Global Consultation to optimize Routine Health Information Systems to effectively deliver Universal Health Coverage and improve Primary Health Care in Countries

1-2 Sep 2021

DDI/DNA/SCH
Objectives

1. Review the importance and complexity of routine health information systems
2. Define data gaps and tools from the SCORE technical package to precisely address them
3. Share best practices from countries, partners and various initiatives
4. Describe how an integrated data and health information system should be implemented with a focus on building sustainable capacity in countries
5. Discuss how we can better align partnerships and resources to accelerate progress
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](https://www.gpw.org) and health-related SDGs.
## Agenda

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<td>WHO regional team; Steve Mac Feely - Director, WHO DDI/DNA</td>
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Day 1

Introductory and background session

- Routine Health Information Systems
- Primary Health Care Special Programme
- WHO Focal Point Synopses

Session 1: Countries at the center: Models to align and integrate RHIS in Primary Care Settings
Session 2: Technical tools and essential solutions to improve PHC
Session 3: Digital tools and solutions to ensure integration, interoperability and efficiencies

Day 2

Session 4: Using data and analytics to improve performance of care and access to services – “Treating patients as VIP”
Session 5: Integrated Disease Surveillance (IDS): Opportunities to scale
Session 6: Getting Serious about building capacity in countries and good data governance
Session 7: Biographies only (no presentations)
Routine Health Information Systems (RHIS)

OVERVIEW

Global consultation to optimize Routine Health Information Systems (RHIS) to effectively deliver Universal Health Coverage (UHC) and improve Primary Health Care (PHC) in countries.
Session objective and contents

Objectives: Background of Global Consultation and Regional Priorities for RHIS

Contents

- Objectives and outcomes of the global consultation - Somnath Chatterji, Senior Advisor, DDI/DNA
- Overview of RHIS, findings from SCORE: mapping gaps and opportunities - Anh Chu and Wendy Venter - DNA
- Regional priorities and progress
  - Hillary Kipruto, WHO AFRO
  - Mark Landry, WHO SEARO
  - Sanyoung Oh, WHO WPRO
  - Marcelo D’Agostino, PAHO
  - Karapet Davtyan, David Novillo, WHO EURO
  - Henry Doctor, WHO EMRO
- Primary Health Care (PHC) Special Programme: Need to track progress - Suraya Dalil, Director Primary Health Care
“Why we must quickly optimize RHIS for PHC and UHC”

**Samira Asma**  World Health Organization

Dr Samira Asma is the **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.

**Minghui Ren**  World Health Organization

Dr Minghui Ren 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 re-form, 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  World Health Organization

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.

Routine Health Information Systems (RHIS)

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 Organization and the DDI focal point for Routine Health Information Systems. She has a Master of Science from the London School of Hygiene and Tropical Medicine. Anh first joined WHO in the Lao Country Office, before coming to headquarters in Geneva Location. Anh has extensive field experience in countries, monitoring and evaluation, working with health information systems and health sector reform.
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).
Routine Health Information Systems - An overview

Anh Chu - WHO/DDI/DNA
Routine Health Information Systems (RHIS)

• Collect health service data directly from the health facilities, by the health care workers

• Provides frequent (e.g. monthly) and/or almost real-time information on health services

• RHIS create integrated, interoperable systems to facilitate comprehensive analysis of health services
Routine health information systems (cont.)

RHIS data is used for:

• Health service management: PHC, health facility, programme specific

• Enabling regular progress monitoring and timely identification of problems/issues

• Monitoring of programmes and health targets (national, regional, global)

• As a source for health-related estimates

• Contributing to some of the health SDG and UHC monitoring indicators
Challenges of health data systems

Despite the increasing demand for data and evidence (WHA74/8):

- existing health information systems in many countries remain inadequate
- high-quality data are not routinely collected
- major health challenges are not adequately measured and monitored

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.
SCORE for Health Data Technical Package

68% of countries have good capacity for public health threat surveillance

40% of the world’s deaths remain unregistered

50% of countries have limited or less capacity for systematic monitoring quality of care

60% of countries have good capacity to review progress and performance of the health sector

59% of countries have good capacity to use data to drive policy and planning

Survey
Count
Optimize
Review
Enable

populations and health risks
births, deaths and causes of death
health service data
progress and performance
data use for policy and action

https://www.who.int/data/data-collection-tools/score
• Assess the performance and capacity of health data systems, highlighting both strengths and weaknesses

• Monitor trends of health information systems over time in countries and regions

• Serve as a paradigm for an investment framework, guiding local and international investments and tracking progress over time
Optimize health service data to ensure equitable, quality services for all

Regular, reliable data from health facilities and the resource systems that support them are central to ensuring availability and quality of health services.

