BID Learning Network Data Quality and Use Learning Meeting

Lusaka, Zambia | March 3–5, 2020

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Abbreviations

BID	Better Immunization Data
BLN	BID Learning Network
CSO	CSO, civil society organization
CSPS	Centres de Santé et de Promotion Sociale
DHIS2	District Health Information System Version 2
DQ	data quality
DQA	data quality audit
DQIP	data quality improvement plan
DQR	data quality review
DQS	data quality self-assessment
DQT	Data Quality team
DQU	data quality and use
DRS	Direction Régionale de la Santé
DS	District Sanitaire
DVDMT	District Vaccination Data Management Tool
EHR	electronic health record
EIR	electronic immunization registry
ENDOS-BF	Entrepôt de Données Sanitaires du Burkina Faso
EPI	Expanded Program on Immunization
Gavi	Gavi, the Vaccine Alliance
GIS	geographic information system
HIO	Health Information Office
HISP	Health Information Systems Program
HMIS	Health Management Information System

HSS	health systems strengthening
ICT	information and communications technology
M&E	monitoring and evaluation
MOH	Ministry of Health
MOHCC	Ministry of Health and Child Care
NSO	National Statistics Office
OSDV	On-Site Data Verification
RBF	results-based financing
RDQA	routine data quality assessment
SISMA	Sistema de Informação para Saúde de Monitoria e Avaliação
SNIS	Système national d'information sanitaire
SOP	standard operating procedure
VAN	Visibility and Analytics Network
WHO	World Health Organization
ZEIR	Zambia Electronic Immunization Registry

Executive summary

Background

The Better Immunization Data Learning Network (BLN) received a Gavi Strategic Focus Areas grant in 2018 to strengthen local leadership capacity and data management with a focus on data quality and use (DQU) for improved immunization coverage and equity in selected Gavi-supported countries. The key vehicle to achieve this aim is peer learning and interaction using predominantly virtual platforms augmented by periodic in-person meetings. The BLN convened a learning session for Expanded Program on Immunization (EPI) program and data managers from March 3–5, 2020, at Southern Sun Ridgeway Hotel in Lusaka, Zambia. The learning session gave participants an opportunity to interact with their peers and enabled them to share insights around their respective country data quality improvement plan (DQIP) implementation experiences, immunization information systems, data use practices, and the lessons they have learned. The meeting provided a platform for a rich exchange of knowledge, experiences, and ideas as well as enabled the establishment of collaborative links between peers from different countries in support of improved immunization data quality and use.

The objectives of the meeting were to:

1. Receive updates from countries on DQIP implementation, data quality improvement achievements, challenges, lessons learned, and best practices.
2. Set new targets and design interventions to achieve them and develop plans based on these revisions to targets and interventions.
3. Update country case studies.
4. Brainstorm on the sustainability of the BLN and set objectives for a joint grant application.
5. Complete a social networking analysis survey.
6. Conduct evaluation of BLN/DQU activities to date.

The meeting was attended by 30-plus participants, including immunization data managers drawn from ten anglophone and francophone African countries, namely Burkina Faso, Cameroon, Liberia, Malawi, Mozambique, The Gambia, Tanzania, Uganda, Zambia, and Zimbabwe (see full participants list in Appendix 2).

Highlights of the meeting

The three-day meeting held from March 3–5, 2020, was very interactive and characterized by presentations, plenary discussions, group work, brainstorming sessions, and a site visit (see full agenda in Appendix 1).

The meeting was officiated by the Permanent Secretary, Zambia Ministry of Health. The BLN Director welcomed the participants while the PATH Zambia Country Director delivered a message of goodwill. On the last day, the closing remarks were given by the Zambia Ministry Director of Public Health.

Topical discussions included the following:

- Reporting back on improvement plans that were set in the planning meeting in 2019. Performance was collectively reviewed and targets reset as indicated by the extent to which progress was made by each country.
- Development of new improvement plans for the period April–June 2020, which were peer reviewed (a pair of countries reviewed each other's plans and made a summarized plenary presentation to receive additional input from the meeting attendants).
- Brainstorming on the future and sustainability of the BLN, including identification of key strategic objectives and identification of a small team to contribute to the proposal writing.

Lessons learned

Meeting participants reported the following as key lessons learned:

- Adoption of new tools is a gradual process that needs intensive follow-up.
- Involvement of health facility workers in data review meetings leads to improved data quality.
- Health workers need to be continuously engaged to address data issues effectively.
- Regular and consistent review of data quality and use at all levels is important.
- Inter-program collaboration allows for maximum utilization of resources with greater achievements.
- Frequent meetings with a well-constituted data management team improves data quality and ultimately data use.
- Implementation of a data quality self-assessment (DQS) is fundamental for the improvement of data quality particularly at district and health facility levels.
- The establishment of a monitoring and evaluation framework of the DQIP coupled with periodic performance review meetings is essential.
- Use of a single data management system such as the District Health Information Software 2 (DHIS2) as opposed to the use of multiple systems significantly improves data quality.

Resolutions

After three days of deliberations, participants came up with the following collective action points/resolutions:

a) All countries to implement at least one feasible DQIP activity by June 30, 2020.
b) BLN Secretariat to facilitate peer-paired countries to continue following up with each other's plans.
c) BLN to continue monitoring the implementation of DQIPs in the DQU Collaborative countries.
d) Each country to conduct a webinar to share the status of DQIP implementation, achievements, lessons learned, challenges, and measures put in place to mitigate them.
e) Task team to develop a joint proposal as part of the sustainability plan for the BLN.
f) Member countries to advocate for financing of BLN/DQU activities to in-country technical and financial partners.

This report, therefore, is a synopsis of the deliberations of the learning session that took place at the Southern Sun Ridgeway Hotel in Lusaka, Zambia from March 3–5, 2020.

