Global Consultation

1 – 2 September 2021
11:00 – 14:30 CET

Optimizing Routine Health Information Systems to effectively deliver Universal Health Coverage and improve Primary Health Care in countries

Hosted by the Division of Data, Analytics and Delivery for Impact
For enquiries, please contact ddi@who.int
We would like to convey our gratitude to all speakers and panelists whose active participation and engagement before, during and after the consultation event made it possible to begin the conversation and collaboration on supporting countries in optimizing their routine health information systems (RHIS). It would not be possible to deliver such an event or to follow through on its aims without your strong partnership and collaboration.

Special mention should be made of the staff of the WHO Regional Offices who shared insights from their regions and recommendations to ensure the completeness of the consultation. Their outlined regional plans for the next years, in partnership with countries have set starting line on the road to optimize RHIS in countries.

Numerous specialists in the sector gave their time to present in the workshop and to give input to the early development of a Strategy for in-country RHIS Strengthening, which will shortly be shared.

Special acknowledgment is given to colleagues within DDI/DNA who were instrumental in the preparation and proceedings of the meeting and to colleagues with WHO Information Management and Technology team for their support in ensuring the successful running of the virtual consultation.

Lastly, but not least, grateful thanks to Assistant Director General Dr Samira Asma, and to Dr. Somnath Chatterji for their guidance and advice. Your insights and recommendations to move forward the implementation of RHIS in countries have been invaluable.
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Context

Timely, reliable, disaggregated and actionable data are critical to drive effective health policies in countries, as well as to strengthen primary health care (PHC) and monitor progress toward universal health coverage (UHC). Countries must be able to gather and analyse high-quality data to inform national-level planning and management at programme, district and facility levels.

Despite the increasing demand for data and evidence, existing health information systems in many countries remain inadequate, and high-quality data are not routinely collected. Major health challenges are not adequately measured and monitored, compromising effective delivery of programmes and policies. The COVID-19 pandemic has highlighted the importance of data and health information systems for guiding all stages of the response to the crisis, with life and death implications.

In 2020, WHO launched the SCORE for Health Data Technical Package to support countries to strengthen their health data and information systems. As highlighted by the SCORE Global report 2020, found that nearly 50% of countries have limited capacity for systematic monitoring of health care and only 4% had sustainable capacity to optimize health service data that serves its optimal use for effective delivery of health services.

The SCORE assessment underscores the urgency for investing in building robust RHIS in all countries to ensure data is disaggregated to address inequalities, guide investments across all major health programmes rather than specific programmes; and strengthen data governance for data access and sharing.

Routine Health Information Systems (RHIS)

RHIS collect health service data directly from the health facilities, by the health care workers. It provides frequent (e.g. monthly) and/or almost real-time information on service performance and quality at all levels of the health system, enabling regular progress monitoring and timely identification of problems and address them. RHIS creates an integrated environment for programme specific and cross-cutting data use.

Many tools have been developed for routine health information systems strengthening and showed potential for scaling of best practices. WHO in collaboration with HDC has developed RHIS toolkit for routine facility data analysis and use. The available programme specific packages are TB, HIV, Malaria, RMNCH, Immunization, Disease Surveillance (IDSR), COVID-19 (surveillance and vaccine), vaccine safety, morbidity, as well as cross-cutting analysis. These packages have been implemented with coordinated support from partners in 47 (mostly low and middle income) countries, advancing these countries towards an integrated national health data platform that optimises data analysis and use at all levels of health services.

More programmes are moving toward similar approaches and more packages are in development process. These including noncommunicable diseases (cardiovascular, diabetics, cervical cancer, rehabilitation) neglected tropical diseases, nutrition, community health. These packages will enable the monitoring of integrated primary health care and its planning at sub-national levels.
WHO has been working with the University of Oslo – a WHO collaborating centre, to digitalize the RHIS toolkit packages, using the DHIS2 platform that will promote integration of RHIS in countries. With more than 70 countries currently use the software, the DHIS2 digital package is an optimal digital tool for large scale country adaptation.

Often, RHIS is used primarily for reporting purposes. To unleash the value of RHIS, the data generated can be used to improve availability of services, and access to health care especially at PHC level, fast tracking progress toward UHC.

The Global Consultation to Optimize Routine Health Information Systems to effectively improve primary health care and deliver Universal Health Coverage in countries

The outcomes of this dialogue will aim to further strengthen RHIS in countries so that when SCORE assessments are repeated in 2025, every country will have a robust health information system which is crucial to track progress towards the GPW 13 “triple billion” targets and health-related SDGs.

Data standards and digital solutions offer a promising solutions to provide timely, reliable, disaggregated and actionable data. This data is critical for effective country health policies to strengthen primary health care (PHC) and monitor progress toward universal health coverage (UHC). The RHIS Global Consultation is a unique opportunity to bring partners and tools together to rapidly accelerate towards global goals and deliver impact in countries.

Objectives

The global consultation will focus on:

- The importance, components and applications of Routine Health Information Systems (RHIS)
- Data gaps and tools from the SCORE technical package
- Sharing best practices and perspectives from countries and partners
- Describing the value of integrated data and health information systems with a focus on building sustainable capacity in countries
- Representatives of Member States
- Experts from leading institutions
- Partner organizations
- All three levels of WHO (Country, Regional Offices and HQ)

Data standards and digital solutions offer a promising solution to provide timely, reliable, disaggregated and actionable data. This data is critical for effective country health policies to strengthen primary health
## Day 1: Wednesday, 1 September 2021

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<tr>
<th>Time (CET)</th>
<th>Topic</th>
<th>Presenter(s)</th>
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</table>
| 11:00 – 11:10 | **Welcome and introductory remarks**  
"Why we must quickly optimize RHIS for PHC & UHC" | Samira Asma, ADG, Data, Analytics & Delivery for Impact  
Ren Minghui, ADG, Universal Health Care |
| 11:10 – 11:45 | **Routine Health Information System (RHIS)**  
Δ Objectives and outcomes of the global consultation  
Δ Overview of RHIS, findings from the SCORE global assessment: mapping gaps and opportunities  
Δ Regional priorities and progress  
**Primary Health Care (PHC) Special Programme: Need to track progress** | Somnath Chatterji, WHO  
Anh Chu, Wendy Venter, WHO  
WHO Regional Focal Points  
Suraya Dalil, Director, WHO |
| **Session 1** | Countries at the center: Models to align and integrate RHIS in Primary Care Settings  
**Facilitated by Kristin Braa** | Country representatives from Iran, Oman, Nepal, Tajikistan, China  
Vicki Bennett, Australian Institute of Health and Welfare (AIHW) |
| 11:45 – 12:45 | Δ Country experiences  
Δ Healthy Islands Monitoring Framework |  |
| 12:50 – 13:10 | Δ Setting data standards  
Δ Deploying RHIS Toolkit and standard packages  
Δ Community Health Information Systems | Robert Jakob, WHO  
Daniel Low-Beer, WHO  
Remy Mwamba, UNICEF |
| 13:10 – 13:25 | Discussion and Q&A |  |
| **Session 2** | Technical tools and essential solutions to improve PHC  
**Facilitated by Jean-Pierre de Lamalle** |  |
| 13:25 – 13:40 | Δ Digitalization to strengthening RHIS  
Δ Digital tooling and integration of ICD-11  
Δ VODAN Africa: a digital tool for data collection | David Novillo, WHO/EURO  
Carine Alsokhn, Nenad Kostanjsek, WHO  
Mirjam van Resisen, VODAN |
| 13:40 – 13:55 | Δ Digital solutions to integrate, analyze and use data to improve performance: Successes from DHIS2 platform  
Δ Simple app and DHIS2 featuring interoperability | Rebecca Potter, Oslo University  
Daniel Burka, Resolves to Save Lives |
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<td>13:55 – 14:15</td>
<td>Discussion and Q&amp;A</td>
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<tr>
<td>14:15 – 14:30</td>
<td>Summary</td>
<td>Anh Chu, WHO</td>
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## Agenda

**Day 2: Thursday, 2 September 2021**

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<tr>
<td>11:00 – 11:05</td>
<td>Welcome back and Recap of Day 1</td>
<td>Henry Doctor, WHO/EMRO</td>
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### Session 4  
Using data and analytics to improve performance of care and access to services – “Treating patients as VIP”  
Facilitated by Mark Landry

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<tr>
<td>11:05 – 11:30</td>
<td>Importance of sub-national data</td>
<td>Theo Lippeveld, RHINO</td>
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<tr>
<td>11:05 – 11:30</td>
<td>Designs to optimize use of data to drive impact</td>
<td>Jorn Braa, University of Oslo</td>
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<tr>
<td>11:05 – 11:30</td>
<td>Driving specific programmes: NCDs, TB, RMNCH</td>
<td>Jennifer Cohn, Resolve to Save Lives, Sismanidis Charalampous, TB Programme, WHO Elizabeth Katwan, RMNCH, WHO</td>
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<td>11:30 – 11:45</td>
<td>Discussion and Q&amp;A</td>
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### Session 5  
Integrated Disease Surveillance (IDSR): Opportunities to scale  
Facilitated by Carl Kinkade

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<tr>
<td>11:45 – 12:15</td>
<td>Developing the Global Surveillance Early Warning Strategy</td>
<td>Karl Schenkel, WHO</td>
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<tr>
<td>11:45 – 12:15</td>
<td>Integrated VPD and Epidemic prone disease surveillance information system</td>
<td>Alain Poy, WHO/AFRO</td>
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<tr>
<td>11:45 – 12:15</td>
<td>Emergency programme: Go.data and EWARS</td>
<td>Sara Hollis, Niluka Wijekoon Kannangarage, WHO</td>
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<tr>
<td>12:15 – 12:30</td>
<td>Discussion and Q&amp;A</td>
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**Break (5 min)**

### Session 6  
Getting serious about building sustainable capacity in countries and good data governance  
Facilitated by AFRO regional focal point (TBC)

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<tr>
<td>12:35 – 13:00</td>
<td>Models to building capacity in countries</td>
<td>Preeti Negandhi, Public Health Foundation India</td>
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<td>12:35 – 13:00</td>
<td>Data governance, data sharing and data use</td>
<td>Kristin Braa, University of Oslo</td>
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<td>12:35 – 13:00</td>
<td>EMR initiatives in support of establishing national health information systems</td>
<td>Sally Stansfield, Social Impact Practice</td>
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<td>13:00 – 13:15</td>
<td>Discussion and Q&amp;A</td>
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### Session 7  
Importance of partnerships, collaborative alignment to leverage resources to support countries  
Facilitated by Craig Burgess

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<tr>
<td>13:15 – 14:00</td>
<td>A panel to explore how we can align our limited resources and deliver impact that can be measured in countries</td>
<td>Gavi, Global Fund, Centers for Disease Control and Prevention (CDC), USAID, AeHIN, Resolve to Save Lives, Bill and Melinda Gates Foundation, American Development Bank, Country min representative</td>
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<tr>
<td>13:15 – 14:00</td>
<td>A panel to explore how we can align our limited resources and deliver impact that can be measured in countries</td>
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### Session 8  
Concrete next steps from WHO regions and summarizing outcomes from the consultation

