Structure** (2007).
iv) Click **Change Default OrgUnit**.
v) Alternatively, click this button  and point to Municipality Structure then click **Change Default OrgUnit**.

vi) Expand the list and click the new Default OrgUnit (Figure 59).

vii) Click **Ok**, it will be displayed on the data entry form as the first on the list.

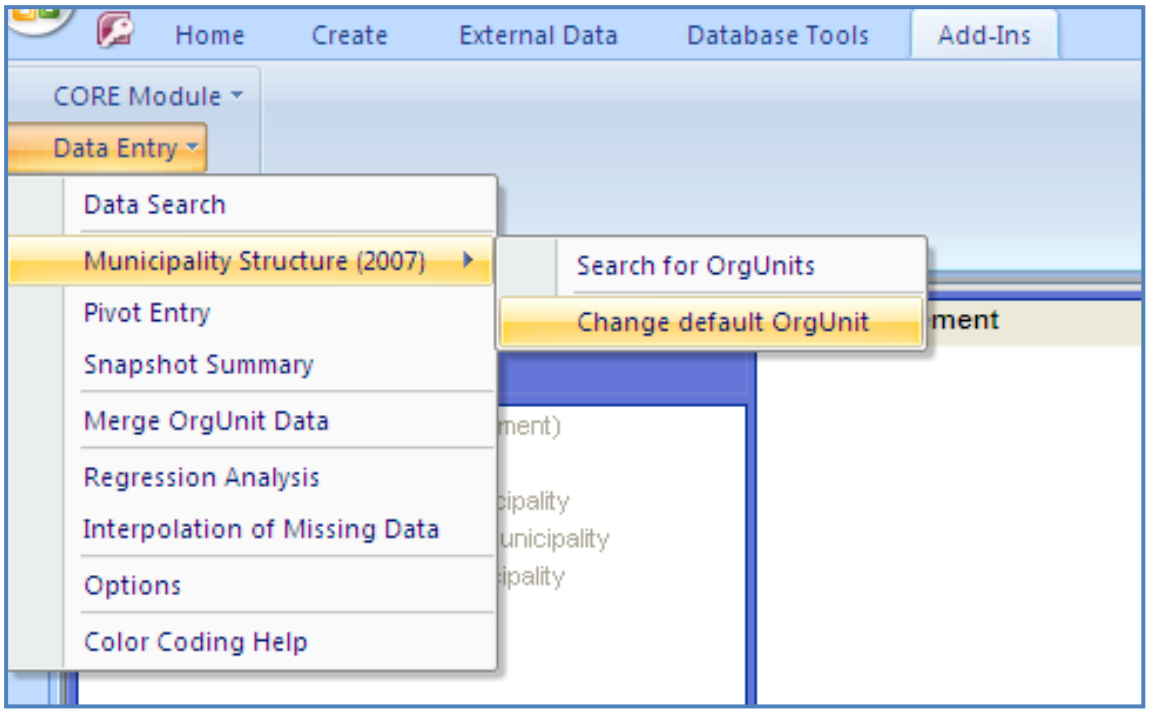


Figure 58: Default Org Unit Menu

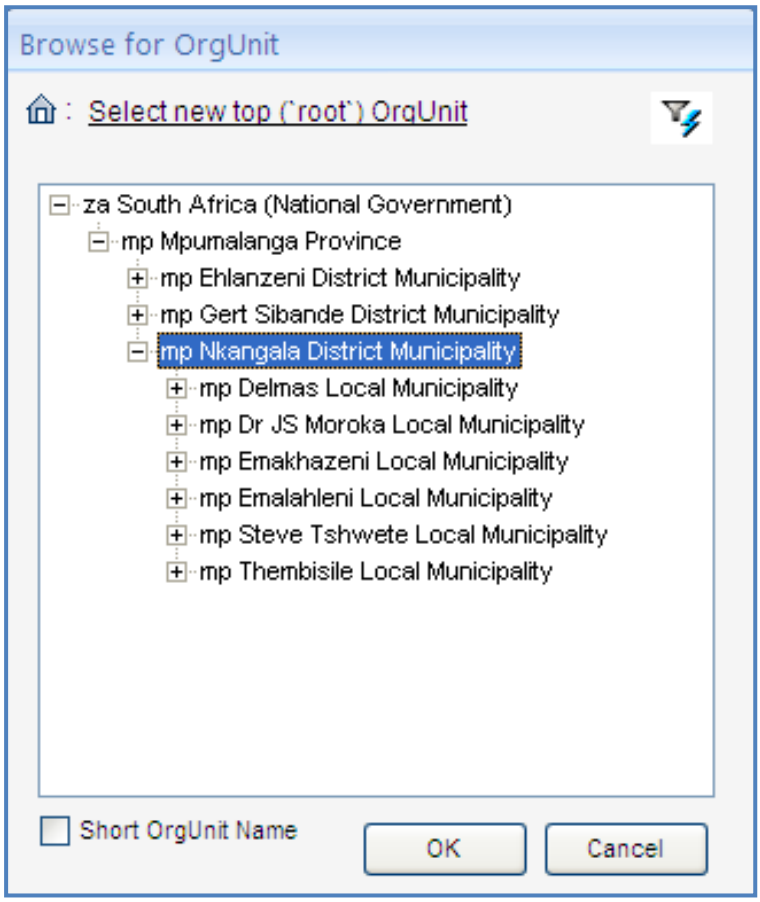


Figure 59: Selecting a Default OrgUnit

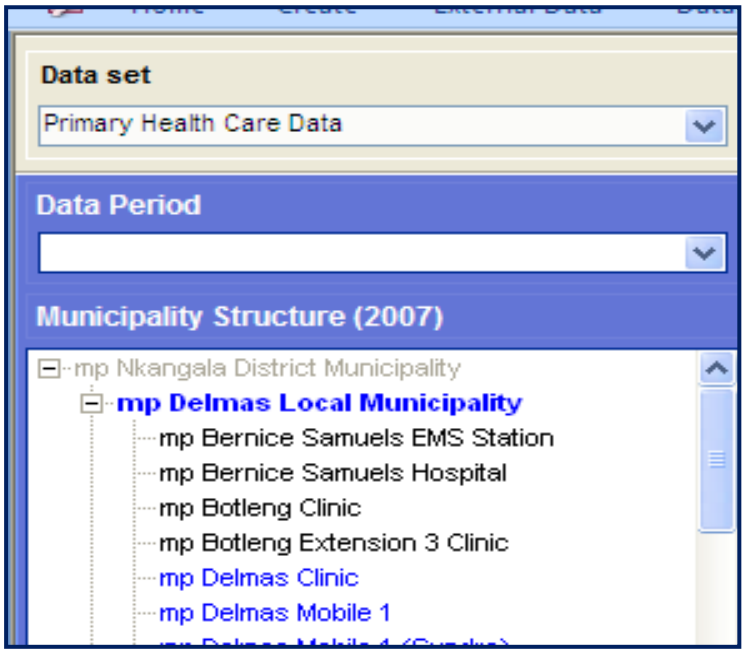


Figure 60: The New Default OrgUnit Displayed

3.3 REGRESSION ANALYSIS

Regression Analysis allows users to "smooth out" or manipulate poor quality data. For e.g. the values for a specific month are too high or too low and the facility is unable to provide the correct figures. This tool allows the calculation of an estimated figure by averaging out the available data using a regression technique.

It lists the data for a specific data element over any number of months that data is available. Any wide fluctuations in the data can easily be seen. Using the regression analysis function, a value that seems at odds, with no explanation can be replaced. Data that appears out of the ordinary without an explanation maybe "smoothed out" in order to fit within the normal range. This is done for a specific data element. The original value is reflected in the comment field.

Steps

i) On Control Centre click **Data Entry** and select a **Data Set**.
ii) Select an **OrgUnit** and **period** that you wish to run Regression Analysis for.
iii) Click **Add-Ins** to display Core Module and Data **Entry menu** (Figure 67).
iv) Click the **Data Entry** button.
v) Click **Regression Analysis**.
vi) Alternatively, click this button  and point to Municipality Structure then click **Regression Analysis**.
vii) Tick records to exclude then tick those to replace with regression value (Figure 68).
viii) Click Ok for the confirmation – the original value is replaced by the regression value (Figure 69).
ix) Click **Close**.

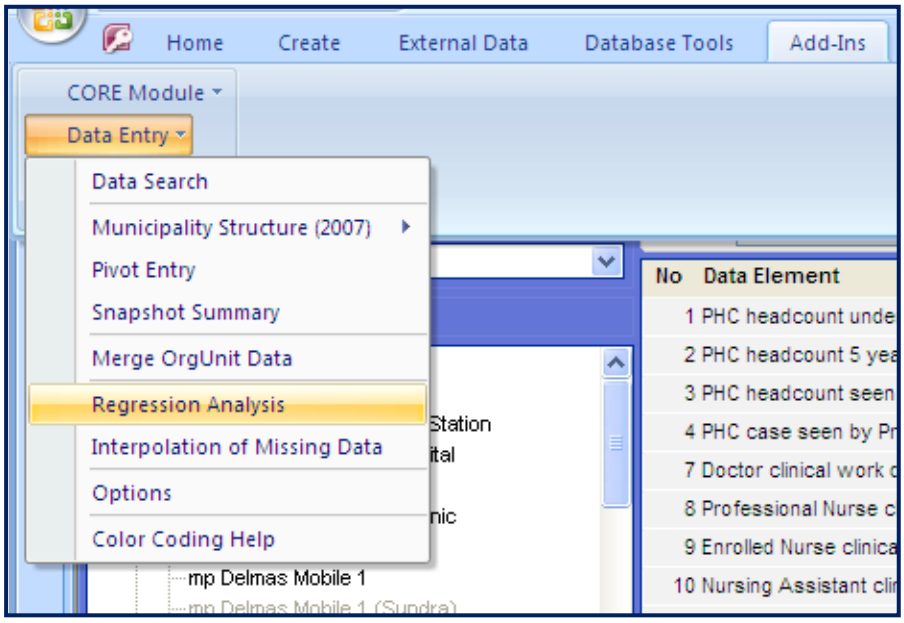


Figure 61: Regression Analysis Menu

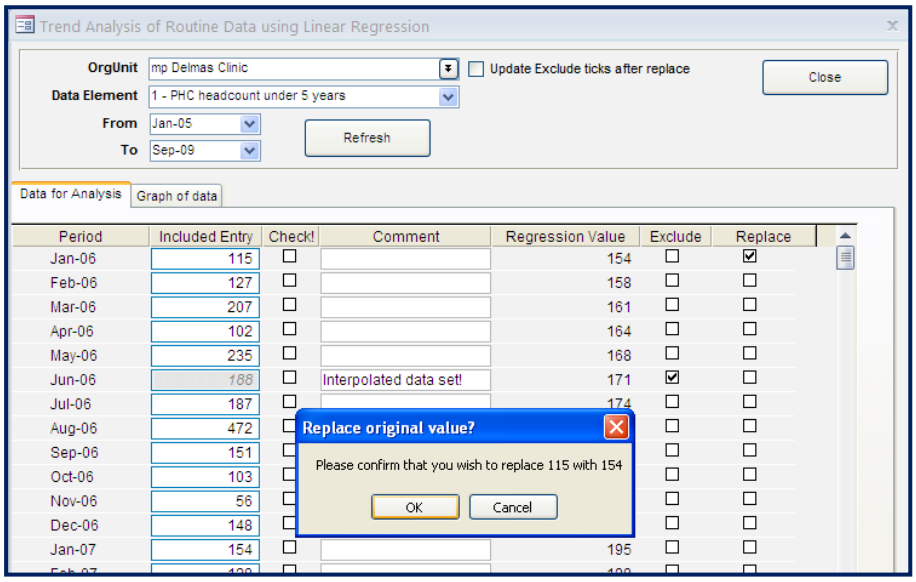


Figure 62: Regression Analysis

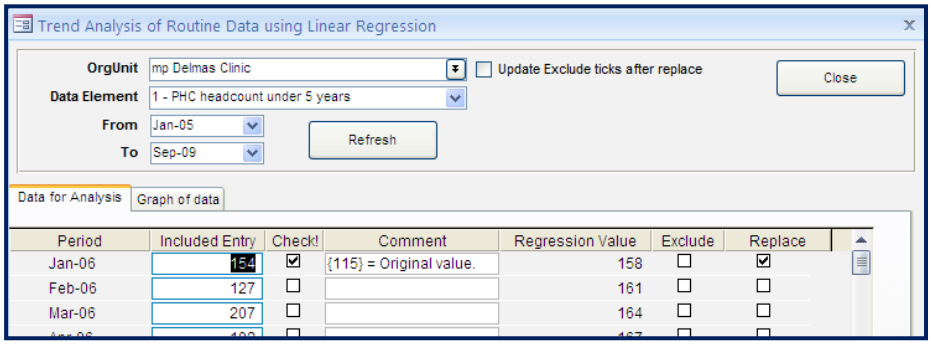
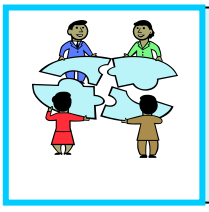


Figure 63: Original Value Replaced with a Regression Value



Run regression analysis and replace all but PHC Headcount < 5 years values for an OrgUnit and period identified by the facilitator.