Introduction

The Better Immunization Data Learning Network (BLN) received a Gavi Strategic Focus Areas grant in 2018 to strengthen local leadership capacity and data management with a focus on data quality and use for improved immunization coverage and equity in selected Gavi-supported countries. The key vehicle to achieve this aim is peer learning and interaction using predominantly virtual platforms augmented by periodic in-person meetings. The BLN Data Quality and Use Collaborative convened a learning session for Expanded Program on Immunization (EPI) program and data managers from member countries at Southern Sun Ridgeway Hotel in Lusaka, Zambia from March 3–5, 2020. The learning session gave participants an opportunity to interact with their peers and enabled them to share insights around their respective country immunization information systems, data use practices, and the lessons they have learned. The meeting also provided a platform for a rich exchange of knowledge, experiences, and ideas as well as enabled the establishment of collaborative links between peers from different countries in support of improved immunization data quality and use.

This report, which is a record of the proceedings of the meeting that took place in Lusaka, highlights the discussions around strategies and approaches to improving data quality and use among participating countries and includes highlights around the progress made in collaborative countries with regard to data quality improvement plans (DQIPs), the current status, experiments, lessons learned, and challenges and their mitigation. The meeting participants also brainstormed and made recommendations for sustainability of the BLN going forward.

Meeting participants

The meeting brought together more than 30 participants representing e-health and immunization program personnel from ten anglophone and francophone sub-Saharan African countries (see full list of participants in Appendix 2).

Meeting approach

The meeting took a mixed approach in which there were both in-person and virtual interactions. Selected country feedback was presented in webinars to allow for a broader audience of invited data experts, World Health Organization (WHO) data officers, WHO scholars, BLN mentors, and other country teams who were unable to travel but whose representative was presenting. Offline sessions were composed of plenary sessions, discussions, brainstorming, group work, and peer reviews of challenges and proposed solutions as well as field visits to three local health facilities. Facilitation was done by the BLN Secretariat and the DQU Collaborative Peer Advisory Group members.

Meeting objectives

The overall objective of the BLN discussion meeting was to give participants, comprising country-level peers, an opportunity to review implementation of their DQIPs, the challenges encountered,

successes scored, and lessons learned during the past six months of the DQU Collaborative. Specifically, the meeting sought to:

1. Receive updates from countries on data quality improvement achievements, challenges, lessons learned, and best practices.
2. Set new targets and design interventions to achieve them and develop plans based on these revisions to targets and interventions.
3. Update country case studies.
4. Brainstorm sustainability of the BLN and set objectives for a joint grant application.
5. Complete a social networking analysis survey.
6. Conduct evaluation of BLN/DQU activities to date.

Expected outcomes

1. Peer-reviewed DQIPs for the next action period developed by all countries present.
2. Documentation of lessons learned.
3. Updated country case studies.
4. Social networking analysis survey data collected on site.
5. Strengthened relationships/interactions among peers.
6. Joint proposal outline and agreement on proposed funding sources.

Sessions

Opening ceremony

The meeting began on March 3, 2020, with remarks by the BID Learning Network Director, Dr. Chilunga Puta, who welcomed the participants representing ten sub-Saharan countries. She stated that because of the critical importance of data quality and its use to improve immunization coverage and equity, the BLN was delighted to cohost the meeting with the Zambia Ministry of Health. She encouraged the invited participants to openly share progress made during the collaborative first implementation cycle from October 2019 to date so that case studies and lessons learned from the countries' experiences could be documented. Dr. Puta added that the BLN recognizes that everyone has something to learn and share, and it was anticipated that participants would go back with more information than which they came. The BLN Director amplified the need for the delegates to proactively share their experiences as well as constructively critique each other's strategies and approaches to data quality and use for improving immunization and health care service delivery in general.

Dr. Nanthalile Mugala, PATH Zambia Country Director, delivered a message of goodwill and highlighted the role of PATH in supporting the Ministry of Health in various countries to address challenges identified in EPI programs to reduce immunization coverage gaps in a cost-effective and sustainable manner. She also alluded to one of the organization's greatest innovations, the Better Immunization Data (BID) initiative, a regional project established to address some of the routine immunization service delivery challenges related to data availability, quality, and use. Dr. Mugala underscored PATH's work under the BID Learning Network (BLN), which is a channel for partners and countries to collaborate and learn from one another about best practices in immunization data management. She assured the participants that through the BLN, PATH is

committed to supporting innovative ways for monitoring data while building stronger capacity to analyze data and applying it to program management.

In the keynote address, Dr. Andrew Silumesii, who represented the Permanent Secretary of the Zambia Ministry of Health, welcomed the meeting participants to Zambia. He reiterated the importance of immunization for child health and noted the collaborative efforts among the BLN member countries to alleviate the problems related to immunization data. He applauded Gavi, the Vaccine Alliance, for its commitment to improving immunization data and PATH for its efforts in championing the learning network collaborative. Dr. Silumesii encouraged the participants to use a BLN platform for creative collaboration and innovative thinking around how to improve data quality and use to maximize immunization program outcomes.

Photo: PATH/Paul Nindi. BID Learning Network participants gather for a group photo.

Review of the meeting agenda, expectations, and norms

To set the scene, Dr. Puta took the participants through the agenda and how the meeting would proceed during the three days. Meeting expectations included updates on country deliverables since the July 2019 meeting, reporting on challenges and sharing experiences on solutions, submitting the next plans, identifying best practices around data management, and sharing the

way forward on next iteration of the BLN. The meeting norms were identified and agreed upon, which included phone etiquette, time management, active participation, speaking through the chair or facilitator, and respecting one other's views.

Session 1: Feedback on commitments made during the last planning meeting—Progress, challenges, and next steps

This session provided a platform for the countries, as a peer group, to provide feedback on the extent of achievement on desired performances, to identify bottlenecks, to brainstorm, and to share important lessons and promising practices. During this session, each country gave a 15-minute presentation on data quality and use, which was followed by a brief question and answer session. The presentations focused on the current status, experiences, lessons learned, challenges encountered, and measures put in place to mitigate against them. The order of the country presentation was as follows: Zambia, Burkina Faso, Zimbabwe, Mozambique, Cameroon, Malawi, and The Gambia (full presentations are available here). Selected country feedback was presented in webinars to allow for a broader audience from other relevant networks or those who were unable to travel but whose representative was at the meeting

During the discussions that followed, it was noted that all the countries (including the newest member, Zimbabwe) had developed their DQIPs, except Malawi, which was still in the process of developing one. Other issues discussed included discrepancies in denominators and the cost and sustainability of digital innovations for data management and transitioning between data systems. It was further noted from the presentations that in some cases, the implementation of the DQIP was not being implemented fully or in a timely manner due to challenges relating to funding, inadequate numbers of skilled human resources, the absence of interoperability among multiple information systems, as well as lack of prioritization amid limited resources available. In view of the stated challenges, participants recommended that integration of services be encouraged to leverage the limited resources and to consider building capacity in the collaborative focal point persons for resource mobilization. The participants also emphasized the importance of building capacity in health workers not only to collect, analyze, and manage data but to use it as part of routine work.

