

DHIS2 Analytics Tools and Information Use Academy Report.



November 11-16, 2019
University of Gondar, Ethiopia

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Background

In an effort to develop and strengthen national and regional capacity to effectively analyze, report, generate quality data for information use, the University of Gondar - eHealthLab in partnership with the University of Oslo-Health Information Systems Program (HISP), Federal Ministry of Health, Capacity building and Mentorship Partnership (CBMP), and the Data Use Partnership (DUP) supported and conducted a DHIS2 Level 1 analytics academy in Gondar, Ethiopia from November 11 – 16th 2019. DHIS2 Academies at national and regional levels have been growing over the last 7 years with the first DHIS2 Academy held in Latin America in 2012.

The academy introduced participants to the basics of DHIS2 analytics tools with a focus on new features and functionalities for data analysis, information management and decision making through clear and concise dashboard collections of different data visualizations; charts, maps and pivot tables. New features and functionalities such as the scorecard, bottleneck analysis, WHO dashboards and data quality applications were also introduced during the training.

The training combined both theoretical and practical sessions equipping participants with in-depth knowledge and skills to harness the capabilities of DHIS2 to support data collection, analysis and reporting requirements for improved and informed decision making both at national, Federal Bureau Level and other levels such as Wareda and PHCU.

Objectives

Main objective

- To provide knowledge and skills in DHIS2 Analytics Tools, Scorecard, Bottleneck analysis and data quality analysis for informed decision making in the management and implementation of health and or other non-health related programs.

Specific objectives

1. Promote the use of information systems as a tool for decentralized program management
2. Provide participants with a thorough understanding of data use (mining and visualization) mechanisms in DHIS2
3. Impart data-use best practices and share experiences using data to make decisions

4. Provide participants with a thorough understanding of data quality monitoring tools and mechanisms
5. Define core system structures that need to be in place for any information system

Methodology

The Academy was conducted over a period of 6 days from November 11 – 16th 2019, with a pre-planning meeting of all the facilitators held on November 10, 2019. During the pre-academy planning meeting, the DHIS2 training materials were updated and adapted to the training needs, a final program schedule was drafted and agreed upon to guide the 6-day academy. The team of facilitators continued to work and finalize training materials including PowerPoint presentations, practical assignments and exercises during the course of the training. The DHIS2 online Fundamentals training was a prerequisite for attending the level 1 Analytics tools Academy. Officials from the Federal Ministry of Health and University of Gondar, Ethiopia were present to officiate the opening and closing of the 6-day training.

Dr. Binyam giving his opening remarks at the start of the training.



The method for delivery of the training included; lecture with PowerPoint presentations, live demonstrations and hands-on exercises. Sessions run from 08:00 early morning to 18:00 in the evening with morning, lunch and evening breaks included. In order for the training to have an impact, emphasis was placed on practical exercises and hands-on training. This was based on

the principle “The most effective way to learn DHIS2 is to use DHIS2”. Early morning recap sessions and evening “touch base” sessions with facilitators were also provided to help clarify topics and or sessions to participants for further understanding. For practical Sessions, facilitators setup training systems part of whose data was provided by the FMoH, and supplemented by the University of Oslo Training Land Instance.

Participants working on practical exercises in groups



Training materials

The training materials developed included; session presentations on DHIS2 theories, live demonstrations coupled with hands-on exercises, case discussions, group work, individual assignments, quizzes and final exam. A virtual training environment was set up in Moodle where participants accessed all training materials, assignments and a blank instance for hands-on practical exercises.

Academy Certification

In order to successfully complete the DHIS2 Analytics tools Academy and receive a certificate, participants were required to obtain a minimum grade of 70% in the overall evaluation. Average Score from students' performance in all assignments was 85% with the best participant scoring 91.5%