Time: 10 Minutes

3.4 INTERPOLATION OF MISSING DATA

The **Interpolation of Missing Data** is the last resort method used to re-construct a dataset for a specific facility for a specific month when the original data goes missing and cannot be provided by the facility in question. Facility or clinic data that provides a large percentage of the data input coverage could be reconstructed using this method. There needs to be at least 4 to 6months of data before or after the missing month. The interpolated data will reflect '**Interpolated'** on the comment column of the data entry form.

Steps

i) On Control Centre click Data Entry and select a Data Set.
ii) Select and OrgUnit and period that you wish to interpolated data for.
iii) Click Add-Ins to display Core Module and Data Entry menu (Figure 70).
iv) Alternatively, click this button  and point to Municipality Structure then click **Interpolation of Missing Data.**
v) Click Interpolation of Missing Data (Figure 70).
vi) Insert the period.
vii) Tick data elements to exclude.
viii) Click Calculate Interpolated Data Set.
ix) Click Insert Interpolated Data Set and the data are displayed in blue font (Figure 71).

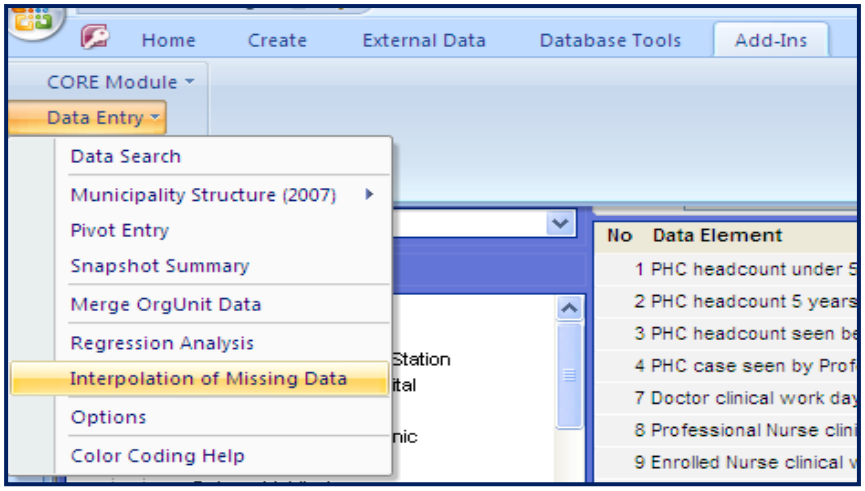


Figure 64: Interpolation of missing data menu

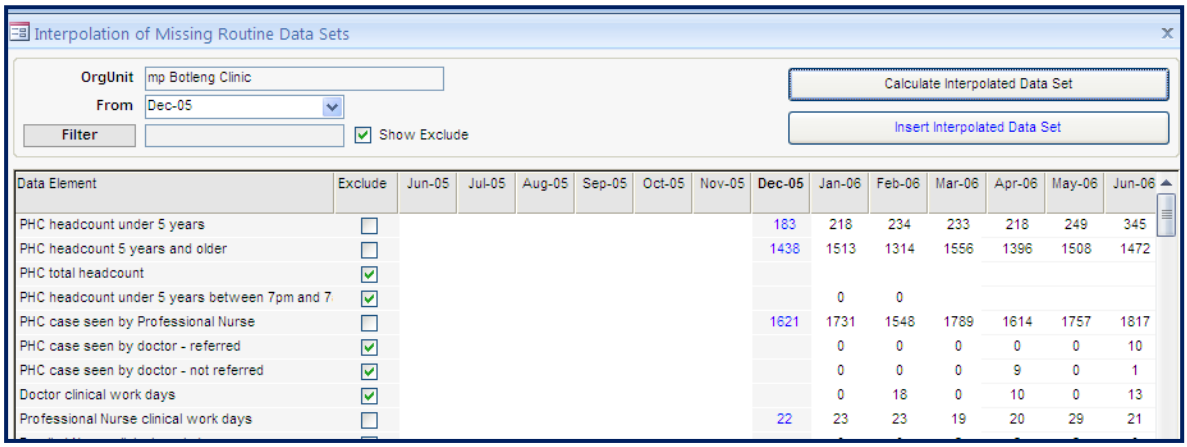


Figure 65: Interpolating Missing Data

3.5 OPTIONS

3.5.1 Auto-fill Option and Data Correction Options

The **Options** function is also found on the data entry form. The **Auto-fill** options allow you to fill the data current entry form with values e.g. zeros. The data is auto-filled in all blank fields if the **Leave Existing Values** option is selected. All the fields will be filled with the chosen number if the **Over-write Existing Values** option is selected. It is however preferable to use this function with care as the more zeros are added to the database, the more space this takes. The **Data Correction** option is used to move the whole data from the current OrgUnit and current period to another OrgUnit. This is done when data has been captured into a wrong facility. Once done, data will be available in the receiving facility and not the source facility and can be viewed from the data entry form of that facility for the specified period.

Auto-fill Steps

i) On Control Centre click Data Entry and select a Data Set.
ii) Select and OrgUnit and period that you wish to view options for.
iii) Click Add-Ins to display Core Module and Data Entry menu (Figure 72).
iv) Alternatively, click this button  and point to Municipality Structure then click **Options.**
v) Click Auto-fill tab (Figure 73).
vi) Enter the Number to auto-fill.
vii) Click Apply or Ok.

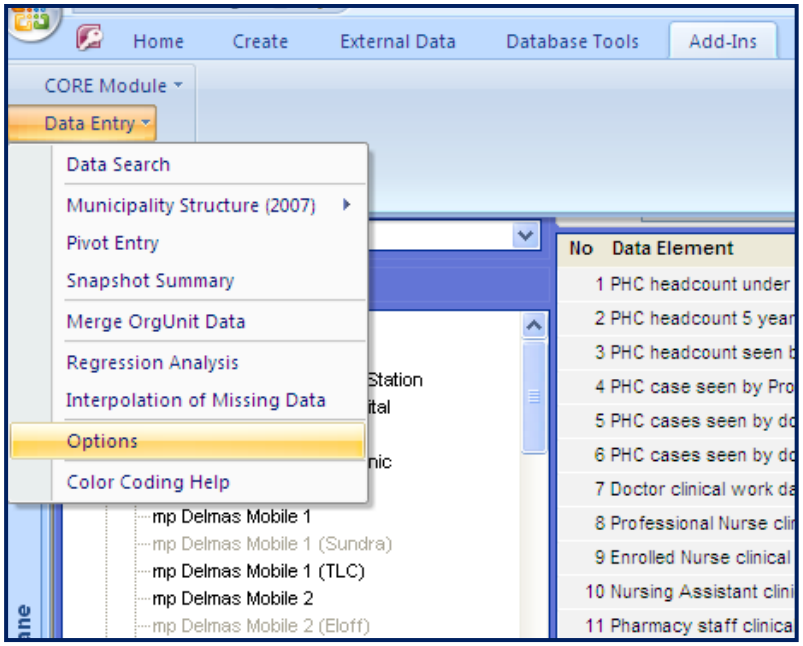


Figure 66: Options Menu

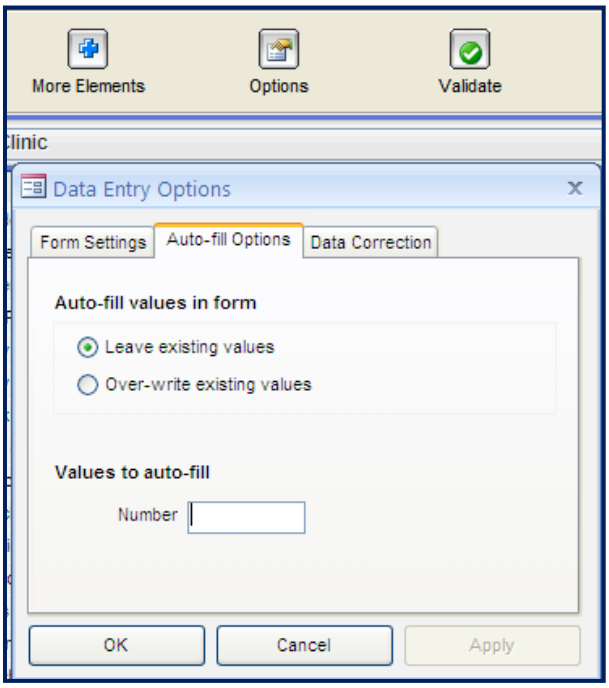


Figure 67: Auto-fill option

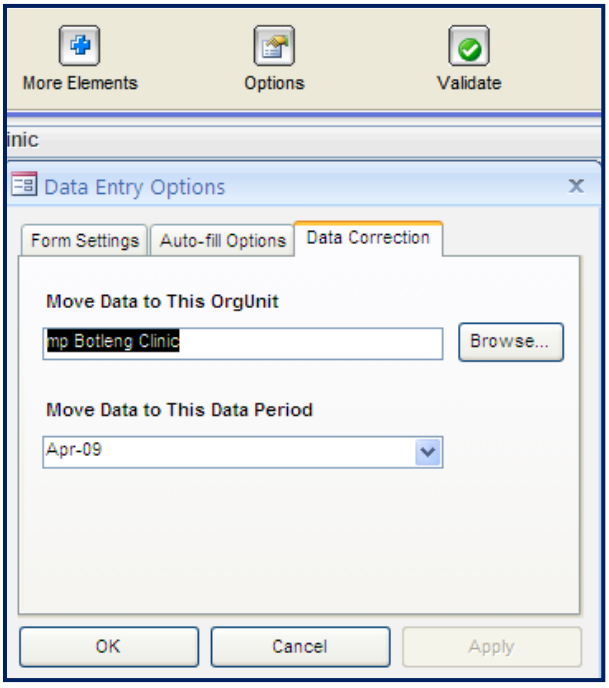


Figure 68: Data Correction Option

3.5.2 Data Correction Option

The **Options** function is also found on the data entry form. The **Data Correction** option is used to move the whole data from the current OrgUnit and current period to another OrgUnit. This is done when data has been captured into a wrong facility. Once done, data will be available in the receiving facility and not the source facility and can be viewed from the data entry form of that facility for the specified period.

Data Correction Steps

i) On Control Centre click Data Entry and select a Data Set.
ii) Select and OrgUnit and period that you wish to view options for.
iii) Click Add-Ins to display Core Module and Data Entry menu (Figure 75).
iv) Alternatively, click this button  and point to Municipality Structure then click **Data Correction.**
v) Click Data Correction tab (Figure 76).
vi) Browse for the OrgUnit to receive data and click Ok (Figure 75).
vii) Select Data Correct period
viii) Click Apply then Ok.
ix) Save any changes if prompted.

