



Introduction

“Guide: to show or indicate the way”

The prerequisites

This guide is part of a support package for HIS Managers who want to import and utilise Spectrum derived HIV/AIDS estimates in DHIS2.

The guide assumes that:

1. The UNAIDS Spectrum DHIS2 Application, available under the DHIS2 Apps area, has been run.¹

Without the above prerequisite, the instructions in this document are not applicable.

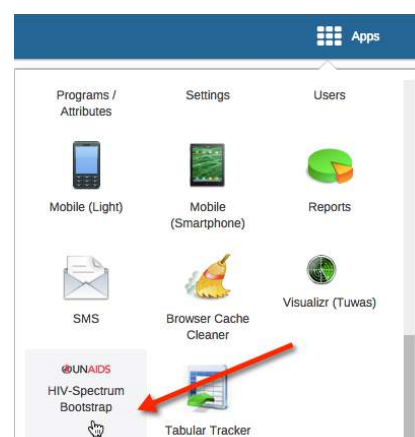


Figure 1: Screen capture of the DHIS2 HIV-Spectrum Bootstrap Application

Who this guide is for

The configuration and administration of DHIS2 is a specialist topic that involves significant prior knowledge. This post initiation guide is not intended for use by those unfamiliar with DHIS2 nor is it intended for the end-users of the HIV/AIDS estimates.

It is intended for DHIS2 administrators who are already familiar with:

- The preparation and import of data into DHIS2;
- The configuration and use of DHIS2 Organizational Hierarchies, Data Elements and Indicators; and
- The identification and extraction of DHIS2 object UIDs.²

¹ See “UNAIDS_SPECTRUM_DHIS2_Bootstrapping_App_Admin_Guide_V1_EN.pdf”

² Unique Identifiers. Each object in DHIS2 (e.g. an indicator) has a unique ID that can be used by the import mechanism to correctly link imported data with the correct object.

What this guide is intended to achieve

This guide is designed to enable an appropriately trained individual to customize a set of default UNAIDS Spectrum data elements and associated indicators on a local country instance of DHIS2.

It achieves this by outlining a detailed series of 'steps' supported by screenshots of an actual live change process. A video has also been produced and is part of the associated 'support' package accompanying this guide.

Setting the context

UNAIDS wishes to make its Spectrum³ derived HIV/AIDS estimates more easily available in DHIS2,⁴ an open source analytics platform used widely by Ministries of Health in LIMCs.⁵ Access to these estimates will enable Ministries of Health and other interested parties to visualise them (e.g. on maps, charts and graphs) and to combine them with local data already collected in DHIS2 to generate useful HIV/AIDS indicators.

While the creation of indicators is a uniquely localised process in DHIS2, the fact that Spectrum derived HIV/AIDS estimates are standardised provides an opportunity to partially automate the setup and import of these estimates into DHIS2.

To support the HIV/AIDS estimates setup process, a Bootstrapping App has been made available to the DHIS2 platform that:

- Instantiates a set of standard Spectrum HIV/AIDS data elements
- Instantiates a set of placeholder Indicators that use the Spectrum HIV/AIDS data elements (which need further localisation effort before they can be used)
- Provides access to relevant documentation (including this guideline) from within the DHIS2 platform.

It should be noted that the UIDs of the data elements and indicators instantiated by the Bootstrapping App will be common to all DHIS2 instances where it has been run. This provides opportunities in the future to leverage these indicators due to them being standardised and identifiable objects within any DHIS2 instance.

This guide demonstrates how to localise the data elements and indicators instantiated by the Bootstrapping App.

³ See <http://www.unaids.org/en/dataanalysis/datatools/spectrumepp2013>

⁴ See <https://www.dhis2.org/>

⁵ Low and Middle Income Countries

The data

The Spectrum HIV/AIDS Estimates consist of a number of ‘data elements’ that are disaggregated by standardised age-brackets, gender, and sub-national geographic breakdowns. To support the widest possible import potential, the ‘data elements’ instantiated during the Bootstrapping (where age brackets are applicable) are handled as separate objects rather than as a single equivalent data element.

Examples of the data elements instantiated by the App include:

- UNAIDS: Estimated number of HIV+ pregnant women
- UNAIDS: Estimated number of people (15+) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (15-49) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (<15) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (15+) living with HIV
- UNAIDS: Estimated number of people (15-49) living with HIV
- UNAIDS: Estimated number of people (<15) living with HIV

The indicators that were instantiated during the Bootstrapping process utilise these data elements as part of their definition along with local data elements specific to a country DHIS2 instance. Examples include:

- UNAIDS: Percentage of all people (15+) living with HIV who are receiving ART
- UNAIDS: Percentage of all people (15-49) living with HIV who are receiving ART
- UNAIDS: Percentage of all people (<15) living with HIV who are receiving ART
- UNAIDS: Percentage of HIV+ pregnant women who receive antiretrovirals to reduce the risk of MTCT
- UNAIDS: Percentage of HIV-exposed infants who received an HIV test
- UNAIDS: Percentage of people (15+) eligible for HIV treatment according to national criteria that are receiving ART
- UNAIDS: Percentage of people (15+) living with HIV who are enrolled in HIV care
- UNAIDS: Percentage of people (15-49) eligible for HIV treatment according to national criteria that are receiving ART
- UNAIDS: Percentage of people (15-49) living with HIV who are enrolled in HIV care
- UNAIDS: Percentage of people (<15) eligible for HIV treatment according to national criteria that are receiving ART
- UNAIDS: Percentage of people (<15) living with HIV who are enrolled in HIV care

Using the guide

The steps outlined in the next section ‘follow’ a real-life UNAIDS DHIS2 Spectrum App post-initiation session. The example country used is a fictional country used for DHIS2 training known as TrainingLand. The actual customization process will vary per country based on the decisions made during the original DHIS2 setup (e.g. different age brackets, different labels etc.). This guide cannot provide examples to cover all potential eventualities, and instead demonstrates the principle involved in customizing the instantiated data elements and indicators.

