Country Planning and Capacity Building Workshop: Strengthening Routine Facility Data Analysis & Use

27 February–2 March 2018 | Electra Metropolis Hotel, Athens, Greece

WORKSHOP REPORT

Key points

- Countries face ongoing challenges in relation to data quality, fragmented data management systems, inadequate standard operating procedures, and limited capacity for analysis and use of facility data at district and facility levels. Patient-based data systems, and their integration with aggregate systems, also remain a challenge.

- Countries welcomed the data standards and modular guidance toolkit for analysis and use of facility data. There is also a need to develop associated training modules as well as additional online DHIS2 training materials.

- An integrated approach to facility data among HMIS and programmes was perceived to have value among both countries and partners, provided that appropriate governance and management mechanism are in place.

Way forward

Countries:

- Advocate for high level political support for the use of data standards and an integrated approach to facility based information systems;
- Organise country level meetings to take forward the priority issues identified during the workshop.

WHO:

- WHO is available to provide technical support, including for country meetings; WHO and partners may be able to provide catalytic funding toward initiating a process for promoting the use of data standards and integration; WHO HQ, in collaboration with regional and country offices, will contact countries individually concerning next steps.
- Finalize existing toolkit modules and proceed with development of additional modules in collaboration with partners;
- Continue refinement of DHIS2 modules, develop additional modules and SOPs for implementation.

Partners:

- Support an integrated approach to strengthening facility-based information systems;
- Engage with countries on identified priorities and resource needs;
- Work with WHO in context of the HDC to develop the toolkit modules and DHIS2 apps.

Background

The analysis and use of data for guiding priority-setting and managing health services remains inadequate in many countries. In an effort to support countries in strengthening facility-based data quality, analysis and use, WHO and its partners (within the context of the Health Data Collaborative (HDC)[1] have developed a package of data standards for facility-based health management information systems (HMIS) that reflect current health service delivery and programmatic standards.

The data standards have been consolidated into a comprehensive toolkit comprising an initial set of modules including principles of data analysis and use, mortality and morbidity, service delivery systems and programme-specific modules for HIV, TB, malaria and immunization. In order to further promote implementation of these data standards, a set of Health Apps for DHIS2 public health users has been also developed by WHO and partners.

Central to development and implementation of the data standards and the DHIS 2 Health Apps, is a harmonized, collaborative approach among programmes and partners at global and country levels.

Participants and objectives

This workshop was organized by WHO, representing a joint effort among five WHO programs: HIV, TB, Malaria, Immunization and Health Metrics and Measurement. The workshop was financially supported by GFATM and GAVI, and further supported by other HDC partners.

Participants included country teams from Malawi, Myanmar, Pakistan, Tanzania, Uganda and Zimbabwe (comprising focal points for HIV, TB, malaria, immunization and HMIS); regional experts, independent consultants, DHIS2 expert users; HDC partners (BMGF, CDC, CHAI, GAVI, GFATM, UNAIDS, UNICEF, USAID, University of Oslo), and WHO HQ, regional and country offices).

Objectives of the workshop:

1. Discuss country practices, needs and priorities for improving facility data analysis and use;
2. Introduce latest developments in data standards and guidance, including the DHIS2 Health Apps;
3. Socialize standards and guidance and expand pool of expertise to support countries.

In addition, the workshop aimed to address the potential for harmonization of the various disease-specific data management systems.

The workshop agenda and final list of participants are presented as Annexes.

[1] Health Data Collaborative Operational Work Plan 2016-2017: https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/HDC_Operational_Workplan.pdf

Workshop proceedings

1. Technical updates

Facility data standards

The role of facility-based data and the need for a harmonized approach to strengthening RHIS were reviewed within global and national contexts including:

- the need to monitor global health priorities, including the SDGs and UHC;
- the need at national and local levels for reliable data for management of supplies and services, and for assessment of progress and performance against targets for all programmes.

The ongoing work on facility-based information systems was also highlighted within the efforts of WHO and HDC partners in developing a coherent framework/technical package to strengthen country health data systems, as reflected in the SCORE framework. Core elements of facility data standards were discussed, including: core facility indicators, master facility lists, cause of death reporting, standard reporting frameworks, harmonized data quality metrics and tools, and guidance for analysis and use of health facility data.

The importance of data quality was emphasised in relation to communication and use of data, as well as challenges around use of denominators.

Next steps

The draft modules on analysis and use of facility data for HIV, TB, malaria, immunization and district/national managers, were reviewed by participants during programme-specific working group sessions. Feedback received during these sessions will be used to inform improvement of the current modules. Additional modules will be developed in collaboration relevant WHO programmes and with partners.

Modules	Responsible	Status
General Principles	WHO and Measure Evaluation	In process
National Planners and Managers	WHO and UNICEF	In process
District Planners and Managers	WHO and UNICEF	In process
Facility Managers	AEDES and WHO	Not yet started
HIV	WHO, CDC, Global Fund, PEPFAR	Well advanced
Malaria	WHO, CDC, Global Fund, PMI	Well advanced
Tuberculosis	WHO, CDC, Global Fund, BMGF	Well advanced
Immunization	WHO, CDC, GAVI	Well advanced
RMNCAH	WHO,	In process
NCDs	WHO	Not yet started
Mental health	WHO	Not yet started
Nutrition	UNICEF and WHO	Not yet started
NTDs	WHO	Not yet started
Early warning and response	WHO and CDC	In process

DHIS2 Health Apps

The DHIS 2 was presented as an example of an electronic platform for implementing the facility data standards. A Health App menu for DHIS 2, based on international reference standards and reflecting core programmes, was demonstrated.