Health facility data support clinical management of patients, disease monitoring, facility management, health sector planning, and monitoring of service coverage and performance. In the wake of COVID-19, these data will be invaluable to assess the impact on health workforce capacity and essential services to improve preparedness going forward.

ONLY 4% of participating countries have sustainable capacity to optimize health service data.
Optimize health service data

0.1. Routine facility and community reporting system with patient monitoring

- Most of countries with moderate and low capacities concentrate in low-and-middle-income countries
- Assessment gaps: SIDS

https://www.who.int/data/data-collection-tools/score/dashboard#/
1/2 countries with reporting completeness (>75%) from primary health care facilities

1/5 countries have reporting completeness (>75%) from private facilities

1/4 countries with national unique patient identifier system in place
Data Quality Need Further Improvement

- 42% in primary care facilities do not have routine data quality assurance process in place
- Half of countries have report from private hospitals with documentations

Inequitable investment across programs

PERCENTAGE OF COUNTRIES (N=133) WITH DATA MEASURING FACILITY-BASED INDICATORS*

<table>
<thead>
<tr>
<th>Indicator</th>
<th>National</th>
<th>Subnational</th>
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<tr>
<td>Tuberculosis treatment success rates</td>
<td>98%</td>
<td></td>
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<tr>
<td>Diphtheria-tetanus-pertussis (DTP)/Penta3</td>
<td></td>
<td>97%</td>
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<tr>
<td>Antiretroviral therapy (ART) coverage</td>
<td></td>
<td>92%</td>
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<tr>
<td>New cancer diagnosis by type</td>
<td>68%</td>
<td></td>
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<tr>
<td>Hospital deaths by major diagnostic category (use ICD)</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Surgical interventions by type</td>
<td>50%</td>
<td></td>
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<tr>
<td>Severe mental health disorders</td>
<td>48%</td>
<td>31%</td>
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SCORE assessment - key recommendations

All countries could benefit from understanding the gaps in their system and follow SCORE recommendations for improvement.

- Promote **unique identifiers** for patient level data to ensure that each person can be correctly and repeatedly identified when accessing health care services
- Institutionalize a **regular system of data quality assurance**, based on recommended international standards
- Establish a **unified digital system** that facilitates **interoperability** between different systems
- Ensure **community-based programmes are integrated** into an overall facility reporting system
- **Publicly share** aggregate health-facility level data for key indicators on a regular basis to enable further analysis by local institutions and partners

https://apps.who.int/iris/bitstream/handle/10665/334005/9789240009837-eng.pdf
Essential Interventions

Tools and Standards
for SCORE Essential Interventions

https://www.who.int/data/data-collection-tools/score/documents/
Integrated approach to deliver PHC and UHC

**RHIS toolkit:**

Ongoing development:
- Hypertension; Diabetes; Cervical cancer
- Hearing and Vision Impairment
- Neglected tropical diseases
- Nutrition
- IDSR
- Community health monitoring
- Integrated clinical services
- Mortality surveillance

[https://www.who.int/healthinfo/tools_data_analysis_routine_facility/en/](https://www.who.int/healthinfo/tools_data_analysis_routine_facility/en/)
Integrated analysis for PHC and health service management

A key outcome of integrated RHIS

Wendy Venter - WHO/DDI/DNA
Integrated health service analysis - using RHIS data

Key approaches:

• **Minimize:**
  - Limited indicator set
  - Focused analysis

• **Standardize:**
  - Indicators
  - Visualizations/dashboards

• **Integrate:**
  - Programmes
  - Platforms

Indicator groups:

1. **Health status:**
  - Mortality
  - Morbidity

2. **Health service performance:**
  - Utilization
  - Outputs/coverage & Quality

3. **Health service resources:**
  - Infrastructure, workforce, medicines, finance
Example:

Integrated district dashboard: utilization, coverage & quality
4. SERVICE OUTPUTS, COVERAGE AND QUALITY
In brief

• Use SCORE technical package and country profile for strategic actions to strengthen RHIS
• Use of internationally recommended standards and tools
• Strengthen data quality
• Coordination with partners and governments to align investment and priorities
• Strengthen data governance and data use at all levels as the drive to strengthen PHC and UHC

Resources:

• https://www.who.int/data/data-collection-tools/score/dashboard#/analysis
• https://www.who.int/data/data-collection-tools/health-service-data
Thank you!
Annex
Next steps for optimizing RHIS in countries

Provide direction that supports countries to strengthen and use RHIS to monitor the progress towards the SDGs, UHC and the triple billion targets.

Priority: Least developing countries and Small Islands Developing States
Optimize health service data

Routine facility and community reporting system with patient monitoring

Routine health service data systems
• Nascent
• Limited
• Moderate

Routine health service data systems
• Well-developed
• Sustainable
Review progress & performance

Limited use of data for equity analysis in countries with lower RHIS capacity.

- Countries with nascent, limited or moderate health data capacity
- Countries with well-developed or sustainable health data capacity
Enable data use for policy & action

Limited data access and sharing in countries with lower RHIS capacity
Weaker country-led data governance in countries with lower RHIS capacity.

- Countries with nascent, limited or moderate health data capacity
- Countries with well-developed or sustainable health data capacity
Strategic Areas
1 - Strengthen governance & partnership structures for RHIS

- Country owned and led HIS with clear institutional structures and health sector policy framework.
- Integrated RHIS within a comprehensive HIS Architecture.
- Other sectors and partners aligned to support one plan, one budget and one M&E framework.
2 - Strengthen data collection, health information management & data quality

- Robust DQA mechanisms for improved data integrity and use
- A set of agreed national core indicators
- User focused approach as RHIS users have distinct and varied needs.
- Guidelines and procedures tailored to each level of the health system.
- Appropriate digital tools for each level of the system.
Technical standards

Use of international recommended technical standards (WHO RHIS toolkit and data quality). Clear guidance and SOPs are essential.

It is important to routinize data quality review, feedback, and supervision.

Even technology-based innovations like DHIS 2 need feedback and supervision to realize the potential of using routine data for improving the health and survival of women and newborns.

Nigeria

3 - Improve integration & interoperability of the RHIS platform as part of the overall HIS interoperability platform

- Comprehensive facility-based information in the national RHIS
- Interoperability between central integrated HIS platform & other data sources for regular data exchange
- Summary statistics on the central integrated platform
4 - Build capacities for RHIS data analysis, data use & enabling for health systems strengthening

- Decision makers use information for public health policy, health system management, clinical services & to improve equity.
- Quality information & reports to monitor/evaluate health system activities & progress
- Public stakeholders have access to evidence-based health information
Data access & sharing

All staff have access to the data they need to improve performance.

Managers access data from facilities to inform national policy, planning and response.

Trained district staff access, report and use facility data for improving the quality of health services provided.

Technical programmes access a common platform and data warehouse for programme planning and donor reporting.

*Lao PDR*
Data access & data use

District level staff have an active data use culture.

"Training received on how to use our own facility performance data to make decisions and take action."

"Our services are now completely data-driven."

Abenezer Bekele, Head of Soro Woreda HO, Ethiopia.

https://www.ictworks.org/create-culture-of-data-use-health-information-systems/#.YIoZPX0zbFo/
5 - Maintain & strengthen human & financial resources towards sustainable RHIS

- Network approach to capacity building for RHIS
- Sustainable financing from domestic and external sources
Capacity development

Courses conducted by national and regional institutions aligned with job requirements and include ongoing coaching and continuing education components.

DHIS2 Academy program provides in-person regional training courses for MOH and other organizations to implement, maintain, and use DHIS2 systems.

Responding to Covid-19 restrictions, a new online Level 1 DHIS2 Academy course for capacity building was quickly implemented.

HISP Tanzania and University of Oslo

https://dhis2.org/tanzania-digital-academy/
Finance, ICT & infrastructure

Make RHIS part of budget planning and mobilize funding to ensure sustainability.

Sustaining an integrated health information system requires significant investments.

Government with key health partners contributed significantly towards the national health information system sustaining it for years to come.