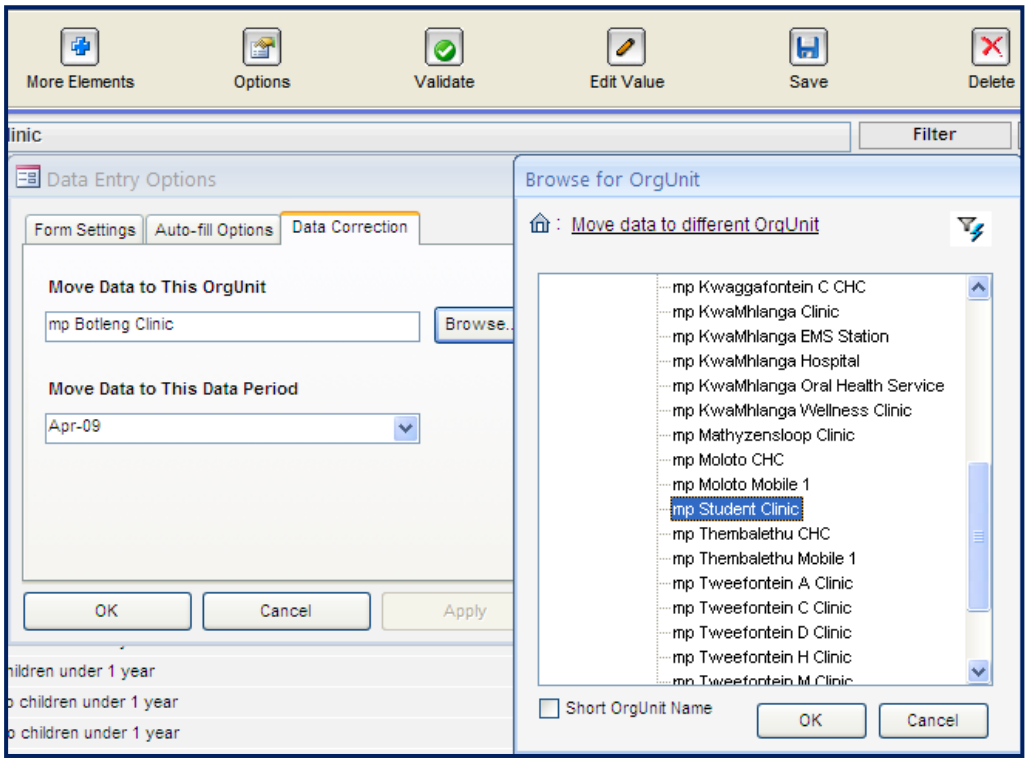


Figure 69: Selecting receiving facility & period

Correct Data between two facilities identified by the facilitator.

Time: 5 Minutes

4 MODULE 3: DATA QUALITY AND ADVANCED DATABASE FUNCTIONS

4.1 DATA VALIDATION – CREATING VALIDATION RULES

The Data Quality function if found on the **Control Centre**. It can also be accessed from the **Core Module** menu. Data Validation is a data quality tool. This module will cover creation of validation rules (Absolute and Statistical) as part of data quality. The other Data Quality features were covered in the DHIS Level 1 Training Manual.

4.1.1 Absolute Validation

Absolute Validation Rules are fixed and not flexible in application. They apply when one value cannot be higher than another e.g. Number of clients tested for HIV cannot be more than those counseled. To view edit or replicate a validation rule, double-click on the validation rule name. You may also delete a validation rule by clicking on its name and click delete on the validation rules overview list.

Steps

i) On Control Centre click Data Quality.
ii) Click Data Validation.
iii) Click Validation Rule Setup.
iv) Click New on the validation rule setup form and fill in the details including left and right side description and select Absolute as validation rule type.
v) Click Add Left Side to allocate data element(s) for the left side.
vi) Click Save and Close the data elements form.
vii) Click Add Right Side to allocate data element(s) for the right side.
viii) Click Save and Close the data elements form.
ix) Click Save and close the validation rule form, the new validation rule can be located at the end of the list of the validation rules.

