

National outbreak response handbook

by the Global Outbreak Alert and Response Network



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Foreword

Over the past 23 years, the Global Outbreak Alert and Response Network (GOARN) has evolved and grown to be an essential network within the global health emergency preparedness and response landscape. The World Health Organization (WHO) and GOARN's partners have worked continually to improve global health security by coordinating and making available the resources of the multidisciplinary Network to ensure operational readiness and scalable responses to public health emergencies.

The *GOARN 2022–2026 Strategy* was launched at the end of February 2023. An updated GOARN Strategy was needed to both scale and strengthen GOARN's impact in the years to come and maintain relevance, given the changing global architecture of health emergency preparedness, response and resilience. Since then, the GOARN Steering Committee, partners and WHO have been working diligently to translate this strategy into meaningful and relevant activities at the local, national, regional and global levels, including through improved documentation and guidance. One such example is the *National outbreak response handbook* by GOARN.



As the world faces the relentless challenges presented by outbreaks of infectious diseases, it is vital to have an accessible resource that reflects the historical lessons learned across diverse response actors. GOARN is unique in bringing together an array of partners, guided by principles of inclusivity and equity, to demonstrate that we can respond better together. This Handbook represents a milestone in summarizing essential components of national outbreak response and referencing key resources that have been developed by GOARN's partners over the years.

A stylized, handwritten signature in blue ink, appearing to read 'Ryan'.

Dr Michael Ryan

Deputy Director General, WHO

Executive Director, WHO Health Emergencies Programme

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A technical working group composed of international experts in outbreak response from the GOARN Steering Committee, convened by the GOARN Operational Support Team, contributed to the development and review of this guidance. WHO gratefully acknowledges the wider GOARN Steering Committee for their continuous feedback on the document's overall aims and scope. Members of the core technical working group include (in alphabetical order): Gail Carson (International Severe Acute Respiratory and Emerging Infection Consortium), Kieh Christopherson (Indo-Pacific Centre for Health Security, Australia), Gwen Eamer (International Federation of Red Cross and Red Crescent Societies [IFRC]), Prakash Ghimire (Tribhuvan University, Nepal), Andreas Jansen (Robert Koch Institute [RKI], Germany), Ali Khan (University of Nebraska Medical Center, United States of America), Ghassan Matar (American University of Beirut, Lebanon), Edmund Newman (UK Health Security Agency [UK HSA], United Kingdom of Great Britain and Northern Ireland), Jerome Pfaffmann Zambruni (United Nations Children's Fund [UNICEF]), Lubaba Shahrin (International Center for Diarrhoeal Disease Research, Bangladesh) and Oleg Storozhenko (WHO Regional Office for Europe). Members of the wider GOARN Steering Committee include (in alphabetical order): Mohannad Al-Nsour, Eastern Mediterranean Public Health Network), Simon Antara (African Field Epidemiology Network), Athalia Christie (Centers for Disease Control and Prevention, United States of America), Daniela Garone (Médecins Sans Frontières International), Thomas Hofmann (European Centre for Disease Prevention and Control), Louisa Jin Sun (National University of Singapore), Alejandra Morales (Instituto Nacional de Enfermedades Virales Humanas "Dr Julio I Maiztegui," Argentina), Howard Njoo (Public Health Agency of Canada), Sean Starmer (Indo-Pacific Centre for Health Security, Australian Government's Department of Foreign Affairs and Trade), Jacqueline Weyer (National Institute for Communicable Disease, South Africa) and Yanping Zhang (Chinese Center for Disease Control and Prevention, China).

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In accordance with WHO policies and procedures, all external experts contributing to this document were required to submit a WHO Declaration of Interests Form, each of which was assessed to ensure no conflicts of interests.

Abbreviations

CTC	cholera treatment centre
EDCARN	Emerging Diseases Clinical Assessment and Response Network
EMT	emergency medical team
GOARN	Global Outbreak Alert and Response Network
IMS	incident management system
IMST	incident management support team
IMT	incident management team
IOA	integrated outbreak analytics
IPC	infection prevention and control
NGO	nongovernmental organization
NPHA	national public health agency
OST	Operational Support Team
PHEOC	public health emergency operations centre
PHRST	public health rapid support team
RCCE	risk communication and community engagement
RFA	request for assistance
RQA	rapid qualitative assessment
RRML	rapid response mobile laboratory
RRT	rapid response team
SARS	severe acute respiratory syndrome
SOPs	standard operating procedures
UN	United Nations
WASH	water, sanitation and hygiene
WHO	World Health Organization



Background

Existing
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governanceTechnical
areasPartner
coordinationHealth info &
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management

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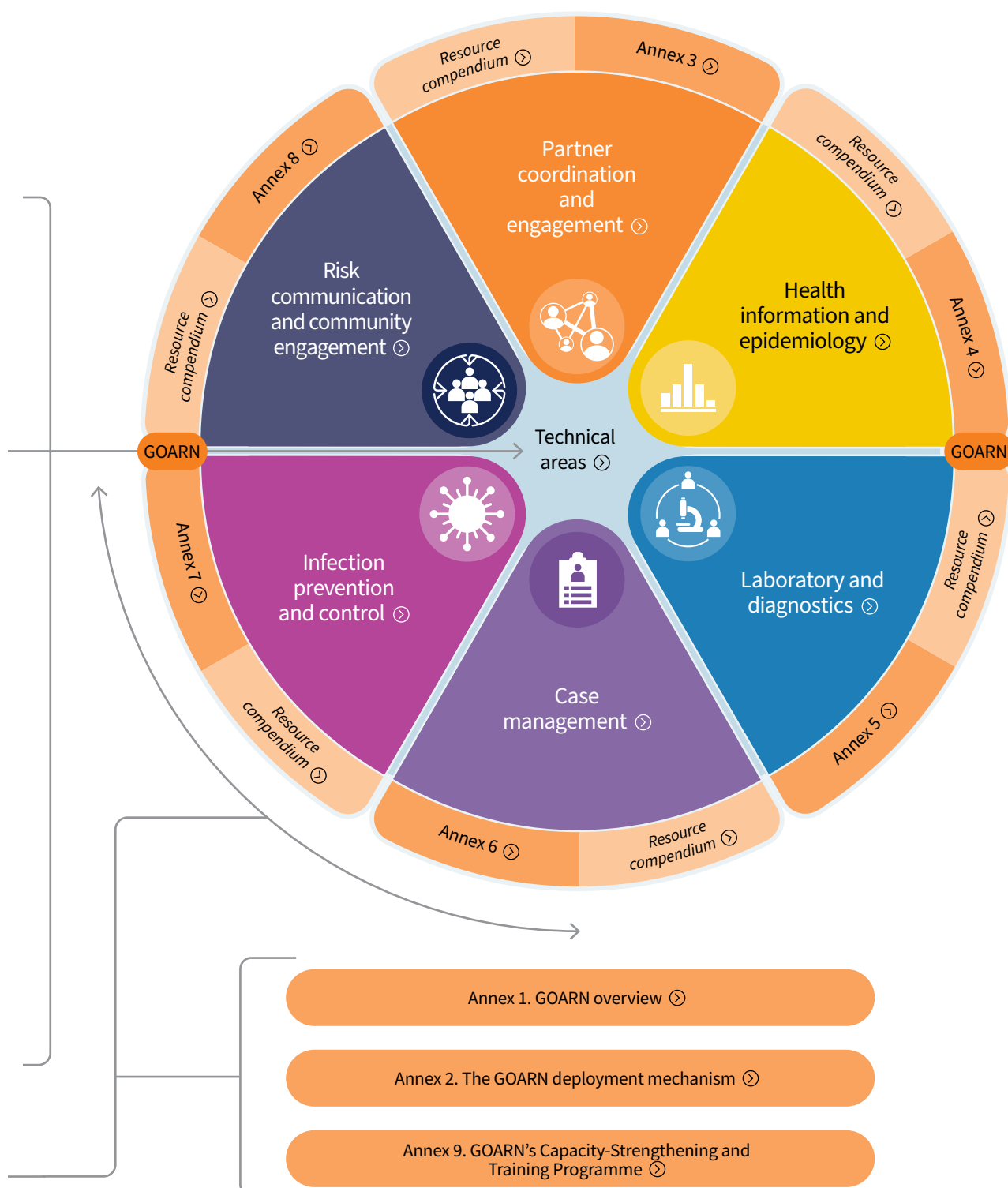
Annexes

Click this tab to return
to the Contents page.

This one will bring
you back here, to
the Document at
a glance.

Document at a glance

Click any section to jump to that
part of the document.



Background



An outbreak response team from the ministry of health searches for contacts of a recently confirmed measles case in El Fasher, North Darfur [Sudan]. © WHO / Lindsay Mackenzie

Handbook rationale and aims

Strengthening global health security to protect the world against future epidemics and pandemics requires well-tested and decentralized capacities for the local detection and rapid containment of outbreaks of infectious disease. For such capacities to translate into effective response actions, individuals and teams must be well connected and coordinated, despite differences in the size, geography, technical focus or constituency of their parent institution.