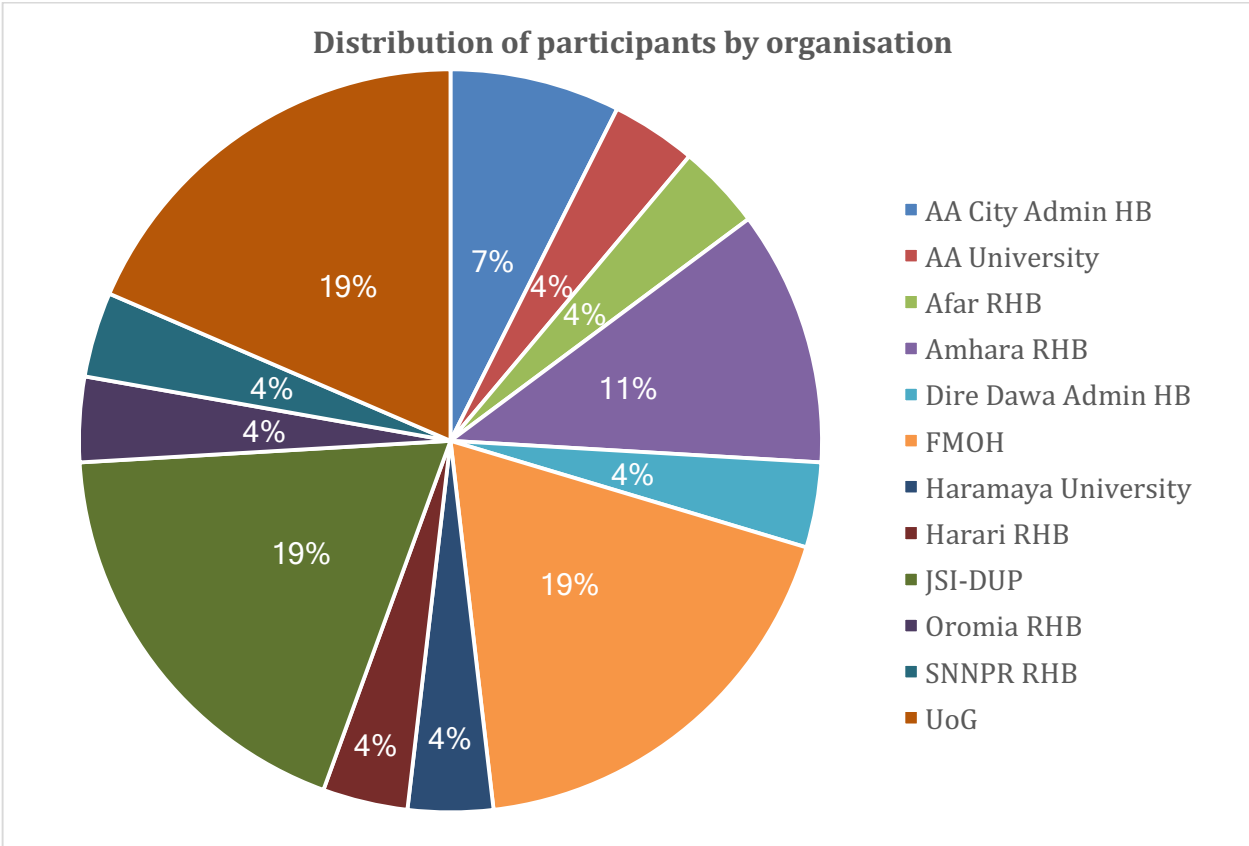
The DHIS2 Analytics tools Academy Certification consisted of 3 parts:

1. Prerequisite: Attendance: All participants achieved the 99% minimum attendance of the academy. Participants signed twice daily for morning and afternoon attendance.
2. Individual Assignments: accounted for 30% of the grade and 30% for group assignments. Short assignments were submitted by uploading into Moodle
3. Final Exam: accounted for 40% of the grade

The certificates were issued by the University of Gondar team Led by Dr. Binyam Tilahun. All 27 participants received their certificates of completion having successfully fulfilled all the requirements of the academy. Additionally, Facilitators were also recognized by the award of a certificate



Distribution of participants from across the country



The Majority of participants were from FMOH, JSI-DUP, University of Gondar, and Amhara region respectively. With the participation of FMOH, there was demonstration of commitment by the ministry support capacity building efforts for Health Information systems using DHIS2. There was also good representations from regional bureaus who are key in cascading the trainings to the zones and the waredas.

Academy Facilitators

The team of facilitators included DHIS2 implementers, system developers, HIS Advisor and Epidemiologist with vast experience and skills in conducting DHIS2 Analytics tools trainings in Ethiopia, East, Southern Africa and beyond.