WHO and its University of Oslo Collaborating Centre jointly presented the rationale for creating standard packages for the DHIS2 for each health programme. There is wide demand from countries to extend use of their DHIS2 systems beyond traditional reporting of overall HMIS indicators to also serve vertical programs. The set of harmonized packages allows countries to readily compare their current data collection to global best practices with an emphasis data use – starting with a focus on actionable outputs in the form of dashboards. Participants expressed strong support for such a drive towards harmonization and core outputs, and should all by now have access to demo servers for further testing.

Next steps

The DHIS2 packages presented (HIV, TB, malaria, immunization, mortality and cause of death) are already usable, but next steps include refinement for full release based on feedback, including review of naming and coding conventions. Modules for other programme and management areas will follow, as well as standard operating procedures for implementation of the modules.

2. Country contexts and priorities

Each country team presented an overview of their progress, challenges and priorities in relation to routine HMIS. Country groups then used a WHO assessment tool to further analyse country-specific needs and to define priority actions, resource needs and next steps for strengthening routine facility-based HMIS. Country-specific summaries are available in Annex 3.

Challenges

While country contexts and health information systems vary, a number of common challenges emerged in relation to facility-based information systems:

- Fragmented and/or parallel data management systems
- Electronic patient level systems: fragmented, inadequate coverage
- Persistent data quality challenges
- Irregular and uncoordinated data quality review at district and facility levels
- Limited capacity for data analysis and use at district and facility levels Network connectivity and fees
- Human resource capacity and turnover Lack of integration/coordination among partners within and among programme areas
- Private sector data not well captured
- Lack of or outdated SOPS

Integrated approaches to facility data

Country teams were also requested to assess collaboration among programmes and HMIS, and to identify potential risks and added value of an integrated approach to facility data. The extent of collaboration varied according to country and programme. However, overall an integrated approach was perceived to add value

and was associated with low risk, provided that appropriate governance was in place and roles were clearly defined. Refer to Annex 3 for country-specific perceptions.

Priorities

Needs and priorities differed among countries, but again common themes emerged under each of the main HMIS components:

Governance	- Integration of data management/M&E through various mechanisms (e.g. task force, clarification of linkages and responsibilities, harmonization of system standards)
Infrastructure	- Enhancement of ICT infrastructure, including internet connectivity - Maintenance plans
Core indicators	- Update national core indicators, including programme indicators - Harmonize with WHO indicators
Standard operational procedures	- Develop / finalise / update
Analytical capacity	- Capacity building at all levels, particularly district and facility - Use of dashboards
Communication and use of data*	- Capacity building

*Note: Priorities for communication and use are overall less clearly expressed than for other system components.

Next steps for countries:

Country teams identified specific post-workshop next steps toward obtaining political buy-in and addressing the identified priorities. (Refer to the country summaries in Annex 3.)

3. Partner perspectives

CDC

The CDC concurred with other partners in support of the workshop and expressed interest in further collaboration in the development of a module on early warming and response, as well as strengthening tools and processes for supportive supervision.

GAVI

GAVI expressed overall support for the workshop. Countries have annual opportunities to approach GAVI concerning areas where support is needed, for example, during joint appraisals. The final country presentations represent 90% of the information needed to approach GAVI. GAVI is interested in working with partners to support regional workshops on lessons learned.

GFATM

GFATM is very supportive of the integrated approach to data management. Analysis and use are key issues for them. They are also interested in the potential of using the integrated approach to highlight efficiencies: visualizing programme data in relation to health systems data, e.g. beds, commodities. Virtual interoperability of systems would add value. GFATM advises countries to install the WHO Data Quality App into DHIS and is interested in supporting processes toward use of the App at district level, including support for training. GFATM also noted the need to identify standard indicators to extract from patient-based systems for integration into DHIS2.

UNICEF

UNICEF will take the lead on developing the DHIS2 Health Apps for nutrition and the birth module, as well as supporting development of the RMHCAH App. They are working with the University of Oslo in development DHIS2 tools on data interpretation (scorecard) and bottle neck analysis in relation to effective coverage, and expressed interest in developing a bottleneck analysis app and action tracker to monitor effect of actions taken. UNICEF expressed commitment to working with WHO on integration of these tools with the DHIS2 Health Apps and the guidance modules for analysis and use of facility data, notably in relation to the guidance for facility, district and national managers

University of Oslo

There is a need to revise the DHIS2 metadata, to work on improved navigation and to have a systematic way to maintain and update the data base. Guidelines and training are needed around this. Online training material could be considered, for example an online DHIS2 academy for training and ongoing support and supervision.

Annex 1

Agenda

World Health Organization

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Agenda

Tuesday, 27 February 2018		
08:30-09:00	**Registration**	Magnolia Room
Session 1	**Introduction**	**Chair [Babis Sismanidis]**
09:00-09:15	**Welcome and introductions**	
09:15-09:30	**Opening remarks**	Dr. Ioannis Baskozos Secretary General for Public Health, Greece
09:30-10:00	**Analysis and use of facility data for action: Context, vision, meeting objectives**	Panel [K. O'Neill, M. Munroe, L. Craw, R. Ransom, C. Colvin]
10:00-10:30	**Partner perspectives** [2-3 mins per partner]	Tour de table partners
10:30-11:00	***Coffee break***	
Session 2	**Country practices**	**Chair [Christy Hanson]**
11:00-12:30	**What are the current practices, challenges, priority needs to improve analysis and use of facility data?** [Maximum 10 mins per country team + 5 mins Q&A] • Malawi • Myanmar • Pakistan • Tanzania • Uganda • Zimbabwe	Country representatives
12:30-14:00	***Lunch***	
Session 3	**Introduction to standards for facility systems**	**Chair [H. Timimi]**
14:00-15:30	**Introduction to facility data standards** **Introduction to the DHIS Health App**	WHO team University of Oslo team
15:30-16:00	***Coffee break***	
16:00-17:30	**Group discussion and feedback**	
18:30	**Welcome reception and dinner - Electra Palace Hotel**	