Founded in 2000 and representing more than 300 partners, the Global Outbreak Alert and Response Network (GOARN) was formed with the conviction that an institution or country cannot prepare for and respond to outbreaks by acting alone (1,2,3). Inclusivity and coordination across multidisciplinary, state and non-state actors, from the local to the global levels, is paramount for effective outbreak response. It is also emphasized in GOARN's founding principles (1) and articulated in recent global frameworks (4). Beyond this, operational response strategies must be adaptive to reflect lessons learned.

Despite anecdotal lessons and a breadth of institutional knowledge within and outside GOARN, there remains a clear need for an accessible resource to consolidate these lessons from diverse response contexts and from the collective voice of diverse response actors. Furthermore, outputs from the *GOARN 2022–2026 Strategy* implementation workshop in May 2023 demonstrated GOARN partners' desires to further elucidate lessons learned from the historical GOARN model and what innovations are needed for future responses (5,6). As of December 2023, GOARN's longstanding experience had spanned more than 3 500 deployments and 191 operations in 130 countries. This vast operational experience makes GOARN well placed to document best practices in responding to outbreaks through the deployment, support and capacity building of multidisciplinary teams.

The *National outbreak response handbook* by GOARN aims to:

- 1 **summarize effective organizational structures** and governance models that can be implemented during national outbreak responses;
- 2 **highlight best practices during outbreak responses**, based on GOARN partners' collective experiences; and
- 3 **reference key technical and operational resources** that have been developed by GOARN and its partners.

Thus, this Handbook should act as a practical guide for national public health agencies (NPHAs) and ministries of health as they prioritize critical public health elements when responding to outbreaks in their country.

Development process

Surfacing from discussions at the GOARN Regional Partners Meeting in Panama followed by the 33rd GOARN Steering Committee Meeting in Jordan, a technical working group was formed in June 2023 to initiate the conceptualization of this document. The technical working group, comprised of 11 international experts in outbreak response from the GOARN Steering Committee, was established and convened virtually on a bi-weekly basis from June to August 2023 to form consensus on intended audience, scope and structure.

Between August and November 2023, the GOARN Operational Support Team coordinated a scoping review of all GOARN partner websites and existing resource libraries in the field of outbreak response to retrieve relevant resources. Such publications formed the basis of the *GOARN resource compendium* and informed Handbook content. Documents were tagged by thematic area, and a snowball search of reference lists sought to achieve further exhaustiveness. WHO technical teams participating in the Incident Management System (IMS) (7) across various acute events were consulted for each technical area for comprehensiveness and alignment with existing WHO guidance and tools. Lastly, GOARN partners were invited to contribute to annexes and add examples to highlight innovations and projects to complement each technical area. Final consultations by the technical working group were held at the 34th Steering Committee Meeting in Geneva in December 2023.

Structure and scope

The Handbook starts with an introductory section on existing governance and coordination structures during national outbreak response. The main Handbook content is then organized into six main sections corresponding to the technical areas covered by a typical national-level multidisciplinary team responding to outbreaks -the acute events in which GOARN most frequently participates. Notably, these six technical areas are not representative of all GOARN activities and historical deployments, but were chosen based on the frequency of experts from these technical areas being deployed from 2000 to 2023 in addition to their alignment with the IMS applied through the WHO Emergency Response Framework (ERF) (7). The discussion of each technical area has three components: information about collective best practices, in the form of “10 things to know and do”; an extract from the *GOARN resource compendium* related to the area; and a corresponding annex with further descriptions of GOARN’s processes, projects or innovations (Fig. 1).



Background

Existing structures & governance

Technical areas

Partner coordination

Health info & epidemiology

Lab & diagnostics

Case management

IPC

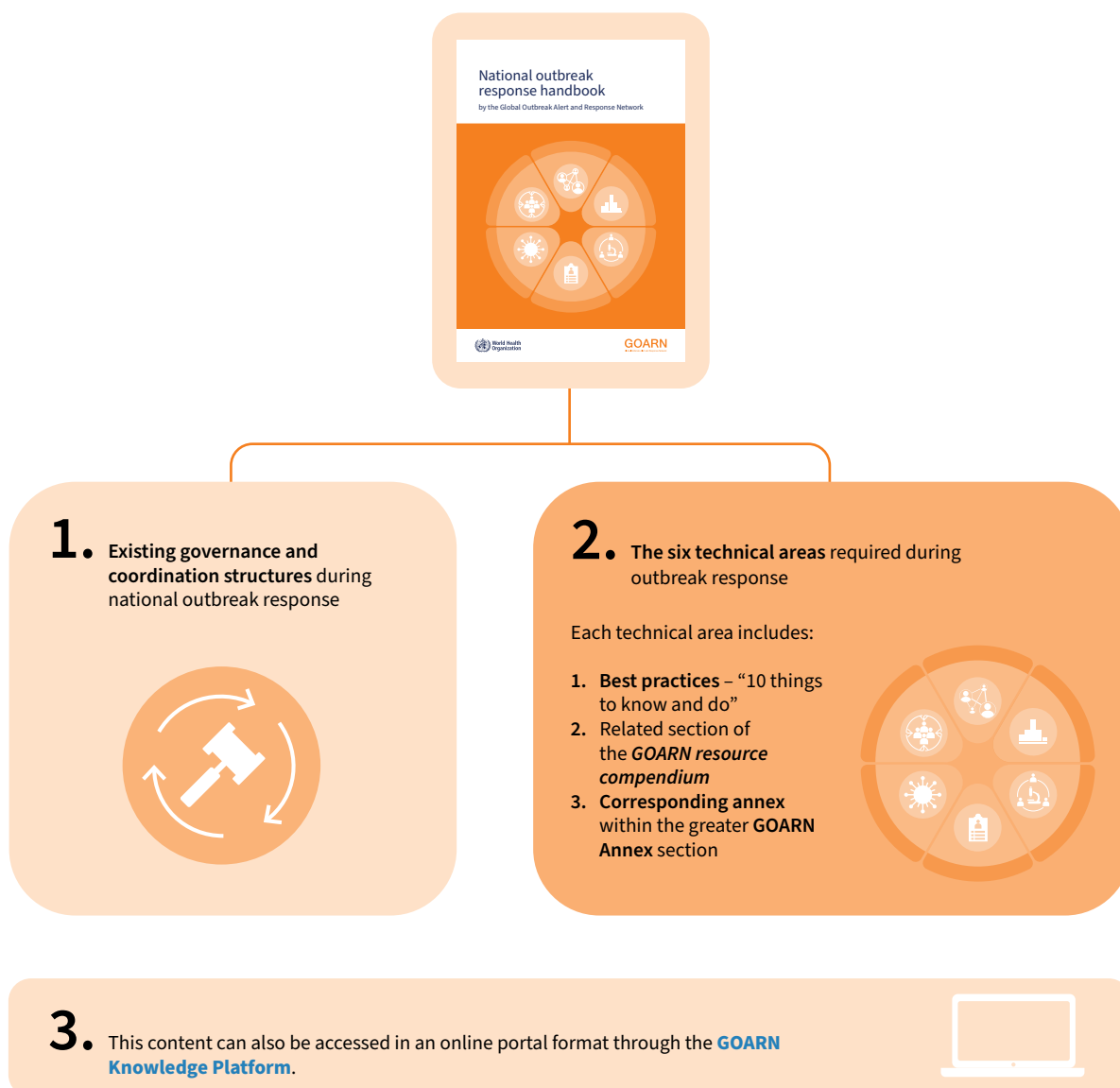
RCCE

Other

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Fig. 1. Structure of the *National outbreak response handbook* by GOARN



The Handbook uses responses to outbreaks of infectious disease as the main illustrative use cases; however, the risk of disease and humanitarian need are increasingly convergent. While the majority of GOARN’s activities have been centred on responding to infectious disease outbreaks, the Network has also responded to other types of non-infectious emergencies, such as natural disasters and conflicts. This Handbook focuses on best practices for outbreak response, although the concepts can be adapted more broadly to prepare for readiness and response to all hazards.

The Handbook does not describe in depth the governance structure of GOARN or the finer details of the ERF, which underpins WHO and GOARN’s operations. For more information about these topics, please refer to the full resources for the GOARN governance framework (8) and the WHO ERF (7).

The Handbook can be used to inform outbreak preparedness and response plans at the national and subnational levels, including to ensure complementarity with existing national outbreak response plans. Although the content of the Handbook is broadly applicable to current and potential GOARN partners, policy-makers and emergency responders, the primary audience is staff at NPHAs and ministries of health at the national and subnational levels.

Existing structures and governance during national outbreak response

There is no standard formula for responding to outbreaks. Each plan for national outbreak responses must be adapted to the event, national capacity and unique operational context. However, certain elements of a response and their interaction with existing national coordination structures will be consistent. Naturally, aspects of an outbreak response plan will also vary depending on the type of outbreak and phase of response, whether during early detection, containment, control and mitigation, or elimination.