The Guide takes advantage of the fact that the UNAIDS DHIS2 Spectrum Bootstrapping App instantiates a full set of objects in DHIS2. In other words, an Indicator (consisting of a numerator and denominator) will consist of DHIS2 objects that need to be partially replaced by local equivalents. To make it ‘easy’ for DHIS2 administrators, ALL replaceable objects have been prefixed with the following:

- UNAIDS (replace): ... (*e.g. UNAIDS (replace): Number of people (<15) receiving ART*)

Replaceable objects exist in the following areas:

- Data element;
- Category Option;
- Category;
- Category Combination;
- Indicator Type; and
- Indicator

All screenshots and data in this and the accompanying documents use TrainingLand as the nominal DHIS2 instance for demonstration purposes.

The Guide

Protocol for making a Data Elements Import-Ready

Go to the Data Elements Area

Under DHIS2 Apps area, navigate to the App known as Data Elements / Indicators App (start typing in the search box to narrow down the list of Apps if it is not immediately visible).

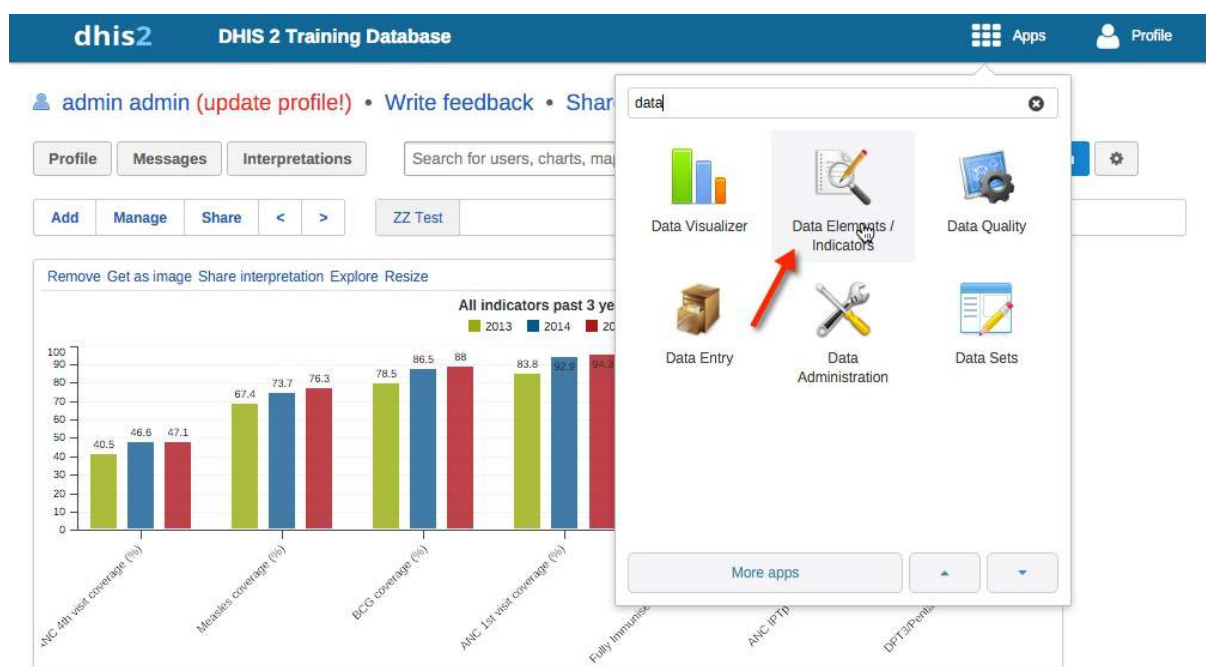


Figure 2 – Select the Data Element / Indicators App in DHIS2

The resulting screen displays a list of options for configuring the data model of DHIS2. All of the configuration options required to localize the UNAIDS Spectrum App instantiated data elements and indicators are accessible from the following screen, and include:

1. Category Options; 2. Categories; 3. Category Combinations; 4. Data Elements; 5. Indicator Types; and 6. Indicators.

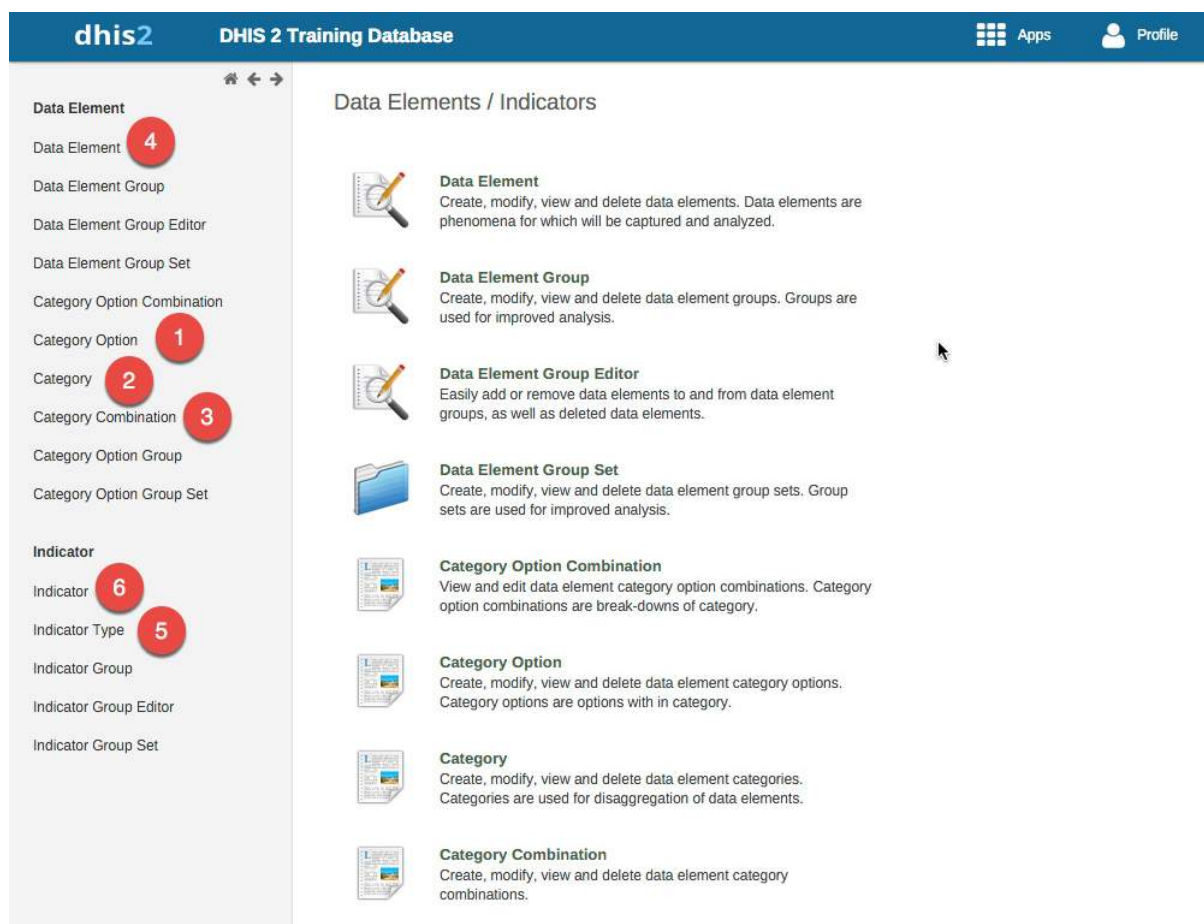


Figure 3 – All localization activities are accessible from this one area of DHIS2

The order in which localization takes place can be important, as certain objects 'build on' previously defined objects. The basic process is to replace any 'placeholder' objects that have been setup by the UNAIDS Spectrum App with locally relevant equivalents.

The subsequent steps in this guide follow the sequence of steps indicated in the screen above. DHIS2 administrators will already be familiar with this process.

It is highly recommended that if the DHIS2 administrator is not familiar with the specific HIV/AIDS data elements already in their system, that they work with the relevant Health Programme to identify someone familiar with HIV/AIDS indicators to assist in the process.

Step 1 – Identify/Create the Equivalent Gender Category Options

It is highly likely that the local country instance of DHIS2 will already have indicators that are disaggregated by gender. In DHIS2, such disaggregation is modelled using Category Options, Categories and Category Combinations.

If the instance does not use such disaggregation, set them up, or adopt (and re-label) the place holder objects instantiated by the UNAIDS Spectrum App.

The screenshot shows the DHIS2 Training Database interface. The left sidebar contains a menu with the following items: Data Element, Data Element Group, Data Element Group Editor, Data Element Group Set, Category Option Combination, Category Option (highlighted with a red arrow), Category, Category Combination, Category Option Group, Category Option Group Set, Indicator, Indicator, Indicator Type, Indicator Group, Indicator Group Editor, and Indicator Group Set. The main content area is titled 'Data element category option management'. It features a search bar with 'Filter by name', 'Filter', 'Clear', and 'Add new' buttons. Below the search bar, there is a table of category options. The table has a 'Name' column. The first section is 'default' with rows for 'Female', 'Male' (marked with a red circle 2), and 'Other'. The second section is 'PMTCT' with a row for 'TB'. The third section is 'UNAIDS (Replace): Female' with a row for 'UNAIDS (Replace): Male' (marked with a red circle 1). The fourth section is '≥ 5 years'. At the bottom, there is a pagination bar showing 'No. of pages: 1', 'No. of rows per page: 50', 'Jump to page: 1', and a 'Go' button.

Figure 4 – Confirm that local category option equivalents (2) exist for the placeholder category options (1). If they don't exist, either create them or re-label and use the placeholder items.

Step 2 – Identify/Create the Equivalent Gender Categories

It is highly likely that the local country instance of DHIS2 will already have indicators that are disaggregated by gender. In DHIS2, such disaggregation is modelled using Category Options, Categories and Category Combinations.