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Wednesday, 28 February 2018		
Session 4	**Analysis and use of facility data**	**Chair [Maria Muniz]**
08:30-09:45	**Introductory presentation on general principles** (core indicators, data quality, denominators, analysis)	Ties Boerma/Bob Pond
09.45-10:00	**Orientation to programme-specific working groups** (HIV, TB, malaria, immunization, HMIS)	Wendy Venter
10:00-10:30	***Coffee break***	
10:30- 12:30	**Programme-specific working groups with facilitators** • HMIS (national and district planners) • HIV • TB • Malaria • Immunization	Programme group work
12:30-14:00	***Lunch***	
14:00-15:30	**Programme-specific working groups with facilitators [Contd]**	Programme group work
15:30-16:00	***Coffee break***	
16:00-17:30	**Programme-specific working groups with facilitators [Contd]**	Programme group work

Thursday, 01 March 2018		
Session 5	**Country priority needs, actions, roles of partners**	**Chair [David Lowrance]**
08:30-09:30	**Feedback from programme-specific working groups**	Facilitated discussion
09:30-10:00	**Experience from Pakistan**	Ministry of Health Pakistan
10:00-10:30	**Orientation to country group work: Priority needs, next steps, roles of partners** (Governance, capacity, infrastructure, standards)	Wendy Venter
10:30-11:00	***Coffee break***	
11:00- 12:30	**Country working groups with facilitators**	Country group work (Break-out rooms)
12:30-14:00	***Lunch***	
14:00-15:30	**Country working groups with facilitators**	Country group work (Break-out rooms)
15:30-16:00	***Coffee break***	
16:00-17:30	**Country working groups with facilitators**	Country group work (Break-out rooms)

Agenda

Friday, 02 March 2018		
Session 6	**Country priority plans and next steps**	**Chair [Ties Boerma]**
08:30-10:30	**Country report out to plenary** [15 mins maximum per country] • Zimbabwe • Uganda • Tanzania • Pakistan **Discussion**	Plenary
10:30-11:00	***Coffee break***	
11:00- 11:45	**Country report out to plenary** [15 mins maximum per country] • Myanmar • Malawi **Discussion**	Plenary
11:45-12:30	**Partner comments/perspectives**	Moderated discussion
12:30-13:00	**Next steps for finalizing/implementing country roadmaps** **Wrap up and close**	WHO
13:00-14:00	***Lunch***	

Annex 2

List of participants

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HIV, TB, Malaria, Immunization and Health Data Collaborative

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Annex 3

Country roadmaps for strengthening the analysis and use of health facility data

Malawi, Myanmar, Pakistan, Tanzania, Uganda and Zimbabwe

COUNTRY ROADMAP MALAWI

Malawi – Country situation

	Governance	SOPs	Core indicators	Data quality procedures	Analysis	National reporting	Local reporting & use	Data sharing	Additional information
HMIS	(2) MoH taking the lead. National Health Policy in place. Finalizing overall HIS/M&E Strategy	4) Some SOPs finalised; others in process	2) National indicators available. Program indicators in process.	4) Persistent DQ challenges; DQ tools not harmonised. Need to improve Natl & District DQ assessment; Finalizing DQ improvement plan based on harmonized DQ review. Developing DQ SOPs.	4) HMIS bulletins produced; standardising templates; working on triangulation	(2) Regular reports covering limitations, progress, performance	(4) Limited use of data for decision making at district & lower levels;	(2) Access available; cleaning can be managed through WHO data quality app (already on DHIS2)	Inadequate dedicated data management staff in health facilities
HIV	(2) HIV has its own HMIS: DHAMIS. National level service data & supply chain data integrated into one information system for triangulation	(3) Guidelines available for all program registers, reporting forms, supervision tools; but some gaps	(3) recent core indicators available; but updates required	(3) independent data verification: reports verified quarterly against primary records; Data quality issues include poor documentation, poor filling of reports	(3) Limited data analysis skills at health facility & district levels.	(2) Quarterly reports	4) Limited local reporting and use	(2) Reports & data available on dept. website; sent to coordinators & facility	EMR in 122 of 737 ART sites. Challenges: Intermittent power supply (inadequate power back up) in EMR sites. Not meeting high demand for HIV Data, e.g. disaggregation, etc. which may not be aligned with MoH HIV
TB	(2) Strategic plan, M&E plan, policies & procedures in place, good collaboration with MoH & Partners	(3) SOPs available for DQA, supervision, data entry, Training Facilitator guidelines-data entry, data cleaning; some gaps	(3) As above	(3) independent data verification taking place	(3)As above	(3) Quarterly reports	(3) Limited local reporting and use Treatment & Care Monitoring Tool used at facility/district	(2) Data and reports available at district level, DHIS2	District staff oriented on use of DHIS2 No parallel reporting as of Q1, 2017 Timely reports: 74% in 2017 from 68% in 2016
Malaria	(2)Strategic plan, M&E plan, policies & procedures in place; good collaboration with MoH & Partners	(3) SOPs at program level but not at district /facility level; Have guidelines for registers, reporting forms, supervision tools, etc; no data analysis guidelines	(3) As above	(3) independent data verification taking place;	(3)As above	(3) Comprehensive reports	(3)Limited local reporting and use	(2)Data in DHIS2 and programme; not publicly	DHIS2 is primary program data source Quarterly supervision Bi-annual DQA Quarterly district malaria data review meetings Trained all District Malaria Coordinators on Data Management
Immunization	(2) Collaborating with MoH HMIS unit on M&E.	(5) No SOPs; trying to generate	(3) Core indicators in DHIS2/ National Indicators;	Poor data documentation at point of collection; Lack of reliable (or multiple) sources of demographic data for calculating target population; Inadequate supervision on data management at district and facility level	(3)As above	(3) Annual data review; triangulation, data audit before submitting;	(3) Facility & district level reporting & data use taking place. Lack of data use at the point of collection.	National level & programme data available; not publicly	•752 EPI reporting sites •Started using DHIS2 for EPI data at district level. •Trained 3 district staff (HMIS, EPI, cold chain) on data entry & analysis in DHIS2 •DVDMT still in use. Poor network connectivity in districts for accessing DHIS2