*Lao PDR*
Optimizing RHIS: monitoring strategy implementation

- Global monitoring framework is aligned with the SCORE
- Country level HIS M&E framework is aligned to the health sector strategy
- Annual HIS/HMIS review and report
WHO Support Mechanism to Countries
General approach (*for implementation*)

1. Data collection:
   - Standards and guidance;
   - Individual vs. integrated data capture
   - Digitalization of the systems
   - Strengthen data quality

2. Data use:
   - Standard analysis
   - Identify and meet data needs
   - Accessible

3. Enabling:
   - Governance; legal framework
   - Coordination
   - Finance and Planning
   - Infrastructure, architecture for integrated RHIS and interoperability
   - Capacity Building
How we work together: country implementation procedures

**Country**
- Identify country needs
- Communication WCO and MOH for requesting support to implementation
- Establish a communication channel, task force

**Regional & Global**
- **Functions**
  - Identify and understand country needs
  - Coordination/regional support and DHIS2 TAs
  - Funding mobilization and leverage
  - Data flow and integrated data platform
  - Capacity Building
  - Coordinate, mobilize partners

**Points of Contact:**
- Regional HIS/Data team; DDI/HQ
- Technical Programme Focal point
- Partners
Three levels of WHO support to countries

**WHO HQ**
- Identify country needs and monitoring targets
- SCORE: data gaps
- Standards & Norms: RHIS package, guidance
- Capacity Building
- Global reports
- GHDP

**WROs**
- Monitoring set targets
- Technical support
- Mobilize resources
- Coordination
- Build capacity for regional staff and countries
- Regional data hubs, observatory
- Reports, feedback

**WCOs**
- Technical support in prioritization of gaps
- Convening
- Coordinate with partners to align supports
- Build capacity on data and strategic information
- Programme technical support

**Country M&E framework**
- PHC & UHC indicators

**National Health Data Platform**
Thank you!
“Primary Health Care is where the battle for human health is won and lost.”

Director-General’s address to the WHA (2019)
Primary Health Care

Core functions

1. Country impact
   - Contextualize and Operationalize PHC
   - An agile integrated platform: 3 level coordination, live-monitoring, resources allocation,

2. Evidence and innovation - focus on people left behind
   - Global public health goods
   - Operational Framework
   - Implementation solutions
   - Case study compendium
   - Innovative capacity building
   - COVID19-PHC evidence synthesis commission
   - Measurement and monitoring guidance

3. Policy and partnership
   - PHC renewal continued
   - Global Action Plan SDG3 PHC Accelerator (WHO-UNICEF co-lead)
   - Advocacy and communication
   - Partners: the World Bank, OECD, Gavi, Global Fund, GFF

Goals

Workstreams

Cross-cutting Functions

Powered by the Joint working team for UHC & PHC
The Operational Framework for PHC provides levers to accelerate progress.

**PHC APPROACH**
- Integrated health services with an emphasis on primary care and essential public health functions
- Empowered people and communities
- Multisectoral policy and action

**PHC LEVERS**

**Strategic Levers**
1. Political commitment and leadership
2. Governance and policy frameworks
3. Funding and allocation of resources
4. Engagement of communities and other stakeholders
5. Models of care
6. Primary health care workforce
7. Physical infrastructure
8. Medicines and other health products
9. Engagement with private sector providers
10. Purchasing and payment systems
11. Digital technologies for health
12. Systems for improving the quality of care
13. Primary health care-oriented research
14. Monitoring and evaluation

**PHC RESULTS**
- Improved access, utilization and quality
- Improved participation, health literacy and care seeking
- Improved determinants of health
**Primary health care in practice**

**What it is**

- **A whole-of-society approach** to health that aims at ensuring the highest possible level of health & well-being and its equitable distribution in the population.

- PHC provides better value for money than its alternatives, but still requires considerable investment.

- Dealing with the health of everyone in the community.

- A comprehensive response to people’s health needs and expectations, including promotion of healthier lifestyles and mitigation of the health effects of social and environmental hazards.

- A health system wide approach to address the health needs and preferences of populations, while maximizing effectiveness, efficiency and equity of health outcomes.

- Institutionalized participation of civil society, communities and people in policy dialogue, accountability, health system management and in decisions about their health care, with improved health literacy.