If the instance does not use such disaggregation, set them up, or adopt (and re-label) the place holder objects instantiated by the UNAIDS Spectrum App.

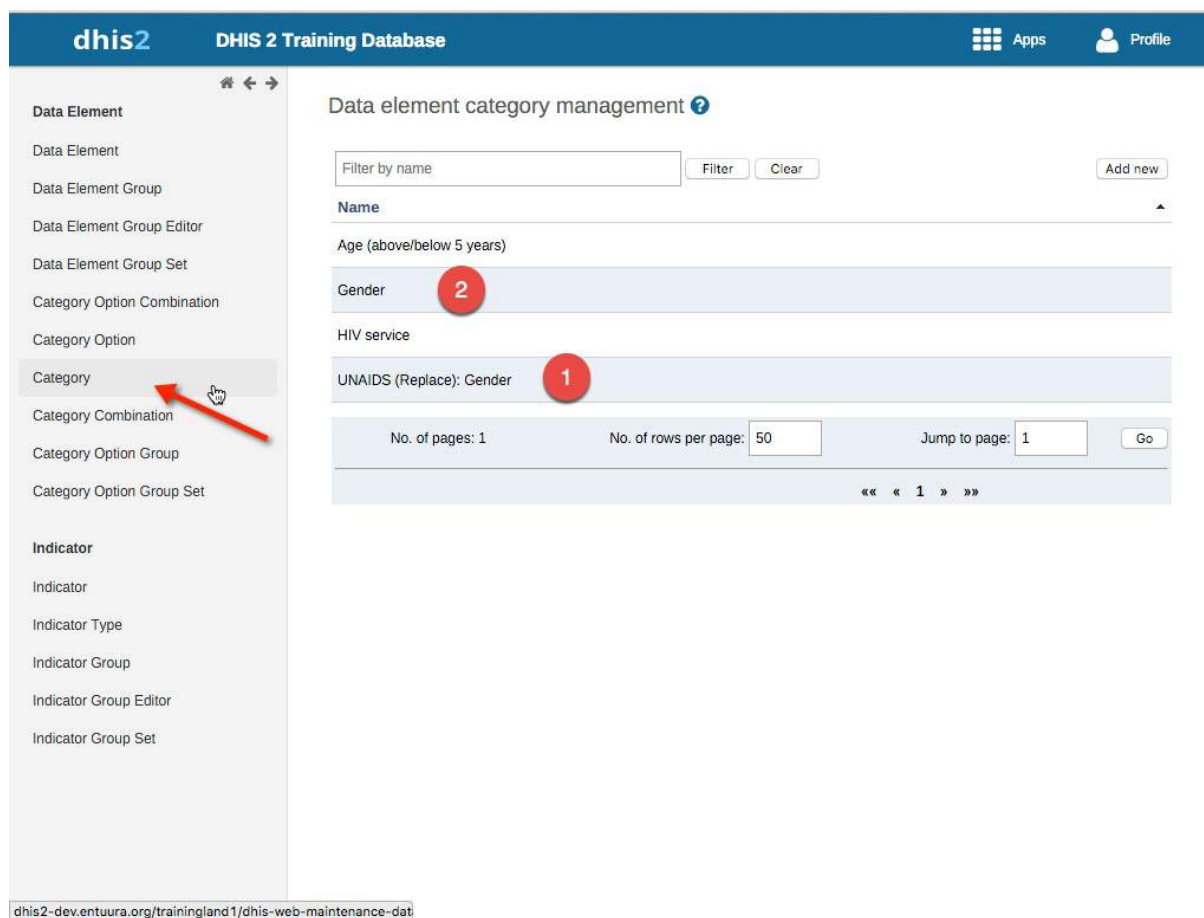


Figure 5 – Confirm that local category equivalent (2) exists for the placeholder category (1). If it doesn't exist, either create it or re-label and use the placeholder item.

Note: The Category placeholder (1) *UNAIDS (Replace): Gender* makes use of the Placeholder Category Options *UNAIDS (Replace): Female* and *UNAIDS (Replace): Male*. Similarly, it is likely (but not absolutely certain) that a local equivalent exists (2) *Gender*, that will make use of Category Options *Male* and *Female*.

Step 3 – Identify/Create Equivalent Gender Category Combinations

It is highly likely that the local country instance of DHIS2 will already have indicators that are disaggregated by gender. In DHIS2, such disaggregation is modelled using Category Options, Categories and Category Combinations.

If the instance does not use such disaggregation, set them up, or adopt (and re-label) the place holder objects instantiated by the UNAIDS Spectrum App.