Malawi – Perceptions concerning integrated approach to facility data

Collaboration with HMIS		Perceived risk of integrated approach	Added value integrated approach
HMIS	NA	(2)Low. Maybe not possible to integrate all program needs in DHIS2. Need to clarify context of integration & harmonise stakeholder perspectives (MoH, partners, programs). Potential risks: a)Governance (Loss of identity ; b)Technical/Infrastructure/HR Capacity (Identify Program focal person in MoH M&E unit); c)Adjustment of HR Structure at MoH -CMED	(1) High. May result in improved data quality, harmonised approach towards data, improved collaboration & efficiency in managing resources.
HIV	(4)	**High**- Issue of access to data before clean up, concerned with cohort & commodities analysis requirements for program analysis	**Medium-** Strengthen routine reporting
TB	(3)	Low	High- Strengthen data reporting, analysis and use
Malaria	(2)	Low - Data already in DHIS2	High- Strengthen data reporting, analysis and use
Immunization	(4)	Low risk-mainly concerned with import of historical data	High- data availability, cleanliness, support of analysis needs

Malawi – Priority actions and resource needs

Area	Proposed priority actions to address the current main gaps in the next 12 months	Investments needed to implement the priority actions? (financial & technical)
Shared Governance	• Institute a steering committee on integrated approach to data systems(included in HIS Strategy) • Development of steering committee ToRs • Leverage HDC to improve collaboration with funders of parallel programs	• Technical expertise/HR Capacity for Management of servers in line with objective for governance and harmonization of data systems standards • Financial resources for steering committee meetings
Sound Infrastructure	• Establish Maintenance plan for Hardware & Software for optimal performance • Increase reporting capacity by considering alternative reporting and data analysis mechanism, e.g. mobile phones • Enhance network infrastructure • Expansion of office space	• Financial and technical resources for Database Clean up • Financial Resources for: - Improving Hardware for optimal performance - Maintenance of Equipment including set up of UAT environment and version updates - Capacity building - Supporting Professional Development Plan for existing technical personnel - Procurement, implementation and training for mobile platforms. - Supporting implementation of power backup & maintenance, e.g. solar power - Providing MoH HQ High Speed Internet i.e 20MB - Expansion of office space
Core Indicators	• Finalise National & Programme Indicators documentation & configuration in DHIS2 • Dissemination of core indicators, Customization	• Financial Resources for Dissemination • Financial Resources for Technical expertise for configuration in DHIS2i.e mapping e.t.c
SOPs	• Finalise data management & data quality SOPs; consider SOP for data analysis at District level to drive data use at lower level. i.e data use driven SOPs • Dissemination and implementation of SOPs	• Financial resources for Technical Expertise for review of SOPs • Financial Resources for taskforce to meet to develop and finalize SOPs • Financial Resources for Implementation and dissemination
Analytical Capacity	• Build skills and knowledge in interpretation of data • Build analytical capacity • Data Requirements and methods of analysis identification	• Financial Support for Travel, Meetings, • Financial Support for Technical Staff performing customization, • Financial support for staff performing requirements gathering • Support for delivery of training in data analysis for all levels • Support for delivery of subnational training on data use in country
Communicate and Use Data	• Web portal for communicating data • Training in DHIS2 focused on decision makers • Activities to support deployment of mobile dashboards for health workers for visibility and data use • Regular bulletins	• Technical expertise to develop portal • Collaboration and engagement meetings • Software development to enhance communication and data use • Deployment of applications • Support for printing and dissemination of bulletins • Support for Training activities

Immediate post-workshop activities:

- Review draft for M&E HIS Strategy to align with Country plans
- Continue with development of SOPs
- Meeting on migration of HIV data in DHIS2

COUNTRY ROADMAP - MYANMAR

Myanmar – Country situation

	Governance	SOPs	Core indicators	Data quality procedures	Analysis	Reporting national	Local reporting & use	Data sharing	Additional information	Challenges
HMIS	(2)HMIS, EPI, HIV, TB - has leadership role, Strategic Action Plan for Strengthening Health Information 2017-2021	(4)no SOP, only guideline (Data Dictionary for core inicator)	(3) indicators present but not in line with WHO indicators	(3) **All** – monthly regular data quality check in National and Regional level <u>Challenges:</u> Continuous monitoring and supervision at all levels Data approval mechanisms at all levels	(3)**All –** National level – good analytical capacity but need to strengthen the capacity at State/Region and District level	(3) Progress report including national plan, indicators and target	(4**) All** – reporting from all level to national level is good but accountability of data focal person from each program remains weak; Limited data utilization	(3) **All** – password needed. Users other than Ministry can get data by means of requisition of password from MOH	•RHIS for Public health & Hospitals •Paper-based since 1995 •DHIS2 for public HIS in all townships by 2017 (start 2014) •Aggregate data used as minimal essential sets for all public health services •Pilot testing hospital HIS using DHIS2 in 15 hospitals	•Central level: user management & server management •Human resources for DHIS2 at township level •Limited workforce trained •Turnover of health staff • Computer literacy •Internet connectivity & fees •Infrastructure & maintenance
HIV	(2) As above	(2) SOP present but need to strengthen	(2) last updated in 2015-2016			(3)HMIS, TB & Malaria – World reports are updated. National reports to communicate to policy makers and other audiences are not timely			•Aggregated data reporting started 03/2016 with PMTCT •Nationwide use as national reporting platform for all HIV reports since 03/2017 •Customized roles to access specific datasets • Data entry & use at township & facility levels in all 330 townships	•Intensive user support needed for new users •Complex data sets to customize and to collect •Frequent changes in reporting formats demanding repeated customization
TB	(2)As above	(3) SOP present but still gaps like completeness and timeliness of reporting	(2) as above						•Capacity building, configuration (since 07/2016) •Fully rolled out 03/2017 for Aggregate Data Reporting • New servers set up in private data centers 10/2017	•Technical assistance for DHIS2 system and server maintenance •Limited human resource and capacity
Malaria	(3) has NSP, M & E plan; need to improve coordination of partners, Strengthen leadership role	(3) As above	(2) as above						•Monthly reporting –Access (report through Google drive) •Export monthly to ATM DHIS2 •Piloting mobile reporting & case investigation (DHIS tracker)	•Human resources •Limited Funding support (e.g. Computer maintenance, training)
Immunization	(2) has leadership role, Strategic Action Plan for strengthening Health Information 2017-2021	(2) SOP present but need to strengthen	(3) indicators present but not in line with WHO indicators			(3)Regular analytical reporting to national from Region, Tsp & HF level monthly, but no report from some areas (insecurity, hard to reach, remote). EPI evaluation report from every township to National level annually			•EPI eLMIS integrated as a sub-system in DHIS2	•High level of expertise needed on a specific technology •Relatively long development time, requiring strong commitment & MOHS support •Requires very close coordination among the different MOHS units.