Existing WHO and partner guidance about effective and scalable operational coordination mechanisms for emergencies highlight key structural elements that should be in place for overall response coordination at the national level. Notably, NPHAs and ministries of health are essential to national outbreak responses, and response governance should be multisectoral and whole of society, where needed, and it should also consider the needs and contexts of the affected communities. A tested coordination model is needed at the outset of any national outbreak response, with clearly defined roles and responsibilities for different stakeholders. It is vital that formal intersectoral linkages are established between counterparts, and that stakeholders are trained and have taken part in exercises that address the preparedness and readiness phases, so that teams are operational when an outbreak emerges.

Coordination structures used during outbreak responses may include one or more of the following:

- a **national emergency committee or interministerial task force** – a convening body with contributions from all sectors that has decision-making power;
- an **IMS** – a standardized yet flexible approach to organize and manage the technical areas (or pillars) for each outbreak response (7). This includes an in-country incident management team (IMT) and, as needed, incident management support teams (IMSTs) at regional and global levels;
- a **public health emergency operations centre (PHEOC)** – a physical location or virtual space where designated personnel can assemble to coordinate operational information and resources for strategic management of the outbreak response (29);
- **humanitarian coordination** of in-country partners – through an activated health cluster (or sector coordination group) (30,31), should an outbreak occur in a humanitarian setting.

Several of these structures may work in concert (e.g. the IMT may be coordinated from a PHEOC) and across multiple levels (e.g. subnational PHEOCs may feed into a national PHEOC) as part of a well-defined emergency response command structure. Regardless of the specific attributes of the coordination model, it should be established as close to the outbreak epicentre as possible, if the security situation permits.

Regardless of the coordination structures at play, the coordination elements should be well articulated in existing preparedness and response plans, such as national action plans for health security (9) and national health emergency response operations plans (10), as well as in similar plans at subnational levels and for specific contexts (e.g. cross-border), when applicable (11).



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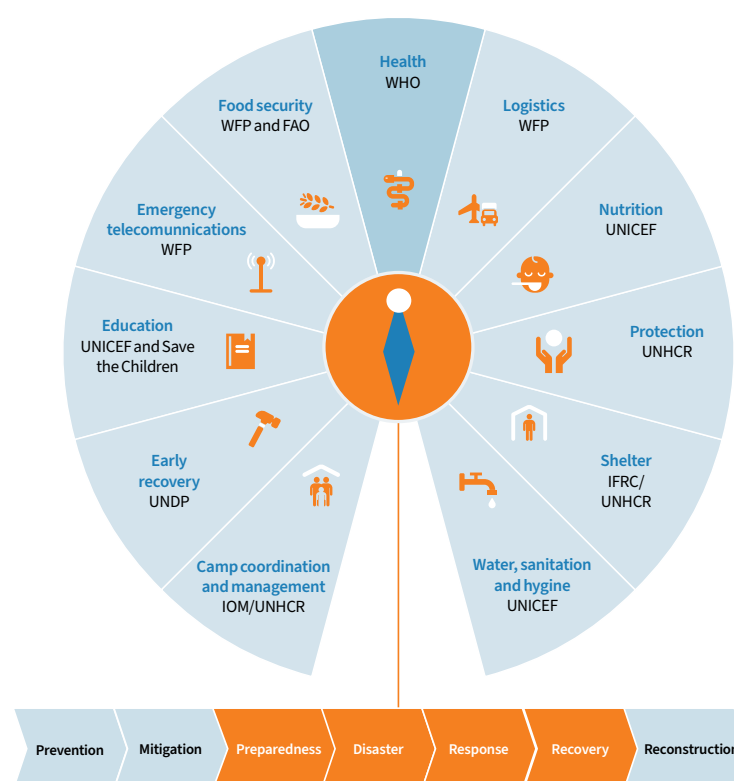
Annexes

Interoperability across coordination structures

It is essential that when an outbreak occurs in a fragile or conflict-affected setting, outbreak response structures link with pre-existing humanitarian coordination structures in the country. The need for, and utility of, this approach has been documented for past responses (12,13). WHO has specific responsibilities and accountabilities as the principal agency of the Inter-Agency Standing Committee's Global Health Cluster, coordinating the cluster globally, and leading in-country health clusters when these are activated (Fig. 2). Efforts should be made to integrate activities and information products between the IMS, when established, and the activated health cluster. Such intentional linkage will ensure that the focus on an epidemic brought by the IMS can interact effectively with the overall health and humanitarian needs of the affected populations (14). In addition, ensuring there are linkages among various IMS-led structures (e.g., an IMS led by the ministry of health, an IMS for the WHO response, an IMS for another UN agency or partner's response) can reduce the duplication of and align efforts across stakeholders.

Within and beyond humanitarian settings, ensuring interoperability among elements of the national response plan is the key to success when the system is tested. For example, ensuring that the response plan for points of entry is integrated into local health response plans in case of a large outbreak on cross-border cruise ships will prevent an outbreak from spreading into the community. Ensuring alignment among response plans also becomes increasingly relevant when multiple sectors are involved.

Fig. 2. The cluster approach: clusters and lead agencies



IOM: International Organization for Migration; IFRC: International Federation of Red Cross and Red Crescent Societies; UNDP: United Nations Development Programme; UNHCR: UN Refugee Agency; WFP: World Food Programme.

Source: Health cluster guide: a practical handbook (10)

Interoperability across surge response mechanisms

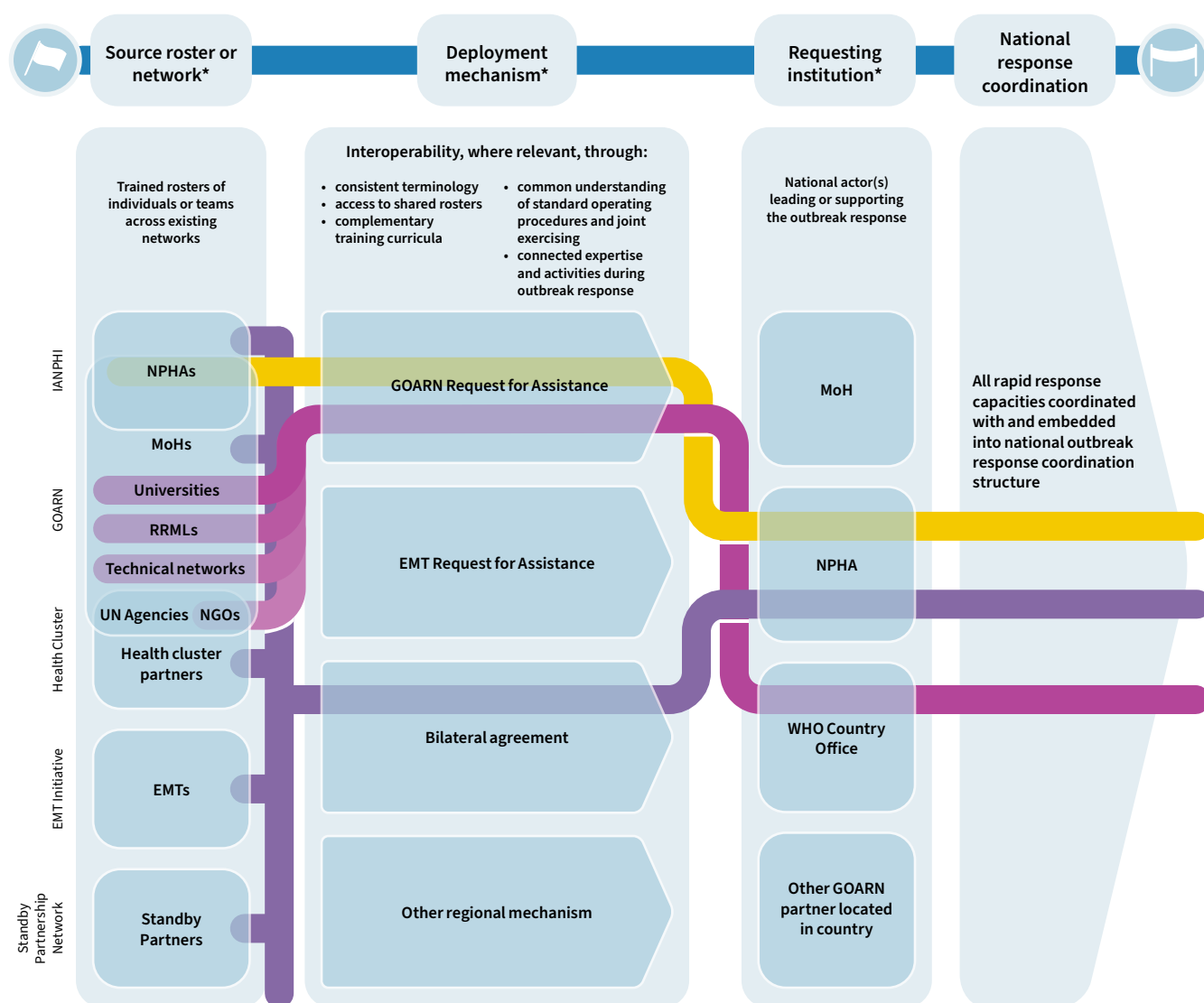
Identifying needs for and fulfilling surge response capacities are integral parts of the overall coordination of outbreak responses, ensuring that collective action across partners results in appropriate, quality health services and interventions for the affected population (7). This activity can occur within the partner coordination and engagement pillar of the IMS, as outlined in the WHO ERF.