Figure 70: Validation Rule Setup Menu

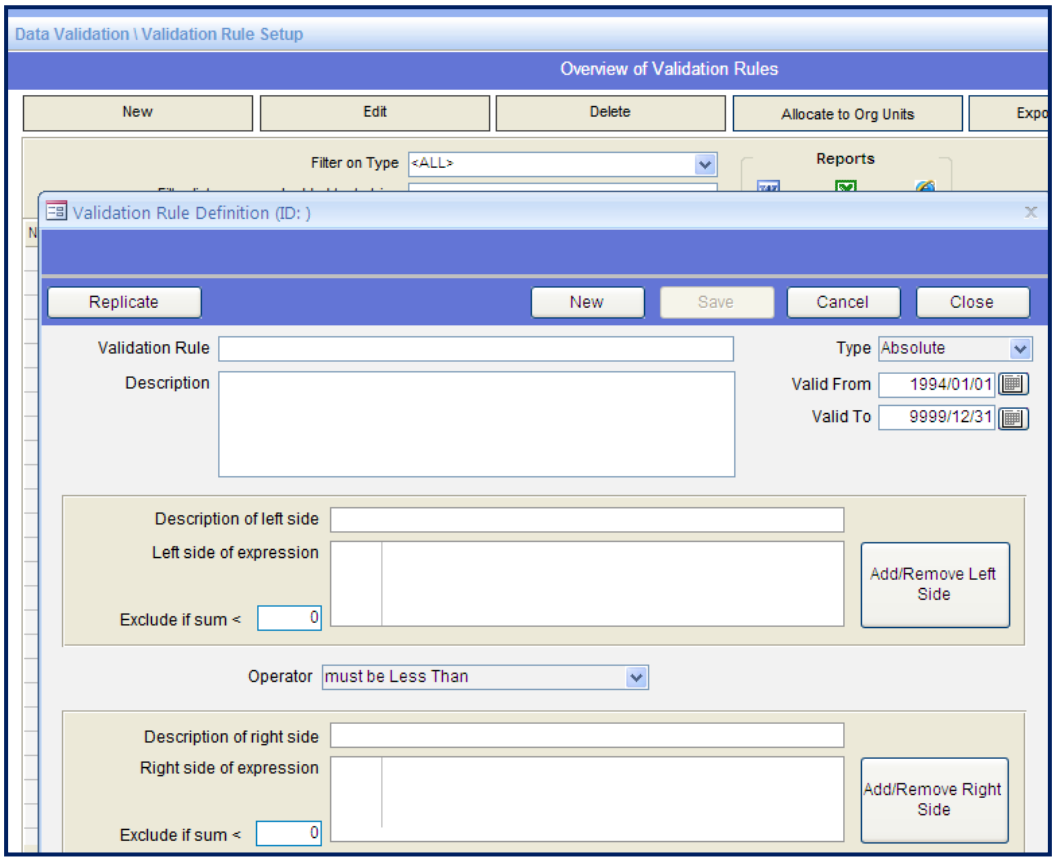


Figure 71: New Validation Rule Form

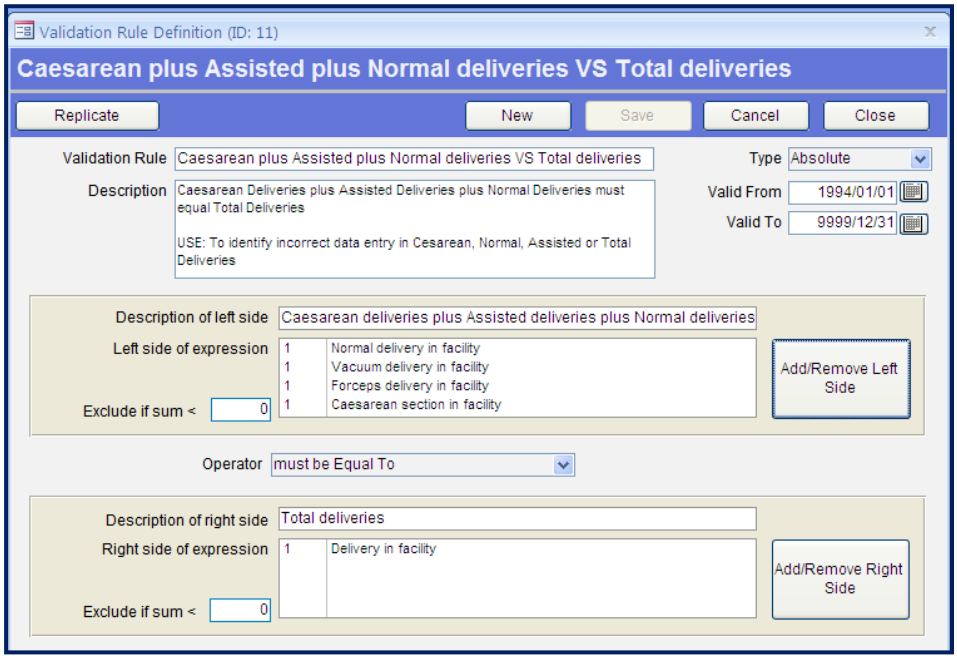


Figure 72: Creating Validation Rule Using the Replicate Function

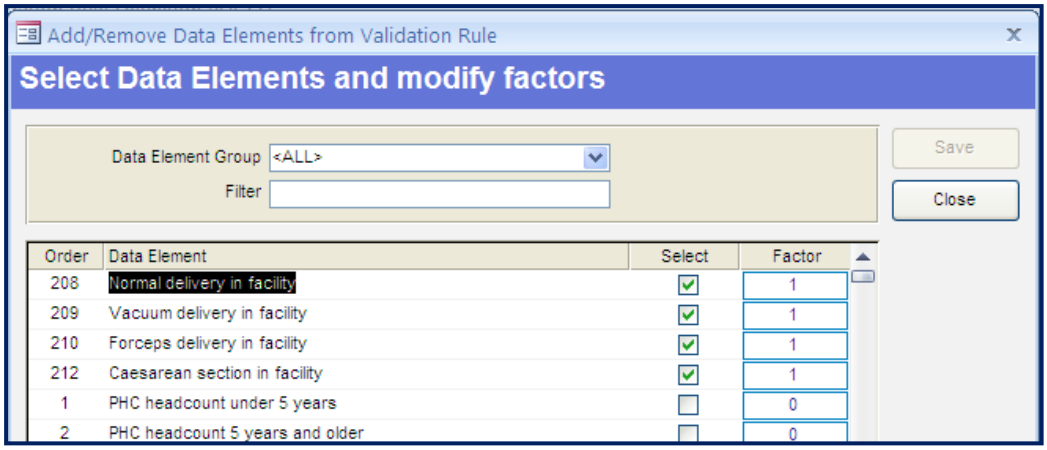


Figure 73: Adding Left Side of the Validation Rule

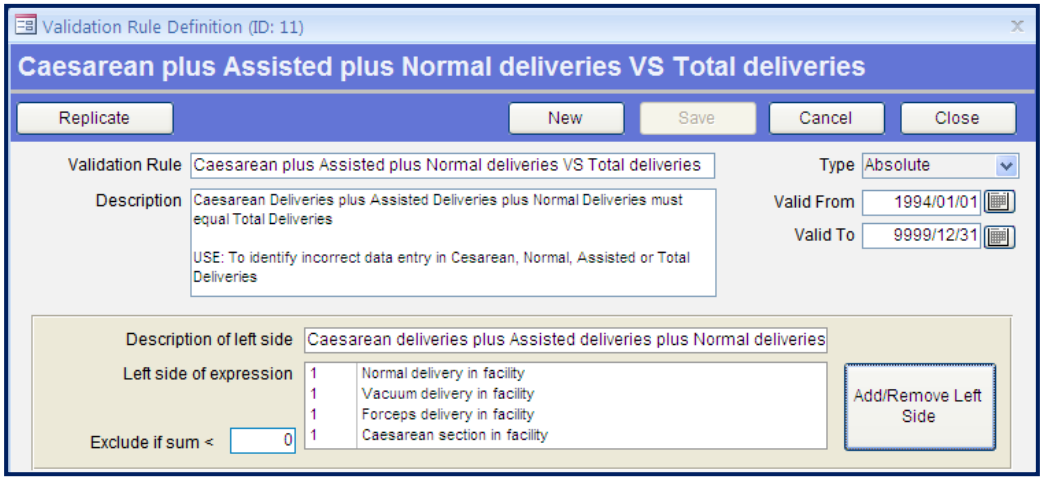


Figure 74: Left Side of the Validation Rule Added

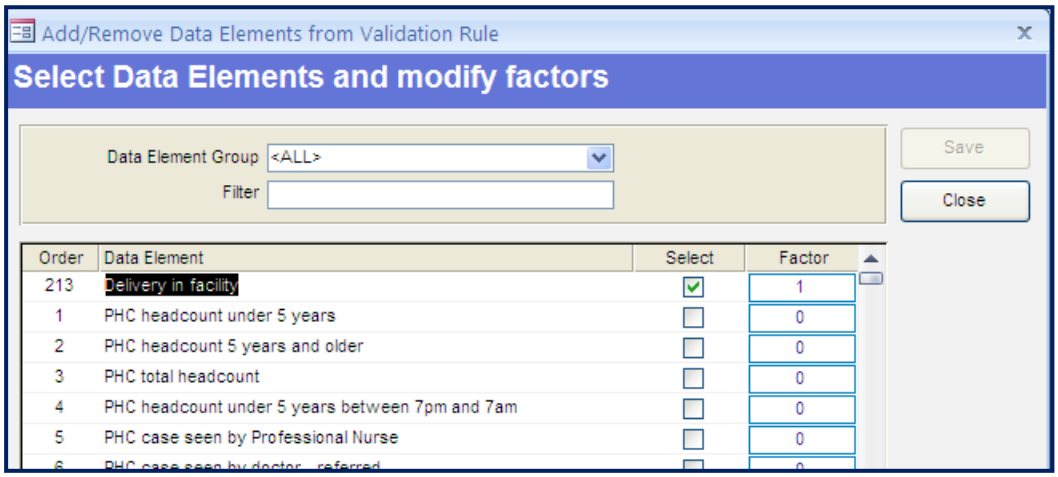


Figure 75: Adding Right Side of the Validation Rule

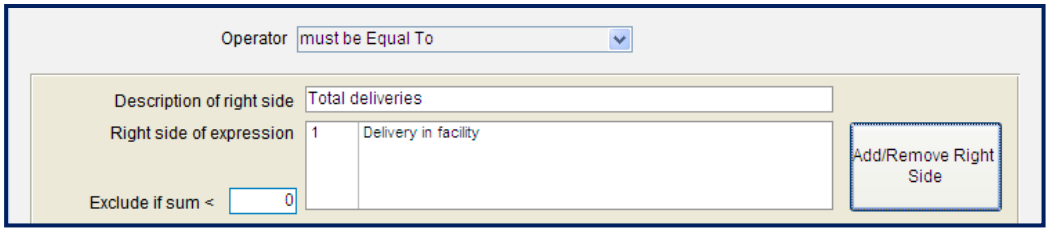


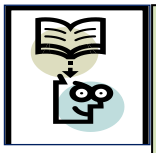
Figure 76: Right Side of the Validation Rule Added

Create and Absolute Validation Rule using the following information.

- Validation Rule: Prescriptions Issued V/S Items Dispensed
- Description: Prescription Issued must be less or equal to Items Dispensed

Time: 5 Minutes

4.1.2 Statistical Validation



Statistical Validation Rules are flexible in application and are designed to ensure that the ratios between data elements are not transgressed, e.g. children with diarrhea is correlated with headcount for children under 5 years. If the headcount goes up, one would expect the number of cases of diarrhea to increase as well in the same proportion. The statistical rule follows the pattern and will identify outliers. It acts as pointers of possible discrepancies in the data or increasing incidences of diseases.

Steps: The steps to create statistical validation rules are similar to those of absolute validation rules. They only differ in descriptions, the operator and the validation rule type where Statistical is selected.

4.2 GAPS AND OUTLIER ANALYSIS

Gaps and Outlier Analysis is used to identify gaps / missing values and outliers. Gaps identified may be filled by accepting the calculated values. All accepted records with outliers will have check-it marks once the **Mark Outliers** button is clicked. This will allow the user to verify the data then remove the tick marks using the **Routine Check-it Data** function.

Steps

i) On Control Centre click Data Quality.
ii) Click Advanced Quality Checks.
iii) Click Gap and Outlier Analysis (Figure 83).
iv) Click Identify the problem tab and complete the details (Data Set, OrgUnit and Period).
v) Click Select All or select some data elements (Figure 84) and click Run Analysis.
vi) Click Select All or just select a few records on the View Problem Data Summary tab and click View Records to be created this will take you to the last tab.
vii) Click Accept All if you accept all the record however you may Unselect All then select a few by clicking the tick boxes next to each record.
viii) Click Insert Accepted Records (Figure 86).
ix) Click Outliers option on the Gap and Outlier Analysis screen to view outliers.
x) Repeat steps (iv) to (vi), click View Record to be marked for Checking.
xi) Click Mark Outliers.
xii) Click Modify Threshold Levels on the Gap and Outlier Analysis screen to view thresholds (Figure 88) but do not change the default values.

