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Progress report on the regional strategy for integrated disease surveillance: overcoming data fragmentation in the Eastern Mediterranean Region

Introduction

1. Access to reliable and timely data is essential for making informed health-related decisions. However, in most countries within the Eastern Mediterranean Region, challenges exist as access is often limited due to suboptimal disease surveillance systems. These systems are frequently fragmented, uncoordinated, paper-based and donor-driven, leading to inefficiencies and gaps in early detection and response.

2. To address these challenges, in October 2021 the 68th session of the WHO Regional Committee for the Eastern Mediterranean adopted resolution EM/RC68/R.3 endorsing a regional strategy for integrated disease surveillance (IDS). The strategy includes key actions covering governance, technical guidance, laboratories, funding, infrastructure, human resources, data analysis and quality assurance, with a focus on using a consolidated electronic platform to enhance the effectiveness of surveillance systems, overcome data fragmentation and improve surveillance and public health intelligence. The resolution also requested the WHO Regional Director for the Eastern Mediterranean to report to the Regional Committee at its 70th and 72nd sessions on progress in implementing the strategy.

3. In line with resolution EM/RC68/R.3, this report provides a final report on the progress made by countries in implementing the regional IDS strategy since October 2021, as well as WHO support related to the initiative, including progress since the last report in October 2023. However, the regional WHO IDS technical working group is proposing an extension of the reporting period on implementation of the strategy until 2027.

Progress update

4. WHO and its Member States have made substantial progress in advancing the IDS strategy through effective governance and implementation, reinforcing their commitment to creating a more resilient and effective public health surveillance system.

5. To support implementation of the IDS strategy, WHO's regional team is assisting Member States through a cross-departmental IDS technical working group. The working group provides strategic guidance and practical tools for national health ministries, offering specialized support in areas such as governance and advocacy, technical guidance, digital platforms and laboratory services.

Governance

6. In response to a bilateral survey conducted by the WHO Regional Office in the last quarter of 2024, 14 countries (Afghanistan, Bahrain, Iraq, Jordan, Kuwait, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Tunisia and the United Arab Emirates) reported the establishment of a structured and functional multistakeholder national governance body for surveillance, ensuring the long-term viability and

effectiveness of disease surveillance systems. A key priority in strengthening governance is the development and updating of a clear roadmap for IDS implementation at the country level, with well-defined milestones and timelines to guide progress. Since the adoption of the strategy in 2021, Afghanistan, Iraq, Kuwait, Lebanon, Libya, Morocco, Pakistan, Qatar, Somalia, Sudan, the Syrian Arab Republic and Tunisia have successfully developed their roadmaps and identified national priorities for IDS.

7. In 2022, with the support of WHO, Pakistan revised its integrated disease surveillance and response (IDSR) strategy, developed an action plan and training package, and expanded the number of pilot districts. Since 2021, Somalia has been implanting its IDSR strategic plan by providing training to federal and state disease surveillance staff. In Libya, the IDS strategy was launched in December 2023. Several other countries are actively working towards establishing similar governance structures and identifying their priorities for IDS. WHO has played a pivotal role in this process by providing countries with tools and templates to support the establishment of governance structures and the formulation of roadmaps. A paper on achieving IDS in the Eastern Mediterranean Region was published in the *Eastern Mediterranean Health Journal* in January 2024.[1]

Technical guidance

8. Developing a national guidance document is essential to standardizing disease surveillance activities, ensuring consistency, accuracy and efficiency across surveillance networks. Libya, Pakistan and Somalia have developed IDS and response guidance, while Jordan is making significant progress in updating its national surveillance guidance to ensure a more integrated approach. All countries in the Region have developed guidance documents for at least one aspect or component of their surveillance systems, and have guidance for indicator-based disease surveillance. However, alignment (if not integration) between these different surveillance guidelines needs to be achieved.

9. Regional event-based surveillance (EBS) guidance has been drafted to assist countries in establishing EBS and complementing their surveillance systems for the early detection of public health events. In collaboration with WHO, 12 countries (Afghanistan, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Oman, Qatar, Somalia, Sudan and Tunisia) have developed or updated their EBS guides.

Event-based surveillance

10. Since the initiation of the regional strategy, 13 countries (Afghanistan, Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Oman, Qatar, Somalia, Sudan and Tunisia) have enhanced their public health event detection capacity by implementing EBS (including two since 2023). Standard operating procedures were developed, followed by training of trainers sessions, and EBS was subsequently rolled out at both national and subnational levels. In addition, public health intelligence capacities of four countries (Egypt, Jordan, Djibouti and Lebanon) were enhanced through training, technical exchange and regular support.

11. Since the initiation of the strategy, 16 countries and territories (Afghanistan, Pakistan, Bahrain, Egypt, Iraq, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, north-west Syria and Tunisia) have integrated Epidemic Intelligence from Open Sources (EIOS) as a media scanning component within their EBS systems, including four since 2023. WHO has continued to provide extensive support through training, troubleshooting and follow-up, as a step towards ensuring robust and comprehensive IDS at the national level.