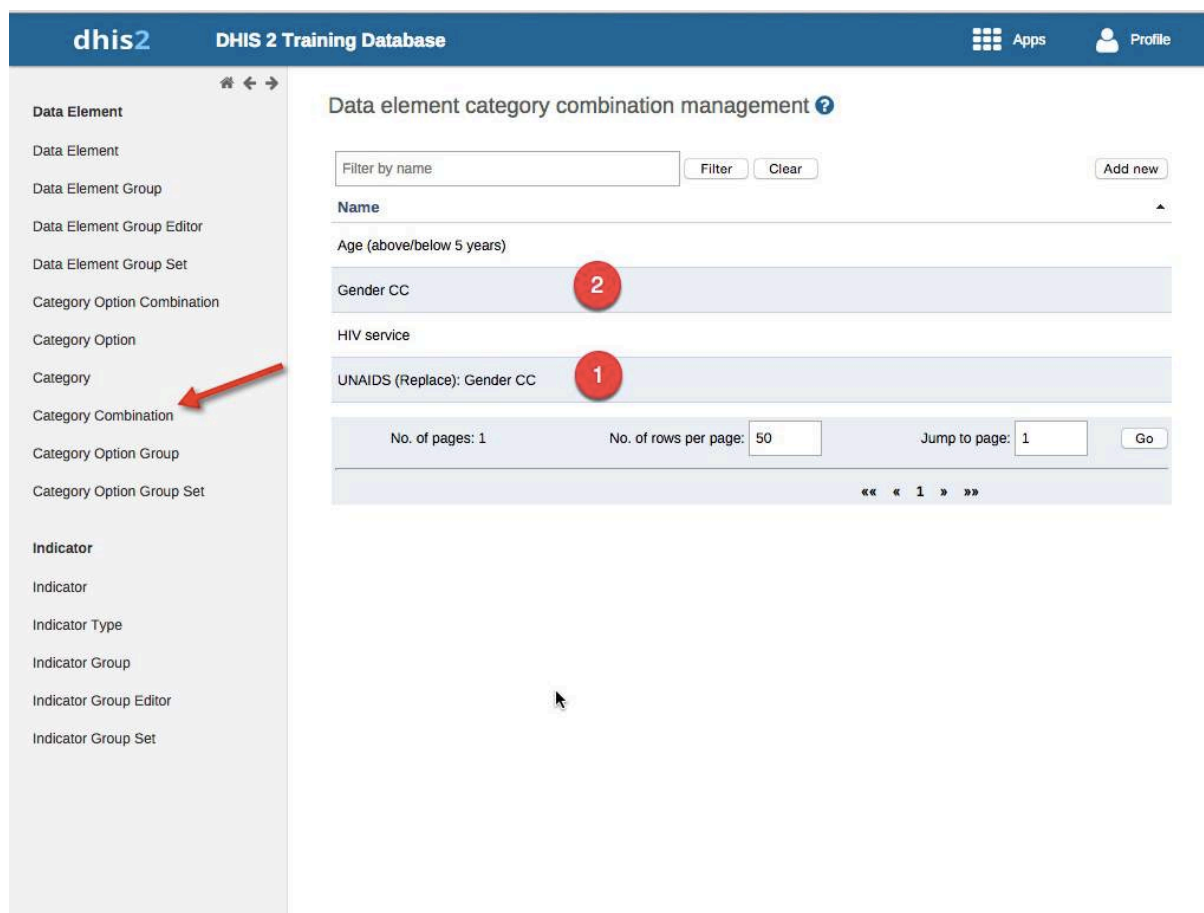


Figure 6 – Confirm that local category combination equivalent (2) exists for the placeholder category (1). If it doesn't exist, either create it or re-label and use the placeholder item.

Note: The Category Combination placeholder (1) *UNAIDS (Replace): Gender CC* makes use of the Placeholder Category Combination *UNAIDS (Replace): Gender*. A local equivalent may or may not exist for this.

Note: It is this final local equivalent (e.g. Gender CC) that is required for the next step.

Step 4 – Localize the Data Elements

There are (in this version of the Guide) seven data elements that have been instantiated by the UNAIDS Spectrum App.

Six of these data elements use the Gender Category Combination. It is necessary to edit each data element and replace the placeholder *UNAIDS (Replace): Gender CC* with the local equivalent.

The six data elements to modify include:

- UNAIDS: Estimated number of people (15+) eligible for ART according to national guidelines

- UNAIDS: Estimated number of people (15-49) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (<15) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (15+) living with HIV
- UNAIDS: Estimated number of people (15-49) living with HIV
- UNAIDS: Estimated number of people (<15) living with HIV

Click on the Data Element option (1), Type in the search field *UNAIDS: Estimated* and click *Filter* to highlight only the list of UNAIDS elements. And then click on the necessary Data Element one at a time and click the Edit option (3).