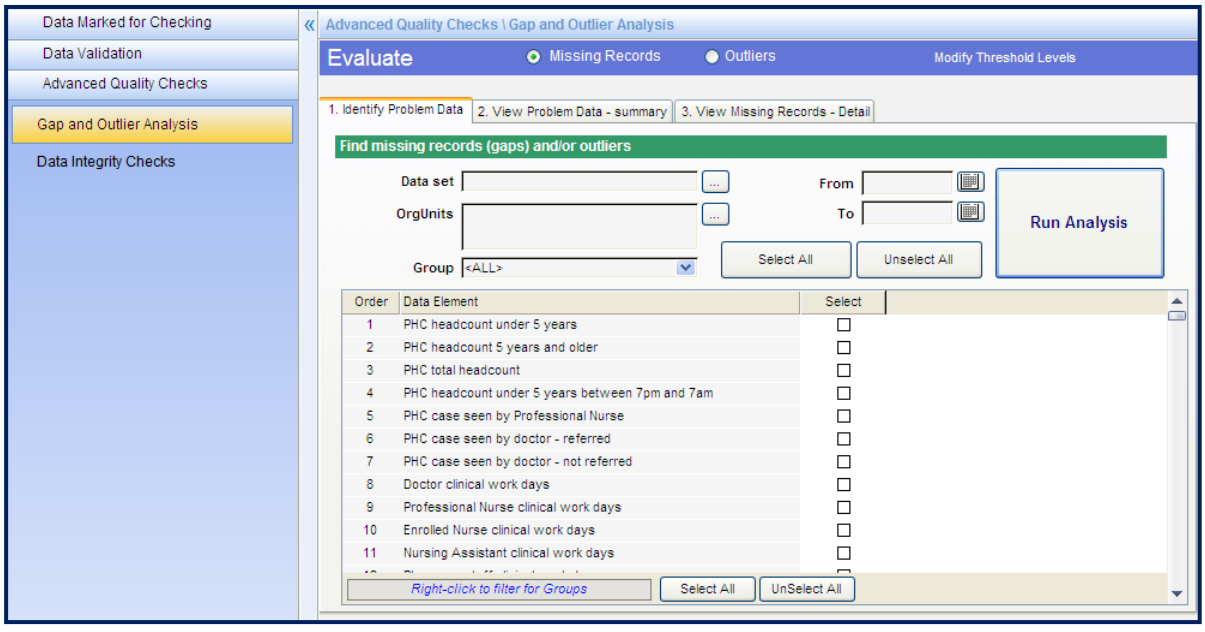


Figure 77: Gaps & Outlier Analysis Menu

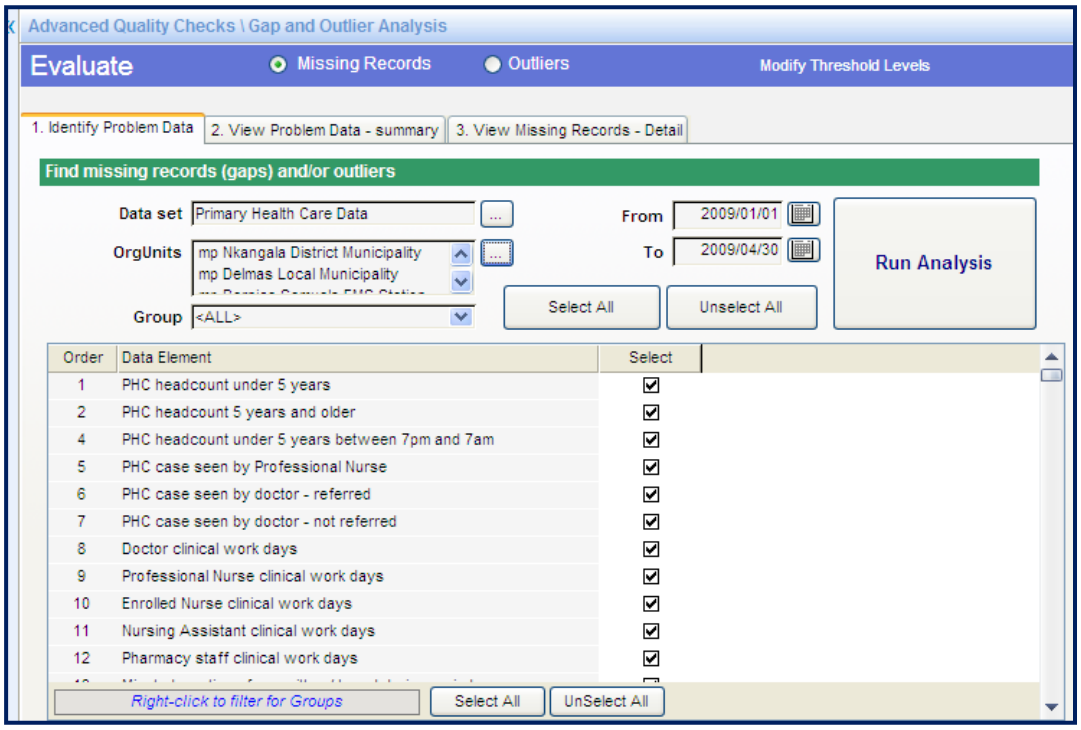


Figure 78: Selecting Data to Analyze

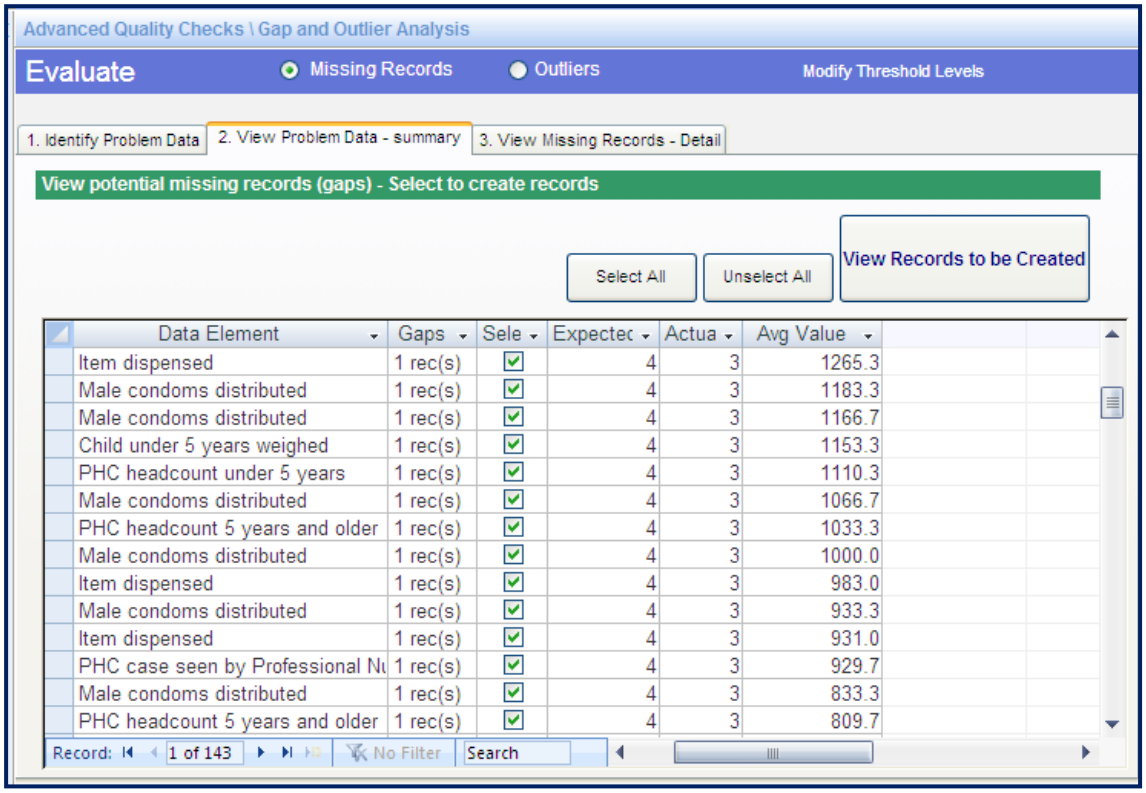


Figure 79: View Problem Data Summary

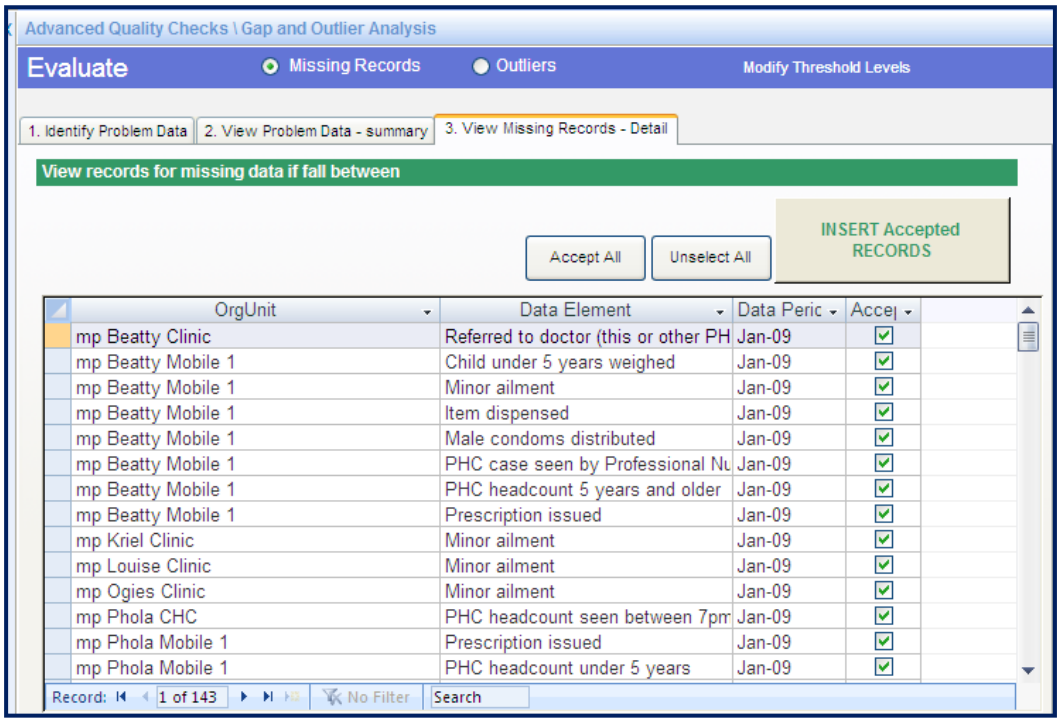


Figure 80: Accepting and Inserting Records

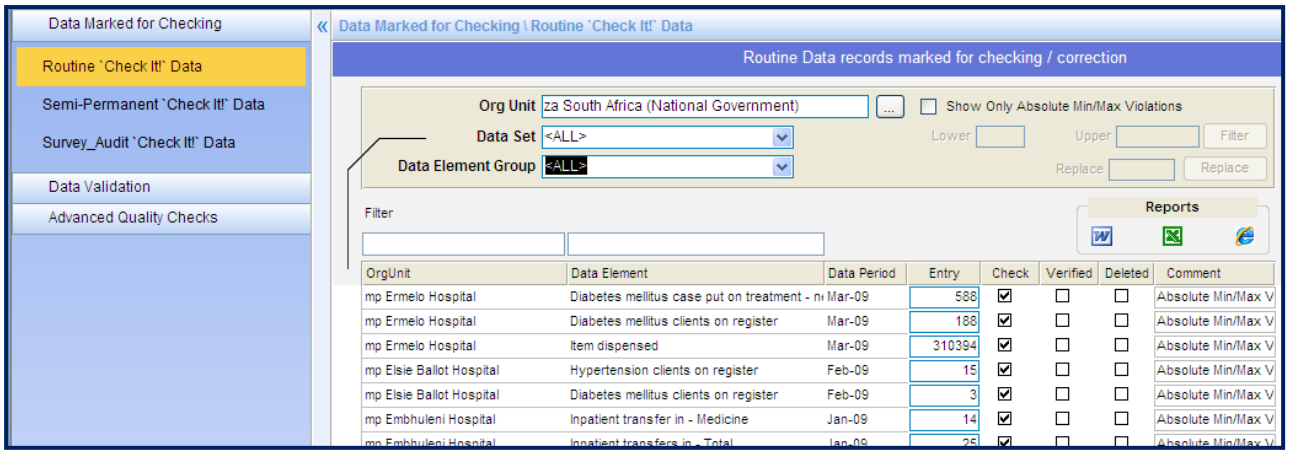


Figure 81: Data Marked for Checking

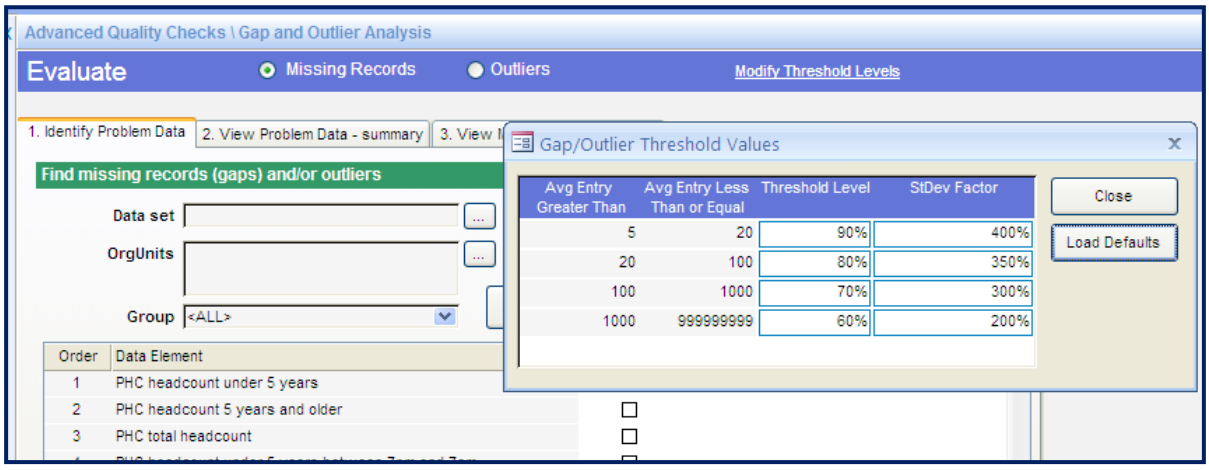


Figure 82: Gap / Outlier Threshold Values

Run Gap Analysis for OrgUnits identified by the facilitator for the period January to December 2009

Time: 10 Minutes

4.3 DATA INTEGRITY CHECKS

The **Data Integrity Checks** search for and display common errors that occur in the database. This function can also be accessed from the Control Centre by right-clicking and pointing to **Advanced** then select **Data integrity checks.**

Steps

i) On Control Centre click Data Quality.
ii) Click Advanced Quality Checks.
iii) Click Data Integrity Checks (Figure 89).

iv) View integrity checks results (Figure 80), a ✓ indicates that there are no discrepancies identified.

v) Click on Show to display the violations identified for the specific function.