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<tr>
<td>14:00 – 14:15</td>
<td>Plans from the Regions to fast track RHIS in countries</td>
<td>WHO Regional Focal Points</td>
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<tr>
<td>14:00 – 14:15</td>
<td>Summary of the outcomes and next steps</td>
<td>Steve Mac Feely, WHO</td>
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## Annex III

### List of Presenters

### WHO Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Position</th>
<th>Contact email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asma, Samira</td>
<td>WHO/ Division of Data Analytics and Delivery for Impacts (DDI)</td>
<td>Assistant to Director General</td>
<td><a href="mailto:Asmas@who.int">Asmas@who.int</a></td>
</tr>
<tr>
<td>Alsokhn, Carine</td>
<td>WHO/ DDI/Dept. of Data Analytics (DNA)</td>
<td>Technical Officer, Classification &amp; Terminologies (CAT)</td>
<td><a href="mailto:Alsokhnc@who.int">Alsokhnc@who.int</a></td>
</tr>
<tr>
<td>Burgess, Craig</td>
<td>WHO/DDI/ (DNA)</td>
<td>Cooperation Specialist</td>
<td><a href="mailto:Cburgess@who.int">Cburgess@who.int</a></td>
</tr>
<tr>
<td>Chatterji, Somnath</td>
<td>WHO/DDI</td>
<td>Senior Advisor</td>
<td><a href="mailto:Chatterjis@who.int">Chatterjis@who.int</a></td>
</tr>
<tr>
<td>Chu, Hong Anh</td>
<td>WHO/DDI/DNA</td>
<td>Technical Officer, RHIS</td>
<td><a href="mailto:Chuh@who.int">Chuh@who.int</a></td>
</tr>
<tr>
<td>D’Agostino, Marcelo</td>
<td>WHO/PAHO</td>
<td>Senior Advisor, Information Systems and Digital Health</td>
<td><a href="mailto:dagostim@paho.org">dagostim@paho.org</a></td>
</tr>
<tr>
<td>Dalil, Suraya</td>
<td>WHO/UHL</td>
<td>Director, Primary Health Care</td>
<td><a href="mailto:Dalilsu@who.int">Dalilsu@who.int</a></td>
</tr>
<tr>
<td>Doctor, Henry</td>
<td>WHO/EMRO</td>
<td>Coordinator, Information system for health</td>
<td><a href="mailto:Doctorh@who.int">Doctorh@who.int</a></td>
</tr>
<tr>
<td>Droti, Benson</td>
<td>WHO/AFRO</td>
<td>Technical Officer, HIS</td>
<td><a href="mailto:Drotib@who.int">Drotib@who.int</a></td>
</tr>
<tr>
<td>Duan, Mengjuan</td>
<td>WHO/WPRO</td>
<td>Technical Officer, HII</td>
<td><a href="mailto:duanm@who.int">duanm@who.int</a></td>
</tr>
<tr>
<td>Fleischl, Juliet</td>
<td>WHO Consultant</td>
<td>Health Systems and Governance</td>
<td><a href="mailto:Fleischlj@who.int">Fleischlj@who.int</a></td>
</tr>
<tr>
<td>Hollis, Sara</td>
<td>WHO/WRE</td>
<td>Epidemiologist, Go.Data</td>
<td><a href="mailto:Holliss@who.int">Holliss@who.int</a></td>
</tr>
<tr>
<td>Jakob, Robert</td>
<td>WHO/DDI/Dept. of Data Analytics</td>
<td>Team Lead, CAT</td>
<td><a href="mailto:Jakobr@who.int">Jakobr@who.int</a></td>
</tr>
<tr>
<td>Katwan, Elizabeth</td>
<td>WHO/UHL</td>
<td>Data manager, MCA</td>
<td><a href="mailto:Katwane@who.int">Katwane@who.int</a></td>
</tr>
<tr>
<td>Kostanjsek, Nenad</td>
<td>WHO/CAT</td>
<td>Technical Officer, CAT</td>
<td><a href="mailto:Konstanjsek@who.int">Konstanjsek@who.int</a></td>
</tr>
<tr>
<td>Landry, Mark</td>
<td>WHO/SEARO</td>
<td>Regional Advisor, HIS</td>
<td><a href="mailto:Landrym@who.int">Landrym@who.int</a></td>
</tr>
<tr>
<td>Low-Beer, Daniel</td>
<td>WHO/UHN</td>
<td>Unit Head, HIV-Hepatitis-STIs</td>
<td><a href="mailto:Lowbeerd@who.int">Lowbeerd@who.int</a></td>
</tr>
<tr>
<td>Mac Feely, Stephen</td>
<td>WHO/DDI/DNA</td>
<td>Director</td>
<td><a href="mailto:Macfeelys@who.int">Macfeelys@who.int</a></td>
</tr>
<tr>
<td>Novillo Ortiz, David</td>
<td>WHO/ EURO</td>
<td>Regional Adviser, Data, Metrics and Analytics</td>
<td><a href="mailto:Novilllod@who.int">Novilllod@who.int</a></td>
</tr>
<tr>
<td>Poy, Alain</td>
<td>WHO/AFRO</td>
<td>Data Manager, Vaccine preventable diseases</td>
<td><a href="mailto:Poya@who.int">Poya@who.int</a></td>
</tr>
<tr>
<td>Rashidian, Arash</td>
<td>WHO/EMRO</td>
<td>Director, Information Systems for Health</td>
<td><a href="mailto:rashidiana@who.int">rashidiana@who.int</a></td>
</tr>
<tr>
<td>Name</td>
<td>Organisation</td>
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<tr>
<td>Minghui, Ren</td>
<td>WHO/UHN</td>
<td>Assistant to Director General</td>
<td><a href="mailto:Minghui@who.int">Minghui@who.int</a></td>
</tr>
<tr>
<td>Schenkel, Karl</td>
<td>WHO/WRE</td>
<td>Epidemiologist, FES</td>
<td><a href="mailto:schenkelk@who.int">schenkelk@who.int</a></td>
</tr>
<tr>
<td>Sismanidis, Charalampos</td>
<td>WHO/UCN/GTB</td>
<td>Team Lead, M&amp;E</td>
<td><a href="mailto:sismanidisc@who.int">sismanidisc@who.int</a></td>
</tr>
<tr>
<td>Wijekoon Kannangarage, Niluka</td>
<td>WHO/WRE</td>
<td>Epidemiologist, FES</td>
<td><a href="mailto:wijekoonkannanga@who.int">wijekoonkannanga@who.int</a></td>
</tr>
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**Country Representatives**

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Position</th>
<th>Contact email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bennett, Vicki</td>
<td>Australian Institute of Health and Welfare (AIHW)</td>
<td>Manager, Metadata and METeOR Unit</td>
<td><a href="mailto:vicki.bennett@aihw.gov.au">vicki.bennett@aihw.gov.au</a></td>
</tr>
<tr>
<td>Khosravi, Ardeshir</td>
<td>Iranian Ministry of Health and Medical Education</td>
<td>Director, Group for Health Statistics and Health Economics</td>
<td><a href="mailto:ardeshir.khosravi@gmail.com">ardeshir.khosravi@gmail.com</a></td>
</tr>
<tr>
<td>Rakhimovich, Saifuddinov Safar</td>
<td>Ministry of Health and Social Protection of the Population of the Republic of Tajikistan</td>
<td>Medical Doctor, Center for Medical Statistics and Information</td>
<td><a href="mailto:s.safar5@mail.ru">s.safar5@mail.ru</a></td>
</tr>
<tr>
<td>Al Rawahi, Suleiman</td>
<td>Ministry of Health, Oman</td>
<td>Head, Biostatistics Section</td>
<td><a href="mailto:snsoman80@gmail.com">snsoman80@gmail.com</a></td>
</tr>
<tr>
<td>Ghimire, Paban</td>
<td>Nepal WHO Country Office</td>
<td>National Professional Officer</td>
<td><a href="mailto:pghimire@who.int">pghimire@who.int</a></td>
</tr>
<tr>
<td>Wang, Xiaoxu</td>
<td>National Health Commission of China</td>
<td>Center for Health Statistics and Information</td>
<td><a href="mailto:elinw23@icloud.com">elinw23@icloud.com</a></td>
</tr>
</tbody>
</table>

**Partners and Guest Speakers**

<p>| Name                  | Organisation                                                                 | Position                                                      | Contact email                        |
|-----------------------|------------------------------------------------------------------------------|                                                              |--------------------------------------|
| Berihun, Tewodros     | USAID/Ethiopia                                                               | Senior HIS Advisor                                             | <a href="mailto:tberihun@usaid.gov">tberihun@usaid.gov</a>                   |
| Braa, Jorn            | Oslo University/ Health Information Systems Programme (HISP)                  | Professor                                                     | <a href="mailto:jornbraa@gmail.com">jornbraa@gmail.com</a>                   |
| Braa, Kristin         | University of Oslo                                                           | Programme Head                                                | <a href="mailto:kristin.braa@gmail.com">kristin.braa@gmail.com</a>               |
| Bratschi, Martin      | Vital Strategies                                                              | Technical Director, CRVS                                        | <a href="mailto:Mbratschi@vitalstrategies.org">Mbratschi@vitalstrategies.org</a>        |
| Burka, Daniel         | Resolve to Save Lives                                                         | Director, Product and Design                                    | <a href="mailto:Dburka@resolvetosavelives.org">Dburka@resolvetosavelives.org</a>        |
| Cohn, Jennifer        | Resolve to Save Lives                                                         | Senior Vice President, Cardiovascular Health                   | <a href="mailto:Jcohn@resolvetosavelives.org">Jcohn@resolvetosavelives.org</a>         |
| de Lamalle, Jean-Pierre | Routine Health Information Network (RHINO)                                   | Chairman                                                      | <a href="mailto:jpdelamalle@aedes.be">jpdelamalle@aedes.be</a>                |</p>
<table>
<thead>
<tr>
<th>Name</th>
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<th>Email</th>
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<tr>
<td>Gachen, Carine</td>
<td>Gavi, The Vaccine Alliance – Senior Programme Manager – Health Information Systems and Digital Health Information</td>
<td><a href="mailto:cgachen@gavi.org">cgachen@gavi.org</a></td>
</tr>
<tr>
<td>Kern, Steven</td>
<td>Bill and Melinda Gates Foundation – Deputy Director, Quantitative Science Global Health-Integrated Development</td>
<td><a href="mailto:Steven.Kern@gatesfoundation.org">Steven.Kern@gatesfoundation.org</a></td>
</tr>
<tr>
<td>Kinkade, Carl</td>
<td>US Centers for Diseases Control and Prevention (CDC) – Health Scientist</td>
<td><a href="mailto:mke5@cdc.gov">mke5@cdc.gov</a></td>
</tr>
<tr>
<td>Lippeveld, Theo</td>
<td>Routine Health Information Network (RHINO) – RHIS Expert</td>
<td><a href="mailto:tlippeveld@gmail.com">tlippeveld@gmail.com</a></td>
</tr>
<tr>
<td>Marcelo, Alvin</td>
<td>Asia e-Health Information Network (AeHIN) – Executive director</td>
<td><a href="mailto:admarcelo@up.edu.ph">admarcelo@up.edu.ph</a></td>
</tr>
<tr>
<td>Monroe, Michelle</td>
<td>The Global Fund to Fight AIDS, Tuberculosis and Malaria – Senior Specialist, Monitoring &amp; Evaluation</td>
<td><a href="mailto:Michelle.Monroe@theglobalfund.org">Michelle.Monroe@theglobalfund.org</a></td>
</tr>
<tr>
<td>Mwamba, Remy</td>
<td>UNICEF / Health Section – Statistics &amp; Monitoring Specialist</td>
<td><a href="mailto:RMwamba@unicef.org">RMwamba@unicef.org</a></td>
</tr>
<tr>
<td>Negandhi, Preeti</td>
<td>Public Health Foundation of India (PHFI) – Senior Program Officer - Academic Programs</td>
<td><a href="mailto:preeti.negandhi@iiphd.org">preeti.negandhi@iiphd.org</a></td>
</tr>
<tr>
<td>Potter, Rebecca</td>
<td>University of Oslo – Technical Lead, Global Contents</td>
<td><a href="mailto:Rebecca@dhis2.org">Rebecca@dhis2.org</a></td>
</tr>
<tr>
<td>Sitenei, Joseph</td>
<td>Kenya CDC – Head. CDC Ministry of Public Health, Kenza</td>
<td><a href="mailto:dsanoujo@yahoo.fr">dsanoujo@yahoo.fr</a></td>
</tr>
<tr>
<td>Stansfield, Sally</td>
<td>Social Impact Practice – Managing Director</td>
<td><a href="mailto:Sallystansfield@gmail.com">Sallystansfield@gmail.com</a></td>
</tr>
<tr>
<td>van Reisen, Mirjam</td>
<td>Virus Outbreak Data Network (VODAN) – Coordinator</td>
<td><a href="mailto:mirjamvanreisen@gmail.com">mirjamvanreisen@gmail.com</a></td>
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“Why we must quickly optimize RHIS for PHC and UHC”