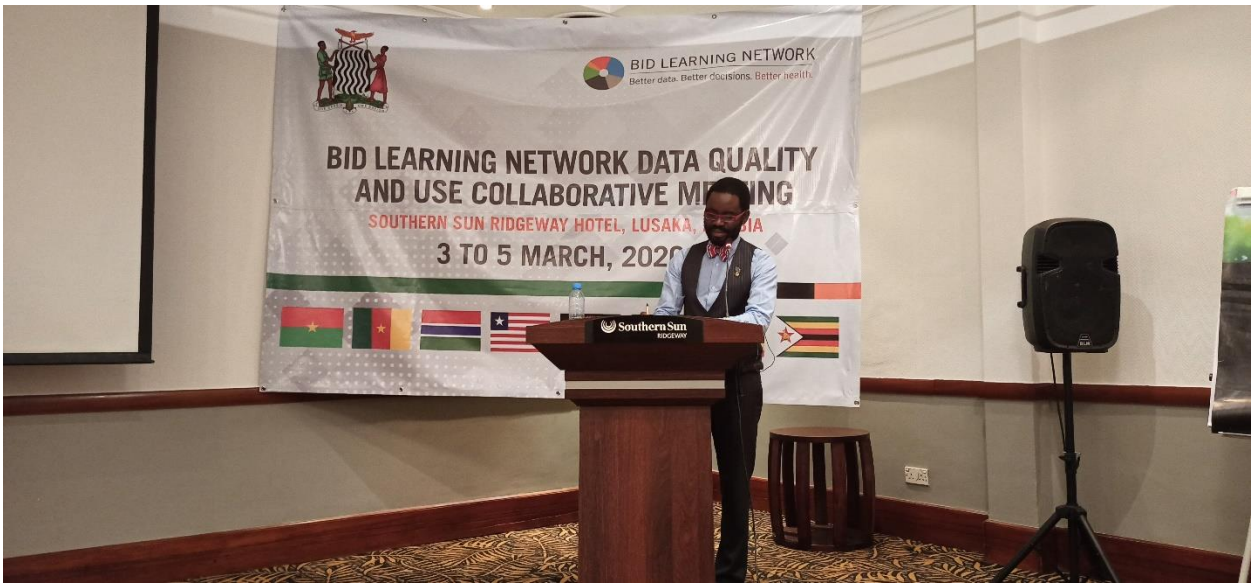

Photo: PATH/Paul Nindi. Dr. Francis Dien Mwansa, Zambia's National Expanded Programme on Immunization Manager Chairing Session 1.

Session 2: Field visit and report back

On day two, participants were divided into three groups and taken on a field visit to local health facilities in three of Lusaka's high-density areas, namely, Chipata Level One Hospital, George Health Centre, and Mtendere Health Centre. The primary aim of the field visit was to observe how immunization data is managed, reported, and utilized. The participants were provided with pre-designed tools to note their observations, and each group summarized their findings during the recap session. The findings were categorized into four thematic areas—observations, best practices, areas for improvements, and recommendations, which were summarized as follows.

Photo: PATH/Paul Nindi. BLN members visit a health facility in Lusaka during the data management field visit.

Observations

- Health facilities were well organized.

- High volume of workload in some health facilities—e.g., Chipata Level One Hospital and Mtendere Health Centre.
- EPI data was well organized in the visited health facilities with immunization registers well updated and good systems of archiving immunization data.
- Generally observed that there were stockouts of child health cards in all the three health facilities visited.
- There was good flow of patients at immunization sessions as client were passing through all set stages of growth monitoring, screening, vaccination, and data recording.
- All the clinics visited had no stockout of vaccines.
- There were no separate registers for outreach sessions.
- Health workers interviewed were knowledgeable about calculation of dropout rates.
- Demographic data and monitoring charts were available and displayed.
- Refrigerator temperatures were regularly monitored, including during weekends and public holidays, using devices such as thermometers and Fridge-tags.
- Adverse effects following immunization (AEFI) forms were available in health facilities.

Best practices

- Private clinics were engaged to provide immunizations and share data with the health facilities.
- Community volunteers were available and assisting in recording in immunization registers.
- Health facilities conduct data review meetings weekly or monthly before submission to district health office.
- Immunization services are provided on daily basis at each health facility visited.
- Health Information Aggregation (HIA) Form 2 final report is signed and stamped by the health center in-charge before submission.

Areas for improvement

- Registers and tally sheets need to be used concurrently and consistently.
- Fridge-tags should be used in monitoring refrigerator temperatures rather than thermometers.
- Outreach activities should be provided with their own registers for easy data capturing and tracking of defaulters.
- Children vaccinated at outreach or static clinics need to be recorded in the registers soon after receiving the services to avoid data loss.
- Stock cards should be updated soon after every transaction.
- Written feedback should be provided to the health facility by district supervisors after supervision.

Recommendations

- The Ministry of Health should procure adequate child health cards and distribute to all health facilities.
- District supervisors should provide written feedback to health facilities after supervision.
- District supervisors should encourage health facilities staff to use Fridge-tag 2 other than dial/stem thermometers to monitor their refrigerators' temperatures.

- Health facilities should use separate registers for static and outreach sessions.
- Health facilities should have registers for children over 2 years, where they should be recorded when they visit the health facilities.
- Health facilities should use registers and activity summary sheets concurrently during immunization sessions.
- Health facilities should update vaccine stock cards after every transaction.