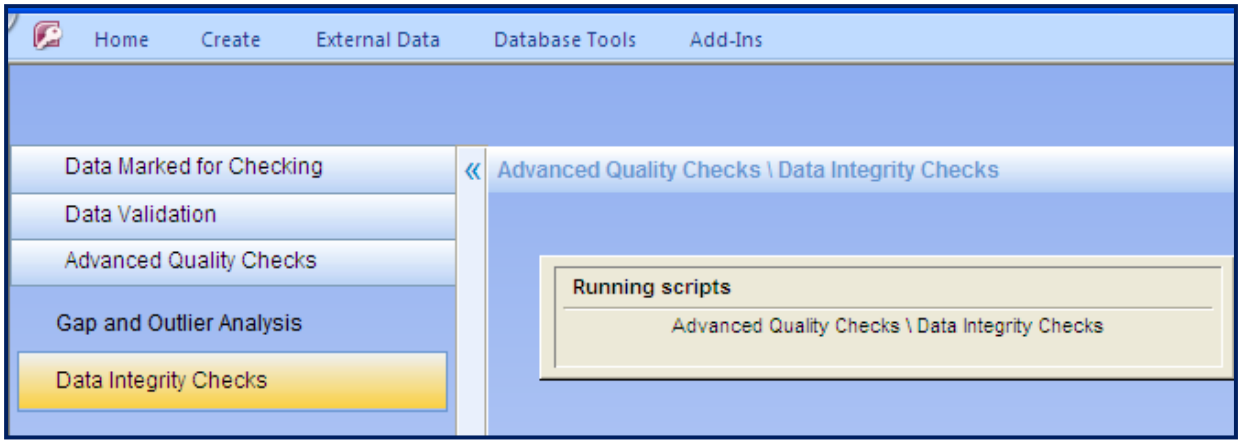


Figure 83: Data Integrity Check

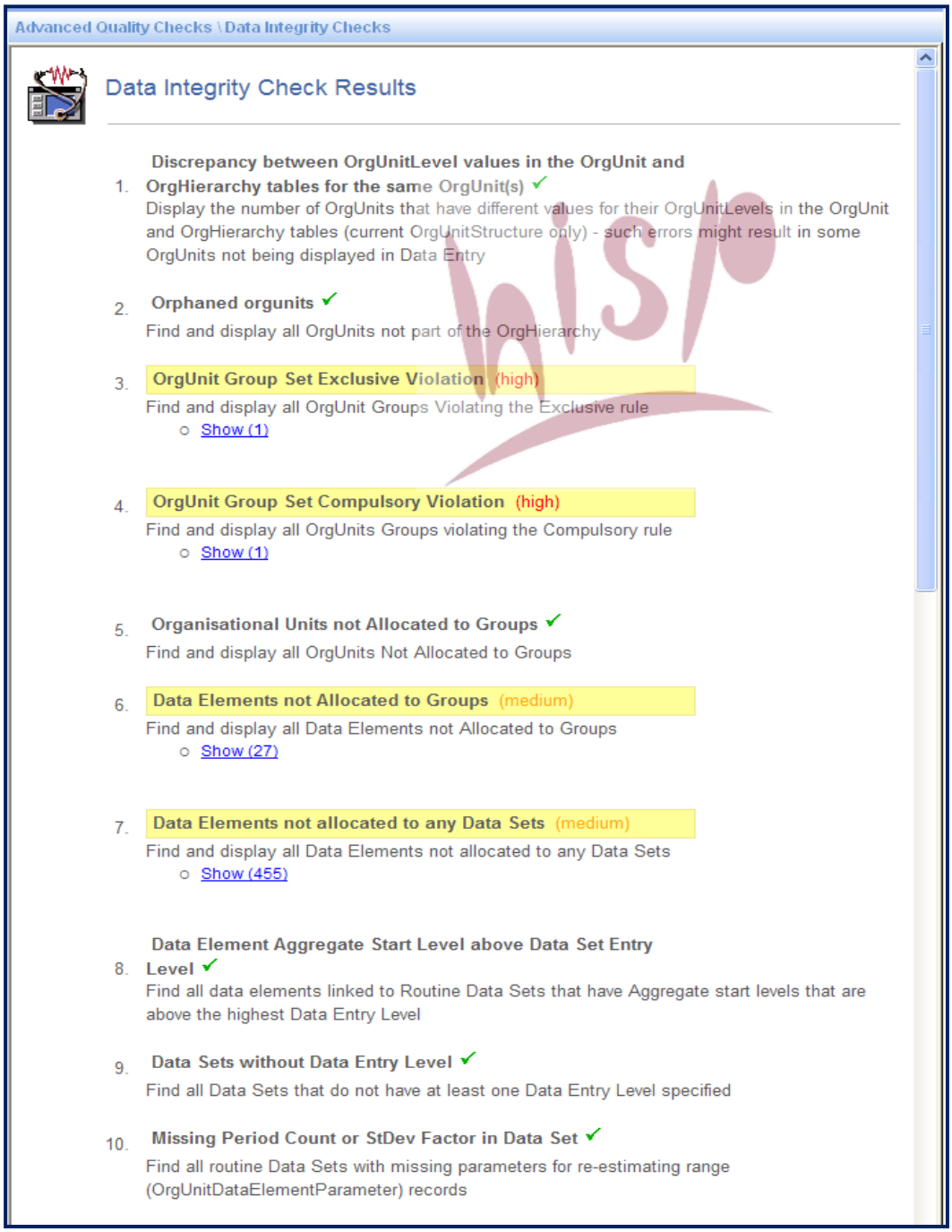


Figure 84: Data Integrity Checks Result

4.4 GLOBAL OPTIONS & REGIONAL SETTINGS

The **Global Options** do not have a button in the Control Centre but can be accessed from the **Core Module** menu.

Steps

i) On Access Menu click Add-in.
ii) Click Core Module.
iii) Click Global Options (Figure 91).

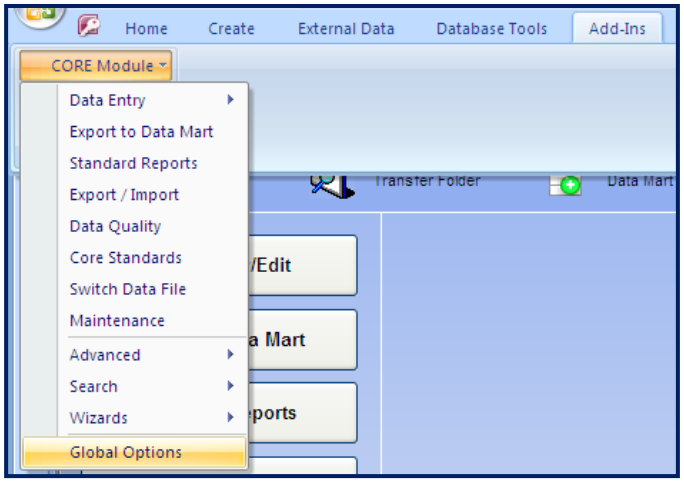


Figure 85: Global Options Menu

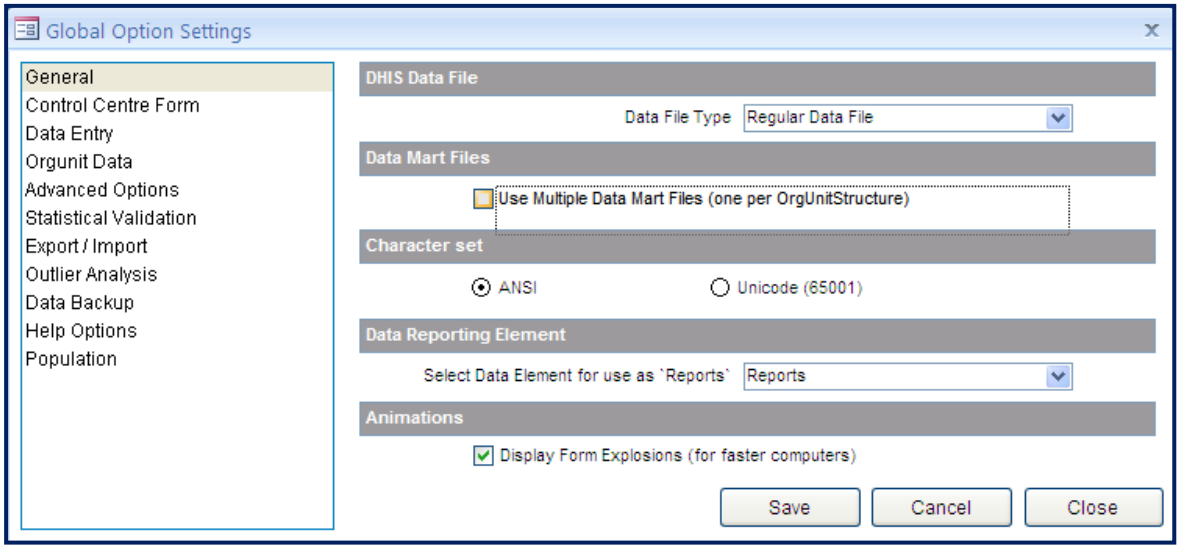


Figure 86: General Layer of the Global Options

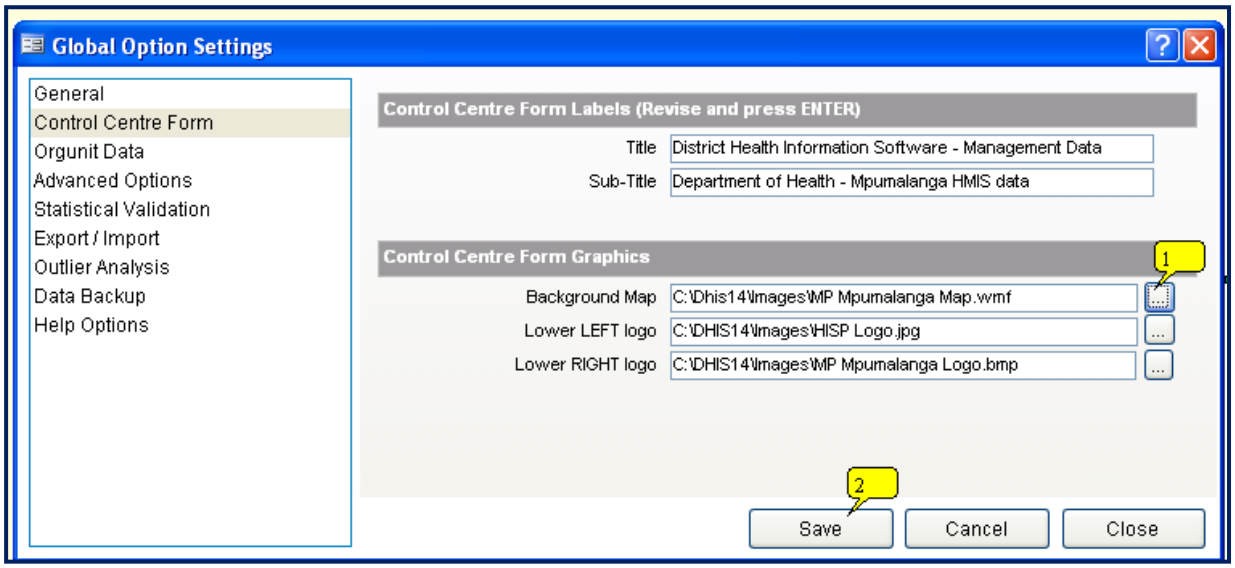


Figure 87: Applying changes to global options

iv) Click on the … buttons next to the three areas on the Control Centre and select the image you want to display for background, left and right bottom of the screen.

v) Click on Open to insert the image.

vi) 2 Click on Save if you made any changes and Close if you are happy with the selection. Your Control Centre will now display the images you selected.

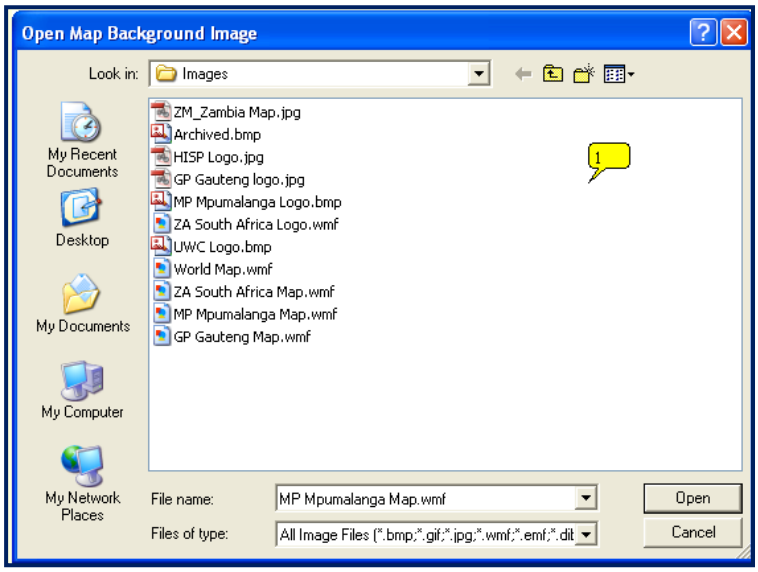


Figure 88: Control Centre Options - Images

Figure 95 below, displays the Data Entry Options. Tick Data Header info COMPULSORY if you want certain header data elements to be compulsory in the data entry screen. If you tick Automatically adjust Org Unit Data Element min and max values after saving in Data Entry form, the Min/Max levels in your system will automatically be adjusted and you can choose if you want to use the average or the median values. You must have at least 6 months of data in the system before automatic adjustments will be accurate. The Median value will not be affected that much by outliers.

You have the option to switch between two sort order functions. Data Set Element will enable each data set to have a unique sort order. With the Data Element option the sort order number for each data element will stay the same as in the main data element list when assigned to several data sets.