Samira Asma  Assistant Director General
Dr Samira Asma is Assistant Director-General for Data, Analytics and Delivery for Impact at the World Health Organization where she leads WHO’s efforts to use timely, reliable and actionable data to drive progress towards the Triple Billion targets[1] and health-related Sustainable Development Goals (SDGs). Prior to joining WHO, Dr Asma served in leadership positions at the U.S. Centers for Disease Control and Prevention for over two decades where she established global programmes on tobacco control, noncommunicable diseases (NCDs), environmental health and injuries through successful collaborations. Dr Asma has contributed to more than 100 publications, books and policy papers on global health and public health surveillance and is internationally recognized as a scientific and policy expert on global tobacco control and NCDs.

Ren Minghui  Assistant Director General
Dr Ren Minghui serves as Assistant Director-General Universal Health Coverage/ Communicable and noncommunicable Diseases Division at WHO headquarters. In this role he oversees a complex portfolio of technical programmes covering HIV/AIDS, viral hepatitis, tuberculosis, malaria, neglected tropical diseases, mental health, substance use, and noncommunicable diseases. He represents WHO on the boards of the Global Fund to Fight AIDS, TB and Malaria, UNAIDS, and UNITAID. He also served as Special Programme Coordinator for the WHO-UNDP-UNICEF-World Bank Special Programme for Research and Training in Tropical Diseases. Prior to his appointment as Assistant Director-General, he spent nearly 30 years working in public health, including as Director-General for International Cooperation in the National Health and Family Planning Commission of the People’s Republic of China. In China, his work initially focused on health policy and health reform, and later on international health cooperation. Dr Ren is a medical doctor and holds a Master of Public Health and a PhD in Social Medicine and Health.
Primary Health Care (PHC) Special Programme

The need to track progress

Suraya Dalil  Director PHC

Dr. Dalil is the Director of the WHO Special Programme on Primary Health Care – a new programme established last year. She was the Minister of Public Health in Afghanistan from March 2012 through 2014 and Acting Minister of Public Health from January 2010 to February 2012. Dr. Dalil was Ambassador and Permanent Representative of Islamic Republic of Afghanistan to the UN and international organizations based in Geneva and Ambassador to Switzerland from October 2015 to March 2019. Her profile encompasses humanitarian leadership, health expertise and diplomacy. She holds a medical degree from Afghanistan and a Master’s degree in public health from Harvard University, where she is a visiting university fellow.

Steve Mac Feely  Director DNA

Steve MacFeely is the Director of Data and Analytics at the World Health Organization. He is also Adjunct Professor at the Centre for Policy Studies at University College Cork in Ireland and the Director of the IASE International Statistical Literacy Program.

He is co-chair of the Committee of the Chief Statisticians of the UN System (CCS-UN), chairs the Advisory Board of the Statistical Journal of the IAOS, and is a member of the statistical advisory panel to the UNDP Human Development Index. He is an elected member of the International Statistics Institute.

He was a co-lead on the Data Strategy of the Secretary-General for Action by Everyone, Everywhere 2020 – 2022, and a lead author of the 2020 System-wide Roadmap for Innovating UN Data and Statistics. Before joining WHO, Steve was the Head of Statistics and Information at UNCTAD. Prior to joining the UN, he was the Deputy Director-General at the Central Statistics Office (CSO) in Ireland and Programme Director of the joint CSO - Institute of Public Administration ‘Professional Diploma in Official Statistics & Policy Evaluation’.
Routine Health Information Systems (RHIS) Team

**Somnath Chatterji**  World Health Organization

Somnath Chatterji is Senior Advisor, Division of Data, Analytics and Delivery for Impact and was the Director of the Department of Data and Analytics. He has worked in WHO for over 20 years in the area of surveys, measurement and analysis. The measurement of health, well-being and other health-related outcomes, their trends and determinants, has been the main focus of the international studies he has led.

**Anh Chu**  World Health Organization

Anh Chu is a Technical Officer at World Health Organisation and the focal point for Routine Health Information Systems. She has a Master of Science from the London School of Hygiene and Tropical Medicine and 20 years of experience in PHC, health system strengthening, integrated health information systems in South East Asia countries. Anh first joined WHO in the Lao Country Office, before coming to head quarter in Geneva as focal point for routine health information systems.

**Wendy Venter**  World Health Organization

Wendy Venter is a medical doctor with 25 years of primary care and public health experience in multiple countries. After 15 years in the NGO sector in Africa, she transitioned to WHO in EMRO and headquarters. Her professional interests include health facility surveys, routine health information systems and primary health care in resource-constrained settings. Wendy is currently a technical officer for DDI, leading the development of the RHIS Integrated Health Service Analysis modules and is also the focal point for the Harmonized Health Facility Assessment (HHFA).
Member State Representatives

Ardeshir Khosravi  Iran

Dr Ardesthier Khosravi is a Faculty Member and Director of the Group for Health Statistics and Health Economics at the Iranian Ministry of Health and Medical Education and a Senior Researcher of the Research Center for Health Equity at Tehran University of Medical Sciences. In 2017, Dr Khosravi was awarded by the Iranian Ministry of Health and Medical Education for improvement of the Iranian Causes of Death Registration system.

Dr Khosravi has contributed to various aspects of the Iranian Health Information System, including the implementation of various National Surveys in Iran. He is one of the primary contributors and a member of the technical committee for developing and implementing the Electronic Health Record through the Iranian Primary Health Care. Dr Khosravi holds a Doctor of Philosophy (PhD) in the field of Population Health and a Diploma in Public Health from the University of Queensland, Australia.

Saifuddinov Safar Rakhimovich  Tajikistan

Dr Saifuddinov Safar Rakhimovich is a Medical Doctor in the Center for Medical Statistics and Information, of the Ministry of Health and Social Protection of the Population of the Republic of Tajikistan.


As part of the working group, he developed the National Health Strategy of the Republic of Tajikistan for 2010-2020, the Strategic Plan for the rationalization of medical institutions of the Republic of Tajikistan for 2011-2020. He was the coordinator and technical director of a number of studies on maternal and child health, smoking problems, the health of schoolchildren, nutrition, risk factors for non-communicable diseases.

With the support of the European Union, within the framework of the project “Technical Support for Strengthening the Healthcare Information System”, a Unified Healthcare Management Information System of the Republic of Tajikistan was created. This system works online and allows you to have detailed information about the health status of the population and the activities of health care institutions.

Xiaoxu Wang  China

Xiaoxu Wang is an Officer of the Center for Health Statistics and Information, at the National Health Commission of China. Her research interest lies in data quality control and helath workforce study. She has a Master in Population Health.
**Suleiman Al Rawahi**  Oman

Suleiman Al Rawahi is the Head of the Biostatistics Section within the Ministry of Health in Oman. He is a statistician by background and has a Master of Public Health, Epidemiology & biostatistics from Curtin University Australia. Within the Ministry he is the focal point for UNICEF and WHO matters.

**Paban Ghimire**  WHO Nepal Country Office

Paban Kumar Ghimire is a National Professional Officer in the WHO Nepal Country Office, presented on behalf of the Nepal Ministry of Health.

**Vicki Bennett**  Australia

Vicki is the Head of the Metadata and Classifications Unit at the Australian Institute of Health and Welfare, where she has held a number of different roles over the past 13 years. She has also lectured at a range of Australian universities and is passionate about ensuring that good health information is used to improve health outcomes for all.

Vicki has a degree in Health Information Management, and a Masters in Health Informatics and has had a diverse career both domestically and internationally. She has worked extensively across the Pacific over the past 18 years. She has recently been appointed as an Advisor to the Pacific Health Information Network Board and also as the President Elect for the International Federation of Health Information Management Associations.
WHO Regional Focal Points

David Novillo  WHO EURO

Dr. Novillo serves as Unit Head working on data, metrics and analytics at the World Health Organization (WHO) in the regional office for Europe in Copenhagen (Denmark). Prior to joining WHO/Europe, he served as a Regional Adviser on eHealth at the Pan American Health Organization from 2010-2018. Furthermore, Dr. Novillo served from 2006 to 2010 as a Technical Officer for the Ministry of Health of Spain, where he was appointed Executive Advisor to the Minister.

Dr. Novillo obtained his Masters and Ph.D. in Information Sciences from the University Carlos III of Madrid (UC3M). He also received a Masters in Public Health from the University of Bordeaux and the Public University of Navarre and completed a certificate program in Public Health Informatics by the University of Illinois at Chicago.

Dr. Novillo currently sits on the editorial board of the International Journal of Medical Informatics. In addition, he serves pro bono as an Honorary Senior Research Fellow at University College London and as an Adjunct Professor on biomedical informatics at the University of Utah.

Karapet Davtyan  WHO EURO

Karapet Davtyan is currently working as a Technical Officer at the unite of Data, Metrics, and Analytics of Division of Country Health Policies and Systems of Regional Office for Europe. He graduated from Yerevan State Medical University as a general practitioner in 2007 and in 2009 he has received his MPH degree from the American University of Armenia and in 2013 completed the MBA program in the same university.