Session 3: Revision of desired performance targets and intervention packages

Based on the presentations outlined in the first session, revisions of desired performance targets and interventions were conducted by each country and peer reviewed, using a review tool that was provided. Countries were paired as peers for this activity. This was followed by plenary presentations so that plans received additional input from all the meeting participants. These plans are scheduled to be executed between April and June 2020.

Session 4: Addressing sustainability and outline proposal for funding

This session allowed the participants to brainstorm around the sustainability of the BLN with a view to drafting an outline for a multi-country funding proposal and identifying funding agencies to be targeted. Participants broke out into three groups to craft a justification for the continued existence of the BLN and what benefits the countries derive from its membership. During the feedback plenary, the participants agreed on the goal, objectives, and expected outcomes of the proposal. Possible funding agencies identified included the African Union and the African Development Bank. Participants further agreed that a small task team be established to work with the BLN Secretariat to draft the proposal.

Session 5: Updating case studies and lessons learned

During the last learning session in July 2019, the BLN had commenced a process of documenting case studies and lessons learned from individual collaborative countries. The main aim of this session was to receive updates of case studies and lessons learned initiated in the last learning session. To achieve this, the facilitators held one-to-one side meetings with individual country representatives.

Session 6: Evaluation, way forward, and closure

The last session was dedicated to conducting an evaluation of the BLN-DQU Collaborative meeting in relation to its organization and outcomes. Participants were also required to complete an online social networking analysis survey whose purpose was to evaluate the BLN activities to date. Additionally, the session looked at summarizing the meeting and building consensus on the next steps.

Evaluation

The participants were given the opportunity to provide feedback on their experience at the meeting. The evaluation questionnaire was built around feedback on the meeting objectives, technical content, logistical arrangements, facilitation, key lessons learned, importance of the lessons, and action plans. Participants were also requested to fill in an online BLN social networking analysis survey that sought to evaluate the impact of BLN activities. Summaries of the observations are highlighted below:

- **Overall rating of meeting:** Ninety-three percent of the participants rated the meeting as being "excellent" in relation to the quality, facilitation, and technical content and interpretation services.
- **Most valuable aspects of the meeting:** Constructive peer review and feedback during presentations of the country DQIPs, peer-to-peer learning, and development of a funding proposal outline were noted.
- **Least-liked aspect of meeting:** There was a general concern by participants about the poor time management of sessions running into overlaps, the short duration of meetings resulting in failure to cover the topics exhaustively, and that there was no time to network socially.
- **Proposed improvements:** Consideration should be made for an increased duration of the meeting from three to five days; the invitation of more participants from the collaborative countries, particularly those that deal with data management; and allocation of some time for social networking among participants.
- **Peer-to-peer learning:** An overwhelming majority of participants reported that the meeting provided peer-to-peer learning opportunities.
- **Key lessons learned:**
  - "Countries face similar challenges in DQU issues."
  - "There are a lot of experiences in the BLN Collaborative countries that can be used to share learning."
  - "There are techniques for harmonizing DQIPs in order to make them realistic and practical."
  - "Commitment to investment in data is very critical for success of programs."
- **Importance of lessons learned:** "Will help to address country-specific data quality issues and ultimately result in strengthening of the immunization programs."
- **Action plans:** Most participants were looking forward to sharing what they learned at the meeting with EPI/Health Management Information System (HMIS)/monitoring and evaluation (M&E) colleagues on their return back home. Some, however, indicated that they required technical support from the BLN or regional mentors in capacity-building for resource mobilization to operationalize their plans fully. The estimated time frame for follow-up of action plans by the BLN was within three months.

Way forward

Dr. Chilunga Puta thanked the delegates for their active participation and hard work that made the meeting a success. She expressed gratitude to the Zambia Ministry of Health for co-organizing and hosting the meeting. Drawing on the issues, deliberations, and action plans that were discussed during the three days of the meeting, she said the way forward for the BLN-DQU Collaborative lay in sourcing funding to ensure its continuity after June 30, 2020. She summarized the meeting resolutions as follows:

- All countries to implement at least one feasible activity in their DQIPs by June 30, 2020.
- Countries to continue peer reviewing and following up with each other's plans virtually.
- Each country to conduct a webinar to share the status of DQIP implementation, achievements, lessons learned, challenges, and measures put in place to mitigate them before June 30, 2020.
- BLN Secretariat to continue monitoring the implementation of DQU plans in the collaborative countries and facilitate information sharing among them.
- Task team to support the BLN Secretariat in the development of joint proposal for financing of the network beyond June 2020.

Closure

Dr. Francis Mwansa, National EPI Manager, delivered the closing remarks on behalf of the Director of Public Health, Zambia Ministry of Health. In his closing statement, Dr. Mwansa said the Zambia Ministry of Health recognized the significance of such meetings in ensuring that as a continent universal health coverage is attained through improved immunization data quality and use. As such, it was critical for the collaborative countries to interrogate their successes, failures, and challenges and learn from one another. He paid tribute to PATH for cohosting the meeting with the government of the Republic of Zambia and was hopeful that through the BLN, PATH would facilitate continuous virtual interactions among the participants. Dr. Mwansa thanked the participants and the Peer Advisory Group for highly interactive and candid discussions, particularly during the field visit feedback session, which would go a long way in improving immunization data management and services in Zambia. He wished all the participants safe journeys back to their respective homes.

Photo: PATH/Paul Nindi: BLN members participate in discussions.

To access presentations from the BLN meeting, please visit the BID Initiative site.