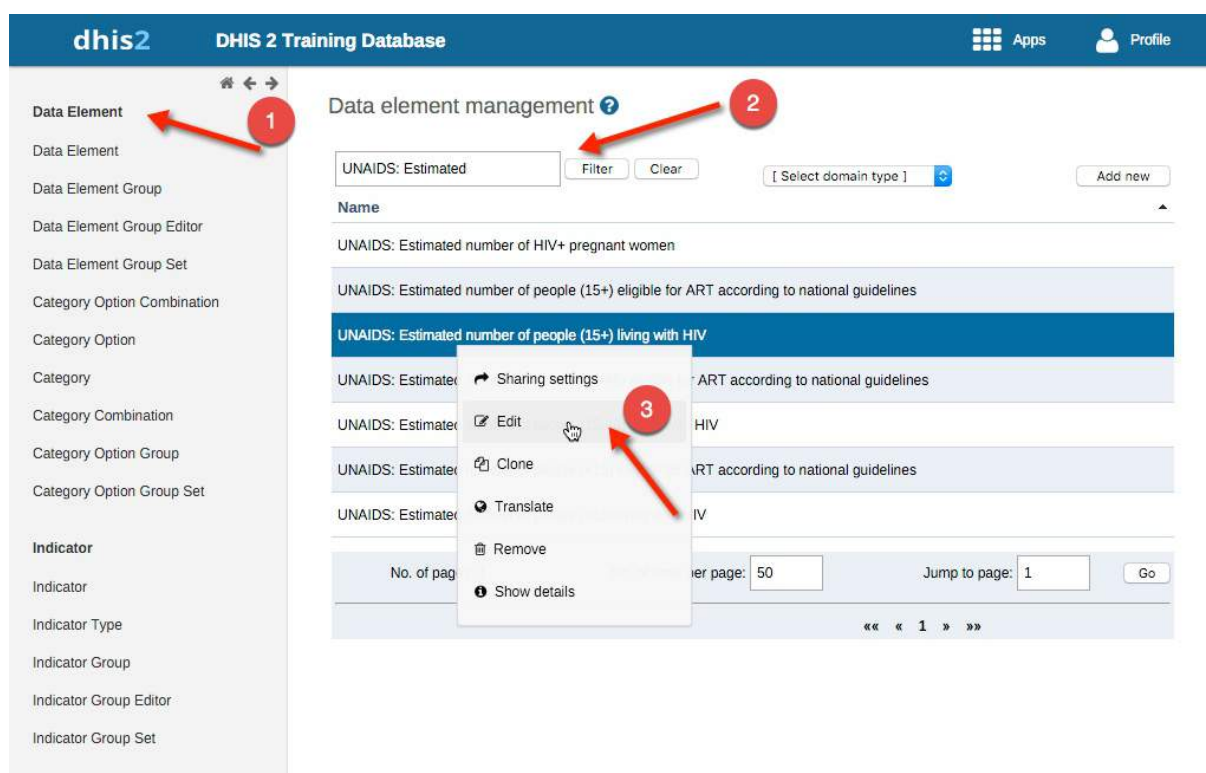


Figure 7 – Opening up a Data Element for editing

Scroll down the Edit screen until you find the 'Category Combination' label (1), Select the local equivalent identified or created in Step 3 above (2), and then save (3). Repeat this for all six Data Elements.

Note: UNAIDS: Estimated number of HIV+ pregnant women does NOT use a Gender category combination, so it should not be modified.

dhis2 **DHIS 2 Training Database** Apps Profile

Edit data element

Details

Name * UNAIDS: Estimated number of people (15+) living with H

Short name UNAIDS: Est. (15+) living with HIV

Code

Description

Form name

Domain Type * Aggregate

Value Type * Number

Number type Number

Aggregation operator * Sum

Store zero data values

URL

1 Category Combination * **2**

Option set for data values [Please select]

Option set for comments [Please select]

Legend set [Please select]

Aggregation levels ☐

3 Save Cancel

Figure 8 – Updating the Data Element Category Combination with the local equivalent

Step 5 – Identify/Create Equivalent Percentage Indicator Type

It is highly likely that the local country instance of DHIS2 will already have indicators indicator types set up for percentage (a simple multiplier for helping format indicators that use numerators and denominators).

In order to create placeholder indicators, it was first necessary to create a placeholder percentage indicator type.

In a similar manner to Steps 1 through 3 above, the task is to either identify the local replacement equivalent, or if it does not exist, create it or re-use the placeholder by re-labelling it.

The screenshots below highlight how to identify the local equivalent or alternatively display the parameters if you need to create your own local equivalent.