Karapet as alumni of WHO/TDR coordinated “Structured Operational Research and Training Initiative” (SORT IT), facilitated and provided “on the job” mentorship in conducting and publishing operational research in public health in East Europe and Central Asia Countries. In his public health career in the private and public sectors, he has been actively involved in public health surveillance, monitoring, research, and Health Information System Strengthening projects and demonstrated skills in research methods, healthcare data management and statistical analyses. He has published in peer-reviewed journals and presented his work at various international scientific conferences.

Henry Doctor  WHO EMRO

Henry Doctor is a demographer and public health researcher. He serves as Coordinator, Information Systems for Health in the Department of Science, Information and Dissemination in the WHO Regional Office for the Eastern Mediterranean in Cairo, Egypt. He holds a doctoral degree in demography from the University of Pennsylvania and held technical, academic, and research appointments with the UN Office on Drugs and Crime, Columbia University, Swiss Tropical and Public Health Institute, University of the Western Cape, Statistics South Africa, and the University of Malawi. Some of his research interests include Mortality; Fertility Transitions; Demographic Surveillance and Longitudinal Health Research; and Health Systems Operations Research. Some of his research has been published in peer reviewed journals such as AIDS; BMC Public Health; Reproductive Health Matters; Maternal and Child Health Journal; Studies in Family Planning; and PLoS ONE.
Mark Landry  WHO SEARO

Mark Landry is the Regional Adviser for Health Information Systems at the Regional Office of South-East Asia of the World Health Organization. Mr Landry has more than 20 years of experience supporting low resource countries with digital transformation of their health information systems and has provided technical assistance to more than 40 countries in Asia, Africa and the Pacific.

He specializes in advising Ministries of Health with development and implementation of sound health information policies and regulations and improving institutional capacity for assessment, strategy development, architecture road-mapping, action planning, and implementation of programme management techniques for scalable and sustainable HIS solutions.

He is well-versed in adapting digital health and innovations for improving healthcare service delivery, in global monitoring of universal health coverage, and tracking progress of the health-related Sustainable Development Goals. He works closely with countries to adapt systems and platforms to utilize national health data and indicators to better analyze, interpret, and use health intelligence for evidence-based health policy and planning.

Marcelo D’Agostino  PAHO

Marcelo D’Agostino is the Senior Advisor for Information Systems and Digital Health at the Department of Evidence and Intelligence for Action in Health at the Pan American Health Organization (PAHO), Regional Office for the Americas of the World Health Organization, and member of the WHO Global Digital Health Coordination group, the Digital Health COVID-19 Board of the Inter American Development Bank (IDB), and member of the Harvard / Georgia Tech Covid-19 Simulator advisory committee. He is a System Analyst from Argentina, with a Master’s degree in Information and Knowledge Management from Spain, with specializations on: Digital Diplomacy, Global Diplomacy in the Modern World, Global Health Policy, and The Sustainable Development Goals.

He has authored or co-authored online courses on eHealth and Information Sciences, blog posts, several papers on Digital Health, Information Systems, eHealth, mHealth, Information Managements and related areas, and his own Theory about Information. Marcelo D’Agostino provided international support and on-site collaboration in all the countries of the Americas, and led the development and approval of three Regional Strategies for the Americas that are endorsed by all Ministries of Health in the Region: 2011: Strategy and Plan of Action for eHealth, 2012: Strategy and Plan of Action for Information and Knowledge Management and 2019: Strategy and Plan of Action for the Strengthening of Information Systems for Health in the Americas. He is currently leading the implementation of a Regional Policy for the Digital Transformation of the Health Sector in the Americas.
**Hillary Kipruto WHO AFRO**

Dr. Hillary Kipruto is a health systems expert with interest in Health Information Systems and Sector Monitoring with experience spanning 15 years. He is specialized in disease modelling, sector monitoring, survey designs and implementation and setting up and maintaining of Health information Systems with keen interest in Civil Registration and Vital Statistics Systems (CRVSS).

He has been instrumental in transformation of health information and knowledge management systems in many African countries. He is passionate about the potential that UHC could confer to the most vulnerable in the communities across the region, if a robust nexus is established between knowledge generation and policy action by the decision makers. He has published extensively in the area of health systems and infectious diseases.

He has published extensively in the area of health systems and infectious diseases. Hillary holds a PhD in Applied Statistics (Infectious disease epidemiology) from Jomo Kenyatta University, Kenya, Masters of Science in Biometry from University of Nairobi, Kenya, Masters of Science in Statistics, Masters of Arts in Monitoring and Evaluation and Masters in Business Administration from Nicosia University, Cyprus.

**Sanyoun Oh WHO WPRO**

Mr Sangyoun Oh is a technical officer of the Universal Health Coverage (UHC) team and an acting coordinator of the Health Information and Intelligence (HII) team in the WHO Regional Office for the Western Pacific (WPRO). He worked for the Ministry of Health and Welfare in the Republic of Korea for 15 years in various areas such as health promotion, health industry, long-term care for the elderly, health and social policy planning and coordination, health information and digital health, etc. He joined the WPRO in Feb 2020 as a secondee.

He graduated from Seoul National University in the Republic of Korea and studied at the University of Birmingham for a Master’s degree in social policy.
Carine Alsokhn  World Health Organization

Carine Alsokhn is a technical officer in the Classifications and Terminologies Unit at the World Health Organization (WHO) in Geneva, Switzerland. She is responsible for maintaining the WHO Family of International Classifications including ICD, ICHI and Verbal Autopsy and for supporting committees and reference groups of the WHO-FIC Network of collaborating centres, NGOs and other partners.

Carine started her role at the WHO in January 2020. She is in charge of triaging, addressing and implementing the proposals received on the WHO-FIC platform following recommendations from the different maintenance groups. She is also in charge of organizing meetings, webinars and social media campaigns for the unit.

From 2015 to 2019 she worked in the statistics department at the Ministry of Public Health in Beirut. She was responsible for maintaining online reporting tools for birth, death and cause of death and generating national and subnational health statistics. She coordinated with internal and external stakeholders, organized different capacity building workshops and worked closely with WHO country and regional offices to strengthen health information systems in Lebanon.

Carine also worked for a year and half in hospitality management after receiving her master’s degree in Nutritional Sciences with focus on Food Service Management from the University of Holy Spirit in Kaslik, Lebanon. She is a Registered Dietitian fluent in three languages Arabic French and English.

Craig Burgess  World Health Organization

Craig Burgess is the Unit Head for Data Coordination, Governance & Partnerships (CNG) in the Division for Data Analytics and Delivery for impact (DDI), in WHO Geneva, Switzerland. He provides secretariat support for the Health Data Collaborative.

Over the last 26 years, he has worked on a broad range of public health issues related to civil society engagement, vaccines, equity, primary health care, infectious disease control and health sector coordination. He has worked in fragile states, emerging economies and high income countries at community, district, national, regional and global levels. This included working for National Health Services, Médecins sans Frontières, MERLIN, UNAIDS, WHO, UNICEF and the Gavi Vaccine Alliance. He has lived and worked in India, Indonesia, Kenya, Myanmar, Afghanistan, Viet Nam, South Sudan, UK, Australia, Switzerland and the USA.

He received his medical training at Saint Andrews and Manchester Universities in the UK. He has a Masters of Science in Health Policy, Planning and Financing from London School of Economics, an MBA from the Open University, a Diploma in Tropical Medicine and Hygiene from Liverpool University and postgraduate medical qualifications.
Sara Hollis World Health Organization

Sara is an Epidemiologist based in Geneva in WHO’s Health Emergencies Programme within the GOARN Operational Support Team, currently supporting the Go.Data project - a WHO tool for case investigation and contact tracing - and formerly a programme focal point for the DHIS2-based WHO Integrated Data Platform (WIDP). Her past and present research interests center around how to best harness timely and localized data to field operations, and how to leverage open-source tools and initiatives to build capacity in this area. Sara holds an MSc in Global Health Sciences at the University of California, San Francisco.

Robert Jakob World Health Organization

Dr Jakob is Unit Lead of the Classifications, Terminologies, and Standards Unit in WHO, with responsibility for all aspects relating to classifications and health information standards, leading the WHO Network for the Family of International Classifications, that comprises collaborating centres, NGO and other partners, and leading all work on ICD (diseases, quality and safety, traditional medicine, linkage to terminologies and more), ICF (functioning), ICHI (interventions) and Verbal Autopsy.

Dr Jakob started in 2005 as medical officer at WHO in charge of the ICD and derived classifications. Besides developing classifications in a modern environment (protégé), and on a web platform, he is involved in country implementation projects on civil registration and causes of death, using DHIS2, developed the ODK based WHO VA questionnaire and advised on embedding WHO classifications in different environments. From 2001 to 2005, he served at the German Institute for Medical Documentation and Information (DIMDI), a federal authority, which is also a WHO-FIC Collaborating Centre. He led the health telematics team that formulated a German emergency data set, and other data sets for the German electronic health card, as well as creating a registry for “electronic objects” (OID) in health. He was earlier in charge of ICD use in mortality statistics, the ICD adaptation for Oncology, the ICF (International Classification of Functioning, Disability, and Health), and consulting for the classification of procedures in medicine. Dr Jakob was a surgeon at the St Vincenz Hospital in Datteln from 1990-2001, and set up and ran the hospital information system and has written local software for statistical analysis and billing. Dr Jakob is member of the German Society of Medical Informatics, Biometry and Epidemiology, has a diploma in medical quality management (German Medical Board) and management of health and social institutions (Univ. Kaiserslautern). He is a board certified surgeon and received his medical education at the Universities of Essen, Bochum and Pavia.

Elizabeth Katwan World Health Organization

Elizabeth Katwan is a data manager in the Department of Maternal, Newborn, Child and Adolescent Health (MNCAH) of WHO. Shea has a Masters in Public Health from the University of Capetown and is an experienced clinical researcher and research analyst.
Nenad Kostanjsek  World Health Organization

Nenad Friedrich Ivan Kostanjsek is a Technical Officer with the Classifications and Terminologies Unit at the World Health Organization (WHO) in Geneva, Switzerland since 1999.

He coordinated the development of the International Classification of Functioning Disability and Health (ICF) and worked on the International Classification for Patient Safety (ICPS). In the context of the 11th Revision of the International Classification of Diseases (ICD-11) he was responsible for international field testing of the ICD-11 and the development of the Traditional Medicine Chapter within ICD-11. Currently he is responsible for ICD implementation, modernization of the ICF, development of the Module 2 for traditional medicine conditions in ICD-11 and international field testing of the International Classification of Health Interventions (ICHI). Before joining WHO, he worked as Programme Officer and Technical Advisor for institutional and health system development for the German Development Cooperation in Africa, Latin America and at Headquarters in Berlin, Germany.

Daniel Low-Beer  World Health Organization

Daniel Low-Beer is unit head of data for HIV, viral Hepatitis and STIs at the World Health Organisation. He has worked in public health for 30 years, supporting the HIV responses in Uganda, Thailand and South Africa in the 1990s. He then developed performance based funding in the Global Fund as Director of Performance, Impact and Evaluation, from 2004 to 2014. He joined WHO in 2014, developing person centred monitoring guidelines, the elimination targets for viral Hepatitis, HIV and STIs, and the first country investment cases for viral hepatitis in China.