[1] Sahak MN, Sadek M, Mohammed OE, Kakakhan J, Habibi M, Doctor HV et al. Achieving integrated disease surveillance in the Eastern Mediterranean Region. East Mediterr Health J. 2024;30(1):3–4. doi:10.26719/2024.30.1.3.

Information technology

12. Digitalization and interoperability between digital platforms are critical for achieving IDS and enabling evidence-based public health actions. A regional mapping of surveillance IT systems confirmed that all countries and territories in the Region utilize electronic platforms in at least one surveillance system, an increase of two since 2023. Six countries (Afghanistan, Iraq, Lebanon, Pakistan, Sudan and Yemen) had already adopted District Health Information Software version 2 (DHIS2) for at least one aspect or component of surveillance. As an open-source and fully customizable data platform with a strong global support network, DHIS2 offers a viable option for countries seeking a unified IDS platform. In 2023, Iraq began implementing DHIS2 for EBS in health facilities to enhance early detection and response to public health threats.

13. To further strengthen disease surveillance, a compatible electronic package of the Early Warning, Alert and Response Network (EWARN) was developed in 2024. This system standardizes reporting, automates workflows, establishes alert thresholds and enables real-time notifications. Additionally, digital adaptation kits have been created to support the seamless integration of digital tools for improved disease tracking and management.

Surveillance workforce

14. An equitable and trained surveillance workforce is essential for the effective implementation and sustainability of IDS systems. Field epidemiology training programmes (FETPs) play a pivotal role in strengthening country surveillance capacities by equipping professionals with the expertise needed to detect, investigate and respond to outbreaks and public health emergencies.

15. As of February 2025, 16 countries in the Region (Afghanistan, Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Tunisia and Yemen) are implementing FETP to build a resilient public health and surveillance workforce.

16. In Egypt and Jordan, FETP-supported public health intelligence training has enhanced surveillance systems, while Egypt's One Health FETP, a specialized training initiative that integrates human, animal and environmental health sectors, fosters cross-sectoral collaboration and integration.

17. To develop a sustainable and skilled surveillance workforce aligned with the IDS strategy, WHO partners with academic institutions, including Egypt's High Institute of Public Health. It has also strengthened its collaboration with countries and with global and regional stakeholders through the Global Field Epidemiology Partnership (GFEP) to promote the integration of field epidemiology capacities into national health systems to enhance global health security. The GFEP is a global network of partners launched in October 2023 to strengthen the field epidemiology workforce and the institutions that support it.

18. Additionally, the Region actively participates in the Competencies for One Health Field Epidemiology (COHFE) framework, which defines the knowledge, skills and competencies needed for field epidemiologists to implement the One Health approach. It consists of 14 domains with guidance for frontline, intermediate and advanced training levels.

Data analysis and dissemination:

19. Data analysis and dissemination are key strategic priorities of the IDS strategy. Effective data management and analytics at all levels are essential for generating timely, accurate and actionable insights to support public health decision-making.

20. With technical support from WHO, Afghanistan, Djibouti, Egypt, Jordan, Lebanon and Pakistan have made significant progress in automating data analysis and report generation for surveillance, further strengthening data-driven public health responses. More than 200 professionals from nine countries (Afghanistan, Egypt, Jordan, Lebanon, Morocco, Oman, Pakistan, Syrian Arab Republic and Tunisia) have been trained in analysing and visualizing surveillance data using Power BI, R and Excel. These capacity-building efforts represent a critical step in enhancing data analysis capabilities, automating processes and developing interactive dashboards using advanced technologies.

21. At the regional level, partnerships have been established with key organizations, including the United States Centers for Disease Control and Prevention (US CDC), the Eastern Mediterranean Public Health Network (EMPHNET), the University of California San Francisco (UCSF) and Applied Epi, to introduce a coordinated capacity-building approach for data analysis and dissemination across countries in the Region.

Partnerships

22. A successful IDS system relies on strong partnerships among key stakeholders, including governments, resource and implementing partners, international organizations, public health institutions, academia and nongovernmental organizations. These collaborations are essential for streamlining support to countries, ensuring coordinated action and enhancing the effectiveness of surveillance efforts.

23. WHO is coordinating these partnerships and has made progress in establishing a regional surveillance stakeholder engagement platform to foster collaboration and harmonize surveillance initiatives across the Region. Discussions have been initiated with key partners, including EMPHNET, the European Centre for Disease Prevention and Control (ECDC) and the Robert Koch Institute, and have previously taken place with US CDC, among others. Through well-coordinated partnerships, countries can develop more comprehensive, efficient and sustained IDS systems. Strengthened collaboration will ultimately enhance global health security and public health preparedness, enabling timely responses to emerging and re-emerging disease threats.