Appendix 1. Meeting agenda

BLN Data Quality and Use Collaborative Meeting

Lusaka, Zambia (3–5 March 2020)

Monday 2 March 2020	**Arrival of country delegates**
All Day	**Arrival of country delegates**
Evening	**Dinner (own arrangement)**
Tuesday 3 March 2020	**Preliminaries**
08:00–08:30	• Registration of participants—Ms. Brenda Magula • Security debrief—Dr. Leonard Mwansa
08:30–10:00	Opening ceremony—Dr. Francis Dien Mwansa (Master of Ceremonies) • Remarks by BLN Director—Dr. Chilunga Puta • Remarks by PATH Country Director—Dr. Nanthalile Mugala • Remarks by Director of Public Health—Dr. Andrew Silumesii • Keynote address—Permanent Secretary Technical Services Ministry of Health, Dr. Kennedy Malama
10:00–10:30	**Tea/coffee break and group photo**
	Session 1: Feedback on commitments made during last planning meeting **Chair: Zambia** **Rapporteurs: Burkina Faso and Nigeria** **Objectives:** 1. Receive country feedback on extent of achievement on set desired performances. 2. Identify bottlenecks and issues to brainstorm as a peer group. **3.** Share important lessons and promising practices.
10:30–11:00	Review of agenda, expectations, norms, etc.—Dr. Chilunga Puta
11:00–11:30	Zambia—Mr. Sydney Kaweme
11:30–12:00	Burkina Faso—Mr. Silemane Ouedraogo
12:00–12:30	Zimbabwe—Dr. Portia Manangazira

12:30–13:00	Question and answer session
13:00–14:00	**Lunch**
14:00–14:30	Mozambique—Mr. Albino Boana
14:30–15:00	Liberia—Mr. Adolphus Clarke
15:00–15:30	Question and answer session
15:30–16:00	**Tea/coffee break**
16:00–17:00	Webinar presentations (ten minutes per country followed by a ten-minute Q&A session for each) • Cameroon—Dr. Calvin Tonga • Malawi—Mr. Dennis Mwagomba • The Gambia—Mr. Mbye Njie
17:00	**End of day**
Evening	**Dinner (own arrangements)**
Wednesday 4 March 2020	**Session 2. Field visit and feedback**
08:30–11:00	Field visit to Ministry of Health Data Management Sites Facilitator Ms. Mildred Kaunda and Mr. Fred Njobvu
11:00–11:30	**Tea/coffee break**
11:30–13:00	Feedback from the site visits Group 1—Chipata Level 1 Hospital Group 2—George Health Centre Group 3—Mtendere Health Centre
13:00–14:00	**Lunch**

	Session 3: Revision of desired performance targets and intervention Packages **Chair: Zimbabwe** **Rapporteurs: Malawi and The Gambia** **Sub-objectives:** • **Revise desired performance targets for next action period and design appropriate interventions to achieve new targets.** • **Peer review of new targets and intervention packages.** • **Develop work plans based on new targets.** **Share work plans in plenary**
14:00–16:00	Paired peer review of desired performance targets and related intervention packages • Burkina Faso and Cameroon • Zimbabwe and The Gambia • Mozambique and Malawi • Nigeria and Zambia **Facilitators**: Dr. Chilunga Puta/Mr. Hassan Mtenga/Ms. Masaina Bwakya **Session description:** Countries will work in pairs to review one another's revised desired performance targets, intervention packages, and resultant plans for implementation period 2.
16:00–16:15	**Tea/coffee break**
16:15–17:00	Plenary feedback from paired peer review (using feedback template to be provided) **Facilitator:** Ms. Lucy Daka **Session description:** The aim of this session is to receive feedback on revised desired performances and intervention packages, understand the risks and how these will be mitigated, as well as record the commitment each country is making to the collaborative.
17:00	**End of day**
Evening	**Dinner (own arrangements)**

Thursday 5 March 2020	**Session 4: Addressing sustainability, outline proposal for funding** **Chair: Uganda** **Rapporteurs: Zimbabwe and Zambia** **Sub-objectives** • **Revisit sustainability of BLN.** • **Draft an outline for a multicountry funding proposal.** • **Brainstorm funding agencies to target.**
08:15–08:30	Rapporteurs' report of previous day
08:30–10:30	Sustaining BLN: Brainstorm and outline of multicountry proposal for funding • Craft justification. • Agree on goal, objectives, and outcomes. • Outline key activities, etc. **Facilitators:** Prof. Josephine Nabukenya/Ms. Masaina Bwakya/Dr. Chilunga Puta/Dr. Rosemary Mwanza-Banda
10:30–11:00	**Tea /Coffee break**
	Session 5: Updating case studies and lessons learned
11: 00–13:00	Country case studies and lessons learned documents initiated in last learning session **Facilitators:** Ms. Masaina Bwakya/Mr. Hassan Mtenga/Mr. Fred Njovu **Session description:** Countries will provide updates of case studies and lessons learned initiated in last learning session.
13:00–14:00	**Lunch**
	Session 6: Evaluation, wrap-up, and closure **Chair: Malawi** **Rapporteurs: Cameroon and Mozambique** **Sub-objectives:** • **Conduct evaluation.** • **Complete social networking questionnaire.** • **Summarize meeting and agree on next steps.** • **Close of meeting.**

14:00–15:30	Evaluation **Facilitator:** Ms. Catherine Muyawala **Session description:** Countries will complete all meeting evaluation forms and the online social networking analysis survey during this session.
15:30–16:00	**Tea/coffee break**
16:00–16:20	Next steps and wrap-up **Facilitator:** Dr Chilunga Puta **Session description:** Outline next steps in plenary and officially close the meeting.
16:20–16:30	Close of meeting—Dr. Andrew Silumesii, Director of Public Health, Zambia Ministry of Health
16:30	**End of meeting**

Appendix 2. List of participants

NAME	COUNTRY	POSITION	ORGANIZATION	EMAIL ADDRESS
Silemane Ouedraogo	Burkina Faso	EPI Data Manager	Ministry of Health	silemanouedraogo@gmail.com
Calvin Tonga	Cameroon	Chief of Section—Routine EPI & Logistics	Ministry of Health	tofocal@gmail.com
Mbye Njie	The Gambia	Capacity Building Manager—EPI	Ministry of Health	mbyenjie6@yahoo.co.uk
Dennis Mwangomba	Malawi	EPI Data Manager	Ministry of Health	dennismwago@yahoo.co.uk
Mike Chisema	Malawi	National EPI Manager	Ministry of Health	nchisema@gmail.com
Albino Boana	Mozambique	EPI Data Manager	Ministry of Health	Albboana@gmail.com
Gift Aniyom	Nigeria	WHO Scholar Nigeria Lead	University of Calabar	giftaniyom@gmail.com
Hassan Mtenga	Tanzania	Team Lead—BID Regional	PATH	hmtenga@path.org
Josephine Nabukenya	Uganda	Professor	Makerere University	josephine@cit.ac.ug
Andrew Silumesii	Zambia	Director—Public Health and Research	Ministry of Health	asilumesii@gmail.com
Rosemary Mwanza-Banda	Zambia	Director—Quality Assurance & Improvement	Ministry of Health	romakalam@yahoo.co.uk
Francis Dien Mwansa	Zambia	National EPI Manager	Ministry of Health	fmdien@gmail.com
Elicah Kamiji	Zambia	Chief EPI Officer	Ministry of Health	kandinda2015@gmail.com
Constance Sakala	Zambia	Senior Logistician	Ministry of Health	constancesakala@gmail.com