He has also developed individual level data projects in the private sector in health consulting, and lived in and developed community monitoring with NGOs in South Africa. He has published a book on Innovative Health Partnerships, articles on health impact in Science, Nature Medicine and other leading journals, and has a PhD and directed a Masters in Development and the Environment at Cambridge University.

Alain Poy  World Health Organization

Alain Poy is married and father to 1 boy and 1 girl. Originally from DR Congo, he is a US citizen with over 20 years of experience in public health information management, database management, Monitoring & Evaluation and data quality improvement support in the African Region from district, provincial, national, sub-regional and Regional level. He also has experience in emergencies from being Information management lead in during Ebola in West Africa, during the crisis in Central Africa republic and during yellow fever outbreak in Angola to being recently Covid-19 incident Manager in Equatorial Guinea. Alain started his public health experience at country level, at the National immunization programme of Democratic Republic of Congo in informatics, data management and M&E in 1999 where he worked for 9 years. Alain participated to 4 different STOP DM mission to WHO sub regional offices/IST (Stop 20, 21, 22 and 34). He joined WHO first as consultant from Atlanta Georgia/USA after his last STOP mission as consultant to WHO AFRO before becoming WHO Staff in 2010 fist at IST and then at the regional office since 2012 in the area of of immunization data management and data quality. He coordinates the development of mmunization and VPD surveillance DHIS2 package from WHO side. Alain has also academic experience, while in DR Congo, Alain was also Assistant Professor for DB and BDMS at “Institut Supérieur d’Informatique Programmation et Analyse (ISIPA) in Kinshasa, DRC.
Alain established the early warning IMS during the last humanitarian crisis in Central African Republic; he coordinated information management during yellow fever outbreak in Angola, he coordinated the Ebola information management team in Sierra Leone and developed and supported the response monitoring in the 3 Ebola affected countries in West Africa within UNMER.

Alain currently coordinates Information System and Monitoring and Evaluation team overseeing system development, data management, monitoring and Evaluation as well as and data quality activities related activities for immunization and VPD surveillance in the WHO African region. This includes routine immunization, supplementary Immunization activities (independent monitoring, LQAs, admin data), polio risk assessment, JRF, VPD surveillance, data quality activities and DMS development. Alain also chairs the MenAfriNet DM team for meningitis case based surveillance in AFRO with WHO and CDC Atlanta and coordinates partner’s efforts.

Karl Schenkel World Health Organization

Dr. Karl Schenkel MSC, DTMPH is a medical epidemiologist working for the Surveillance and Epidemiology Strengthening (SES) team, Field Epidemiology Support (FES) unit of the WHO Emergencies Programme Geneva. His work relates to health information management in emergencies, including development of a surveillance strategy, developing user guidance for Early Warning and Response, and supporting development of tools for outbreak investigations and for Early Warning and Response.

Trained as a medical doctor, he followed clinical specialization as a GP with a Master in International Health, focusing on communicable diseases epidemiology and disease control. He then worked as a research fellow in communicable diseases epidemiology at the Robert Koch Institute (RKI), Berlin, Germany, including a 2-year applied field epidemiology training programme and joined WHO in 2016. He coordinates a donor funded project with the objective of developing a framework and operational guidance around field epidemiological competencies at the human-animal-environmental interface, following a One Health approach, and on improving the health workforce for epidemiologists.

The WHO emergencies programme operates mainly in emergency prone countries, with a focus on the African Region. Karl recruits and supervises FETP fellows from the regional FETP program AFENET who support WHO surveillance activities on completion of their advanced programme. Karl is passionate about working with colleagues in African countries and about mapping and identifying global and regional initiatives providing opportunities for collaboration on surveillance capacity strengthening and -harmonization at country level.

Charalampos Sismanidis WHO

Charalampos (Babis) SISMANIDIS is a data scientist with over 20 years of combined international work experience at WHO and schools of public health in the UK (St George’s Hospital Medical School and London School of Hygiene and Tropical Medicine). He holds a first degree in mathematics (BSc) and advanced education in Medical Statistics (MSc, PhD).

Babis has been with the Global TB Programme at WHO since 2009 at positions of increasing seniority. He is currently Team Lead for strengthening national TB surveillance systems and the data they produce, supporting priority TB epidemiological studies, and the routine use of all these data for policy, planning and programmatic action. He is passionate about designing and delivering data generation and data use solutions to address country needs for different settings and audiences.
Dr Niluka Wijekoon Kannangarage is a medical epidemiologist. She works in the Emergencies Programme at WHO headquarters in Geneva, in the Department of Health Information Management and Risk Assessment.

Dr Niluka is a technical expert in surveillance, early warning, alert and response in emergency settings. She has started her public health career with the United Nation’s International Organization for Migration (IOM) as the Emergency Health Coordinator in Sri Lanka, during the ethnic crisis. She has first joined WHO in 2011 as the Officer in Charge (OIC) of WHO’s emergency hub in Vavuniya, Sri Lanka. She has been with WHO headquarters since 2014 and has worked in emergencies and outbreaks around the world, including in Ethiopia, Kenya, Liberia, Sierra Leon, Guinea, Nigeria, South Sudan, Mozambique, Rohingya crisis in Bangladesh, NE Syria, Yemen, DRC, and Indonesia. Dr Niluka also manages WHO’s electronic tool for early warning, alert and response named EWARS-in-a-Box, an innovative solution for outbreak detection in emergency settings.

Before embarking on a public health career, Dr Niluka worked as an emergency physician in both public and private healthcare sectors. She obtained her Master of Public Health from The University of Sheffield, UK and Master of Biostatistics and Epidemiology from French School of Public Health, Paris, France (École des hautes études en santé publique).

Dr Niluka has been a human rights and gender champion from the onset of her career. She is the Gender, Equity and Human Rights (GER) focal person for her department at WHO.
Partners and Guest Speakers

Tewodros Berihun  USAID

Tewodros (Teddy) Berihun has worked for USAID in Ethiopia for the last six years. He is Senior HIS Advisor and supports the Government of Ethiopia and health care stakeholders to strengthen sustainable Health Information System, that is supported by well coordinated donor and partner activities and projects. The ultimate goal in strengthening Ethiopia’s HIS is to improve effectiveness of and access to quality health care in the Ethiopian Public Health System. Prior to joining USAID, Teddy worked for PATH in Ethiopia as a digital health consultant and HMIS technical advisor on mHealth. He serves as a member of the USG Interagency HIS / Monitoring & Evaluation Technical Working Group (TWG), and other ad hoc digital health working groups.

Teddy has a Masters in Science in Software Engineering from Florida university and in Informatic Science from Addis Ababa University and an undergraduate degree in Physics from Bahir Dar University.

Jørn Braa  University of Oslo

Jørn Braa is a Professor of Informatics at the Department of Informatics, University of Oslo, Norway. He is an expert in the field of Digital Health and Health Information Systems (HIS), IT for Development (IT4D) and Systems Analysis, Action Research and Systems Development. He graduated with a degree in information systems and took his PhD on “HIS in developing countries,” based on fieldwork in Mongolia and South Africa. Since 1993 he has worked extensively with national and local health authorities on assessing, designing and developing Health Information Systems and on developing human and institutional capacity in a number of countries in Africa and Asia, including South Africa, India, Mozambique, Rwanda, Ethiopia, Kenya, Tanzania, Senegal, Burkina Faso, Malawi, Burundi, Sierra Leone, Ghana, DRC, Mongolia, Vietnam, Indonesia, Sri Lanka, and Lao PDR.

From 1994 to 2000, Professor Braa was part of the development of the South African District Health Information System, which became a “best practice” HIS in Africa and in the world. Based in South Africa, and together with colleagues from the Universities of Cape Town and Western Cape, he initiated the Health Information Systems Programme (HISP) and the open-source DHIS software project, which later became the DHIS2 movement.

Kristin Braa  University of Oslo

Professor Kristin Braa is heading the Health Information Systems Program (HISP) at the University of Oslo, which is a global action research network responsible for the development of the District Health Information Software (DHIS2). DHIS2 is an open source, web-based health management information system (HMIS) platform. Today, DHIS2 is the world’s largest HMIS platform implemented in over 100 countries in Africa and Asia. 2.4 billion people are covered by this service in DHIS 2.
**Martin Bratschi  Vital Strategies**

Dr Martin Bratschi (PhD) is a CRVS systems and public health expert working as the Technical Director CRVS, at Vital Strategies.

Martin is supporting the technical implementation of CRVS system strengthening and mortality measurement activities in over 15 countries around the world. His work includes strategic discussions with national stakeholders and global partners aimed at institutionalizing and scaling CRVS system improvements.

**Daniel Burka  Resolve to Save Lives**

Daniel Burka is a product manager and designer who focuses on solving complex global health problems in simple ways. He is the director of product and design at the not-for-profit Resolve to Save Lives, where he leads the open source project, Simple. Simple is used by thousands of hospitals in India, Bangladesh, and Ethiopia to manage over 850,000 patients with hypertension.

On the side, he is on the board of Laboratoria, a not-for-profit based in Peru helping Latin American women build successful careers in tech. In 2021, Daniel started the open source Health icons project to provide free icons to healthcare projects around the world. He is also a member of Adobe’s Design Circle, which grants scholarships to a diverse group of designers each year.

**Jennifer Cohn  Resolve to Save Lives**

Jennifer Cohn, MD MPH, is the Senior Vice President for Cardiovascular Health at Resolve to Save Lives. She is a physician with a focus on improving access to and uptake of effective health products and models of care in low- and middle-income countries. Before joining Resolve to Save Lives, she served as Senior Director of Innovation at the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) and as the Medical Director of the Médecins Sans Frontières Access Campaign. She is a clinical assistant professor of Infectious Diseases at the University of Pennsylvania School of Medicine. Jennifer has served on national and international advisory groups on TB, HIV and viral hepatitis. She is published in peer-reviewed journals including the Lancet, PLoS Medicine and Science.

Jennifer received her MD from University of Pennsylvania, is board certified by the American Board of Internal Medicine in Internal Medicine and Infectious Diseases and earned her Masters in Public Health at the Johns Hopkins School of Public Health.

**Jean-Pierre de Lamalle  AEDES**

Dr Jean-Pierre de Lamalle is a medical doctor specialised in public health.

Jean-Pierre coordinates the in-house technical staff and the technical backstopping for the Agence Europeene pour le Developpement et la Sante (AEDES) projects and consultancies. He regularly undertakes assignments for project identification, formulations, monitoring and evaluations.
Carine Gachen Gavi, The Vaccine Alliance

Carine is a midwife by profession with certificates in Tropical Diseases and Disaster Medicine having practiced in French Guiana, and with a Master of Science in Public Health from the London School of Hygiene and Tropical Medicine. Carine spent several years in Liberia working in Reproductive and Sexual Health and in Public Health with Médecins du Monde, UNAIDS and UNFPA and as a Program Adviser overseeing Irish Aid support to Liberia.

