Chapter 16. Data Analysis Tools Overview

This chapter offers an overview of the available tools for data analysis provided by DHIS 2 along with a description of the purpose and benefits of each. If you are looking for a detailed guide on how to use each tool we recommend to continue to read the user guide after finishing this chapter. The following list shows the various tools:

1. Standard reports
2. Data set reports
3. Data completeness reports
4. Static reports
5. Organisation unit distribution reports
6. Report tables
7. Charts
8. Web Pivot table
9. GIS
10. My Datamart and Excel pivot tables

16.1. Data analysis tools

The following section gives a description of each tool.

16.1.1. Standard reports

Standard reports are reports with predefined designs. This means that the reports are easily accessible with a few clicks and can be consumed by users at all levels of experience. The report can contain statistics in the form of tables and charts and can be tailored to suit most requirements. The report solution in DHIS 2 is based on JasperReports and reports are most often designed with the iReport report designer. Even though the report design is fixed, data can be dynamically loaded into the report based on any organisation unit from in the hierarchy and with a variety of time periods.

16.1.2. Data set reports

Data set reports displays the design of data entry forms as a report populated with aggregated data (as opposed to captured low-level data). This report is easily accessible for all types of users and gives quick access to aggregate data. There is often a legacy requirement for viewing data entry forms as reports which this tool efficiently provides for. The data set report supports all types of data entry forms including section and custom forms.

16.1.3. Data completeness report

The data completeness report produces statistics for the degree of completeness of data entry forms. The statistical data can be analysed per individual data sets or per a list of organisation units with a common parent in the hierarchy. It provides a percentage value for the total completeness and for the completeness of timely submissions. One can use various definitions of completeness as basis for the statistics: First based on number of data sets marked manually as complete by the user entering data. Second based on whether all data element defined as compulsory are being filled in for a data set. Third based on the percentage of number of values filled over the total number of values in a data set.

16.1.4. Static reports

Static reports provides two methods for linking to existing resources in the user interface. First it provides the possibility to link to a resource on the Internet trough a URL. Second it provides the possibility to upload files to the system

and link to those files. The type of files to upload can be any kind of document, image or video. Useful examples of documents to link to are health surveys, policy documents and annual plans. URLs can point to relevant web sites such as the Ministry of Health home page, sources of health related information. In addition it can be used as an interface to third-party web based analysis tools by pointing at specific resources. One example is pointing a URL to a report served by the BIRT reporting framework.

16.1.5. Organisation unit distribution reports

The organisation unit distribution report provides statistics on the facilities (organisation units) in the hierarchy based on their classification. The classification is based on organisation unit groups and group sets. For instance can facilities be classified by type through assignment to the relevant group from the group set for organisation unit type. The distribution report produces the number of facilities for each class and can be generated for all organisation units and for all group sets in the system.

16.1.6. Report tables

Report tables are reports based on aggregated data in a tabular format. A report table can be used as a stand-alone report or can be used as data source for a more sophisticated standard report design. The tabular format can be cross-tabulated with any number of dimensions appearing as columns. It can contain indicator and data element aggregate data as well as completeness data for data sets. It can contain relative periods which enables the report to be reused over time. It can contain user selectable parameters for organisation units and periods to enable the report to be reused for all organisation units in the hierarchy. The report table can be limited to the top results and sorted ascending or descending. When generated the report table data can be downloaded as PDF, Excel workbook, CSV file and Jasper report.

16.1.7. Charts

The chart component offers a wide variety of charts including the standard bar, line and pie charts. The charts can contain indicators, data elements, periods and organisation units on both the x and y axis as well as a fixed horizontal target line. Charts can be view directly or as part of the dashboard as will be explained later.

16.1.8. Web Pivot tables

The web pivot table offers quick access to statistical data in a tabular format and provides the ability to “pivot” any number of the dimensions such as indicators, data elements, organisation units and periods to appear on columns and rows in order to create tailored views. Each cell in the table can be visualized as a bar chart.

16.1.9. GIS

The GIS module gives the ability to visualize aggregate data on maps. The GIS module can provide thematic mapping of polygons such as provinces and districts and of points such as facilities in separate layers. The mentioned layers can be displayed together and be combined with custom overlays. Such map views can be easily navigated back in history, saved for easy access at a later stage and saved to disk as an image file. The GIS module provides automatic and fixed class breaks for thematic mapping, predefined and automatic legend sets, ability to display labels (names) for the geographical elements and the ability to measure the distance between points in the map. Mapping can be viewed for any indicator or data element and for any level in the organisation unit hierarchy. There is also a special layer for displaying facilities on the map where each one is represented with a symbol based on the its type.

16.1.10. My Datamart and Excel Pivot tables

The purpose of the My Datamart tool is provide users with full access to aggregate data even on unreliable Internet connections. This tool consists of a light-weight client application which is installed at the computer of the users. It connects to an online central server running a DHIS 2 instance, downloads aggregate data and stores it in a database at he local computer. This database can be used to connect third-party tools such as MS Excel Pivot tables, which is a powerful tool for data analysis and visualization. This solution implies that just short periods of Internet connectivity

are required to synchronize the client database with the central online one, and that after this process is done the data will be available independent of connectivity. Please read the chapter dedicated to this tool for in-depth information.