NAME	COUNTRY	POSITION	ORGANIZATION	EMAIL ADDRESS
Josephine Simwinga	Zambia	Chief EPI Officer	Ministry of Health	jsimwinga@yahoo.com
Lucy Daka	Zambia	Performance Improvement Officer	Ministry of Health	lchalimba@yahoo.com
Mildred Tolosi Kaunda	Zambia	M&E Officer	Ministry of Health	mildred.tolosi@moh.gov.zm
David Ngula	Zambia	M&E Officer	Ministry of Health	ngulamd@gmail.com
Rachel Mwewa	Zambia	QA/QI Officer	Ministry of Health	rabeccakbm@gmail.com
Hilda Mukelebai	Zambia	Senior PI Officer	Ministry of Health	mulewachilufya@gmail.com
Trust Mfune	Zambia	Chief M&E Officer	Ministry of Health	tfune@gmail.com
Sydney Kaweme	Zambia	EPI M&E Specialist/ Gavi FPP	Ministry of Health	kawemefirst@gmail.com
Maudy Kaoma	Zambia	M&E Officer	Ministry of Health	maudykaoma6@yahoo.com
Christine Imasiku	Zambia	Principal Nursing Officer Lusaka Province	Ministry of Health	cimasiku@yahoo.co.uk
Penelope Kalesha	Zambia	EPI Data Manager	World Health Organization	pkalesha@who.int
Cheryl Rudd	Zambia	Deputy Director Primary Care and HSS	Centre for Infectious Diseases Research in Zambia	Cheryl.Rudd@cidrz.org
Friday Nkhoma	Zambia	Senior Program Officer Gavi HSS Project	Churches Health Association of Zambia	friday.nkhoma@chaz.org
Portia Manangazira	Zimbabwe	Director—Epidemiology	Ministry of Health	directoredc@gmail.com
Nanthalile Mugala	Zambia	Country Director	PATH	nmugala@path.org
Chilunga Puta	Zambia	BID Learning Network Director	PATH	cputa@path.org
Lassane Kabore	Zambia	Senior Program Officer, Center for Vaccine Innovation and Access	PATH	lkabore@path.org
Fred Njobvu	Zambia	Implementation Manager—ZEIR	PATH	fnjobvu@path.org

NAME	COUNTRY	POSITION	ORGANIZATION	EMAIL ADDRESS
Masaina Bwakya	Zambia	Change Management Lead	PATH	mbwakya@path.org
Catherine Muyawala	Zambia	BID Learning Network Coordinator	PATH	cmuyawala@path.org
Paul Nindi	Zambia	System Project Manager—ZEIR	PATH	pnindi@path.org
Catherine Kagulura	Zambia	Finance Manager	PATH	ckagulura@path.org
Brenda Magula	Zambia	Program Assistant	PATH	bmagula@path.org

Appendix 3. Summary of country presentations

Country	Commitments last meeting	Accomplishments	Implementation challenges	Interventions to address challenges	Lessons learned	Next steps
Burkina Faso	Develop data validation procedure manuals Develop DQR and DS EPI data quality guide Hold a workshop to validate and disseminate the DQIP Hold a follow-up meeting for the implementation of the DQIP Set up a data quality monitoring committee to follow up on the implementation of the DQIP	Revised immunization records, including other tools Produced data collection tools to meet needs of public, private, and NGO health facilities Conducted the Annual Immunization DQR Updated and validated the DQIP DQIP focal point person was appointed for follow-up of implementation Organized a workshop on data quality issues Developed the Data Archiving Guide Developed a SNIS Data Quality Control Guide Trained EPI staff at all levels in the use of DVDMT Produced and disseminated the EPI information bulletin to all health system levels Acquired computers for use at DRS and DS levels Piloted decentralized data entry at the CSPS	Implementation of data quality guidelines (data quality control guide, health information management procedure manual, etc.) Lack of political support for EPI activities Retrieving vaccination data from June to November 2019 Irregular data review and validation meetings at all levels Restoring safety in conflict areas has affected immunization strategies, including data issues Multiple databases instead of single database in use for management of EPI data (DHIS2 /Endos BF) No proper archiving of EPI data collection tools Poor internet connection at all levels of the health system	Strengthening the implementation of policies, guidelines, and the use of the revised tools at all levels Strengthening quality control of data at all levels Enhancing functionality of validation frameworks and EPI data audits Promoting the use of a single source of data management and interoperability with other data sources	Development of a DQIP and data use requires involvement of stakeholders at all levels of the health system and at all stages Strong country leadership at all levels of the health system is essential for implementing programs successfully Continuous advocacy is required to fill the financial gap in DQU implementation Using a single data management system (e.g., DHIS2) significantly improves data quality Decentralized data entry at CSPS level improves data timeliness A transition plan and involvement of all stakeholders is necessary for successful switch from the use of multiple to single database (DHIS2) A DQIP M&E framework coupled with review meetings to monitor implementation of the plan is essential	Set up a working group for the design of the related documents Distribute the digital version of the Data Quality Control Guide and the Data Management Manual DRS and DS health levels Identify the DRS and DS for the implementation of interventions Develop SOPs for quality control at the health facility level Develop a simple framework for validation report Organize internal validation of data in health facilities before transmission to the next level Monitor and evaluate the DQIP Prepare report for implementing this plan
Country	**Commitments last meeting**	**Accomplishments**	**Implementation challenges**	**Interventions to address challenges**	**Lessons learned**	**Next steps**
Cameroon	Develop and validate data review and validation report guide/template Select target regions and districts	Overall, 20 health structures were followed-up, including 3 RTG-EPI and 17 health districts	No clear description of roles and responsibilities at management levels Poor communication between DHIS 2 users and		Adoption of a new tool is a gradual process that needs intensive follow-up Absence of clear definition of roles and responsibilities	Develop a draft data management SOPs Revise and validate the data review template, taking into consideration complains and