Carine came to Geneva in 2014 where she worked at the Global Fund as a Public Health and M&E Specialist immediately prior joining Gavi in 2017. In Gavi, Carine has worked within the Monitoring and Evaluation team for four years as Country Performance Monitoring and Measurement for French Speaking African countries and Health Information System focal point. She is now working within the Health Systems & Immunisation Strengthening Team, leading the Gavi digital health information (DHI) strategy, managing Gavi global/regional data investments in health information systems (HIS) and DHI, supporting HSIS country facing focal points in advising country investments in HIS & DHI, and being a member of the Gavi Innovation Working Group.

Steven Kern Bill and Melinda Gates Foundation

Steven E. Kern, PhD is Deputy Director of Quantitative Sciences at the Bill and Melinda Gates Foundation. The Quantitative Sciences group is focused on quantitative analysis to support program strategies for therapeutic projects that the foundation funds across multiple disease domains.

Prior to this, he was Global Head of Pharmacology Modeling at Novartis Pharma AG based in Basel Switzerland where he lead a team focused on providing model based drug development support to therapeutics in many disease conditions across all stages of drug development. He joined Novartis in 2010 from the University of Utah in Salt Lake City, Utah where he was Associate Professor of Pharmaceutics, Anesthesiology, and Bioengineering, and served as co-investigator for their NIH funded Pediatric Pharmacology Research Unit. He has designed, conducted, and served as a principal investigator for clinical pharmacology studies in adults and children that spanned the population from preterm infants to elderly adults.

He has a bachelor’s degree in Mechanical Engineering from Cornell University, a Master’s degree in Bioengineering from Penn State University, and a doctoral degree in Bioengineering from the University of Utah. Dr. Kern has published over 70 papers in areas of pharmacokinetic and pharmacodynamic modeling, applying principles of control systems engineering to drug delivery, and clinical pharmacology.

Carl Kinkade Centers for Disease Control

Dr. Carl Kinkade is a Health Scientist on the Surveillance and Information Systems team in the Global Epidemiology, Laboratory, and Surveillance Branch in the Center for Global Health at the US CDC. Dr. Kinkade has worked in surveillance and informatics for over 20 years and is member of the CDC Global Rapid Response Team. He has worked with countries across the globe to improve the use of informatics and information systems to improve surveillance and public health action. Recently, he was posted in Liberia for three years to support the Ministry of Health to recover from the Ebola outbreak in West Africa. In addition to Dr. Kinkade’s work in surveillance and information systems, he coordinates across divisions in the Center for Global Health to maximize coordination between PEPFAR, PMI, VPD surveillance, and Global Health Security Agenda. He is also the Project Officer for the CDC five-year cooperative agreement with the University of Oslo to support global surveillance.
Theo Lippeveld RHINO

Theo Lippeveld, MD, MPH is a public health physician with more than forty years of experience in health policy analysis, health services planning in developing countries, and monitoring and evaluation. His specific area of strength and focus in the last thirty years has been the design and implementation of national routine health information systems (e.g. Chad, Eritrea, Ethiopia, Liberia, Madagascar, Morocco, Niger, Pakistan). Theo is a co-founder and board member of the Routine Health Information Network (RHINO) and has published numerous articles and books on information systems. He currently is retired, but continues to work via RHINO on RHIS strengthening in lower and middle income countries (LMICs).

Dr. Lippeveld has a medical degree from the University of Louvain (Belgium), a master degree in public health from Harvard University (USA), and a diploma in tropical medicine and hygiene from the Tropical Institute of Antwerp (Belgium). Between 1989 and 1997, he was development advisor at the Harvard Institute for International Development and visiting lecturer at the Harvard School of Public Health (USA). He also was adjunct lecturer at Brandeis University (USA), where he taught a course on Routine Health Information Systems for international students.

Alvin Marcelo AeHIN

Dr. Alvin Marcelo is a general and trauma surgeon by training who is currently the director of the Asia eHealth Information Network (AeHIN) and the managing director of the Standards and Interoperability Lab for Asia (SIL-Asia). At the University of the Philippines Manila, Dr. Marcelo held various posts such as director of the National Telehealth Center and Chief of the Medical Informatics Unit.

He co-established the Master of Science in Health Informatics program and conducted local and international research in the field of eHealth and health information systems development. He took his postdoctoral fellowship in medical informatics at the National Library of Medicine in Bethesda, Maryland with research interests in telepathology, mobile computing, and bibliometric analysis of MEDLINE content. Dr Marcelo is certified in the governance of enterprise IT (CGEIT), The Open Group Architecture Framework (TOGAF), Archimate, and COBIT5 Implementation. Presently, he is the chief medical information officer of the St. Luke’s Medical Center.

Michelle Monroe The Global Fund

Michelle Monroe is a Senior Specialist, Monitoring and Evaluation at The Global Fund to Fight AIDS, TB and Malaria (GFATM), based in Geneva, Switzerland. Before joining the GFATM six years ago, Michelle was an Health Information Systems (HIS) technical officer in the US Office of the global AIDS coordinator and a PEP-FAR strategic information assistant in Washington DC and a GIS specialist and programmer in Zambia for CDC and then Elizabeth Glaser Paediatric Foundation and GIS research assistant in UC Davis.

Michelle has a BA in Biology and environmental studies from Whitman college and a PhD in Ecology from University California, Davis.
Remy Mwamba  UNICEF

Remy Mwamba currently serves at UNICEF as Health Specialist, focusing on health management information systems. He has worked for over 15 years within various organizations (Two USAID-funded projects and UNICEF) in the areas of immunization and Maternal, Newborn, and Child Health. The focus of his work has been on monitoring & evaluation and data analysis. In recent years, Remy Mwamba has supported strengthening the broader HMIS in implementing innovative approaches to improve data availability, quality, analysis, and use at both facility and community levels. In this capacity, along with others, he is actively engaged within the Health Data Collaborative (co-chairing the Community Data working group) to support the alignment of partners’ efforts to strengthen the Community Health Information System. He also focuses on strengthening linkages between the health and CRVS systems through approaches that leverage mutual benefits to addressing barriers to birth registration. Remy Mwamba graduated in Public Health and held an MSc in Chemistry, and he is pursuing a Ph.D. in Epidemiology.

Preeti Negandhi  Public Health Foundation India

Dr. Preeti Negandhi, MD (Preventive & Social Medicine), MSc (Public Health Research) has a medical and public health background. She has previously worked in Routine Immunization with UNICEF Bihar (2007-08), where she was actively involved in program planning and implementation as Divisional Coordinator. Later, she worked at PATH (Programme for Appropriate Technology in Health) at New Delhi (2009), where she provided technical assistance to the Govt. of India for planning and implementing the Japanese Encephalitis vaccination campaigns in 111 districts across the country.

Since 2010, Dr. Preeti has been a faculty member at IIPH Delhi, PHFI. She teaches epidemiology, research methods, disease surveillance, Routine Health Information System, M&E across various on-campus and distance-learning programs of PHFI. She is the Course Co-ordinator for the ePost Graduate Program in Epidemiology (eLearning) and the Post Graduate Course in Disease Surveillance (eLearning) at IIPH Delhi. Preeti leads trainings on ‘Leadership in Health and Development Sectors’ and ‘Field Epidemiology Training Program’ besides teaching on other trainings. She has successfully worked in and completed multiple projects at IIPH Delhi, including a Wellcome Trust supported Program Evaluation study, the Institute of Medicine supported project on ‘Building inter-professional leadership skills among health professionals’, research studies in the area of maternal and child health across various parts of India. Her current work is largely in the area of health information systems strengthening, maternal and child health, and other health systems strengthening related areas. Her areas of interest include epidemiology, infectious diseases, health information systems, maternal and child health, and leadership in health sector publications as lead author in national and international journals.

Rebecca Potter  University of Oslo

Rebecca Potter is the Team Lead for Global Health Content at the University of Oslo. She coordinates the development of DHIS2-based products and tools to support the dissemination of WHO health information systems standards and guidance to countries at scale. Prior to joining UIO, she specialized in standing up national and regional disease surveillance systems for malaria elimination in Southeast Asia as Senior Technical Advisor for Surveillance & Monitoring at PSI.

She supported the establishment of a Public Health Emergency Operations Center at the MOH in Lao PDR. She holds an MPH from the University of South Florida.
Joseph Sitienei CDC

Joseph Sitienei is the Head, Division of Communicable Disease Prevention and Control, Ministry of Public Health, Kenya. As head of the division Joseph has taken the lead in development of policy guidelines, ensuring commodity security, coordinating implementation of all control activities amongst other main activities. During his tenure the following have been achieved: disease control activities improved such that the country was recognized by the international community and won the prestigious “Karel Stiblo Award” for being the first country in Sub-Saharan Africa to achieve the WHO Global targets; all the elements of TB control as advocated by WHO have been fully implemented; and the program was voted best and ranked position one in performance Improvement Approach in East and Central Africa.

Before assuming his current role in 2009, Joseph was National TB/HIV Coordinator and Deputy to the Head of the division of Leprosy, TB & Lung Disease from 2004-2009. Joseph lectures part-time at Moi University School of Public Health. Joseph received his MB ChB medical training from NBI University, an MPH from Moi University and a Diploma in Epidemiology from RIT in Tokyo. He is currently pursuing a PhD in Epidemiology and Disease Control at Jomo Kenyatta University.

Sally Stansfield InformHealth

Dr. Sally Stansfield is a globally recognized leader in public health and development strategies. She currently works as a Senior Advisor to InformHealth, the eShift Network, and other startups in global health. Previously, she served as Deloitte Consulting’s lead health systems strengthening specialist, focusing on health research, policy, and global governance.

In her more than 35 years of professional experience, Dr Stansfield has been a trusted advisor at the highest levels to philanthropies, governments, commercial entities, and international agencies. Within the World Health Organization, where she served as the Executive Director of the Health Metrics Network, she established and led a global health partnership to strengthen country health information systems in more than 85 countries, mobilizing more than $1 billion in critical new funding.

For the Bill and Melinda Gates Foundation, Dr Stansfield served as Associate Director for the Foundation’s Global Health Initiatives. She has also designed and managed programs for the US Centers for Disease Control and Prevention, USAID, and Canada’s International Development Research Centre. She has lived and worked in dozens of countries, with a focus on low-resource settings in Africa and Asia. Dr Stansfield has received several notable awards, including the Yale Tercentennial Medal, a Public Health Service Commendation, and a Fulbright Research Fellowship. She maintains active medical licensure in the state of Washington. Dr Stansfield holds a Doctorate of Medicine from the University of Washington and is a Fellow of the Uganda National Academy of Sciences.
Mirjam van Reisen  VODAN

Mirjam van Reisen is Professor of FAIR Data Science at the Leiden University Medical Center (LUMC) at Leiden University and Professor International Relations, Innovation and Care at Tilburg University. Van Reisen is Research Leader of the Globalization, Accessibility, Innovation and Care (GAIC) network. Van Reisen is the Coordinator of the Virus Outbreak Data Network (VODAN) Africa implementation network. Van Reisen is the Director of the organisation Europe External Policy Advisors in Brussels.

Van Reisen was a member of the Dutch Advisory Council on International Affairs (AIV) and Chair of the Development Assistance Committee (COS) from 2013 to 2020. She was a member of the Board of Philips Foundation and the SNV Netherlands Development Organisation until 2020.