Table 2: List of Facilitators

1. Dr. Binyam Tilahun (From University of Gondar)
2. Mr. Eric Munyambabazi (From HISP Uganda)
3. Mr. Seid Hussien (UiO based at FMOH)
4. Mr. Melaeke Negussie (UiO based at AAU)
5. Dr. Adane Mamuye (From University of Gondar)
6. Mr. Fedlu Hussien (From University of Gondar)
7. Mr. Berhanu Endehabtu (From University of Gondar)
8. Mr. Kassahun Gashu (From University of Gondar)

Academy Team Strengths

- Teamwork in facilitating the sessions. Ability of facilitators to backstop and support each other
- Facilitators adjusted the program based on daily feedback. They provided longer recap sessions to ensure participants comprehended difficult concepts
- Evening drop in sessions for participants to clarify on difficult concepts

Participants' Reasons for attending the Academy

Some of the reasons for attending the academy as captured in Mentimeter are listed below in a screen shots;

Why did you choose to attend this particular Academy?

Mentimeter

To sharpen my analytics skills

I have come to learn how to learn analysis

Learn new features in dhis2

To learn more about analytics and designs

Learn the basics of DHIS2

Understand dashboard features of DHIS2

To learn more about Dhis2

to get skills on analytics and dashboard development

Keen to learn data analysis features and dashboard functions

To learn more on analysis on DHIS2 for disease surveillance and implementation of IDSR

to learn more on dhis2 analytics tools and data quality issues

to upgrade my skill on data entry, analysis, interpretation and presentation through dhis2

To acquaint my self with skills in data quality, analysis and data visualisation

Learn more about development of Dashboards with in the DHIS 2

To learn data analytics To learn data use

To learn more about program performance evaluation using DHIS2 analytic tools.

To have some basic concepts on data analysis and information use using DHIS2

to know skills in data quality analysis, presentation and feedback

Academy?

to learn more

To know more about functionalities of DHIS2 and to share this knowledge to others.