	Raise awareness for monitoring and mentoring in convening monthly data review and validation meeting Conduct active collection of data review and validation meeting reports and attendance lists Review progresses on our DQU plan with regional teams Produce final report on DQU	2/3 RTG-EPI and 1/17 HD produced at least one data review report before the month of July vs. 2/3 RTG and 12/17 HD between July and September Timeliness of health facility reports in the DHIS2 grew from 42% to 93% and completeness from 61% to 93%; other interventions contributed to this	the core team managing the system EPI managers at subnational and district levels not concerned with data quality issue Lack of data use culture Data review report template has too much information and is not user-friendly Poor quality of data review and validation meetings at district levels Lack of funding for data review meetings, purchasing computers/ smartphones and poor internet connection		result in poor coordination of activities Leadership at intermediate level is important for obtaining satisfying results at lower levels In a context of scarcity of funding, we can still obtain some good results by integrating activities	constraints from lower levels Organize a training of regional EPI personnel on the use of the revised data review template Organize webinars with the ten regional teams on data quality and use from what was done in the BLN-DQU Carry out active collection of reports Assess progresses on our DQU plan with regional teams
The Gambia	DQT to align denominators through stakeholders' meeting Train 50 health workers on data management Engage regional data managers on timely reporting of data Follow up with health facilities to submit data	Alignment of reporting deadlines from health facility to regions MyChild solution integrated into the DHIS2 and rolled out to two regions including private facilities Common denominators for all age cohorts harmonized and	Uncoordinated and frequent staff turnover Delays and unavailability of funds to implement planned activities Inadequate technical capacities on DHIS2 and data analysis Competing priorities affect timeliness of data submission and entry	Continuous training of health workers Advocacy for funding of planned activities from both government and partners Continuous mentorship and supportive supervision of health workers on data management	Collaboration with stakeholders helps to initiate activities that address DQU issues The formation of the DQT has helped the country to address DQU issues Use of Smart Paper Technology has reduced the workload of health workers in compiling and submitting monthly data	Categorize health facilities in the DHIS2 according to services provided Conduct data quality audit Train health workers on data quality and DHIS2 Separate the HMIS-EPI reporting form from the birth registration in the DHIS2
Country	**Commitments last meeting**	**Accomplishments**	**Implementation Challenges**	**Interventions to address challenges**	**Lessons learned**	**Next steps**
	Identify and provide technical support to health facilities and districts with track record of poor data	Trained 100 health workers and regional data managers on data quality Vaccine Visibility System has been scaled up to cover 23 vaccine stores	Inadequate computers at health facilities for data analysis Technical challenges with integration of MyChild data into the DHIS2 Lack of technical skills on the MyChild solution by the ICT/HMIS units	Upgrading and harmonization of data collection tools in both paper and the DHIS2 Improve timeliness of reporting to 95% at all levels	Health workers need to be continuously engaged to properly address data quality issues The use of digital health solutions have been observed to motivate health workers but expensive or difficult to scale up without dedicated funding	Use DHIS2 to report immunization data from regions

					Internet connection forms the basis for electronic data management, especially for the use of DHIS2 dashboards	
Malawi	Quarterly feedback shared once to zones and districts by national EPI unit Conduct DQR with support from external partners Add all EPI indicators into DHIS2 Follow up on missing reports from 29 districts Pilot the EIR in least ten health facilities in collaboration with HISP Distribute desktop computers to 29 districts for EPI data management	Quarterly feedback shared (September feedback was shared to all districts and next one will be shared in February for the last quarter of 2019) Field immunization system assessment was conducted in September 2019; final report not yet out All EPI indicators have been added and new immunization app on DHIS2 has been installed 22 missing reports from districts were followed up and entered in DHIS2 by districts in October 2019	New WHO immunization applications not installed and historical data not imported into DHIS2 Discrepancies between NSO population and headcount in some districts due to use of 2008 census projections DHIS2 not accessible in some districts due to poor internet connectivity Inadequate skills in data analysis at zone, district, and health facility levels. Irregular feedback to lower levels	Capacity-building on data management and use at all levels Enhance regular review meetings on data quality and use with involvement of health facilities Adoption of new innovations, i.e., electronic registries and mobile DHIS 2 Strengthen the use of one system for data reporting DHIS2 not DVDMT Finalize and implement the DQIP	Involvement of health facility staff in review meetings improve the quality of data Regular feedback to lower level improves performance and completeness of reports; use of new technologies motives health workers on data use Proper planning ensures effective use of available resources Regular meetings at program level and reviewing planned activities keeps planned activities on track	Hold biannual immunization data harmonization meeting by June 2020 Finalize the DQIP by April 2020 Data quality improvement team established by May 2020 Conduct quarterly review meetings on data with district and health facility staff by June 2020 Train EPI officers at district and health facility levels to use mobile DHIS 2 Engage the NSO on the estimations (generation) of district populations by June 2020
Country	**Commitments last meeting**	**Accomplishments**	**Implementation challenges**	**Interventions to address challenges**	**Lessons learned**	**Next steps**
		EIRs was piloted at Bilila Health Centre in Ntcheu District in October 2019	Use of complicated data recording and reporting tools Inadequate numbers of staff at all levels Unavailability of financial resources for data quality and use to lower level			Scale up EIR to other facilities by June 20
Mozambique	Provide comprehensive supervision to staff at all levels using a monitoring tool for documentation Update supervision checklist, SOPs, and tools Develop and share a supervisory visits schedule with health facilities/districts	Development of DQIP Training in VAN and DQS at provincial and central levels Creation of data analysis groups at central and provincial levels Creation of WhatsApp groups for provincial and central levels for improved communication	The Department of Health Information and Systems and Statistics Institute does not have recent census projections Late disbursement of funds for activities and lack of transportation Insufficient and inadequately skilled EPI/DQU human	Reduce data discrepancies between different health facility recording tools and monthly summary book for DHIS2 and SISMA Train district EPI staff in DQU Hold monthly meetings to discuss data and evaluate performance at all levels	The implementation of DQS is fundamental for the improvement of data quality, especially at districts and health facilities With the introduction of DHIS2-SISMA, biggest focus for improving data quality is at health facility level, which generates the information	Training of EPI staff at both district and provincial levels in data quality Hold provincial data review meetings and provide reports/supportive documentation to central level Train provincial and district EPI staff in DQ