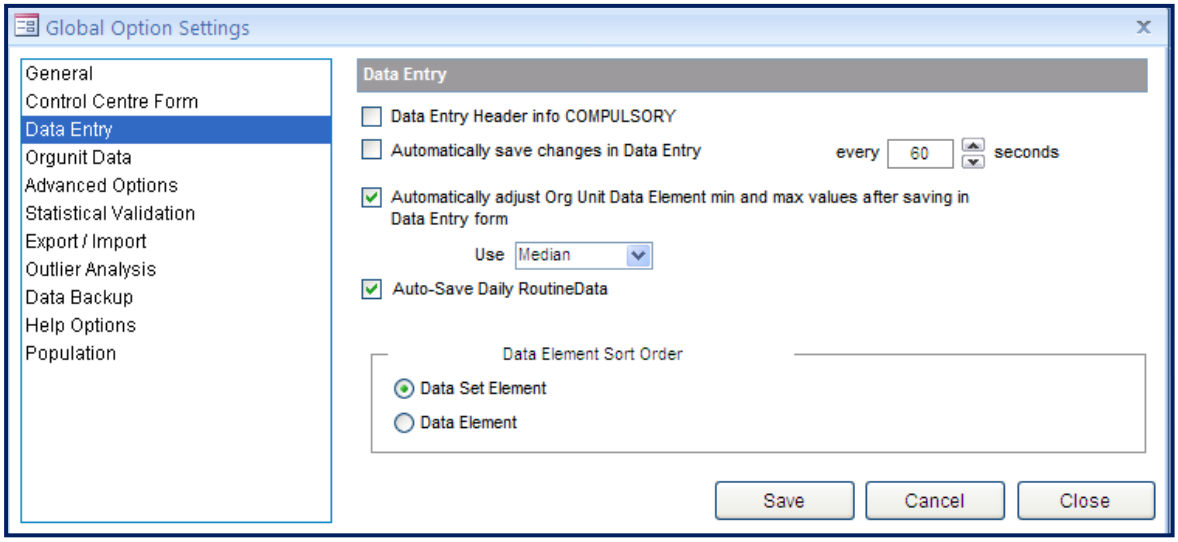


Figure 89: Data Entry Option

Figure 96 displays the OrgUnit Data Options. The Current Org Unit Structure used in the data file will be displayed here. The Number of Org Unit levels used in the data file can be set here. Also set the level data is being entered at. The Edit Levels function allows you to make changes to the Org Unit levels.

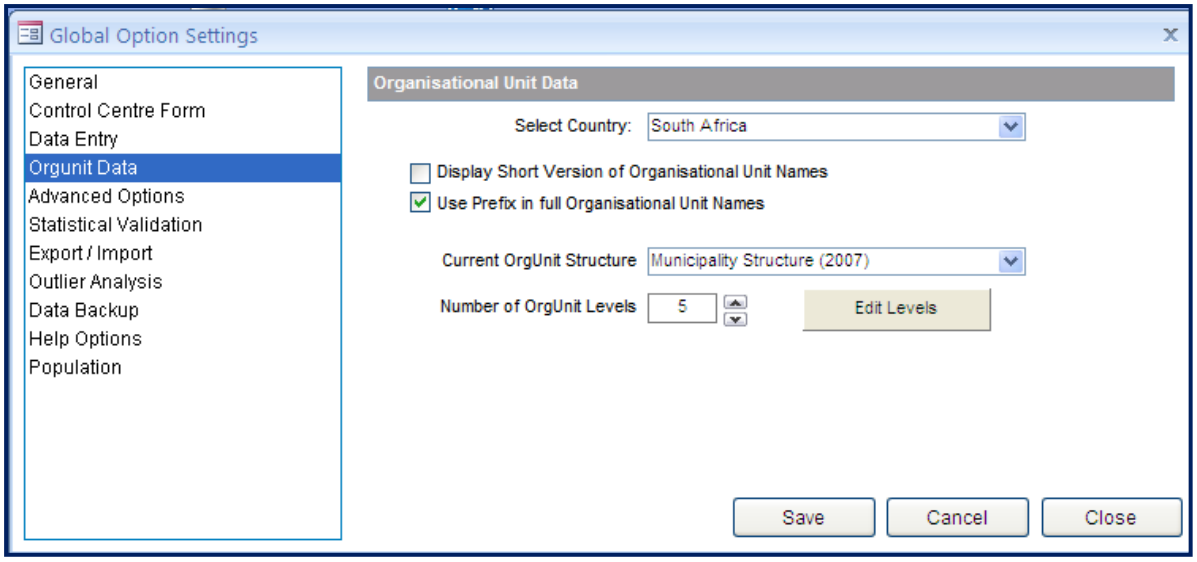


Figure 90: OrgUnit Data Option

Figure 97 displays the Advanced Options. The Allow Data Set Grouping option enables grouping of the different data sets in a data file, e.g. The Monthly Data group can have Monthly PHC Data, Monthly Hospital Data, etc. The Row Shading option will make it easier to view reports especially if there are several months' data in the report as alternate rows will be shaded. Enable Alternate Naming function will enable you to link similar Org Units and Data Element names when importing. The Valid From Defaults options provides for an automatic default starting dates when setting up new data files.

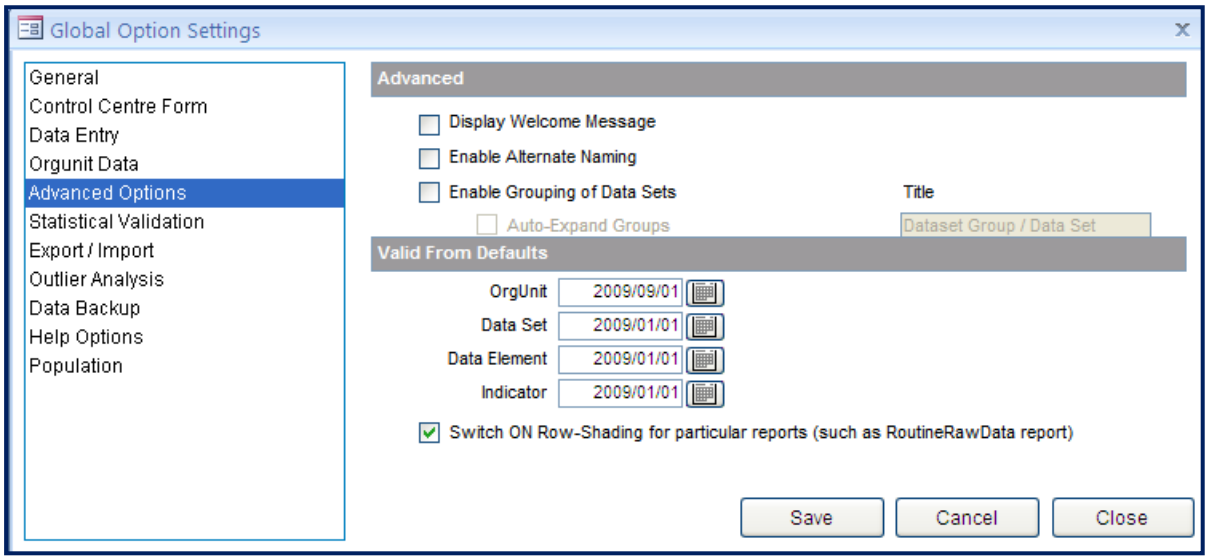


Figure 91: Advanced Options

Figure 98 displays the Statistical Validation where parameters for Statistical validation can be set.

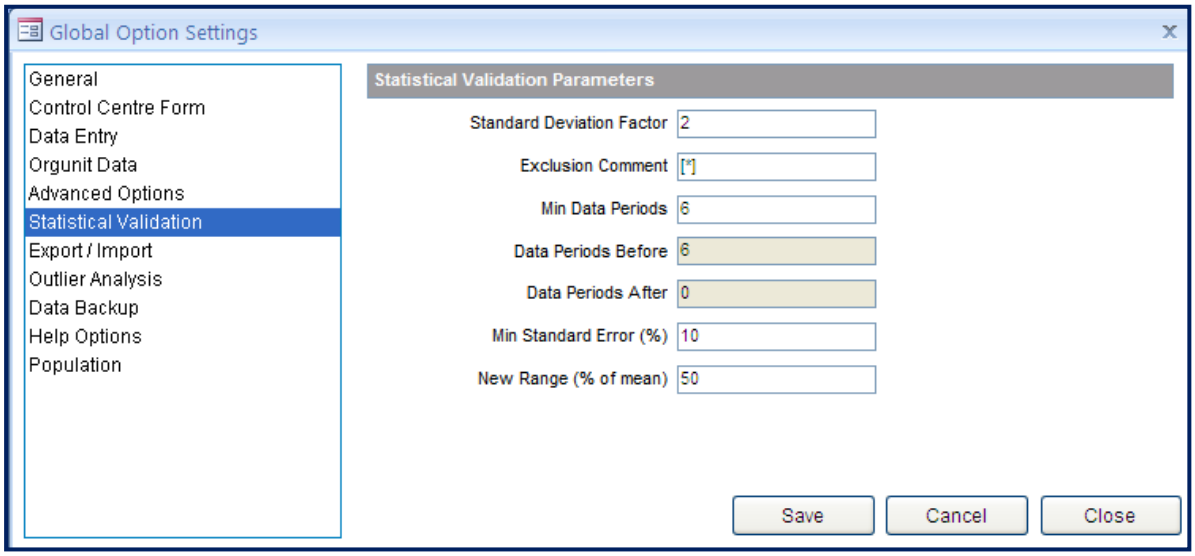


Figure 92: Statistical Validation Options

Figure 99 displays the Export / Import option. If Include all updates is ticked all the records that differs from what is in the data base will be imported. If Last Updated NEWER is ticked, only entries with an entry date later than the entries in the database will be imported. This will prevent overwriting of data that have been changed /corrected with “old” data that is imported. If Last Update is NEWER or SAME is ticked, only entries with an entry date later or the same than the entries in the database will be imported.

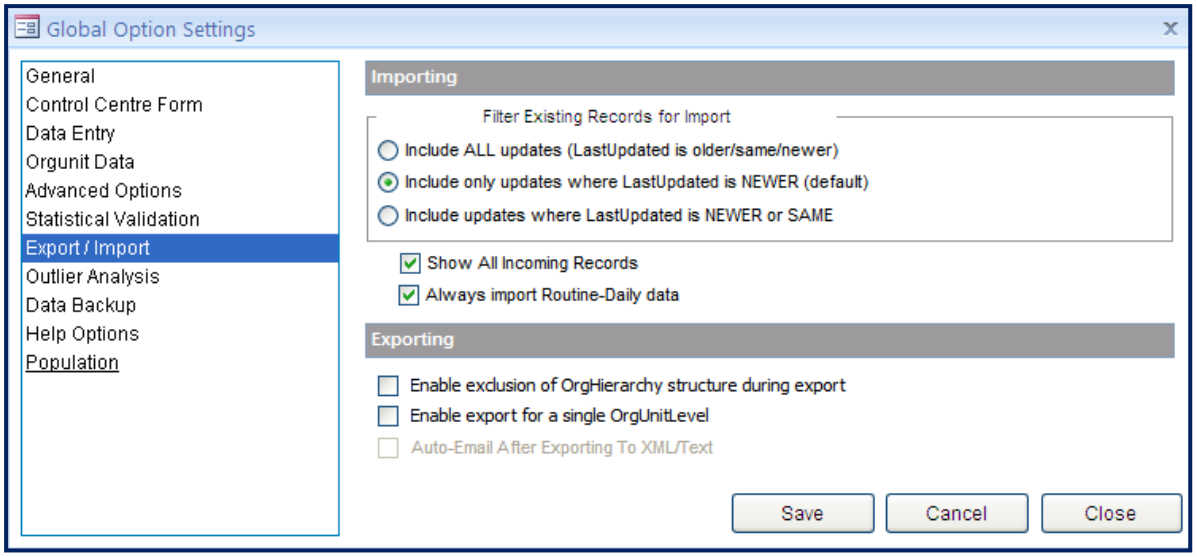


Figure 93: Export / Import Option

Figure 100 displays the Outlier Analysis Options where outlier parameters can be set.