Myanmar - Perceptions concerning integrated approach to facility data

	Collaboration with HMIS	Perceived risk of integrated approach	Added value integrated approach
HMIS	NA	Slow progress in decision making TOR, Role and Responsibility??? Clear cut and demarcated	Sharing of Resource and mobilization Innovative idea
HIV	need to strengthen		
TB			
Malaria			
Immunization	Good		

Myanmar - Priority actions and resource needs

Area	Proposed priority actions to address current main gaps in next 12 months	Needed investments to implement the priority actions (financial & technical)
Shared Governance	• Expansion of HMIS division' organization setup (setup and budgets approval are needed) and integrated with Disease Control Unit (ATM) according HIS strategic area 4 (2017-2021). • Timeline (ATM) has been set already. • Then, integration with other public health programs.	• New Technical Assistance (TOR develop and agree between ATM and HMIS and other public health programs) • New budgets for new activities based on Convergent Workshops results, Advocacy meeting for integration (other programs: Epi, RMNCH)
Sound Infrastructure	• (National) HMIS and public health programs: Training MOH focal persons to handling existing hardware/ software in large scales. • (Subnational) Internet network access to get more internet coverage : Insufficient finance • Infrastructure maintenance with plan	• Large scales advanced training to Ministry of Health personnel (Ubuntu, programming, forms customizations, server management) • Internet cost at township level • Separate budgets line in HMIS and EPI
Core Indicators	• HMIS and EPI : alignment with WHO core indicators • ATM: Indicators review, discuss, update (in details) • Rationalization of metadata in both ATM and HMIS DHIS2 system • Meta data dictionary to establish for integrated data warehouse in HMIS • Interoperability within the programs (HMIS, ATM) • Interoperability outside of the programs (HMIS vs ATM vs other public health programs) • Integrated blue prints for overall health system	• HMIS and EPI: Technical & Financial support for customization, refresher training for data entry and analysis • ATM: Technical and financial supports for each program to update, review and develop standardized dashboards (program specific, integrated) • Technical and financial supports for rationalization of metadata, data warehouse in HMIS • More financial support and technical supports for integrated blue print (complete, comprehensive, useful)
SOPs	• Malaria: DHIS2 SOP will be required (program specific) and TB, HIV + but HIS SOP for HMIS & EPI not exist • Integrated SOP for HMIS and ATM and other public health program	• Existing e health working groups will develop SOP (technical review is needed from high level experts from UiO)
Analytical Capacity	• Comprehensive health facilities registry (both public and private) • Integration of WHO health apps into integrated DHIS2 (ATM & HMIS including epi) • End users training for WHO health apps with DHIS2 expert from UiO. • Integration HIV Spectrum app • Training for HIV Spectrum app	• Additional financial support for mapping, data collection, data entry) • Technical supports to develop more advance Health Facilities database to connect with other database system based open HIE framework. • Technical and financial supports for integration of WHO health apps, training of end users • Technical and financial supports for integration of HIV Spectrum, training.
Communicate and Use Data	• Advocacy (end users, high level users, MOH related division) • Establish communication channels between data generator and data users • Campaign for data use awareness (Health information) • Social media engagement with Partners • Production of bulletin, facts sheet	• High level advocacy within MOH, related ministries, UN agencies, INGO, NGO, CSO, EHO. (WHO, financial support) • Financial support for the campaign • Financial support for production of materials (soft copy and hard copy)

Immediate post-workshop activities:

- Debriefing
- Advocacy

COUNTRY ROADMAP - PAKISTAN

Pakistan - Country situation

	Governance	SOPs	Core indicators	Data quality procedures	Analysis	Reporting national	Local reporting & use	Data sharing	Additional information	Challenges
HMIS	3	2	3	3	2	2	3	3	• MoH devolved in 2011 • Key emphasis on HIS in National Health Vision • Population census 2017	**All programmes:** • Lack of integration/ coordination • Lack of CRVS • Fragmentation of reporting /data flows/systems • Insufficient subnational capacity for data entry / management/ analysis/use • Sub district ICT Infrastructure • Data quality & timeliness
HIV	4	3	2	4	3	4	3	1	• Program in 27 Facilities • Real time web-based ART: facility to National Level for Cohort Analysis & Treatment Cascade Monitoring • Piloting biometrics at health facility level	• Data integration among implementing partners within HIV & other diseases
TB	3	2	2	2	3	3	3	1	• TB Control program in all districts • Regular Data flow across country(HF – District-Province - National) • DHIS-2 piloted (6 years data uploaded)	• Multiple systems that do not speak to each other • Mandatory TB notification • No case based data system
Malaria	4	4	2	3	3	4	4	1	• Endemic in 66 of 150 districts & agencies • Low priority disease • Adopted WHO DHIS-2 Malaria (tailored)	• Limited use of GF tools – only in 66 of 150 districts/agencies • Only 1st level disaggregation available in current tool
Comments	Lack of communication amongst key players; Lack of regulation of private sector; Issues with implementation of strategy and in data dissemination to key decision makers.	SOPs need updating. Various HIV partners not following the standardized National SOPs. Disconnect between provincial programs and private sector SOPs. Low burden districts & provinces /regions not covered as there is no clear strategy	HMIS last reviewed against WHO core indicators before 2015. Vertical programs have most of the core set of indicators: Last review in 2016-17.	Data quality checks & other systems in place. Bur regular implementation is a challenge. Burden sharing districts & data from private sectors do not have regular data quality checks.	Analytical capacity mainly at provincial levels need major improvement	Reporting from low burden sharing areas and from the private sectors remains a challenge.	Data mainly used for clinical management, procurement & supply chain but not for decision-making. There is less representation of the low burden sharing areas and private sectors.	Overall HMIS is password protected with user rights for very few people. Aggregate data is available publicly. For case based data, there is restrictions as all data is confidential		

Pakistan - Perceptions concerning integrated approach to facility data

	Collaboration with HMIS	Perceived risk of integrated approach	Added value integrated approach
HMIS	NA	2	1
HIV	4	3	2
TB	4	3	2
Malaria	4	3	2
Comments	The collaboration is there but it needs improvement as is not systematically done. SOPs are not clear / updated.	There is risk of decreasing the number of indicators through integration which are essential for donor reporting and decision making. Programs may lose focus when there is integration.	Because there is a risk of lesser focus on the individual programs.

Pakistan - Priority actions and resources needed

Area	Proposed priority actions to address current main gaps in the next 12 months	Needed investments to implement these priority actions (financial and technical)
Shared Governance	• Establishment of HIS TWG with representation from NHIRC, provincial and regional DoHs • Launching and functioning a M&E Task force for the integrated M&E	Financial: Blend of domestic funding with remaining gaps to be filled by donor funding Technical: WHO and other international partner along with national, provincial and regional stakeholder
Sound Infrastructure	• Assessment of the current infrastructure ICT (computers, servers, internet facility) software, HR evaluation including competencies (technical skills)	Financial: Government / Donor assistance Technical: Use of the available tools WHO & Other agencies and contextualize in country context
Core Indicators	• Universal Health Coverage with 16 tracer indicators • Localizing the Sustainable Development Goal 3 • Reviewing and updating the set of core indicators for the Pakistan Health Information Dashboard	Financial: Government / Donor assistance Technical: Ministry and WHO
Analytical Capacity	• Capacity Building at National and Provincial Level: Create a pool of DHIS- experts: DHIS-2 Level 1 and Level 2 trainings	Financial: Government / Donor assistance Technical: University of Oslo, TGF, WHO & partners
Communicate and Use Data	• National and Provincial data use workshops	Financial: Government / Donor assistance Technical: University of Oslo, TGF, WHO & partners

COUNTRY ROADMAP - TANZANIA

Tanzania – Country situation

	Governance	SOPs	Core indicators	Data quality procedures*	Analysis	Reporting national	Local reporting & use	Data sharing	Additional information	Challenges
HMIS	2	3	1	1	2	3	4	2	•Paper-based at data collection points (>7,000 HFs); electronic from district/council to national level through DHIS2 •DHIS2 is National data warehouse & analytical tool for routine data incl: health services delivery, surveillance & community data •In 2017: National reporting rate of HMIS/DHIS2 data 97% & timely reporting 93% •HMIS/M&E well documented (Policy guidelines, Strategic plan, annual action plan, data manuals) •National M&E Technical Working Group brings together all health data partners; strong support from partners •Data (semi processed) available through web portal & Score cards (Google: Tanzania HMIS)	
HIV	1	3	2	2	3	3	4	2	6,259 (89%) HF provide ART Quarterly report through DHIS2 At HF, CTC2 data base (individual records) summary data exported to DHIS2 quarterly >1800 facilities using CTC2; data to DHIS2 for 75% of ART clients	
TB	2	3	1	1	2	3	4	2	Rolling out National DHIS2-ETL Register, for case-based records: •Integrated susceptible & drug resistant TB with lab network (initially with TB culture labs) •Based on TB definition & reporting framework Dec 2014 update •Routine DQA & user manual developed or in development •WhatsApp group (national & lower level users) to facilitate rollout	•Weak internet signal in some parts of country •Low computer skills for most people in lower levels
Malaria	3	3	2	2	2	3	4	2	•Malaria data system fully integrated into routine National HMIS & DHIS2 database •Customized malaria dashboard in DHIS2 to facilitate data use at councils/district, Region & National level •Introduced standard monitoring tool (Malaria Service & Data Quality Improvement (MSDQI) package) •Oriented CHMTs &RHMTs on malaria dashboard	•Data Quality •Limited skill to use DHIS2 in some malaria focal persons •Turn-over of focal persons
Immunization	1	2	1	3	3	3	4	2	•3 regions with 950 HFs (16%) use Electronic Immunization Registry, integrated with VIMS & DHIS2 at district level •Provide unique child identification •Enhanced data use & defaulter tracing •Real time visibility of data •Remaining HFs use traditional tools (HMIS books, Child Register, EPI Tally sheets, Monthly HF Reports)	•Both tools still used: increased work load Multiple non-integrated data collecting tools •HCW resistance

*The heading refers to procedures being available. The country evaluated itself in having procedures for DQA; however compliance to procedures may have a lower ranking.