The ability of various surge response mechanisms to easily exchange information, tools, expertise and experience through a dedicated pillar or working group is critically important to ensuring complementarity and sustainability. These exchanges can happen in a number of different ways, depending on the setting and context. A few examples of surge response mechanisms include GOARN, emergency medical teams (EMTs), and Standby Partners through the Standby Partnership Network. These mechanisms can source experts from rosters of individuals or teams across various partner institutions and networks (Fig. 3). Often, institutions are members of more than one network, and institutions may, in some instances, choose to deploy bilaterally rather than through a centralized mechanism. Importantly, surge response mechanisms are increasingly operating at subregional and national levels (e.g. experts on the African Health Volunteers Corps' SURGE roster deploy to outbreaks in neighbouring countries). The Global Health Emergency Corps (15), launched in May 2023, seeks to serve as a collaboration platform across the aforementioned surge response mechanisms and other partner networks to ensure global and regional coordination during surge response, strengthened public health emergency workforce and connected leadership during outbreaks and emergencies.

Broadly, interoperability across such mechanisms can entail use of shared terminology, common understanding of standard operating procedures (SOPs) or aligned curricula across capacity-strengthening initiatives. It may also involve functional interoperability during an outbreak response. While most traditional GOARN deployments involve individuals providing expertise to or via a WHO country office, opportunities exist for GOARN's partners to provide technical public health expertise to other deployed assets and organizations, including EMTs, as illustrated by the example in Box 1. More discussion on potential interactions across rapid response capacities can be found in [Annex 2](#).



Fig. 3. Dimensions of interoperability across surge response mechanisms, with selected examples



*This list is not exhaustive; key examples are provided for demonstration purposes.

Example pathway 1: global

Multidisciplinary experts across several partners supporting WHO Country Office

Example pathway 2: regional

NPHA supporting another NPHA in the region via existing regional rosters (e.g. Africa CDC's African Volunteer Health Corps initiative)

Example pathway 3: bilateral

Deployment of experts or teams through bilateral agreements between two Member States, agencies or partner organizations

IANPHI: International Association of National Public Health Institutes

GOARN: Global Outbreak Alert and Response Network

EMT: emergency medical team

MoH: ministry of health

NPHA: national public health agency

UN: United Nations

NGO: nongovernmental organization

RRML: rapid response mobile laboratory

WHO: World Health Organization

Box 1. Providing public health expertise to emergency medical teams: the United Kingdom's Public Health Rapid Support Team and emergency medical team

Epidemiological support during cholera outbreak and cyclone response, Malawi, 2023

After the prolonged spread of cholera and a surge in cases affecting all 29 districts in Malawi, the government declared a public health emergency and subsequently requested international support in December 2022. Following a call for support from the global Emergency Medical Team (EMT) Initiative, the United Kingdom's EMT deployed a team of clinical specialists on behalf of the government through the nongovernmental organization UK-Med; the team was based at cholera treatment centres (CTCs) supported by the ministry of health and WHO in assigned areas in Malawi and aimed at providing direct clinical care for people with cholera. The UK EMT deployment in February 2023 was accompanied by epidemiologists seconded from the UK Public Health Rapid Support Team (UK PHRST), a GOARN partner organization. Four epidemiologists from the UK Public Health Rapid Support Team augmented the UK EMT on a rotational basis for a period of 4–7 weeks each, from February to June 2023.

The field epidemiologists from the UK PHRST provided surveillance and epidemiological expertise for the CTCs that were supported by clinical staff from the UK EMT and subsequently to the primary health care mobile clinic response for people displaced by Tropical Cyclone Freddy. Key activities of the embedded epidemiologists included working to enhance EMT capacities in public health by providing technical assistance and delivering on-the-job surveillance training to triage nurses and data officers, implementing patient education and feedback processes at the CTCs, providing epidemiological support to national and district surveillance pillars, and strengthening data collection tools and reporting processes.

To facilitate deployment logistics, a memorandum of understanding was drafted between the two UK government organizations to outline the responsibilities of each pertaining to the duty of care, including predeployment medical screenings and briefings, safety and security protocols, and the provision of insurance.

Support for infection prevention and control during the COVID-19 outbreak response, Solomon Islands, 2022

The UK EMT was deployed in March 2022 to assist the Solomon Islands in treating patients with severe COVID-19. EMT activities focused largely on providing direct clinical support as well as training and capacity development for health professionals, in addition to providing community outreach and vaccine communication activities in collaboration with national teams.

At the request of the UK EMT, the UK PHRST provided infection prevention and control (IPC) support to the EMT through the deployment of an IPC specialist embedded in the EMT team. The main activities of the IPC specialist included conducting assessments of IPC capacity, designing and delivering an IPC training curriculum, working with health leaders on escalation and de-escalation plans, and setting up IPC link nurses (who serve as a liaison between their own clinical area and an IPC team) for ongoing IPC programme activities.



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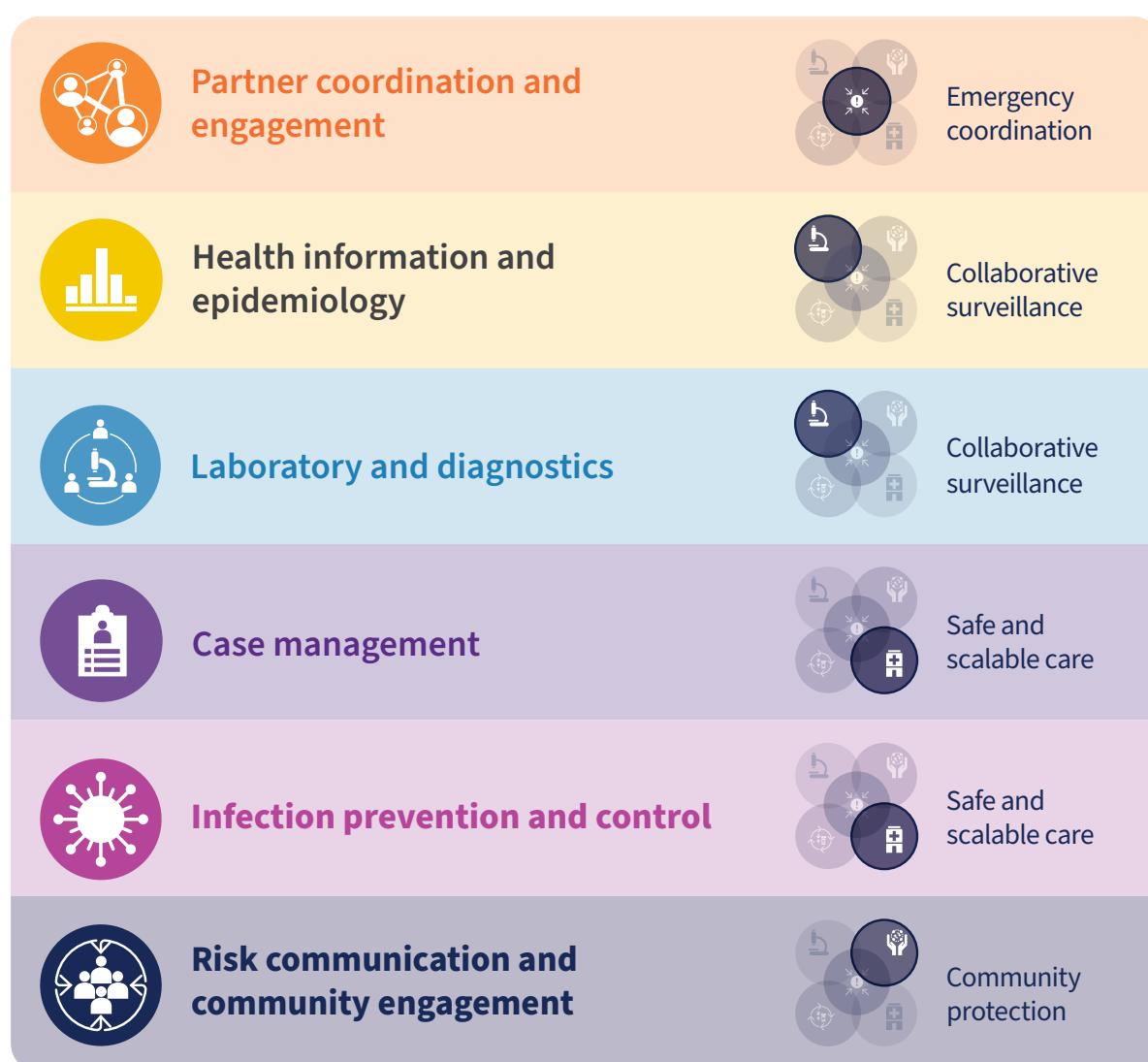
Reflections and key lessons learned

These examples demonstrate the utility of supplementing existing surge response teams, such as EMTs, with additional technical expertise when necessary. Although these examples reflect bilateral agreements between the UK PHRST and the UK EMT, a similar model could be expanded to complement the EMT skill-mix when operating within the context of an outbreak response. These cases clearly demonstrate the value of having one of GOARN's partners provide technical expertise in public health to a predominantly clinical EMT deployed to a public health emergency. As a network of public health technical experts, GOARN and its partners are well placed to provide EMTs with the public health technical support they need, either through bilateral agreements such as those described here or by an EMT requesting assistance directly from GOARN for that support.