dashboard, Quality check, Analysis, validation rules

How to use data to provide useful information and analytics to my organization

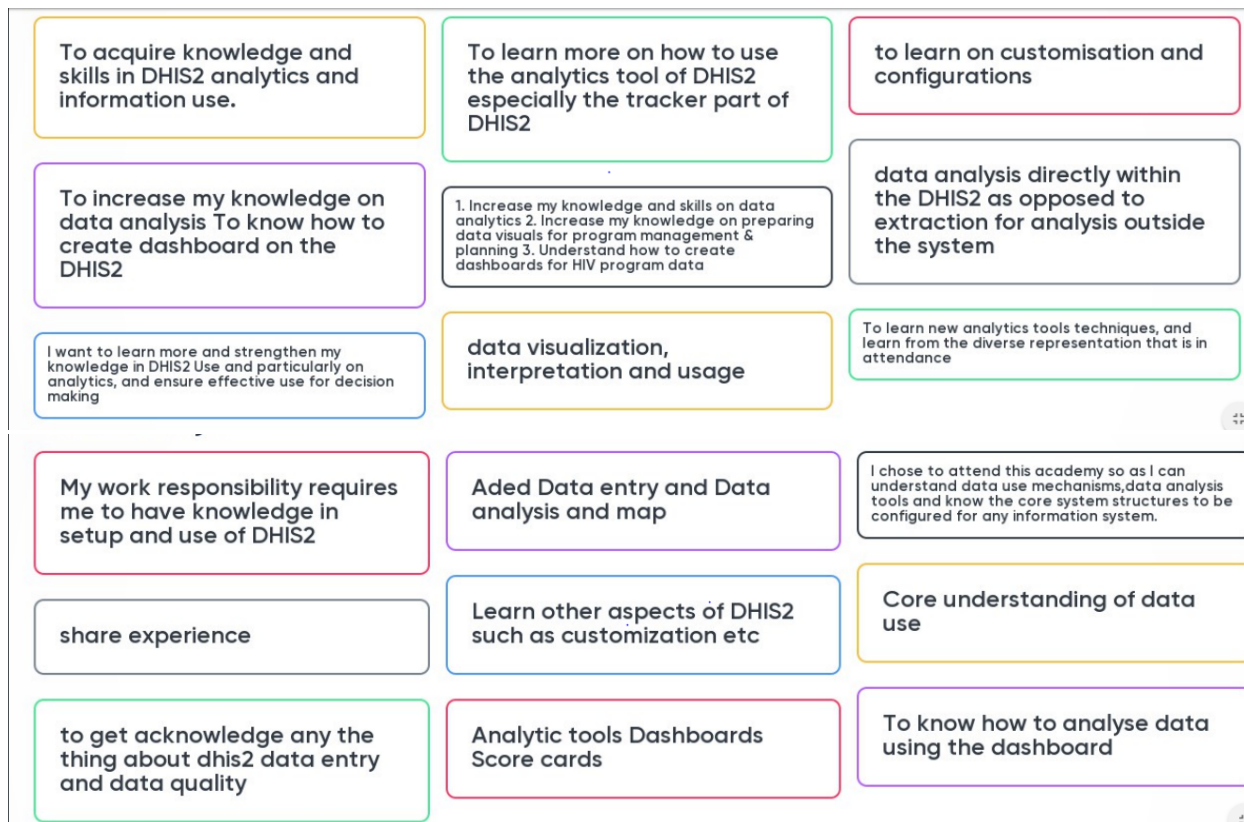
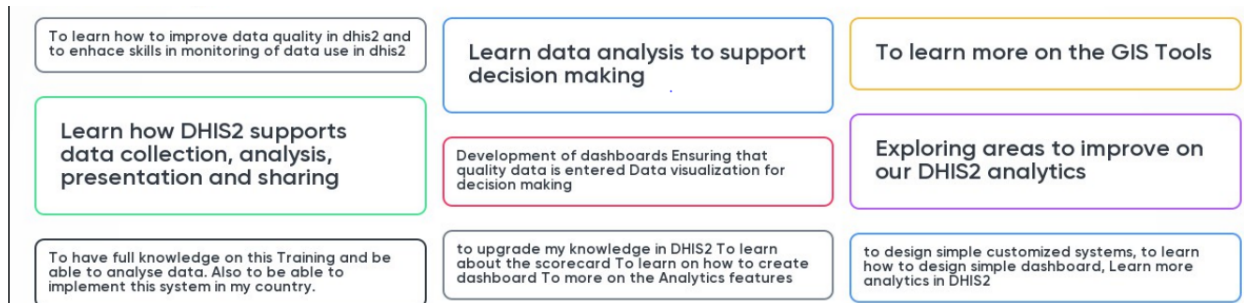
to know indept about Analytics tool

To know how to design scorecards, validate data and use it for decision making

I work in a Position that Need the skill and Knowledge of DHIS2 I am interested to be expert on DHIS2 DHIS2 is the tool that we use for our HIS

To learn more on DHIS2 Analytic tools, data validation and dashboards

250



The most useful Analytic tool as shared by the participants was noted to be;

Pivot tables wins!



Maps

Data
Visulaizer

Pivot tables

Dataset
Report

Dashboards

Activate Windows
Go to Settings to activate W

Challenges during the Academy

- There was intermittent infrastructure failures i.e internet connection and power.
- There was inadequate time to cover and discuss all the required topics in detail as indicated in the timetable. New topics such as scorecard and WHO data quality apps needed more time to be comprehended in detail.

Feedback and Evaluation

Summary and suggestions from participants

Opinion on overall content of the Academy

- The content was rich and exhaustive, which provided a good understanding of the system
- The content was on point, of course sometimes felt like it was too much info.
- Content was relevant and covered a range of analytics tools
- Content is applicable in daily routine work at office

What concepts/topics needed to be added to the academy

- Data extraction and analysis of data using excel
- Include key functionality feedback from the community and anticipated bug and possible quick fixes
- Include some common use cases of malaria, HIV, TB, MCH in the exercises

- Include country specific use cases
- More on WHO data quality apps

Specific features learned that you wish to implement in your settings

- Scorecard
- Bottle neck analysis
- WHO data quality apps
- Legends in pivots, data to action framework
- Generation and sharing of dashboards
- Validation rules
- Data visualization