Tanzania - Perceptions around integrated approach to facility data

	Level of collaboration with HMIS	Perceived risk of integrated approach	Added value of integrated approach
HMIS	N/A	5 The risk is rated as low. The definition of integration here refers to either integrating programs system into HMIS(DHIS2) or interoperability between systems	1
HIV	3 Strong collaboration with HMIS since all data are reported in the HMIS		1
TB	2 As above		1
Malaria	2 As above		1
Immunization	2 Average collaboration with HMIS especially at district level where DIVO and HMIS focal persons may report different data, because of different tools at HFs, that are not harmonised at district level.		1

Tanzania - Priority actions and resources needed

Area	Proposed priority actions to address current main gaps in the next 12 months	Needed investments to implement these priority actions (financial and technical)
Shared Governance	• Strengthen Collaboration and coordination within all M&E related MDAs, Development partners, disease specific programs and research institutions • Update HIS Policy, MESI and DDU • Strengthen M&E unit to coordinate national HMIS activities	TA , collaboration with partners and financial support
Sound Infrastructure	• Computerisation of health facility data systems • Support the Integration / Interoperability of all health information systems at service provider level • An interface to capture data from zonal referral, specialized and national level hospitals into DHIS2 developed and rolled-out (these hospitals currently don't report their data into DHIS 2)	Computerisation is funded by 16% by the Gates foundation Purchase of Computers / Tablets The zonal and referral hospital interface is under development, funding is needed to roll out and train regional and referral hospital staff on using it.
Core Indicators	• Mid-term review of HSSP IV • Review the indicators of the M&E framework of HSSP IV to include program specific indicators • Support annual review process for HMIS tools and data elements to ensure they capture information needs from programs and HSSPIV	TA , collaboration with partners and financial support The priority is currently not funded by any partner
SOPs	• Data use toolkit (SOPS and Guidelines for data analysis and use) developed and harmonised	TA , collaboration with partners and financial support
Analytical Capacity	• Strengthen analytical capacity and data use at all levels. • DHIS2 functions and data use for HIS curriculum finalized and rolled out (for all programs)	Funding to train staff on Data analysis and on using dashboard for decision making.
Communicate and Use Data	• Capacity building to health staff on Data analysis dissemination and Use (DDU) • Establishment of national health observatory	The upgrade of HMIS portal into the health observatory has partial funding from DFID More funding needed to strengthen the sustainability of the observatory and infrastructure around it.

Immediate post-workshop activities:

- Upgrade existing HMIS portal in the national health observatory (with key dashboards, scorecards, and mobile visualizations).
- Enhance analytical capacity of MOH, program staff and district staff through training and Mid-term review of HSSP IV
- Procurement of ICT infrastructure (computers, tablets,) at national, district and facilities including connecting the facilities to the national backbone

COUNTRY ROADMAP - UGANDA

Uganda – Country situation

	Governance	SOPs	Core indicators	Data quality procedures	Analysis	Reporting national	Local reporting & use	Data sharing	Additional information	Challenges
HMIS	3	3	1	2	3	2 Challenge Private FP	4	2	<u>Current systems & processes:</u> •DHIS2-Integrated •Mtrac •LMIS •TB data management information system •ICCM •Private sector reporting system •Score Card •WAWOS •Data collection at facility: Manual and electronic •Summary reports prepared at facility level •District biostatistician enters reports into DHIS2 •Quarterly regional data verifications •National data reviews •Closure of entries into DHIS2 •National data sets in DHIS2 for use	•Rapidly changing policies and guidelines •Funding shortages •Poor HR capacity (numbers, skills and mix, attitude, turnovers, task shifting) •Irregular/ uncoordinated DQAs/supervision •Data volumes at the collection levels •Data quality •Tools: lacking, or old versions, or too many and too complicated •Filing- Movement of files; •Lack of Data storage at facilities •New data needs as programs are updated •Harmonising different partner data requirements •Delays in the survey data that is used as denominator for reporting •Different data systems that are not communicating • Community data system not very well structured •Private sector data not well captured esp. PFP •HMIS activities among programs not coordinated. • An Integrated EPI data Management System (Coverage, surveillance, Vaccines and related supplies, Cold Chain & financial data) with a comprehensive dash board
HIV	3	3	2	3 mix up between collection tools (tally sheets and registers)	3	2	4	2		
TB	2	3	1	2 Cohort analysis is process	2	2	3	2		
Malaria	3	3	2	2 The best in country	2	3 Parallel reporting system, w WHO	2 Best practice w quarter reviews w Patient level review	4		
Immunization	2	3	1	2	2 The more we go down, the less strong	2 Biggest gap at CHW, as for all	3 Use is not that good, weak feedback	2		

Uganda - Perceptions concerning integrated approach to facility data

	Level of collaboration with HMIS	Perceived risk of integrated approach	Added value of integrated approach
HMIS	NA but 1	3 System overload + data quality	1
HIV	2 Jimmy is the custodian	5 no risk foreseen	1
TB	3	4 no risk foreseen	1
Malaria	4 Very poor interest from TB to use DHIS2	4	1 Tracker advantage
Immunization	2	4 no risk foreseen	1