- Integrated and people-centered health services encompassing all levels and settings of care, focusing on primary care as coordinator.

- Teams of health workers with an appropriate skill mix facilitating access to comprehensive health services and appropriate use of technology and medicines.

**What it is not**

- A basic package of health interventions and essential drugs for the poor.

- PHC is cheap and requires only a modest investment.

- Concentration on specific populations (i.e. mother & child health only).

- Focus on a small number of selected diseases, primarily infectious and acute (i.e. HIV care alone).

- An exclusive focus on primary care services (first-level care) missing out on the opportunities of wider health system alignment, multisectoral action and community engagement and empowerment.

- People and communities are passive recipients of health services without a voice on health matters.

- Primary care working in isolation from sub-specialty care, in-patient hospital care, etc., without mechanisms for integration & coordination.

- Volunteer, non-professional community health workers working in isolation with limited scope of practice, medicines and technologies.

Modified from Table 1 ‘How experience has shifted the focus of the PHC movement’, WHR 2008 (WHO, 2008)
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 a 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 the 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.
**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.

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**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.
RHIS Global Consultation – European region

Challenges
1. Strategy for RHIS system implementation and evaluation
2. Financial, personnel and equipment resources
3. Cultural changes for healthcare professionals and the general public
4. Interoperability between systems
5. Privacy, security, and confidentiality of RHIS health data

Opportunities
1. Address information challenges
2. Improve population’s health through using digital data sources
3. Empower citizens regarding their own health
4. Track and address national health goals
5. Strengthen policy decision-making in local health systems

Priorities
1. Connect medical research, technology, and management sectors for efficient and useful development and implementation of RHIS
2. Manage financial and human resources effectively through project implementation protocols
3. Create collaborative networks between technical and healthcare professionals in the context of RHIS
4. To incorporate the needs of professionals who use RHIS
5. Develop appropriate training programs for healthcare personnel


For further information please contact the Data, Metrics and Analytics Unit at WHO/Europe (euhiudata@who.int).
Strategic initiatives to improve Routine Health Information Systems in the Eastern Mediterranean Region

Global consultation to optimize Routine Health Information Systems to effectively deliver Universal Health Coverage and improve Primary Health Care in countries

1-2 September 2021
RHIS Global Consultation – Eastern Mediterranean Region

Challenges

1. Lack of/outdated national HIS strategic plans
2. Limited infrastructure and coverage of electronic HIS (e.g. DHIS2)
3. Power supply and geographic accessibility challenges
4. Quality of data especially on cause of death
5. Analytical capacity, data standards, linkages and architecture
6. COVID-19 pandemic and humanitarian crises
7. Data use and review for action

Opportunities

1. Regional committee resolutions on strengthening HIS and use of data for decision-making
2. SCORE for Health Data Technical Package
3. Primary Health Care Measurement Initiative
4. Digitalization of ICD-11 and WHOFIC-CC in Kuwait
5. Regional strategy to improve HIS including CRVS systems
6. Global strategy to improve Routine HIS
7. Global mainstreaming of technical working groups: Hub and Spoke, D4H initiatives for Routine HIS

Key initiatives and related products

1. Improving CRVS systems and cause of death
2. Regional core indicators framework
3. Improving routine HIS
4. Electronic Health Records and data linkages
5. Household and facility surveys
6. ICD-11 pilot implementation and scale-up
7. DHIS 2 in Action (www.dhis2.org)

- Country: Afghanistan - Years: 2016, 2018
- Country: Libya - Year: 2018
- Country: Pakistan - Year: 2017
- Country: Palestine - Year: Modular use
- Country: Lebanon, Syria, Jordan, Iraq, Yemen - Years: Planned pilot
Strategic initiatives to improve Routine Health Information Systems in the Eastern Mediterranean Region

Global consultation to optimize Routine Health Information Systems to effectively deliver Universal Health Coverage and improve Primary Health Care in countries

1-2 September 2021
Opportunities to Improve routine HIS

  - Improving birth and death data
  - Improving national HIS and core health indicators
- SCORE for Health Data Technical Package
- **Primary Health Care Measurement Initiative**
- Digitalization of ICD-11
- Presence of WHOFIC-CC (Kuwait)
- Regional strategy to improve HIS including CRVS systems
- Global strategy to improve routine HIS
- Global mainstreaming of technical working groups: Hub and Spoke, D4H initiatives for RHIS
Key challenges in improving routine HIS