Technical areas required during national outbreak response

Multidisciplinary outbreak response teams should be activated at the national level and should have combined expertise that spans the key technical areas involved in the response. Throughout the following sections, a selection of technical areas is described, including which best practices can be considered for incorporation into outbreak response teams and national plans. Additional areas that are not discussed in depth but are still key focus areas during an outbreak response can be found in the Section [Other technical areas and capacities](#). Notably, each technical area aligns with the revised architecture for health emergency prevention, preparedness, response and resilience (HEPR) (4), which is based on principles of coherence, equity and inclusion and described through the five Cs of collaborative surveillance, community protection, access to countermeasures, safe and scalable care, and emergency coordination (Fig. 4).

Fig. 4. The six technical areas described in the Handbook





Partner coordination and engagement



Emergency
coordination

Resource compendium ↗

Annex 3 ↗

Background

During an outbreak response, clear and regular communication among all partners is key to ensuring streamlined technical and operational coordination. Platforms for coordination should be agreed upon at the outset of the response where various partners' roles and responsibilities are clearly defined. For large-scale responses, personnel from key partner organizations can be embedded into national response coordination mechanisms, such as an IMT, for which partner coordination and engagement is typically a pillar or response area. This allows interorganizational issues, concerns and activities to be coordinated under the umbrella of a cohesive response. Having partner secretariats participate in the IMST's partner coordination and engagement pillar can also help maintain complementarity to the national response coordination while ensuring alignment at the global level. Ideally, WHO and key partners can provide technical and operational support through a health sector coordination mechanism that is established and managed by the ministry of health EOC (10,11).

Snapshot: 10 things to know and do about partner coordination and engagement

- 1 Ensure partners have a clear understanding of the existing national governance structures for response coordination.
- 2 Establish and maintain trust with national authorities and key response stakeholders.
- 3 Provide an inclusive and equitable platform to enable partners from all relevant sectors and disciplines to engage effectively.
- 4 Ensure coherence and avoid duplication of partners' input and activities.
- 5 Rapidly activate a partner coordination mechanism and confirm that it follows predictable standard operating procedures.
- 6 Put in place clear linkages with humanitarian coordination mechanisms, as relevant.
- 7 Ensure interoperability across surge response mechanisms.
- 8 Design responses that are adaptable and flexible to meet local needs.
- 9 Prioritize relationship-building and joint exercises during the preparedness phase.
- 10 Clearly define accountability and reporting mechanisms.

For examples of GOARN work in this area, see **Annex 3**.

1 Ensure partners have a clear understanding of the existing national governance structures for response coordination:

It is essential that the components for coordinating outbreak responses, including forums for coordinating partners, link to existing national governance structures (see the Section [Existing structures and governance during national outbreak response](#)). All partners should be made aware and have a clear understanding of the various national, subnational and context-specific (e.g. cross-border, humanitarian) coordination structures. This will improve partners' understanding of the stakeholder landscape, including lines of accountability and reporting.

2 Establish and maintain trust with national authorities and key response stakeholders:

Trust is key in ensuring the transparency, collaboration and information exchange that can be hindered if institutions are not in constructive dialogue and have not identified common objectives. Trust should be built with NPHAs and ministries of health as well as key local actors and partners engaged in the response, including those already operating in the area pre-emergency. Trust requires good two-way communication and cannot be built overnight.

3 Provide an inclusive and equitable platform to enable partners from all relevant sectors and disciplines to engage effectively:

It is critically important to convene and align multidisciplinary stakeholders during preparedness, readiness and response activities, championing a One Health approach. No institution or sector can respond effectively when acting in isolation. At all levels, partner coordination platforms should adhere to the principles of inclusivity and equity and should respect the independence and objectivity of all partners.

4 Ensure coherence and avoid duplication of partners' input and activities:

Partner coordination efforts should promote coherence in response activities, thus reducing fragmentation, competition and duplication. Each partner must have a defined role that complements other partners' roles and activities. Partners' roles must align with international instruments, such as the International Health Regulations (2005), and global, regional and national emergency response frameworks.



Health Cluster partners take part in a weekly coordination meeting at the Renk County Health Department Office to receive updates on ongoing response activities [South Sudan]. © WHO / Peter Louis Gume

5 Rapidly activate a partner coordination mechanism and confirm that it follows predictable SOPs:

Sensitizing partners and country stakeholders (e.g., country offices who may be receiving surge support from partners) beforehand on SOPs will ensure resources can be made available as rapidly as possible and are fit for purpose. In addition, it is advantageous for all response actors to be sensitized to innovations and tools so that they can be implemented as needed and quickly address gaps during a response (see [Annex 3](#)).

6 Put in place clear linkages with humanitarian coordination mechanisms, as relevant:

Ensuring there are clear links with the cluster coordination mechanism is essential in situations in which outbreaks emerge in humanitarian contexts (15,16,17). This includes engaging with both health and health-adjacent clusters (e.g. water, sanitation and hygiene, or WASH; protection; education; travel and transportation) to ensure that all population needs, including non-health humanitarian needs, are met and that cross-cutting areas are mainstreamed across the response pillars (see the Section [Interoperability across coordination structures](#)).

7 Ensure interoperability across surge response mechanisms:

Effective alignment and engagement of partners should entail health emergency alert and response capacities that are interoperable and rapidly deployable across a range of surge response mechanisms. These include individuals or teams deploying through global UN or WHO systems, such as GOARN, the Standby Partnership and the global EMT Initiative. Surge mechanisms can have a specific and contained technical focus (e.g. a rapid response mobile laboratory [RRML]) or contribute individual expertise to national and subnational rapid response teams (RRTs). Beyond having a common understanding of terminology and protocols, there are opportunities for functional integration across surge response mechanisms (e.g. GOARN providing specialized public health expertise to support a national EMT or RRT) (see the Section [Interoperability across surge response mechanisms](#)).

8 Design responses that are adaptable and flexible to meet local needs:

Partner coordination should support national or subnational structures and actors that drive the overall strategic direction of the response, and they should have a community-centred approach. The exact scope, protocols and reporting lines for coordination and response activities will inevitably vary depending on the local context, type of emergency and specific needs on the ground. As such, adaptations may be needed to ensure sustainability and ownership at the national and community levels.

9 Prioritize relationship-building and joint exercises during the preparedness phase:

It takes time to find the right contacts across sectors, agencies and organizations and to build relationships across them. During the preparedness phase, convening joint exercises to prioritize mapping and relationship-building, and to jointly test intersectoral response plans and SOPs, can ease overall partner coordination if existing networks (e.g., One Health networks) are in place. In some cases, more formalized international agreements, achieved through a memorandum of understanding, can provide predictable and conducive environments for operational partner coordination at the national and subnational levels (16,17).

10 Clearly define accountability and reporting mechanisms:

Partners' primary accountability is to the population they serve during a response, but also to the NPHAs, ministries of health, other partners and donors. Accountability can be strengthened by clarifying roles and responsibilities, including reporting lines; transparent information-sharing; ensuring that affected populations participate in the response; securing feedback from communities and other stakeholders; ensuring that programmatic activities are evidence based; and maintaining a risk register. Response actors may need refresher training about delegating authority, as outlined in commonly applied frameworks (7), to avoid bottlenecks and delayed responses.

GOARN compendium resources for partner coordination and engagement

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the area of partner coordination and engagement.



Health information and epidemiology



Collaborative
surveillance

Resource compendium ↗

Annex 4 ↗

Background

The health information and epidemiology function during an outbreak response includes the systematic collection, analysis and communication of any information used to detect, verify, investigate, monitor and interpret an outbreak and its associated health risks. These functions are central in establishing and operationalizing multidisciplinary and multisectoral teams responsible for the rapid investigation of alerts, field risk assessments and, when required, early operational responses. Beyond active case-finding, case investigation and contact tracing activities, this function includes the ongoing triangulation of data obtained beyond traditional surveillance systems, such as insights from social sciences, input from community-based surveillance, information about concurrent health and non-health threats to the population, information about health system capacity, and response performance. Regardless of source, the purpose of any primary or secondary data collection activity should be to enable comprehensive understanding of the situation and allow for evidence-based operational decision-making.