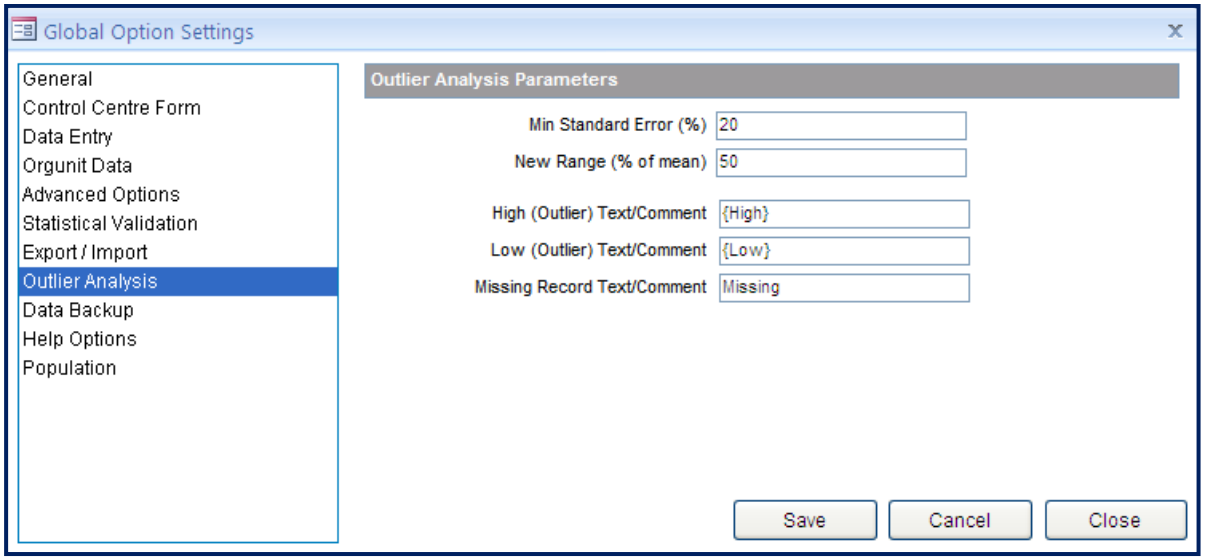


Figure 94: Outlier Analysis Option

Figure 101 displays the Data Backup Options where the frequency of reminders to backup data is set. You can choose if you want to make back-ups of the Data File, the Data Mart and the Pivot Table File. This backup reminder will appear when closing the data file. The frequency of this reminder will be determined by the settings set.

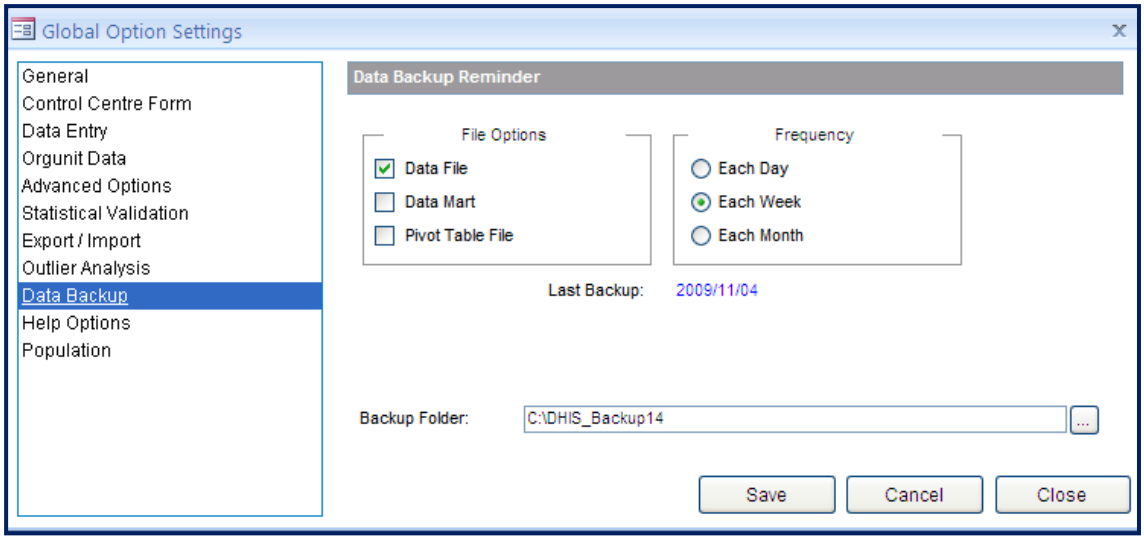


Figure 95: Data Backup Options

Figure 102 displays the Help Options, help messages will be displayed e.g. in the data integrity checks report.

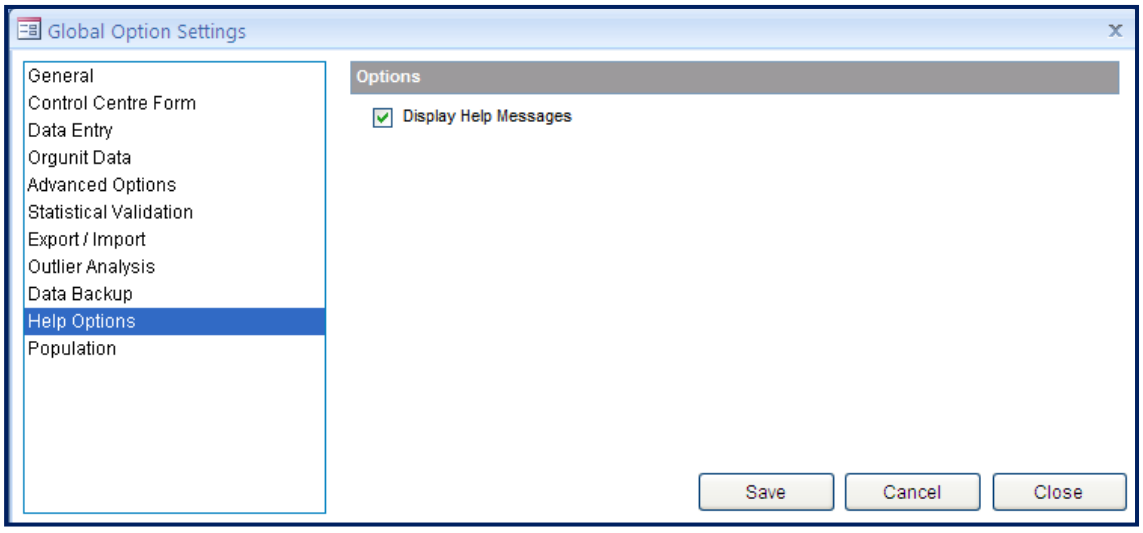


Figure 96: Help Options

Figure 103 displays the Population Options. The catchment population calculation depends on these options (it may not be necessary to change these options once set).

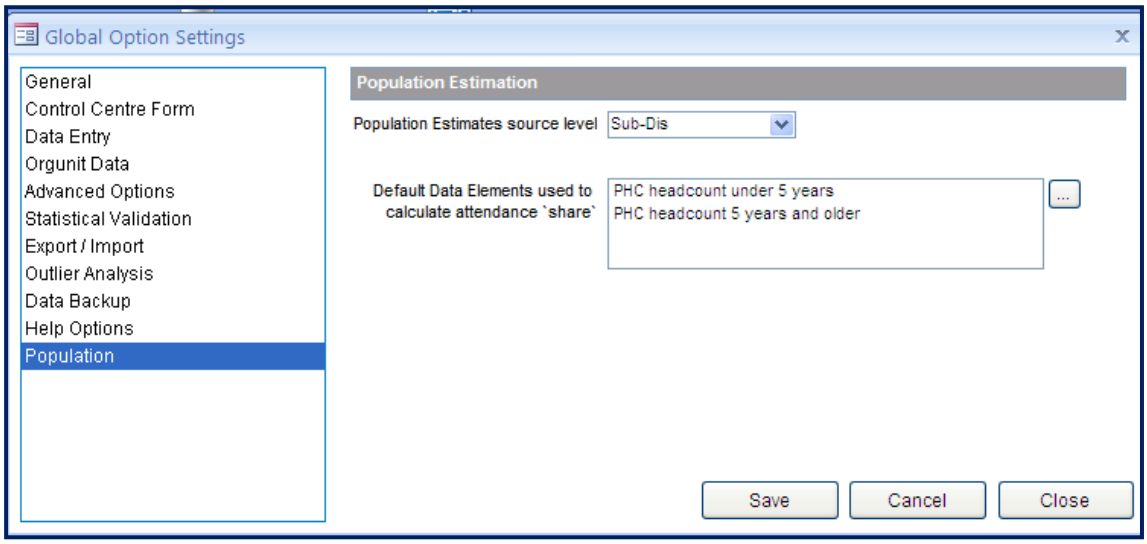


Figure 97: Population Options

Use the Global Options to change the following control centre graphics.

- Left Logo
- Right Logo
- Background Map

Other details will be supplied by the facilitator (e.g. replace existing with what?)

4.5 RELOAD CALCULATED ELEMENTS

Running this function will re-calculated all calculated fields of data elements and store as values in the data entry screens. This should be done before exporting data to the next reporting level or to the Data Mart. If this is not done, the total values will not appear on the pivot tables and any indicator using the totals will not be calculated when data is exported to the data mart.

Steps

i) On Access Menu click Add-ins.
ii) Click Core Module.
iii) Point to Advanced.
iv) Click Re-load Calculated Elements (Figure 103).

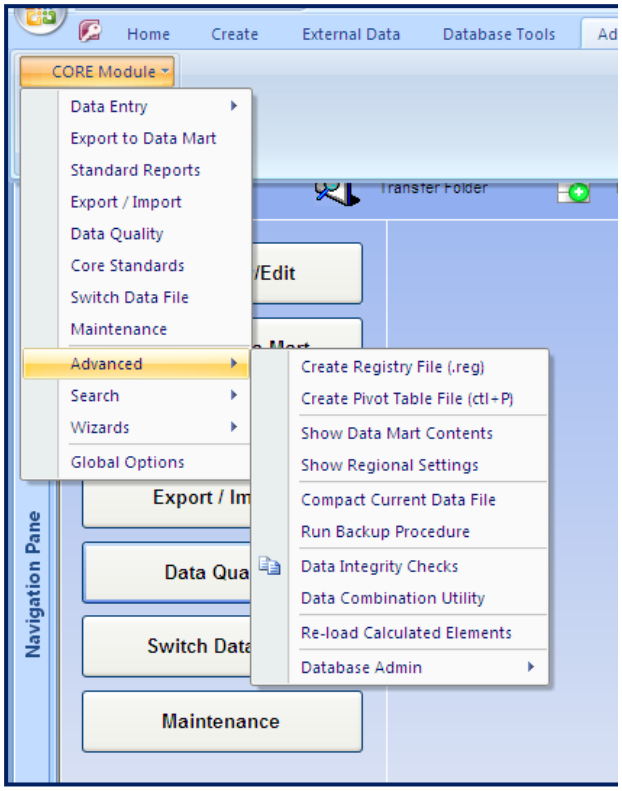


Figure 98: Reload Calculated Elements Menu

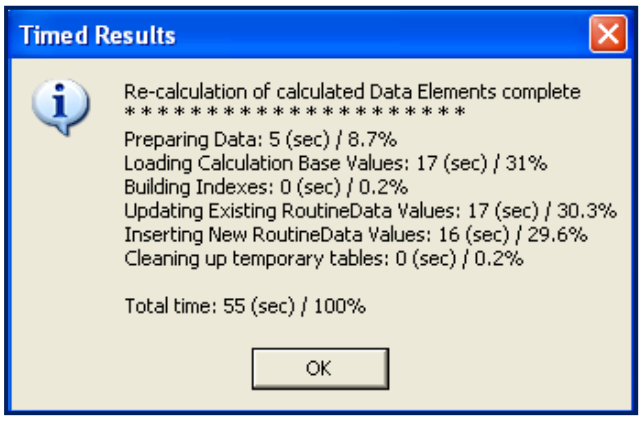


Figure 99: Re-calculation Results

Create a calculated data element using details that will be supplied by the facilitator and reload calculated data elements.

Time: 10 Minutes

5 REFERENCES

ESI. DHIS Training Manual for Information Officers, (2010).

HISP. Manual DHIS14 SA Office 2007-with course content.

 www.hisp.org

http://www.hispkerala.org/