• Lack of/outdated national HIS strategic plans
• Limited infrastructure and coverage of electronic HIS (e.g. DHIS2)
• Interrupted power supply (infrastructure) and geographic accessibility
• Quality of data especially on cause of death data
• Analytical capacity
• Data standards, linkages and architecture
• Data use and review for action
• COVID-19 pandemic and humanitarian crises
• Limited financial resources and staffing constraints
**Priority areas**

- Electronic Health Records and data linkages
- Improving CRVS systems & Cause of Death certification and reporting
- Improving ICHI EMR core indicators framework (including SDG indicators)
- EMR initiatives to improve country health data systems
- Improving household and facility surveys and survey data
- Improving routine health information systems
- Forecasting and modelling progress toward UHC and "triple billion" outcomes

---

**Improving CRVS systems & Cause of Death certification and reporting**
- Afghanistan 2016
- Libya 2018
- Sudan 2014 2016
- Somalia 2016
- Pakistan 2017
- Lebanon
- Syria
- Jordan
- Iraq
- Yemen

**Improving ICHI EMR core indicators framework (including SDG indicators)**
- Afghanistan 2016 2018
- Libya 2018
- Sudan 2014 2016
- Somalia 2016 2017
- Pakistan 2017
- Lebanon
- Syria
- Jordan
- Iraq
- Yemen

**Improving household and facility surveys and survey data**
- Afghanistan
- Libya
- Sudan
- Somalia
- Pakistan
- Lebanon
- Syria
- Jordan
- Iraq
- Yemen

**Improving routine health information systems**
- Afghanistan
- Libya
- Sudan
- Somalia
- Pakistan
- Lebanon
- Syria
- Jordan
- Iraq
- Yemen

**Forecasting and modelling progress toward UHC and "triple billion" outcomes**
- Afghanistan
- Libya
- Sudan
- Somalia
- Pakistan
- Lebanon
- Syria
- Jordan
- Iraq
- Yemen

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**DHIS 2 in Action**

- www.dhis2.org

**Country** | **Pilot** | **National Scale**
--- | --- | ---
Afghanistan | 2016 | 2018
Libya | 2018 |
Sudan | 2014 2016 |
Somalia | 2016 | 2017
Pakistan | 2017 |
Lebanon | Modular use |
Syria | |
Jordan | |
Iraq | Planned pilot |
Yemen | |
Key achievements related to routine HIS

- Capacity building (facility data analysis using DHIS2, ICD-coding, COVID-19 weekly mortality reporting)
- Development of integrated routine HIS
- Implementation of SARA survey (Pakistan) – HFA survey Somalia, plans ongoing in others
- Increased awareness of MS in global standards and methods to compile cause of death data
  - Regular reporting of mortality by Oman and Lebanon (and less by others)
- Comprehensive HIS assessments – done remotely in other countries
- Development of a regional health profile and SDG profile
- Updated regional HIS strategy
- Piloting ICD-11 (Egypt, Iran, Iraq, Kuwait and Tunisia)
Lessons learned

• Use of national consultants led to significant progress especially during the COVID-19 pandemic
• WCO coordination and engagement with regional offices to review and monitor progress
• Balancing available resources and demands
**RHIS Global Consultation – Eastern Mediterranean Region**

### Challenges

1. Lack of/outdated national HIS strategic plans
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### Opportunities

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### Key initiatives and related products

1. Improving CRVS systems and cause of death
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4. Electronic Health Records and data linkages
5. Household and facility surveys
6. ICD-11 pilot implementation and scale-up

**DHIS 2 in Action [www.dhis2.org](http://www.dhis2.org)**

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<th>Country</th>
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<td>Yemen</td>
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</tr>
</tbody>
</table>
Priorities for strengthening RHIS in the WHO South-East Asia Region

Effective UHC / health-related SDG progress monitoring

PHC recovery – closing the NCD diagnosis / treatment gap

Better data. better decisions. better health.
Optimizing Routine Health Information Systems