Mirjam van Reisen has published extensively on Europe and international cooperation, human rights and human trafficking. She leads research into international human trafficking, international cooperation, the role of technology and big data and the position of women in peace building. Van Reisen received the Golden Image Award in 2012 by President Ellen Johnson Sirleaf.

Pages:
LUMC personal page: https://www.lumc.nl/org/lu-cid/medewerkers/mirjamvanreisen?setlanguage=English&setcountry=en
Leiden University personal page: https://www.universiteitleiden.nl/en/staffmembers/mirjam-van-reisen#tab-2

Tilburg University personal page: https://www.tilburguniversity.edu/staff/m-vanreisen

CV page: https://mirjamvanreisen.wordpress.com/

VODAN Africa page: https://www.vodan-totafrica.info/index.php
The following documents are a collection of resources developed by various WHO Technical Programmes, which relate to the use, support or strengthening of the collection, quality and application of routine health information.

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Harmonized Health Facility Assessment (HHFA)

What are health facility assessments?

Health facility assessments (or surveys) provide information on the availability, quality and effectiveness of health services, including facility resources (staff, equipment, medicines, commodities) and the systems that enable services to function as required.

A facility survey involves a representative sample of facilities in a country, ideally including both public and private sectors. Trained data collectors visit the facilities to collect data using standardized questionnaires and methods such as observation, key informant interviews and record reviews.

Why are health facility assessments important?

Countries working towards stronger primary health care (PHC) and universal health coverage (UHC) need reliable information on how well their health services are functioning. In the wake of Covid-19, countries also need such information to build back better. Facility surveys also provide data on front-line service capacity to respond to unexpected events and can identify gaps in health service resilience.

WHO’s recent SCORE assessment revealed that significant proportions of countries lack adequate systems for monitoring the availability and quality of health facility services.

High-income countries often rely on accreditation systems to assure health service quality but, in many settings, this is not yet feasible. However, facility surveys can provide valuable information to identify gaps and to monitor system progress over time. Such surveys are most useful when conducted at regular intervals (e.g. 2 to 5 years) and synchronized with national planning cycles.

Why a “harmonized” health facility assessment?

Over the years, various international health facility survey instruments were developed. At times, this has led to multiple, uncoordinated facility surveys in a single country, often with non-comparable findings. To address these challenges, WHO, with the Health Data Collaborative and Johns Hopkins University, has developed the Harmonized Health Facility Assessment (HHFA).

The HHFA was developed with inputs from multiple stakeholders and builds on other key global facility survey tools, including USAID/WHO’s Service Availability and Readiness Assessment (SARA), USAID’s Service Provision Assessment (SPA) and the World Bank’s Service Delivery Indicators (SDI). A critical aim of the HHFA is to catalyze the use of a standardized set of questions and indicators, harmonized among stakeholders, and to align support for a single system of high-quality facility surveys within a country.

What is the HHFA?

The HHFA provides a comprehensive assessment across all key health programmes and all facility levels.

The HHFA includes of 4 modules:

The modular approach enables countries to select the modules they wish to implement. The choice of core or additional questions provides further flexibility for countries to adapt the HHFA to their needs.
The HHFA resource package

The HHFA resource package is a set of guidance and tools to support countries in planning and implementing high-quality facility surveys.

1. **Questionnaires:** Questionnaires are either “Stand-alone” or “Combined”. There are Stand-alone questionnaires for each module. The Combined questionnaires contains questions from all four modules, integrated to facilitate the data collection process. In the future, an electronic question platform will be developed.

2. **Indicator inventory:** The HHFA indicator inventory will be available through an electronic platform. Each indicator includes the number of the questions to which it is linked; and each question in the questionnaires includes the number of the indicator to which it is linked.

3. **CSPro data collection application:** The questionnaires are programmed into the CSPro app, which is customizable to country needs.

The question platform, indicator platform and CSPro app will greatly facilitate the process of question and indicator selection as well as adaptation of the HHFA to country needs.

4. **Data analysis platform:** This platform imports data from the CSPro app, automatically calculates indicators and produces charts, tables and reports. It is also customizable to country needs. This platform, with the CSPro app, will streamline the processes of data collection and analysis, facilitating the production of a timely survey report.

5. **Reference manual:** The reference manual provides a background and overview of the HHFA.

6. **Implementation manual:** The implementation manual provides step-by-step guidance for each stage of survey planning, implementation, data analysis and dissemination.

7. **Training materials:** A facilitator guide, participant guide and PowerPoint slides will facilitate training of country data collectors, supervisors and data analysis staff. An online HHFA course will also be developed through the WHO Academy.

HHFA resources will be available on the HHFA webpages over the course of 2021 and 2022 at: [https://www.who.int/data/data-collection-tools/harmonized-health-facility-assessment/introduction](https://www.who.int/data/data-collection-tools/harmonized-health-facility-assessment/introduction)

For further information, please contact Wendy Venter venterw@who.int
Integrated health services analysis:
using data from routine health information systems (RHIS)

The WHO Toolkit for RHIS data includes two modules on integrated analysis of routine health facility data, targeting national level and district and facility level users respectively.

The integrated approach provides general health service planners and managers, including staff at district and facility levels, with an overarching or “cross-cutting” view of health services, based on a limited set of tracer indicators that represent multiple health programmes and service components. This approach recognizes that the various components of a health service delivery system are interdependent and should not be viewed in isolation. Such an integrated approach is essential for the comprehensive strengthening of health services towards improving primary health care (PHC), achieving universal health coverage (UHC) and contributing to the health-related sustainable development goals (SDGs). An integrated approach to analysis is facilitated by integrated or interoperable RHIS data analysis platforms.

The modules include a sample set of RHIS indicators for integrated analysis, with recommended ways of visualizing the indicators in standard dashboards, as well as guidance on interpretation and use of the data. The sample set of indicators for is organized into three groups, with subgroups. These indicator groups also provide the basis for organization of integrated dashboards:

**Group 1 indicators: Health status and epidemiological profile**
- Mortality (institutional)
- Morbidity (inpatient and outpatient)

**Group 2 indicators: Health service performance**
- Utilization and access
- Service outputs, coverage and quality

**Group 3 indicators: Health service resources**
- Availability, distribution and efficiency of resources required by health facilities: infrastructure, health workforce, medicines and medical products, and financial resources.¹

The data analysis approach of the modules is based on five principles:
1. Integration – of data from various health programmes, services and platforms
2. Focused analysis – using a limited set of key indicators
3. Standardization – of indicators, analyses and visualizations
4. Data quality assessment – always part of analysis
5. Purpose-oriented analysis – for targeted management and planning

The national-level and district/facility-level modules address the same concepts and use a similar indicator set, but the national module provides additional detail, while the district/facility module takes a more practical approach. Sample integrated dashboards based on the indicator groups are available as annexes in the district/facility module.


For further information, please contact Wendy Venter venterw@who.int

¹ Health service resource data are complex and often not available in RHIS; however, selected concepts and indicators are briefly discussed to highlight the importance of reviewing routine health service data in relation to the resources needed to produce the services.
BACKGROUND

Efforts to improve clinical outcomes for the acutely ill and injured are currently hindered by a lack of data. World Health Assembly resolution 72.16 calls on countries to implement mechanisms for standardized data collection to characterize the local acute disease burden and identify high-yield mechanisms for improving the coordination, safety and quality of emergency care worldwide.

This work requires an understanding of how emergency care services are utilized at national and sub-national levels as well as the refined ability to identify current gaps in care across specific prehospital and facility settings. The lack of standardized case-based data on initial patient presentation and management in emergency units leaves limited opportunity for comparison, aggregation and performance monitoring at facilities and across levels of the health system.

UTILITY OF REGISTRIES TO IMPROVE QUALITY OF CARE

Registries are data repositories with built-in analytic function that use case-level data to identify potentially preventable deaths. They can collect integrated data – from the prehospital setting to emergency unit visits to inpatient stays. First, data are collected on patient presentation, care and outcome. Second, this data is analyzed in real-time to determine if poor outcomes were. These reports can be fed back to clinical teams for review and targeted education. Quality improvement cycles are iterative, directly informing corrective actions over time.

IRTEC – WHAT IS IT?

To respond to the need of countries and support systematic quality improvement of emergency care, the International Registry for Trauma and Emergency Care (IRTEC) was developed. IRTEC is a platform for systematically collecting, aggregating and analyzing case-based emergency care encounters. Currently, the platform captures only facility-based data but will be expanded to collect prehospital data in the future. The platform is free to users and built on the open-source DHIS2 software.
**What are the key features of IRTEC?**

**Multi-lingual and multi-platform**

IRTEC interface is multi-lingual, with translation across 28 languages by adjusting user account settings. IRTEC offers different types of operation (online, offline) and modalities (web-app, Android mobile app). The mobile app offers offline data entry for low connectivity settings that can be synced when you reach WiFi.

**Based on validated minimum dataset**

IRTEC utilizes the WHO Minimum Dataset for Injury (MDI) - a consensus-based set of data elements recommended after extensive consultations as the minimum data needed for effective monitoring and quality improvement of injury care. A variation of MDI exists to encompass all emergency care presentations beyond injury, in which the registry is flexible to adapt to.

The MDI components are integrated into existing WHO Standardized Clinical Forms that can facilitate a systematic approach to each patient in the emergency unit while also capturing relevant IRTEC data points.

**Built-in analytics and reporting**

A range of dashboards and standard reports are available in IRTEC to view injury epidemiology trends and monitor key indicators over time at a single facility or across facilities. A range of audit filters can be executed for a given time and facility to flag cases for in-depth review – such as *patients with hypoxia who did not receive oxygen*. Analytics that a user is able to see are fully configurable based on their user roles and permissions. If given access, users can also configure their own additional reports and visualizations as necessary.

**Implementation requirements**

Each facility will need to appoint **data entry staff** who will be solely responsible for entering data into the platform – translating paper-based clinical forms into online platform. This could be existing medical records staff or quality officer. Required staff time depends on trauma volume at your facility.

**Required infrastructure** includes at least one desktop, laptop or tablet at the facility with connection to internet. Where internet connectivity is limited, you can utilize a tablet and Android application to record offline data entry, with intermittent syncing of case records periodically when you can successfully connect to a network.

To create login credentials, you must to identify a **list of users at your facility** who will be entering data or viewing data. Details on where the facility(ies) are located within country administrative zones is required. These user details should be communicated with the WHO HQ Focal Point.

We recommend a **3-4 day training** before launch. This includes a full day of training clinical providers on the Standardized Clinical Form (if required), a full day of data entry training with data entry staff, and 1-2 days for implementation logistics and site visits. Sample budgets and agendas for training are available upon request.
Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH)

As part of a suite of WHO resources on analysis and use of health facility data, the WHO departments of Maternal, Newborn, Child and Adolescent Health and Ageing (MCA) and Sexual and Reproductive Health and Research (SRH) and UNICEF developed a module that describes a core set of indicators for routine monitoring of reproductive, maternal, newborn, child and adolescent health (RMNCAH) indicators through health management information systems (HMIS).

Analysis and use of health facility data - Guidance for RMNCAH programme managers includes detailed metadata (definitions, numerators, denominators) for indicators on family planning and contraception; antenatal care; childbirth; postnatal period; childhood and young adolescence; and facility-based maternal, neonatal, child and adolescent deaths and institutional stillbirths.

