**One-Pagers for specific areas of interoperability**

# Overview

UIO is working on a complementary section to the interoperability implementer guides. This will cover different thematic areas, functional areas such as HR, Finance or Logistics and vertical program specific areas such as TB, NTDs or Vaccination. Each subject will be covered as a one-pager. The structure will be modular to avoid content duplication. For each subject four 4 sections will be covered:

1. Introduction and definitions
2. Status Quo of implementation in DHIS2 - How far dhis2 can cover this area, using aggregate data or DHIS2 tracker
3. Interoperability Options – With which specialized system can dhis2 exchange data to cover specific use cases in this area
4. Links to further information and documents on discussed interoperability cases

The objective is to slowly move towards a **community sharing mechanism**, where implementers (Countries, UIO, consultants) are invited to provide in-depth information in a replicable way.  Contact information of the authors for implementation support can be provided to allow communication between community members without burdening UIO management and  developers.

The cases will be published using a structured database, following a structure like suggested below:

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Domain** | **Country** | **Organisation Type** | **Title** | **Related System** | **Tags** | **Contact for Implementation Support** | **Downloads** |
| LMIS, Immunization | Ghana | MoH | Integrating DVDMT into DHIS2 | DVDMT | LMIS, EPI, | @GHS | **Case Study**  (Configuration Template;  Documentation,  API documentation) |
| Short Description: Teaser text, 2-3 Sentences max. | | | | | | | |

In a first step we have created two sample pages, one on immunization, the other on logistics.

# Sample Page – Immunization

**a)   Introduction**

Vaccination Management Systems can cover several areas. The main area is routine vaccination data collection and reporting. A special focus is often on supply chain management (commodity planning, budgeting, procurement, storage, distribution and replenishment), which also includes the control of the cold chain, which needs to cover temperature control at refrigerators at district or facility level. An additional area may also be the planning and scheduling of vaccination campaigns.

**b)   Implementing Immunization in DHIS2 - Status Quo**

Immunization data is routinely collected as **aggregate** numbers in many DHIS2 country implementations. This typically includes the aggregate number of persons vaccinated for each vaccination type, split by age group and gender. A typical resulting indicator is the immunization coverage rate, based on data from a registry of vital events. This has been implanted for example by Ghana Ministry of Health/ Ghana Health Services, also covering stock data. Another example is the Cold Chain Equipment Inventory (CCEI) System, that was developed by HISP India, supported by UNICEF/PATH. The system serves to collect data on temperature sensitive commodities transport and storage directly using DHIS2.

In addition, individual immunization registries have been created using tracker. In this case each child is entered as a trackable entity in DHIS2. The software suggests an immunization plan and allows follow-up on completed vaccinations. An example of this approach is being developed and piloted by HISP Bangladesh.

**c)    Immunization/DHIS2 Interoperability Options**

There are several initiatives to connect DHIS2 with external immunization systems. An interesting example is the Ghana imitative to use DHIS2 for data entry of EPI data, then sharing it to the legacy DVD-MT formats for visualization and further analysis.

**d)   Immunization case details**

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| --- | --- | --- | --- | --- | --- | --- | --- |
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| LMIS, Immunization | Ghana | MoH / Ghana Health Services | Integrating DVDMT into DHIS2 | DVDMT | LMIS, EPI, Immunization | @GHS | Case study |
| Immunization | Bangladesh | MoH/HISP Bangladesh | Immunization Registry in DHIS2 tracker | n/a | Immunization | @DGHS / HISP Bangladesh | t.b.d. |
| Immunization | India/ different countries | MoH/HISP India | Cold Chain Equipment Inventory (CCEI) DHIS2 module | n/a | Immunization, Cold Chain, LMIS |  | Path Case study |

# Sample Page - Logistics

**a)   Introduction**

Logistics Management Systems **(LMIS**) or Supply Chain Management Systems **(SCM)** serve to replace paper systems to increase standardization, transparency, timeliness of procurement, efficiency, safety, cost-effectiveness, and to reduce waste. National SCMS/LMIS can cover such functions as commodity planning, budgeting, procurement, storage, distribution and replenishment of essential drugs and consumables.

**b)   Implementing LMIS in DHIS2**

Supply chains can often be well controlled with aggregate data only, as long as data is provided reliably from all relevant levels and followed up upon. The main indicators intake, consumption and stock level at the end of period can be managed without electronic transactions and often suffice to give the big picture, reducing the needs for system investment. As a rapidly evolving platform, DHIS2 has been adding a lot of functionality over the last years, especially in DHIS2 Tracker. The following main functions are currently available:

* Data entry form mirroring the widely used Report and Requisition (R&R) paper form. Data entry by facilities is possible through the desktop browser or a mobile app, including in offline mode. In online mode the form can calculate requisition proposals, offering the facility manager to modify the request and comment on it. These electronic forms can be filled by staff based on the paper stock cards, that are normally placed next to the commodity in the store room.
* DHIS2 can then produce reports for central decision making, giving commodity and program managers the possibility to accept or modify delivery suggestions.
* Stock data can be transformed into logistics indicators, that can be put into context with other program indicators, for example cross-referencing number of patients treated with a specific pathology and corresponding drug consumption.

**c)    Interoperability Options**

LMIS is an area where a multitude of parallel, overlapping or competing software solutions can be found in a single country. As identified in a JSI study in 2012 (Ghana Ministry of Health, July 2013: Landscape Analysis of Supply Chain Management Tools in Use), eighteen (18!) different software tools were documented as being in use within the public health supply chain in Ghana alone.

Although a basic LMIS configuration based on aggregate data can take you very far, in some cases  a transactional LMIS is necessary if you need to track such detailed operations as returns, transfer between facilities, barcode reading, batch and expiry management. Also  some specialized HQ functions such as creating forecasting, replenishment and elaborate control reports are often done in specialized tools.

DHIS2 has integrated aggregate data from external systems such as openLMIS and CommCare through automated data interfaces. As a result, stock data is available in shared dashboards, displaying health service and stock data next to each other.

**d)   LMIS case details**