AFRO Plans to fast track RHIS in Countries
RHIS Global Consultations- AFRO

Challenges

- Weak governance for health information system
- Poor systems for data collection and management for instance
- Limited skills for data analysis, including data quality analysis
- Lack of strong mechanism that promotes access and use of health data and information such as health observatories

Opportunities

- SCORE findings provide an excellent opportunity as it maps HIS gaps in Countries
- A number of countries are developing their National Health Strategies and a number also developing HIS specific strategic plans
- Renewed efforts to generate reliable mortality statistics provides an opportunity to strengthening RHIS

Priorities

- Leadership and governance for National Health Information System
- Systems for collection, storage and transmission of health data
- Institutionalization of capacity for analysis and synthesis of data, including data quality improvement
- Communication and use of data for decision making
Global consultation to optimize Routine Health Information Systems (RHIS) to effectively deliver Universal Health Coverage (UHC) and improve Primary Health Care (PHC) in countries

Routine Health Information Systems (RHIS)

4 years of Information Systems for Health implementation in the Americas

Opportunities, challenges & priorities

Department of Evidence and Intelligence for Action in Health (EIH) / PAHO / WHO

Marcelo D’Agostino
Senior Advisor, Information Systems and Digital Health
Department of Evidence and Intelligence for Action in Health
2016
High-level meeting on Information Systems with the Caribbean countries

2018
Application of a maturity assessment tool to all countries and territories in the Americas
High-level meeting on Information Systems with the South American countries
Seed money/Call for proposals for project implementation in the countries

2019
The Plan of Action for the Strengthening of Information Systems for Health in the Americas was approved by Member States at the PAHO Directing Council

2020-21
IS4H Focused on COVID-19 (Tools, Methodologies, Webinars, Factsheets, Technical support)

2021
Member States Regional Policy for the Digital Transformation of the Health Sector
Global consultation to optimize Routine Health Information Systems (RHIS) to effectively deliver Universal Health Coverage (UHC) and improve Primary Health Care (PHC) in countries

Opportunities

- Renewed CRVS systems
- Regulatory frameworks that support management of data and information through electronic media, and address the aspects of dissemination, access, privacy, ethics, openness, cybersecurity, interoperability, and domain or property
- Implementation of digital literacy programs as an ongoing mechanism to strengthen human resources skills to work within the information society

Challenges

- Lack of governance models (Multisectoral and interdisciplinary)
- Access to real-time “critical” data for rapid decisions
- Focus on data rather than IT solutions
- People (patients) centered approach
- Connectivity and bandwidth
- Digital literacy

Priorities

Strengthening of the foundational aspects and governance mechanisms to make investments and actions focused on cost-effective, informed, reliable, resilient and sustainable information systems for health

Focus on:

- Data governance
- Open Data
- Interoperability
- Digital transformation
- Cocreation of Public Goods
- People centered
### Maturity Levels by Data Management and Information Technology indicators

<table>
<thead>
<tr>
<th>Sub Region</th>
<th>Data Governance</th>
<th>Data Sources</th>
<th>Information Products</th>
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### Maturity Levels by Management and Governance indicators

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<th>National and International Agreements</th>
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**Avg. Ranking**

- 1.00
- 2.00
- 3.00
- 4.00
- 5.00

Global consultation to optimize Routine Health Information Systems (RHIS) to effectively deliver Universal Health Coverage (UHC) and improve Primary Health Care (PHC) in countries.
### Maturity Levels by Knowledge Management and Sharing indicators

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Avg. Ranking: 1.00 (Dark Blue) to 5.00 (Light Blue)
### Maturity Levels by Innovation indicators

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Global consultation to optimize Routine Health Information Systems (RHIS) to effectively deliver Universal Health Coverage (UHC) and improve Primary Health Care (PHC) in countries

IS4H REGIONAL RESULTS

Level of maturity

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<tr>
<th>Level of Maturity</th>
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<th>KMSH</th>
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</table>

Situation report: 4 years of IS4H implementation - Department of Evidence and Intelligence for Action in Health (EIH) / PAHO / WHO

IS4H Strategic goals
A collective effort between PAHO and Member States in collaboration with critical partners

**Results:**
- Better outcomes in health

**Efforts:**
- Data governance
- Critical data gathering
- Disaggregated data management
- Interoperable platforms supported by an Open Public Health
- Digital transformation
- Ethical use of AI, Blockchain and other emerging technologies

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