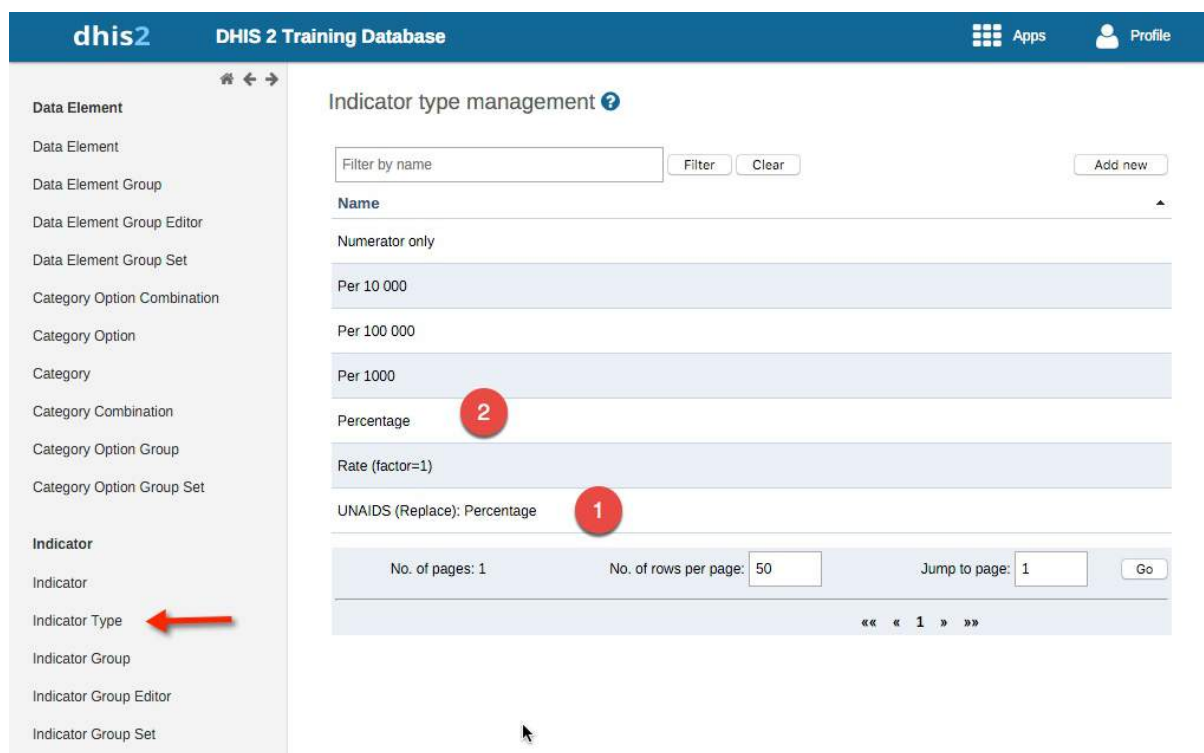


Figure 9 – Confirm that local Indicator Type equivalent (2) exists for the placeholder Indicator Type (1). If it doesn't exist, either create it or re-label and use the placeholder item.

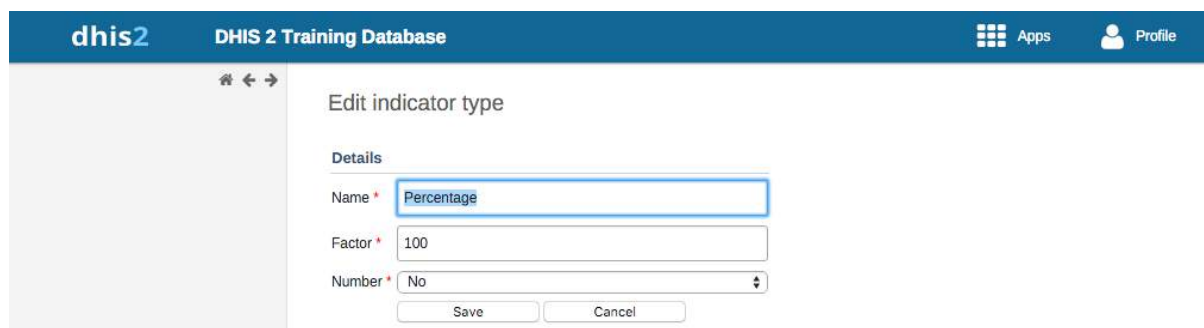


Figure 10 – Parameters of a local equivalent for Percentage (if creation is necessary)

Step 6 – Localizing the Indicators

There are two localizations required for each indicator, (a) change the Indicator Type, and (b) change the denominator.

For each of the Indicators instantiated by the UNAIDS Spectrum App, the data elements highlighted in Step 4 have been used as denominators. Placeholder data elements prefixed with *UNAIDS (replace):* have been used for the numerators. These need to be changed to local equivalents.



Step 6a – Filter the list of target indicators

Click on the Indicator (1), Type in the search field *UNAIDS* and click *Filter* (2) to highlight only the list of UNAIDS indicators. And then click on each Indicator in turn and click the Edit option (3).