Snapshot: 10 things to know and do about health information and epidemiology

- 1 Continually enhance routine surveillance systems to ensure that early warnings are received and rapid responses are implemented.
- 2 Mobilize multidisciplinary rapid response teams at the national or subnational level.
- 3 Iteratively conduct risk assessments that incorporate contextual, community and One Health insights.
- 4 Perform an initial outbreak investigation.
- 5 Enhance surveillance to monitor the evolution of the event and its impacts on essential health services.
- 6 Engage and involve communities in all aspects of surveillance activities.
- 7 Ensure optimal data analysis, interpretation and use.
- 8 Promote all dimensions of collaboration and information exchange.
- 9 Monitor and review the performance of surveillance systems and teams' capacities to respond effectively.
- 10 Use outbreaks as learning opportunities to strengthen alert and response capacities.

For examples of GOARN work in this area, see **Annex 4**.



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1 Continually enhance routine surveillance systems to ensure that early warnings are received and rapid responses are implemented:

Effective national surveillance systems are a cornerstone of national and global health security. Building on existing routine surveillance platforms and tools during outbreaks is important in avoiding duplication and creating programme and resource siloes. Surveillance staff should document and test whether information flows clearly to and from each surveillance activity, and the use of digital tools to improve data structure and capture should be considered. The context will need to be considered to ensure appropriate integration points, for example, to ensure strong integration among subnational surveillance systems and points of entry, where required.

2 Mobilize multidisciplinary RRTs at the national or subnational level:

National RRTs are the backbone of early warning alert and response activities; they are where epidemiology and surveillance officers, information management officers, monitoring and evaluation advisers and social scientists come together with staff from other disciplines, as needed, such as from information technology, logistics and coordination. The composition of the team depends on the context and setting, but it should be multidisciplinary at the national level and have the ability to deploy quickly to perform initial investigations identified through surveillance, including those flagged by community-based surveillance. Additional technical experts can complement RRTs as required, deployed through national, regional or global mechanisms.

3 Iteratively conduct risk assessments that incorporate contextual, community and One Health insights:

It is vital to use multiple surveillance systems and other health and non-health data sources to comprehensively assess and understand risk. This includes integrating insights from the context in which the events are occurring, as well as insights about the vulnerabilities of local communities. Risk assessments should be conducted jointly across One Health and other partners to ensure multisectoral understanding. These assessments are iterative over time and should be revisited as additional information becomes available.



Data Analysts Md. Sharif Uddin and Kaniz Fatema in the Directorate General of Health Services (DGHS) control room, where dengue related data is monitored and stored [Bangladesh]. © WHO / Fabeha Monir

4 Perform an initial outbreak investigation:

Following the designation of an alert, a prompt outbreak investigation and response are required. Outbreak investigations aim to continue the process of characterizing public health events after a risk assessment to define how and why the outbreak started, the populations at risk and the necessary control measures. Similar to risk assessments, outbreak investigations should be conducted jointly by staff from human, animal and environmental health surveillance, as indicated.

5 Enhance surveillance to monitor the evolution of the event and its impacts on essential health services:

Health service monitoring provides a critical complement to public health surveillance activities for emergency preparedness and response and gives a dynamic picture of the resilience of health care systems in order to assess risks and inform adjustments to response activities.

6 Engage and involve communities in all aspects of surveillance activities:

A community-centred approach to surveillance places a strong focus on community engagement principles and builds community capacities to support surveillance during an outbreak response. One example includes the use of community consultations, which can complement epidemiological and health service-based assessments, as well as supplement risk assessments. This can involve setting up a feedback mechanism for members of affected communities to better understand the drivers of disease transmission, health-seeking behaviour, mechanisms for reporting disease events in the community, and the specific strengths and vulnerabilities in the current emergency context that drive or prevent transmission.

7 Ensure optimal data analysis, interpretation and use:

Robust public health surveillance, health systems monitoring, laboratory surveillance and data infrastructure should be triangulated with other diverse data sources so that data analytics produces holistic and contextualized insights. The focus should be on how analytical outputs can be interpreted and used for action across varied stakeholder groups, such as response actors, policy-makers or community members. A robust data analytics and decision science pipeline will require data- and information-sharing across the systems linked directly to decision-making. These systems should be able to scale up if an outbreak occurs.



8 Promote all dimensions of collaboration and information exchange:

The intentional collaboration required for effective surveillance has several dimensions: across diseases and threat surveillance systems, sectors, geographical levels and emergency cycles (18). In addition, it is vital that there is frequent cross-pillar triangulation of surveillance information, as well as broader information exchange across partners involved in the response. Efforts should be made to foster communication at both the strategic and operational levels, so that each partner or team can share the information that it collects and highlight its evidence. Strong collaboration with community workers and facility-based health agents can provide complementary mechanisms for surveillance and epidemiology officers. It is important to respect data sovereignty and respect privacy when using personally identifiable data from response partners.

9 Monitor and review the performance of surveillance systems and teams' capacities to respond effectively:

The speeds of detection, notification and response to an outbreak are the optimal measures of readiness and performance. A systematic performance monitoring and evaluation system should be in place to allow for continual review of surveillance system performance. Using structured evaluations will help key stakeholders understand whether activities have produced the outcomes that were originally envisioned. From the outset, key performance indicators should be established in addition to a clear outline of the frequency of and methods for the collection, analysis and reporting of data. To drive action, these can span both preparedness (e.g. the 7-1-7 indicators) (19) and response metrics (e.g. the percentage of safe burials successfully carried out).

10 Use outbreaks as learning opportunities to strengthen alert and response capacities:

Each outbreak can provide a valuable learning opportunity for field epidemiologists, particularly those who are in training. The model of involving field epidemiology training programme fellows in outbreak responses during their training is an essential component of the programme's learning-by-doing approach. Such exposure can greatly improve a country's frontline responses over time by strengthening the capacities for data collection, analysis and reporting at the district, regional and national levels.

GOARN compendium resources for health information and epidemiology

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the areas of health information and epidemiology.





Laboratory and diagnostics



Collaborative
surveillance

Resource compendium ↗

Annex 5 ↗

Background

Public health laboratories are a cornerstone of alert and response mechanisms for health emergencies, and they play a crucial role in collaborative surveillance. Laboratory testing is critical for detecting many infectious diseases, and laboratories provide the data required to detect, confirm and monitor outbreaks. Laboratory activities span from point-of-care diagnostic testing capabilities to systems for sample collection and transport management, genomic surveillance, risk-based biosafety and biosecurity activities, quality diagnostic testing and the reporting of results and integration of laboratory data across laboratory platforms and teams to inform public health and clinical decision-making. The deployment of rapid tests at the community level is a key component of an outbreak response.

Snapshot: 10 things to know and do about laboratory and diagnostics

- 1 Assess baseline testing capacity to rapidly detect and determine where surge capacity may be needed.
- 2 Enhance decentralized testing capabilities at or near the point of care, as relevant.
- 3 Ensure adequate access to confirmatory testing and advanced testing, such as genomic sequencing.
- 4 Put in place quality management systems for all laboratory testing.
- 5 Implement risk-based biosafety and biosecurity measures.
- 6 Assess and strengthen systems for managing laboratory samples.
- 7 Promote coordination and collaboration across tiered laboratory and diagnostics networks and partners.
- 8 Facilitate robust linkages between laboratory data, clinical data and epidemiological data.
- 9 Establish robust laboratory information management systems and data-sharing protocols.
- 10 Procure essential laboratory reagents and supplies to enable continual testing.

For examples of GOARN work in this area, see **Annex 5**.



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1 Assess baseline testing capacity to rapidly detect and determine where surge capacity may be needed:

At the outset, rapid assessments need to be made to understand testing capacity and where surge testing capacity is needed. Mechanisms should be established to maintain testing capacity throughout the outbreak response. These may include utilizing private or research laboratories or laboratories in the veterinary sector, referral laboratories (e.g. maximum containment labs), deploying RRMLs and expanding human resources through training and capacity-building.

2 Enhance decentralized testing capabilities at or near the point of care, as relevant:

Access to diagnostics and laboratory services is often limited at the peripheral level, particularly for hard-to-reach areas and populations. To leverage decentralized testing opportunities, national distribution plans for point-of-care diagnostics should be developed and aligned with strategies and guidelines for public health surveillance, and clinical care and responsibilities should be clearly outlined for each appropriate subnational level.

3 Ensure adequate access to confirmatory testing and advanced testing, such as genomic sequencing:

Confirmatory testing and advanced testing, including characterization of pathogens using genomic and phenotypic methods, should be accessible either in country or through an established referral mechanism. Data from these results should be integrated into surveillance and risk assessment activities.

4 Put in place quality management systems for all laboratory testing:

To promote confidence in the results reported, end-to-end quality management systems are needed, including for point-of-care testing and laboratory testing. Quality management systems should include, for example, confirmation at reference laboratories, internal quality control and external quality assurance protocols.