	Develop and share schedule and agendas for quarterly DQU review meetings Review and update district denominators for target groups Train EPI and data managers on VAN, DQS and DQR Conduct Provincial DQU & Monitoring TWG meetings Review and update the EPI dashboard	Supervisory and technical support to provinces/districts/health facilities to improve data quality	resource at subnational level	Conduct data quality supervision and provide technical support	Feedback at all levels is vital for enhancing data quality The EPI dashboards have improved access and visibility of program data The introduction of the VAN has increased the use of data for central and provincial decision-making	Conduct periodic supervision and technical support to subnational levels
Country	**Commitments last meeting**	**Accomplishments**	**Implementation challenges**	**Interventions to address challenges**	**Lessons learned**	**Next steps**
Zambia	Finalize the DQIP in 2019 Conduct DQR Hold provincial, district, and health facility data review meetings Assess indicators across different programs, including EPI using DQR metrics and methodology Promote experience exchanges and peer learning among provinces and districts	Trained national program managers in data quality concepts Trained national and provincial teams to support country efforts to conduct data quality activities Operationalized the DQIP Oriented the provinces and districts in conducting DQS Supported district and health facility level data review meetings in the selected districts Developed the Data Use Campaign Guide DQT under M&E established to support data quality and use Implemented the Gavi HSS including the EPI-Optimization Project	Inadequate expertise in data management at all levels Lack of data analysis skills at lower levels to appreciate the use of data for planning and decision making Poor data collection and recording practices at points of data generation Denominator issues: catchment and census populations are not harmonized Paper-based systems affecting timeliness and completeness of data Irregular data review meetings at all levels	Implement the DQIP Operationalize the Data Use Campaign Guide at all levels Improve the data collection tools through the use of ICT innovations Orient frontline health workers in data management Support the data review meetings, especially at lower levels Conduct GIS mapping to reconcile the denominator issues (CSO and headcount populations) Work with the office of DQU/M&E team	Lack of skills in data management at point of data generation contributes to poor data quality Poor data collection system at point of data generation results in poor data quality Parallel data collection system supported by different partners compromises data quality Data review meetings at lower levels contribute to improvements in data quality Mentorship activities help to the strengthen data collection and reporting Use of data at all levels stimulates questions around data quality and timeliness	Operationalize the DQIP Establish a national DQT Implement Gavi HSS, EPI-Optimization Project in selected districts Orient the provinces and districts in conducting DQS Support data review meetings at district and facility levels Operationalize Data Use Campaign Guide Integrate ICT innovations in facility catchment mapping using GIS to improve denominators Scale up use of electronic immunization registries (ZEIR) to facility level such to improve data collection Strengthen orientation and training on data management for

						relevant health care workers at all levels Strengthen feedback loops, supervision, and mentorship at all levels of the health system
Country	**Commitments last meeting**	**Accomplishments**	**Implementation challenges**	**Interventions to address challenges**	**Lessons learned**	**Next steps**
Zimbabwe	N/A (joined January 2020)	Set up DQT comprising staff from EPI, HMIS, M&E, RBF, GF, and HDF, which meets quarterly Conducted quarterly integrated program supervisory visits Integrated the RBF program to check data quality and conducted monthly data verification exercises for DHIS2 Conducted DHIS2 dashboards training for all rural provinces Conducted RDQA in January 2020 (report being compiled)	No integrated SOPs for conducting OSDV Migration from paper-based to electronic health records Profile of EPI and HIOs in the Ministry in conflict Low skill set among users to utilize DHIS2 for detecting possible data quality issues Inadequate skills in data analysis leading to low utilization of data collected at all levels Obsolete equipment for data management Electricity outages and poor internet connectivity resulting low data timeliness and completeness rates Inadequate data collection tools for recording and reporting Funding gaps in implementing DQU activities	Review and harmonization of data collection and reporting tools Integration of WHO data quality app into DHIS2 Integration of EPI data in the EHR in pilot district/province to solve denominator issue Integration of RBF system and other vertical systems with MOHCC DHIS2 Train facility level health workers on data use	Frequent meetings through well-constituted committees focusing on DQU improves the quality of data and eventually its use Program integration enables maximum resource utilization with greater achievements Planning for EPI program expansion and immunization through the life course Data quality is only appreciated if a data use culture has evolved and can contribute to data quality improvement	[Not provided]

Abbreviations: CSO, civil society organization; CSPS, Centres de Santé et de Promotion Sociale; DHIS2, District Health Information System Version 2; DQIP, data quality improvement plan; DQ, data quality; DQR, data quality review; DQS data quality self-assessment; DQT, Data Quality team; DQU, data quality and use; DRS, Direction Régionale de la Santél; DS, District Sanitaire; DVDMT, District Vaccination Data Management Tool; EHR, electronic health record; EIR, electronic immunization registry; ENDOS-BF, Entrepôt de Données Sanitaires du Burkina Faso; EPI, Expanded Program on Immunization; GIS, geographic information system; HD, health district; HISP, Health Information Systems Program; HMIS, Health Management Information System; HSS, health systems strengthening; M&E, monitoring and evaluation; MOHCC, Ministry of Health and Child Care; NGO, nongovernmental organization; NSO, National Statistics Office; OSDV, On-Site Data Verification; RBF, results-based financing; RDQA, routine

data quality assessment; RTG, Regional Technical Group; SISMA, Sistema de Informação para Saúde de Monitoria e Avaliação; SNIS, Système national d'information sanitaire; SOP, standard operating procedure; TWG, Technical Working Group; WHO, World Health Organization; ZEIR, Zambia Electronic Immunization Registry.