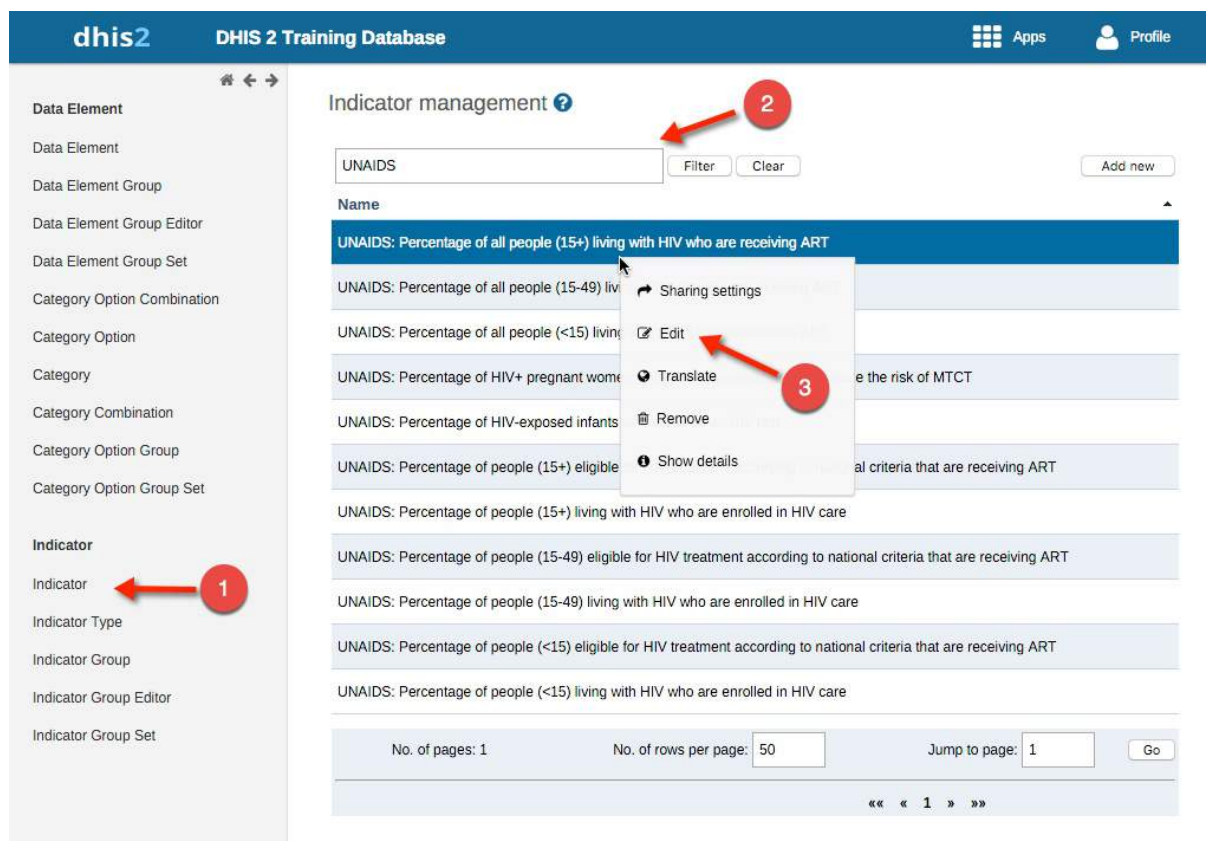


Figure 11 – Opening an Indicator for Editing

The list of target indicators for editing include:

- UNAIDS: Percentage of all people (15+) living with HIV who are receiving ART
- ~~UNAIDS: Percentage of all people (15-49) living with HIV who are receiving ART~~
- UNAIDS: Percentage of all people (<15) living with HIV who are receiving ART
- UNAIDS: Percentage of HIV+ pregnant women who receive antiretrovirals to reduce the risk of MTCT
- UNAIDS: Percentage of HIV-exposed infants who received an HIV test
- UNAIDS: Percentage of people (15+) eligible for HIV treatment according to national criteria that are receiving ART
- UNAIDS: Percentage of people (15+) living with HIV who are enrolled in HIV care
- ~~UNAIDS: Percentage of people (15-49) eligible for HIV treatment according to national criteria that are receiving ART~~
- UNAIDS: Percentage of people (15-49) living with HIV who are enrolled in HIV care
- UNAIDS: Percentage of people (<15) eligible for HIV treatment according to national criteria that are receiving ART
- UNAIDS: Percentage of people (<15) living with HIV who are enrolled in HIV care

Step 6b – Localize the Indicator Type for the given Indicator

Change the Indicator Type to the local equivalent (1) identified or setup in step 5, then click on the 'Edit Numerator' item (2) to be presented with the Numerator edit screen.

Figure 12 – Localizing the Indicator: (1) Set Indicator Type to local equivalent; (2) Edit the Numerator and replace with local equivalent.


The UNAIDS Spectrum App instantiated a number of placeholder data elements that have been used as numerators in the instantiated indicators. These should be replaced with local equivalents. The placeholder data elements include:

- UNAIDS (replace): Number of people (15+) enrolled in HIV care
- UNAIDS (replace): Number of people (15+) receiving ART
- UNAIDS (replace): Number of people (15-49) enrolled in HIV care
- ~~UNAIDS (replace): Number of people (15-49) receiving ART~~
- UNAIDS (replace): Number of people (<15) enrolled in HIV care
- UNAIDS (replace): Number of people (<15) receiving ART
- UNAIDS (replace): Number of women receiving antiretrovirals to reduce the risk of MTCT
- UNAIDS (replace): Total HIV-exposed infants testing by 12 months


Step 6c – Localize the numerator for the target indicator

Identify the data element (1) that needs replacing, select an appropriate alternative local data element (2) to replace the placeholder, and type in a new matching description (3) for this local replacement numerator.

Figure 13 – Replacing the placeholder numerator with a local equivalent.

Note: Depending on the decisions made when the local country instance of DHIS2 was setup, the numerators may be more complex than highlighted in the screenshot above. For example, a country may have differing age-bracket disaggregation's, and therefore require a complex numerator requiring the use of operands (addition, subtraction etc.). 

Data Maintenance

It may be necessary to carry out Data Maintenance at the end of this setup (e.g. Running the 'Update category option combinations', Clearing Server Cache or other related activities). 



Appendices

Appendix A – List of Data Elements used in DHIS2 for handling Spectrum estimates.



- UNAIDS (replace): Number of people (15+) enrolled in HIV care
- UNAIDS (replace): Number of people (15+) receiving ART
- UNAIDS (replace): Number of people (15-49) enrolled in HIV care
- UNAIDS (replace): Number of people (15-49) receiving ART
- UNAIDS (replace): Number of people (<15) enrolled in HIV care
- UNAIDS (replace): Number of people (<15) receiving ART
- UNAIDS (replace): Number of women receiving antiretrovirals to reduce the risk of MTCT
- UNAIDS (replace): Total HIV-exposed infants testing by 12 months
- UNAIDS: Estimated number of HIV+ pregnant women
- UNAIDS: Estimated number of people (15+) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (15+) living with HIV
- UNAIDS: Estimated number of people (15-49) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (15-49) living with HIV
- UNAIDS: Estimated number of people (<15) eligible for ART according to national guidelines
- UNAIDS: Estimated number of people (<15) living with HIV