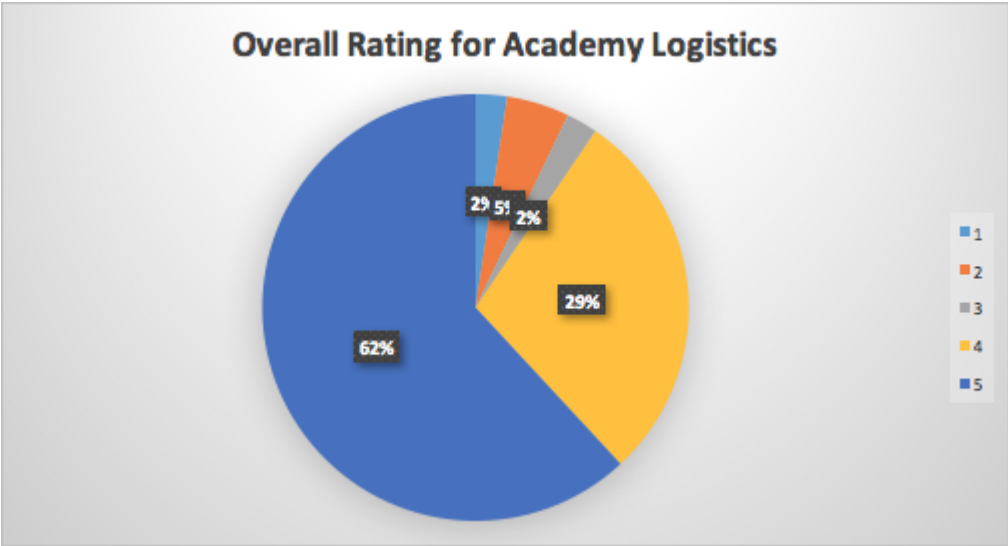
What didn't go well and needed improvement

- Learning materials should be supplied at the end of every course unit content and related exercises done the next morning
- The last two days content felt rushed, not as concise as the earlier topics.
- Too much content delivered in little time
- Contents on data quality required more detail.
- Data entry app should always be discussed at the beginning for participants to understand the source of the data being analyzed
- The time for practice after each session was not enough. It would be good to give enough time for hands on practice.
- Group dynamics especially with group assignment. Some group members didn't contribute to the group work
- Nonfunctional Air conditioning in both the conference hall and bedrooms

Feedback on the facilitation team

- Facilitators were the best, approachable and supportive.
- The team was outstanding, confident and highly knowledgeable. They made good and exhaustive presentations
- Team was friendly, approachable and knowledgeable about the different subjects.
- Some facilitators were very fast and need to slow down

Overall Rating of Academy logistics; Venue, Internet, location, accommodation



Appendix 1: Participants Final Exam Results

Gondar DHIS2 Analytics Tools and Information Use Academy Nov 2019 final exam results