WHO's Dr Alexei Korobitsyn speaks to a laboratory technician at the Regional TB Centre in Kulob during a tuberculosis monitoring mission [Tajikistan]. © WHO / Lindsay Mackenzie

5 Implement risk-based biosafety and biosecurity measures:

Ensuring biosafety and biosecurity measures are in place to manage biological risks begins with agreeing pathogen-control measures, including standards for inventory, containment, equipment operation and maintenance, personal protective equipment, operational handling and proper management of high-consequence research. Guidelines and protocols must be implemented, observed and underpinned by workforce competencies and governance.

6 Assess and strengthen systems for managing laboratory samples:

National systems for laboratory sample collection, packaging, transport, referral and tracking should be assessed regularly to ensure they are operational, even in remote and hard to reach areas.

7 Promote coordination and collaboration across tiered laboratory and diagnostics networks and partners:

Tiered national laboratory and diagnostics networks, connected to networks of international reference laboratories, must be established to generate, report and share high-quality data from subnational facilities with public health and reference laboratories.

8 Facilitate robust linkages between laboratory data, clinical data and epidemiological data:

Coupling laboratory data with the corresponding clinical and epidemiological information will facilitate analysis that, when communicated through timely feedback mechanisms (including to national surveillance systems and clinicians), will allow for more comprehensive risk assessments and evidence-based management of both cases and events.

9 Establish robust laboratory information management systems and protocols for data-sharing:

A laboratory information management system is a powerful tool for improving data management, both within laboratories and for external reporting. This system should manage, generate reports about and be able to share high-quality data from subnational facilities with public health and reference laboratories; it should also enable data-sharing across response pillars.

10 Procure essential laboratory reagents and supplies to enable continual testing:

Mechanisms should be in place to ensure the sustained procurement of essential supplies through functioning supply chains, including all necessary laboratory equipment and reagents.

GOARN compendium resources for laboratory and diagnostics

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the area of laboratory and diagnostics.



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Case management



Safe and
scalable care

Resource compendium [↗](#)

Annex 6 [↗](#)

Background

For certain outbreaks, particularly those caused by high-threat pathogens, WHO and partners engage in clinical case management in close collaboration with frontline health care providers. Clinical case management should be safe and scalable during outbreaks, with effective infection prevention and control (IPC) procedures that protect patients, health workers and communities. Effective case management requires strong and resilient health systems that have the agility to reorganize and deploy resources in response to an outbreak, while at the same time maintaining essential health services and protecting and supporting health workers and patients.

Snapshot: 10 things to know and do about case management

- 1 Ensure that national clinical management protocols are evidence-based, patient-centric and consistently applied across health facilities.
- 2 Where needed, establish dedicated treatment centres and units aligned with WHO's clinical standards, and ensure resources are allocated to reinforce the existing infrastructure.
- 3 Initiate safe screening, triage and isolation capacities, as required for the hazard, within all facilities and treatment centres.
- 4 Activate existing plans for case management surge capacity that are specific to the outbreak, including minimum staffing and supplies.
- 5 Ensure the continuity of essential health services by using relevant linkages, referral pathways and transit structures.
- 6 Align the clinical and surveillance case report forms, and promote rapid information-sharing among clinical teams and other response pillars.
- 7 Ensure there is alignment and coordination among all partners delivering clinical care and training on clinical care protocols through existing mechanisms
- 8 Develop quality standards for health facilities and infrastructure that include prioritized hazards.
- 9 Integrate clinical case-based data collection where it will contribute to improvements in care quality or the evaluation of new therapeutics outside of clinical trials.
- 10 Use quality performance indicators to monitor, evaluate and improve clinical pathways and operations.

For examples of GOARN work in this area, see **Annex 6**.

1 Ensure that national clinical management protocols are evidence-based, patient-centric and consistently applied across health facilities:

Adopt and adapt WHO's guidelines as appropriate. The successful implementation of clinical management guidelines often requires clinician engagement, appropriate job aids and tools, and the use of professional networks to disseminate materials. Importantly, all protocols should emphasize patient-centric care. Patients in isolation and treatment centres should be safe, be able to communicate with their family, and be provided with adequate nutrition and water.

2 Where needed, establish dedicated treatment centres and units aligned with WHO's clinical standards, and ensure resources are allocated to reinforce the existing infrastructure:

The specifications for treatment centres depend on the hazard. Designs for treatment centres for high-consequence pathogens have been developed by WHO and partners during past emergency responses and can be adapted to various circumstances.

3 Initiate safe screening, triage and isolation capacities, as required for the hazard, within all facilities and treatment centres:

Many facilities have screening and triage facilities; incorporating existing structures and adapting them is often more appropriate than creating new systems, provided they are safe. IPC procedures within all facilities and treatment centres are key. Guidance is available for multiple specific hazards, in addition to information about generic best practices.

4 Activate existing plans for case management surge capacity that are specific to the outbreak, including minimum staffing and supplies:

Tools to estimate supply needs (e.g. consumables and equipment) have been produced by WHO, include links to specific items within the WHO catalogue, and are organized into predefined kits for some hazards (20). Staff surge capacity depends on the existing resources and skills of the workforce, and capacity may be supplemented by national or international EMTs. It is important to ensure that care delivery is coordinated across EMTs. Consider providing specific additional training, as appropriate. Training packages exist, and examples include online training for multiple hazards via OpenWHO (21) and electronic guidelines and training packages for specific hazards, such as cholera and filoviruses (22,23).



Nurses in the dengue ward of Suhrawardy Hospital in Sher-E-Bangla-Nagar, Dhaka [Bangladesh]. © WHO / Fabeha Monir

5 Ensure the continuity of essential health services by using relevant linkages, referral pathways and transit structures:

Rapid mapping of existing facilities, specialist services and, crucially, partners through the health cluster may help to identify potential weaknesses in essential health services. Special referral pathways for high-consequence pathogens may be required. However, new pathways must be accompanied by clear advice to facilities about who should initiate care along the pathway and how it should be done.

6 Align the clinical and surveillance case report forms, and promote rapid information-sharing among clinical teams and other response pillars:

Multiple data collection efforts can duplicate work during emergency responses; ensure that any information is collected only once and that it is shared appropriately, within as limited a scope as possible. Ballooning into nice-to-have data collection compromises the core data, particularly by increasing the onus on data collectors. There are established case report forms on WHO's Global clinical platform that allow for secure data capture and local data ownership. The rapid creation of new tools is also possible on the platform.

7 Ensure there is alignment and coordination among all partners delivering clinical care through existing mechanisms:

Formal engagement through existing structures is important. Partners delivering local and routine health care, especially ministries of health, must be fully involved to avoid duplicating efforts and destabilizing existing health services. It can be useful to ensure there is informal engagement among clinical networks to understand early patterns of disease, highlight unusual clinical presentations and identify clinical areas where improvements in care quality are required.

8 Develop quality standards for health facilities and infrastructure that include prioritized hazards:

It can be counterproductive to rapidly create new or complex quality standards. This is because they increase overhead and can focus too much on measurement rather than on preventive or corrective actions. The principle is to use existing indicators that have a close relationship with the quality of care, when possible.

9 Integrate clinical case-based data collection where it will contribute to improvements in care quality or the evaluation of new therapeutics outside of clinical trials:

Data collected during emergencies frequently focus on improving the understanding of epidemiology and transmission. However, these data can overlook other important aspects of clinical trajectory among admitted patients, including drivers of disease severity. This knowledge can be valuable to quality improvement activities and to broader efforts to understand pathogens, epidemics and pandemics. Similar to point 6, pre-existing case report forms can be used to collect data, and the data should reflect the quality of patient care and local outcomes. Regular mortality meetings, or similar opportunities to learn from cases across clinical networks, can be valuable in engaging the wider team in quality improvement activities.

In specific circumstances, for example filovirus disease, novel therapeutics may be considered as part of the monitored emergency use of unregistered and experimental interventions (known as MEURI) (24). When novel therapeutics are used outside of clinical trials, it is imperative to collect data about safety and patients' outcomes, which will allow for a limited evaluation.

10 Use quality performance indicators to monitor, evaluate and improve clinical pathways and operations:

Following on from point 9, data that describe quality standards (point 8) can be used to understand and monitor operations at the level of the patient and ensure the smooth operation of essential care (point 5).

GOARN compendium resources for case management

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the area of case management.



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Infection prevention and control



Safe and
scalable care

Resource compendium ↗

Annex 7 ↗

Background

IPC is a key pillar in outbreak response: IPC and WASH are essential components for maintaining the safe operation of health services and mitigating the risks of infectious disease transmission during the delivery of essential health services. Adherence to IPC practices can protect health workers, patients and their family members. During emergencies, the existing systems for safe patient management and care delivery may become overwhelmed, resulting in reduced capacity, infrastructure and essential staffing. Without sufficient resources to initiate and expand IPC and WASH capacities during emergencies, health care systems stretched to their limit can be locations of increased transmission risks. Further, individuals and communities need to be actively involved in IPC measures. Information in this section is adapted from IPC frameworks for outbreak responses (25,26).