Given the integrated nature of RMNCAH, the guidance links to relevant indicators from the HIV, TB, malaria and immunization programme modules. The RMNCAH guidance suggests possible ways to visualize HMIS data to help monitor RMNCAH programmes; references on how to assess the quality of the data; and considerations for using the data for decision-making. An accompanying configuration package for dhis2 is available.

In 2019, a series of multi-programme regional and country dissemination workshops were held to introduce the WHO routine facility data modules. In addition, RMNCAH-focused capacity-strengthening work-shops were held in 2019 to orient national RMNCAH programme managers and partners on this resource.

Maternal, newborn, child and adolescent health during COVID-19

Since August 2020, WHO, through its headquarter, regional and country offices, has supported nineteen countries to document changes to maternal, newborn, child and adolescent health (MNCAH) services and strategies undertaken by countries to mitigate the indirect effects of COVID-19 on MNCAH services. To help countries monitor and analyse changes in utilization of MNCAH services during COVID-19, WHO and partners developed Analysing and using routine data to monitor the effects of COVID-19 on essential health services - Practical guide for national and subnational decision-makers.

The guidance suggests indicators for monitoring health service utilization using data from national routine health information systems (RHIS) and provides recommendations on how to visualize and interpret trends in facility data with respect to disruptions in service utilization.

Prior to the official publication of the document in January 2021, the nineteen countries in the MNCAH mitigation initiative were provided the list of recommended MNCAH indicators and metadata. The WHO country office, national consultants and the Ministry of Health reviewed the recommended indicators together to determine which ones would be monitored based on their availability in existing national reporting systems and relevance to the country context. WHO MCA developed a Microsoft Excel template that included space for countries to map and prioritize indicators for monitoring and enter data; dashboards displaying changes in these MNCAH RHIS data were embedded in the template. Some countries used this tool, while others developed individualized essential health monitoring dashboards using other software. The data were presented to senior Ministry of Health officials, MNCAH Technical Working Groups, and partners in various country and regional meetings to support decision-making.
Information system for the Control of Neglected Tropical Diseases

Neglected tropical diseases (NTDs) are a diverse group of 20 conditions that are mainly prevalent in tropical areas, where they mostly affect impoverished communities and disproportionately affect women and children. These diseases cause devastating health, social and economic consequences to more than one billion people. The epidemiology of NTDs is complex and often related to environmental conditions. Many of them are vector-borne, have animal reservoirs and are associated with complex life cycles. All these factors make their public-health control challenging.

WHO-recommended NTD indicators are available in disease-specific guidelines and some have been packaged for integration into national health information systems. Yet despite such advances, monitoring and evaluation for many NTDs are weak in many countries. Critical gaps persist for at least 10 diseases and disease groups which poses a risk to the attainment of the goals stated in WHO strategic Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030. This road map is supported by a companion document Ending the neglect to attain the Sustainable Development Goals: a framework for monitoring and evaluating progress of the road map for neglected tropical diseases 2021–2030. This framework provides guidance on mainstreaming the monitoring and evaluation of neglected tropical diseases within health information systems, and incorporates a line listing of key monitoring and evaluation implementation guidelines for the respective NTD programmes (Annex 2, Annex 6). It presents a set of standardized indicators enable comparability and greater accountability among stakeholders, starting at country level.

The majority of NTD data is first be collected at peripheral levels within countries using existing sources and health information systems. This is what constitutes the routine information system for NTD programmes. NTD data is primarily be collected at different levels, notably at community (e.g. households, villages and schools) and health facilities (e.g. for cases detected and treated). Various additional sources can generate data, including (but not limited to) death certificates and mortality data, with underlying cause of death in civil registration and vital statistics; demographic health surveys, multi-indicator cluster surveys or other population-based surveys; individual patients’ records or facility-based registration systems in routine health information systems. These data flow through established channels throughout the different levels of the health system within countries.

A major challenge in the current reporting process is that different collection forms and formats are used for reporting NTD data. As part of the global architecture for NTD data, country NTD data that feed into the NTD indicators should be reported by Member States to WHO in a timely manner using standard existing reporting tools.

Additionally, WHO plans to develop and periodically conduct global surveys which Member States will complete to report road map data that are not currently routinely collected. WHO is still collaborating with Member States and other experts to define the reporting pathways for some of the cross-cutting indicators that are collected within countries by other, non-NTD actors such as One Health.

Ideally, most NTD data within endemic countries should be managed and stored within the appropriate national health information systems – including the health management information system, national integrated surveillance systems, vital statistics and logistics management information systems – in order to facilitate monitoring, reporting and decision-making at all levels. This varies by country, depending on the health information systems in place, the disease burden and the programmatic phase. NTD-specific databases are in some instances necessary to supplement the storage of NTD data collected by national NTD programmes, depending on the limitations of the health management information system; ideally, any national NTD-specific systems would interface with this system and other platforms.

1. Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030 - https://www.who.int/publications/i/item/9789240030352
2. Ending the neglect to attain the Sustainable Development Goals: a framework for monitoring and evaluating progress of the road map for neglected tropical diseases 2021–2030 - https://www.who.int/publications/i/item/9789240023680
In collaboration with multiple global partners, the WHO NTD department is working to develop toolkits to strengthen analysis and use of routine health facility data, including an NTD module. The NTD toolkit will include both integrated as well as disease-specific guidance and resources: core indicators to be collected and monitored by NTD programmes and decision-makers at all levels of the health system, analysis guides, dashboards, exercise books, and machine-readable configuration packages that address both integrated and disease-specific needs. Core indicators presented in the toolkit will be aligned with the road map indicators, to ensure streamlined data collection and reporting within countries and to regional and global levels.

It is desirable to ensure that all relevant NTDs are included in national integrated disease surveillance; only some of the 20 NTDs are currently included. Priority diseases for surveillance are categorized into epidemic-prone diseases, including dengue and chikungunya; diseases targeted for eradication and elimination, including dracunculiasis, human African trypanosomiasis, leprosy, onchocerciasis and yaws; and other major diseases of public health importance including leishmaniasis, lymphatic filariasis, rabies, schistosomiasis, soil-transmitted helminthiases and trachoma. Any information related to epidemic-prone diseases and diseases targeted for eradication should be reported immediately to the national integrated disease surveillance and the relevant disease-specific programme for immediate response.

Multisectoral collaboration is essential for compiling cross-sectoral data to track progress against NTD road map targets. While the majority of the country indicators that will feed into the NTD road map indicators will be generated through national health systems, some will require data from other sectors, including WASH, veterinary public health (One Health) or universal health coverage. NTD programmes are not expected to conduct primary data collection on these indicators, but rather should coordinate with these other sectors to compile and report these data.
Nutrition

The Nutrition and Food Safety Department has been taking up several activities to address the nutrition data gaps through strengthening countries’ routine health information system (RHIS) to enhance monitoring capacity towards the global nutrition targets and nutrition related Sustainable Development Goals (SDGs) indicators (2.2.1, 2.2.2 and 2.2.3). To date, the UNICEF-WHO-WB Joint Child Malnutrition Estimates rely mostly on household surveys, but data for some countries are scarce. Trends would profit greatly if triangulation was done using routine data for the child malnutrition indicators, as well as for the anaemia estimates for women of reproductive age, by pregnancy status.

As part of the Global Nutrition Monitoring Framework, three coverage indicators (coverage of diarrhoea treatment for children under 5 years, antenatal iron supplementation, and breastfeeding counselling) hugely rely on routine data. However, many countries either have weak RHIS to collect data on these indicators or the nutrition component is not carefully included in the RHIS that can fulfil the need of nutrition data through RHIS.

The department provides technical advice to countries for strengthening their national nutrition information systems through RHIS (currently working closely with Cote d’Ivoire, Ethiopia, Uganda, Zambia and Laos); and specifically focusing on the use of innovative digital technologies to fill data gaps in pastoral communities living in hard-to-reach areas and moving across borders (Ethiopia, Somalia, and potentially Eritrea). At the global level, WHO joins efforts with UNICEF to define DHIS2 core nutrition modules, coupled with appropriate guidance for their integration in countries’ national information systems, or designing and implementing them where non-existing.

The WHO nutrition programme is also part of the Health Data Collaborative working group on RHIS. Also notably, one of the Nutrition and Food Safety Department Technical Products for the 2022-23 biennium is to develop guidance on the treatment of the RHIS nutrition data in different settings aiming for their use for deriving global health estimates for key nutrition indicators. This work is expected to be carried out in collaboration with WHO Regional Offices, the WHO Data Analytics, Deliverable and Impact Division, and other relevant partners. This is of great importance for some nutrition indicators when considering the potential biases might appear when aggregating data containing repeated measurements (e.g. anthropometric measurements taken as part of growth monitoring versus acute malnutrition management). Although several of the tools developed by the department for anthropometric data quality assessment can be used to identify data flaws, having robust methodology for deriving prevalences based on routine data for the purpose of SDG monitoring remains a challenge that requires immediate attention.
Rehabilitation Programme

A priority area of action at the **WHO Rehabilitation2030 Initiative**, the WHO Rehabilitation Programme is continuously working to integrate rehabilitation into health information systems. It has developed a module with standard indicators for the reporting and analysis of rehabilitation-relevant data that are routinely collected from health facilities using an open-access software (DHIS2). Analysis of the data including information on rehabilitation inputs, outputs and outcomes, helps national and subnational program planners and facility managers to improve the rehabilitation sector performance at all levels of the health system.

Across the levels of the organization, the WHO Rehabilitation Programme is technically supporting country implementation ([https://www.who.int/activities/integrating-rehabilitation-into-health-systems/information](https://www.who.int/activities/integrating-rehabilitation-into-health-systems/information))
Clinical Services and Systems

About Clinical Services and Systems
Ensuring that all people have timely access to the health services they need is at the heart of UHC. Essential components include comprehensive preventive and longitudinal care close to home, reliable access to acute care for time-sensitive conditions, and early appropriate referral care. With the establishment of the Clinical Services and Systems team, WHO brings together, for the first time, its work on integrated delivery channels – including primary care, emergency care, critical, surgical care and palliative care – with a new focus on effective organization and people’s movement across the health system. This approach amplifies the impact of WHO’s normative guidance by aligning with the reality of front-line service delivery and users’ needs.

CSY example of use of facility data and its contribution to strengthen program results in countries
CSY has developed the International Registry for Trauma and Emergency care (IRTEC) to respond to the need of countries and support systematic quality improvement of emergency care. IRTEC is a web-based platform for aggregation and analysis of case-based data from emergency care visits. Countries can launch the registry at sentinel facilities to identify gaps in care and target quality improvement initiatives. IRTEC utilizes the WHO Minimum Dataset for Injury (MDI) which is a minimum set of recommended data elements for effective monitoring and quality improvement of injury care developed through extensive consultations with global stakeholders. MDI elements are embedded in the existing WHO Standardized Clinical Form that facilitate a systematic approach to each patient in the emergency unit. Standardized analyses and audits allow high-yield targeted quality improvements and have been shown to save lives.