First name	Surname	Assignment: Meta Data Overview Exercise (Real)	Assignment: Pivot Table Group - Exercise (Real)	Assignment: Data Visualizer Exercise (Real)	Assignment: Maps Exercise (Real)	Quiz: Final Exam (Real)	Assignment: 01- Data Quality Group Exercise (Real)	Assignment: Dashboard Exercise (Real)	Assignment: Interpretation Exercise (Real)	Assignment: Comprehensive Individual Exercise (Real)	Course total (Real)	Pass/Fail
Wondimu	Ayele	2.03	5.64	5.82	6	33.17	6	5	6	22	91.66	Pass
Lamessa	Tadesse	2.59	5.64	5.82	6	32.67	6	5	6	21	90.72	Pass
Birhanu	Taye	2.65	5.58	6	5.16	34.83	6	4.3	6	20	90.52	Pass
Amare	Shumete	2.52	5.52	6	5.7	33.83	6	4.7	6	20	90.27	Pass
Abayn	Shumet	2.05	5.19	6	5.28	32.83	6	4.6	6	22	89.95	Pass
Admas	Abera	2.29	5.19	6	5.28	32.33	6	4.85	6	22	89.94	Pass
Tsegaye	Shewangzaw	2.81	5.28	6	5.4	32.17	6	4	6	22	89.66	Pass
Mesoud	Ahmed	2.85	5.52	6	5.7	33.50	6	5	6	19	89.57	Pass
Shegaw	Mulu	2.57	5.58	6	5.16	32.17	6	5	6	21	89.48	Pass
Gebeyehu	Oda	2.12	5.28	6	5.4	30.17	6	3.9	6	22	86.87	Pass
Gelachew	Abe	2.12	5.19	6	5.28	29.00	6	5	6	22	86.59	Pass
Girma	Birru	2.26	5.28	6	5.4	31.83	6	3.5	6	20	86.27	Pass
Meskerem	Wubet	2.74	5.64	5.82	6	28.17	6	4.5	6	21	85.87	Pass
Abdusemed	Ali	1.79	5.58	6	5.16	30.00	6	3.15	6	22	85.68	Pass
Abraham	Yeneneh	1.63	5.64	5.82	6	29.67	6	2.75	6	22	85.51	Pass
Habtamu	Alganah	2.55	5.28	6	5.4	28.00	6	5	6	21	85.23	Pass
Zelege	Abebaw	2.65	5.58	6	5.16	33.00	6	5	6	15	84.39	Pass
Araya	Mesfin	1.45	5.52	6	5.7	25.50	6	4.55	6	22	82.72	Pass
Dessie	Kiber	2.29	5.64	5.82	6	30.50	6	3.25	6	17	82.50	Pass
Ayile	Lemma	0	5.52	6	5.7	29.83	6	4.9	6	18	81.95	Pass
Yakob	Tadesse	2.07	5.19	6	5.28	25.17	6	4.5	6	20	80.21	Pass
Magdelawit	Ashagnie	2.7	5.28	6	5.4	25.67	6	4	6	19	80.05	Pass
Nega	Getnet	1.63	5.58	6	5.16	28.33	6	4.5	6	16.5	79.70	Pass
Bizuayehu	Lemmi	1.86	5.52	6	5.7	29.00	6	3.55	6	16	79.63	Pass
dejene	Woldemichael	2.53	5.19	6	5.28	32.17	6	3.75	6	11	77.92	Pass
Hussien	Ibrahim	0.73	5.19	6	5.28	23.67	6	3.5	6	21	77.37	Pass
Tesfahun	hailemariam	1.94	5.52	6	5.7	26.67	6	3	6	14	74.83	Pass
											85.00	Average pass mark

Appendix 2: Academy Photos

<https://drive.google.com/drive/u/0/folders/1g3WfMpBjCWqBZNBCKQQldc0Uer1yVPjJ>

Appendix 3: List of Participants

No.	Name	Organization	Responsibility
1.	Ayile Lemma	SNNPR RHB	HMIS Coordinator
1.	Lamessa Tadesse	Oromia RHB	Regional M&E
1.	Dr. Girma Birru	JSI-DUP	HIT specialist

1.	Meskerem Wubet	FMOH	M&E officer
1.	Magdelawit Ashagrie	FMOH	M&E officer
1.	Gebeyehu Oda	DUP	Regional Technical advisor
1.	Yakob Tadesse	FMOH	M&E officer
1.	Shegaw Tarekegn	FMOH	Senior HIS advisor
1.	Birhanu Amogne	DUP	Regional Data Use Specialist
1.	Getachew Mewahegne	Amhara RHB	IT Socialist
1.	Wondimu AManamo	AA University	HI Training Coordinator
1.	Admas Abaerei	Haramaya University	CBMP Lead
1.	Abdusemed Ali	Harari RHB	M&E Directorate director
1.	Mesoud Ahmed	FMOH	Assistant director of PPD
1.	Nega Getnet	Dire Dawa Admin HB	HMIS Officer
1.	Habtamu Guadie	UoG	Lecturer
1.	Araya Nigatu	UoG	Lecturer
1.	Abraham Yeneneh	UoG	Lecturer
1.	Dessie Kiber	DUP	HMIS Technical Specialist
1.	Dejene Woldemichael	AA City Admin HB	Data Manager
1.	Tsegaye Shewangzaw	AA City Admin HB	Monitoring and Evaluation officer
1.	Zelege Mekonnen	UoG	Lecturer
1.	Tesfahun Madebo	UoG	Lecturer
1.	Hussen Mohammed	Afar RHB	HMIS Coordinator
1.	Bizuayehu Lemmi	DUP	Data use officer
1.	Abay Kibret	Amhara RHB	M&E officer
1.	Amare Tareke	Amhara RHB	M&E officer