Uganda - Priority actions and resources needed

Area	Proposed priority actions to address current main gaps in next 12 months	Needed investments to implement these priority actions (financial & technical)
Shared Governance	1.1 Framework: develop a costed Strategic HMIS plan with implementation plan and M&E embedded 1.2 Strengthen technical working groups for HMIS (eHealth…) 1.3 Strengthen leadership, management and governance (LMG) capacity in data management across all levels	1.1 Financial resources for TA to develop the plan 1.2 Effective partnership support 1.3 Financial resources for TA/CB for LMG development on data management
Sound Infrastructure	2.1 Disseminate and implement the results of the ICT assessment 2.2 Ensure effective system and server upgrades, secure off-site backups, and ensure consistent internet connectivity at all levels 2.3 Integrate the different IS with DHIS2 (surveillance systems, EMR)	2.1. TA and Financial resources 2.2 Financial resources and TA 2.3 Financial resources and TA
Core Indicators	3.1 Complete/update and ensure the integration as needed of the core indicators (including community and mortality data)*	3.1 Facilitation of the process + Support the integration and $ for printing
SOPs	4.1 Review/update/disseminate and build the capacity for use of SOPs	4.1 Financial resources and TA
Analytical Capacity	5.1 Assess analysis capacity needs at different levels, and build capacity accordingly 5.2 Develop media (dashboards, bulletins…) for core indicators with thresholds/alerts and share with key stakeholders*	5.1 TA 5.2 LOE and TA/partners
Communicate and Use Data	6.1 Capacity to produce and to communicate and disseminate media (5.2) 6.2 Define and support who is in charge of the HMIS quarterly bulletin 6.3 Perform regular performance review at all levels	6.1 LOE 6.2 LOE 6.3 Partners support

Immediate post-workshop activities:

1.1 Framework: develop a costed Strategic HMIS plan with implementation plan and M&E embedded
3.1 Complete/Update and ensure the integration as needed of the core indicators (including community and mortality data)
5.2 Develop media (dashboards, bulletins…) for core indicators with thresholds/alerts and share with key stakeholders

COUNTRY ROADMAP - ZIMBABAWE

Zimbabwe – Country situation

	Governance	SOPs	Core indicators	Data quality procedures	Analysis	Reporting national	Local reporting & use	Data sharing	Additional information	Challenges
HMIS	3	3	4	3	3	3	5	2	• MOHCC has M&E policy & strategic guidelines & established structures to support M&E •NHISS eHealth Strategies in process •MOHCC specific programmes strong M&E units DHIS2 deployed to all 63 districts - greatly improved timeliness (> 85%) & completeness of reporting (> 95%) •Case based surveillance for EPI Several programmes using DHIS2: •Aggregated data - T5, HS3, HIV monthly return, TB quarterly return, VHW return; •Event and tracker, surveillance - Weekly disease surveillance, EID, IRS, VMMC, maternal and perinatal event tracker, malaria elimination, line listing •Roll out of patient level electronic systems(ePMS) by end 2017 (624 sites) •ePMS used to report on HIV core indicators.	•Inadequate M&E HR capacity at district & facility levels •DHIS2 coverage only district level & up; data quality issues with manual data entry •DHIS2 version is 2.22: limitations in tracker /event/scorecard optimization •Data variations between DHIS2 & source documents; lack of HRH capacity & lack of standardised data collection tools; •Too many data reporting & recording tools •Suboptimal data utilization at lower levels with poor data quality & submission •Current electronic patient level systems still fragmented & coverage relatively low •Poor functionality of electronic inpatient data system (IMMIS)
HIV	3	3	2	3	3	3	2	2		
TB	3	3	2	2	2	3	2	2		
Malaria	3	3	2	2	1	2	3	2		
Immunization	3	3	2	2	2	2	3	2		

Zimbabwe - Perceptions concerning integrated approach to facility data

	Collaboration with HMIS	Perceived Risk of Integrated Approach	Added Value of Integrated Approach
HMIS	N/A	4 (Low)	1
HIV	2	4 (Low)	1
TB	2	4 (Low)	2
Malaria	2	4 (Low)	2
Immunization	2	5 (None)	1

Zimbabwe –Priority actions and resources needed

Area	Proposed priority actions to address current main gaps in the next 12 months	Needed investments to implement priority actions (financial & technical)
Shared Governance	• Clearly defining linkages, roles & responsibilities of M&E, HMIS and ICT Departments • Finalise NHIS Strategic Plan responsibilities of M&E, HMIS and ICT • Establish and activateDHIS2 and M&E TWGs • Strengthen data utilisation at facility levels • Recruitment of extra or expansion of scope of work, for current specific workers in HMIS / M&E Departments	• TA for Situational Analysis • Nil • Funding for quarterly meetings • Training funds
Sound Infrastructure	• Expand scope of data entry clerks in Districts & facilities to include hardware and software management • Upgrade DHIS2 • Quality Assurance • Increase server management capacity, e.g. for Malaria Elimination Server	• TA for DHIS2 capacity building
Core Indicators	• Update and revise Core Indicators • Standardise data elements • Integrate In-Patient data into DHIS2	• TA for adaptation of Core indicators • Funding for integration
SOPs	• Production of SOPs, User Guides and Manuals • Procurement of software for designing of tools • Training on the software	• Funds for printing, dissemination & training • Funding • TA on software training
Analytical Capacity	• Capacity building in using WHO standardised training modules at facility, district, province national level • Distribute WHO training modules • Distribute reports and summary information products on surveys, etc to districts & facilities	• TA and Funding for training (including TOT) • Funds for printing • Nil
Communicate and Use Data	• Review data sharing policies of Ministry • Capacity Building in presentation and Communication • Increase access to, and bandwidth of internet	• Training funds

Immediate post-workshop activities:

Action	Responsible Entity	Timeframe
Give feedback to principals and other stakeholders	Zimbabwean delegation to the workshop (Dir M&E)	31 March 2018
TA for situational analysis of linkages between M&E, ICT and HMIS	Dir. EDC	30 June 2018
Update and dissemination of Core Indicators, data elements and data collection and reporting tools	Dir. M&E	April to Sept 2018
Integrate/link Case Based data, survey data, etc. into DHIS2	D.D. HMIS	March to December 2018