Challenges

24. **Governance and policy.** The lack of national governance structures in some countries to support IDS continues to result in fragmented and uncoordinated efforts, creating significant obstacles to effective implementation. The situation is further exacerbated by the absence of a clear vision and policy for national integrated surveillance systems. Without strong governance and well-defined policies, IDS efforts remain inconsistent, weakening the overall capacity to monitor and respond to public health threats.

25. **Technical and operational capacity.** Many countries still face significant technical and operational gaps that hinder their ability to integrate surveillance systems and harmonize data from multiple sources, resulting in fragmented and inefficient disease surveillance. Without reliable and comprehensive data, health authorities face challenges in identifying trends, detecting outbreaks and implementing timely interventions.

26. **Data integration**. This is a critical challenge due to technical incompatibilities between electronic platforms for surveillance and organizational silos. Different sectors use isolated systems with no interoperability, limiting real-time data sharing and the ability to conduct comprehensive disease surveillance.

27. **Laboratory–surveillance systems disconnection**. A lack of coordination between laboratory and surveillance systems weakens decision-making by preventing a comprehensive analysis of the situation. Additionally, many laboratories still use paper-based records, delaying data sharing with the surveillance

systems. Without seamless integration between public health laboratories and surveillance platforms, delays in outbreak confirmation and epidemiological assessment can hinder timely responses.

28. **Financial constraints**. One of the key challenges in achieving IDS is the limited funding allocated by governments, which restricts investment in the integration of surveillance systems. Moreover, donors often prioritize vertical (disease-specific) surveillance systems over integrated approaches, leading to inefficient resource allocation. Donor-driven programmes tend to focus on short-term objectives, making it challenging to establish sustainable, long-term surveillance systems embedded within national health frameworks.

29. **Collaboration and coordination.** Limited collaboration among surveillance actors further weakens the ability to address health threats comprehensively. The absence of strong intersectoral coordination among health, animal and environmental sectors results in fragmented surveillance efforts, reducing the effectiveness of outbreak detection and response. Poor coordination and collaboration often stem from the absence of a clear central governance body to guide collaboration across sectors. Limited communication between stakeholders further adds to this challenge, making it harder to share timely information and coordinate responses effectively.

The way forward

30. The strengthening of governance and coordination is critical for the successful implementation of IDS by Member States. Clear governance structures should ensure multisectoral coordination across the health, agriculture, environment and emergency sectors. WHO will continue to support Member States in strengthening their national governance structures for IDS, ensuring effective leadership and coordination. Legislative and policy frameworks must be developed to support long-term sustainability and ensure alignment with the International Health Regulations (2005) and global health security frameworks. Furthermore, regional IDS coordination platforms should be enhanced to facilitate experience sharing and harmonized surveillance approaches.

31. Technical guidance and capacity-building are essential for the effective implementation of IDS. To support this, WHO will continue to provide Member States with tailored technical support, including the development and dissemination of practical guidance and tools to strengthen national surveillance systems. In addition, WHO will support the training and capacity development of the surveillance workforce at national and subnational levels to ensure they have the necessary skills and knowledge to implement and sustain IDS effectively.

32. Member States should continue strengthening their digital surveillance platforms to accelerate IDS implementation. This includes the full integration of digital tools such as EBS, IBS, EIOS and AI-driven analytics. Interoperability across surveillance platforms should be enhanced through standardized data architecture, and the use of AI and predictive modelling should be expanded for outbreak forecasting and risk mapping. WHO will continue to support Member States in this.

33. Investing in a laboratory information management system will enable timely and integrated data sharing with the surveillance platform, enhancing real-time reporting and decision-making.

34. Expanding capacity-building initiatives is essential to ensuring sustained field epidemiology expertise. The scaling up of FETP and rapid response team training programmes will help to strengthen national epidemiology units. National data analytics units should be developed to improve real-time outbreak intelligence and reporting, which will contribute to a more robust surveillance system.

35. Cross-border surveillance and regional coordination must be enhanced to ensure timely responses to health threats. Information-sharing frameworks between countries should be strengthened, particularly in high-risk border regions. Additionally, collaborative outbreak response mechanisms should be reinforced through the integration of regional laboratory networks.

36. To measure progress and ensure continuous improvement, a detailed monitoring and evaluation framework should be developed and implemented by Member States. This framework should include key performance indicators to track IDS implementation progress and facilitate regular reporting on achievements and gaps at both regional and global levels.

37. Sustainable financing is fundamental for the long-term success of IDS. Increased domestic investment in IDS at the national level should be encouraged to ensure sustainability. Furthermore, partnerships with development banks, the private sector and philanthropic organizations should be strengthened to diversify funding sources and secure long-term financial support for IDS initiatives. Resource mobilization efforts should leverage existing global and regional funding mechanisms, such as the Pandemic Fund, the Health Security Partnership to Strengthen Disease Surveillance in Africa, the Joint Emergency Preparedness and Response Action Plan, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and Gavi, the Vaccine Alliance.

38. Member States are invited to endorse the proposal of the regional WHO IDS technical working group to extend the reporting period of the regional strategy for IDS until 2027.