Snapshot: 10 things to know and do about infection prevention and control

- 1 Activate an infection prevention and control (IPC) outbreak taskforce embedded within the incident management system (IMS).
- 2 Develop and cost IPC components for integration into national response plans.
- 3 Draft plans for surge capacity and IPC resources, including to ensure the minimum number of staff, and minimum infrastructure and supplies.
- 4 Ensure there is an appropriate supply and appropriate use of personal protective equipment, and hand hygiene and disinfection supplies at health facilities, treatment centres and for community response teams.
- 5 Adapt IPC training programmes to the current disease outbreak and utilize them to support dedicated IPC teams at the national, subnational and health care facility levels.
- 6 Establish an IPC communication strategy specific to the ongoing outbreak.
- 7 Adapt existing surveillance and reporting systems to track which health care settings need targeted IPC support.
- 8 Conduct water, sanitation and hygiene (WASH) assessments in communities, schools and health facilities.
- 9 Actively involve individuals and communities in the design and implementation of IPC measures.
- 10 Update IPC plans and processes continually, as new information becomes available during an outbreak.

For examples of GOARN work in this area, see **Annex 7**.



Vaccinator Salma sanitizes her hands before administering oral cholera vaccine to a family in Lehele [Kenya]. © WHO / Billy Miaron

1 Activate an IPC outbreak taskforce embedded within the IMS:

The IPC outbreak taskforce is a coordination mechanism at the national or subnational level for IPC activities and should focus on developing and disseminating strategies, policies, guidelines, SOPs and other IPC-related information across all health care levels. Establish a coordination structure for national and international partners; activate existing networks of IPC stakeholders at the subnational and health care facility levels; and ensure that roles are clearly defined for all levels, reflecting the IPC taskforce terms of reference. During an outbreak, the IPC taskforce should meet regularly, ideally at least once daily.

2 Develop and cost IPC components for integration into national response plans:

Identify priority IPC areas for strengthening in any existing national or subnational outbreak response plans. Consult with finance and budget colleagues about activating financing plans for responses specific to IPC needs. Evaluate the existing IPC components of these plans if they are already integrated into them; develop or adapt them from alternative sources if they are missing.

3 Draft plans for surge capacity and IPC resources, including to ensure the minimum number of staff, and minimum infrastructure and supplies:

Collaborate with human resources, operations and logistics partners. Consider at a minimum: the staff needed for health care–facility and community interventions, the infrastructure for screening and isolation capacity, IPC supplies for hand hygiene, personal protective equipment, disinfection supplies and, possibly, other supplies related to the specific outbreak.

4 **Ensure there is an appropriate supply and appropriate use of personal protective equipment, and hand hygiene and disinfection supplies at health facilities, treatment centres and for community response teams:**

Consider any possible gaps in the IPC supply chain. Establish a national stockpile of IPC supplies and equipment. Train health and care workers in the optimal use of IPC supplies, and ensure that all necessary items are accessible wherever a need is indicated by a risk assessment.

5 **Adapt IPC training programmes to the current disease outbreak and utilize them to support dedicated IPC teams at the national, subnational and health care facility levels:**

Identify and leverage any relevant national or subnational IPC training programmes, as well as those run by other organizations (e.g. NGOs). If none exist, create rapid outbreak response training modules that include the most updated guidance about IPC (e.g. from WHO) in the current outbreak setting, possibly by collaborating with other organizations. Provide refresher training for health and care workers, burial teams and other relevant personnel.

6 **Establish an IPC communication strategy specific to the ongoing outbreak:**

Activate specific national or subnational IPC communication strategies that can be integrated with the broader outbreak communication strategy. Work in collaboration with risk communication and community engagement (RCCE) partners, and consult with NGOs or other organizations, as applicable.

7 **Adapt existing surveillance and reporting systems to track which health care settings need targeted IPC support:**

Coordinate with national and subnational surveillance networks to include syndromic and microbiological surveillance for the specific outbreak. Activate and adapt existing national and subnational IPC surveillance and health care-associated infection reporting systems to analyse and track the epidemiological situation and to target health-care settings that need support for IPC response activities.

8 **Conduct WASH assessments in communities, schools and health facilities:**

Initiating WASH measures in public facilities is crucial to prevent the spread of infectious diseases. Assessing WASH conditions helps to identify potential sources of contamination, evaluate the adequacy of sanitation facilities and ensure that clean water is available, all of which are essential components for controlling and containing outbreaks of waterborne and other infectious diseases.

9 **Actively involve individuals and communities in the design and implementation of IPC measures:**

Advocacy for and raising awareness of IPC practices in communities beyond health care settings are key to local responses during an outbreak.

10 **Update IPC plans and processes continually, as new information becomes available during an outbreak:**

Ensure that IPC measures are appropriate and up to date and reflect the dynamic situation of an outbreak.

GOARN compendium resources for infection prevention and control

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the area of IPC.



Risk communication and community engagement



Community protection

[Resource compendium](#)

[Annex 8](#)

Background

Informed, engaged and empowered communities are the cornerstone of rapid, equitable and effective responses to disease outbreaks and health emergencies. These outcomes are driven by RCCE strategies and capabilities that have been proven to help protect communities in crisis. Risk communication is the real-time exchange of information, advice and opinions between experts or officials and those facing a hazard or threat, such as a newly detected disease. Community engagement is the process of developing relationships that engage communities and structures that empower them as critical partners in the creation of solutions to health emergencies that are acceptable to and workable for those that they impact. They are two interlinked technical disciplines that together help individuals and communities make informed decisions, adopt protective and preventive measures and support the most vulnerable populations. The goal of RCCE during health emergencies and disease outbreaks is to reduce morbidity and mortality by empowering communities to confidently share in leadership, planning and implementation of responses throughout the health emergency cycle. Above all, the community should be recognized as a central partner in preparedness and response processes, and this recognition should underpin all RCCE activities during an outbreak response.

Snapshot: 10 things to know and do about risk communication and community engagement

- 1 Engage and work with other response pillars and sectors to ensure a connection between the community's reality and the multisectoral, technical, biomedical response.
- 2 Conduct rapid qualitative surveys and engage communities early in an ongoing process of joint decision-making and the development of targeted interventions.
- 3 Establish community feedback mechanisms. Regularly seek out and respond to community feedback.
- 4 Co-create effective key messages and narratives that address the main risks, health-seeking behaviours and community perceptions.
- 5 Identify and address information voids, misinformation and rumours, and manage the infodemic.
- 6 Ensure that sufficient staff with expertise in risk communication and community engagement (RCCE) are hired and embedded in each of the pillars, and support the implementation of different sectors' strategies.
- 7 Implement RCCE activities in all agreed response strategies, at both the facility and community levels.
- 8 Facilitate community participation in planning services and co-designing solutions in all multisectoral and multiagency plans.

- 9** Build capacity and develop skills in the community health workforce and other frontline health workers that will go beyond the current outbreak.

- 10** Design monitoring and evaluation plans to track progress, and actively include the community in these processes.

For examples of GOARN work in this area, see **Annex 8**.

1 Engage and work with other response pillars and sectors to ensure a connection between the community's reality and the multisectoral, technical, biomedical response:

Establishing and maintaining trust requires thoughtful engagement with a wide range of stakeholders by using whole-of-government and whole-of-society approaches. Establish dialogue with other sectors to understand their needs in terms of community information and challenges in implementing the response. Activate or strengthen RCCE coordination mechanisms and ensure they are linked with other pillars of the response so that RCCE representation and close collaboration are guaranteed during daily response activities.

2 Conduct rapid qualitative surveys and engage communities early in an ongoing process of joint decision-making and the development of targeted interventions:

Build trust through broadening stakeholder connections and by using a whole-of-society approach. Conduct rapid qualitative assessments during the initial stage of the response, as part of the initial assessment by a multisectoral team, to contribute to response planning. To negotiate safe, feasible and acceptable interventions, explore the community's sociocultural contexts and map its pathway for health-seeking behaviour, the factors that condition it (i.e. barriers and enablers) and the key people in it (e.g. decision-makers, practitioners, influencers and gatekeepers). Based on the collected data and the sector's challenges, work with the key individuals in the health-seeking pathway to develop and implement a community engagement strategy to address the barriers and work with the enablers. Establish an inclusive national alliance of influencers. Engage key influencers and agents of change in meaningful community dialogue, building local organizational capacity for effective RCCE preparedness and ensuring any responses are embedded in multisectoral work.



Community health services for parents and children in Gyabankrom, Central Region [Ghana]. © WHO / Fanjan Combrink

3 Establish community feedback mechanisms. Regularly seek out and respond to community feedback:

Establish joint feedback mechanisms with affected communities by setting up community consultations, mapping excluded groups and establishing community channels for feedback. Regularly seek, respond to and leverage feedback data to guide continual and effective adaptations of the response to foster trust between communities and health authorities.

4 Co-create effective key messages and narratives that address the main risks, health-seeking behaviours and community perceptions:

Co-create and pretest evidence-based key messages and narratives that focus on the main risks and health behaviours, ensuring that they have cultural relevance and that continual adjustments are made to account for feedback. Collaborate with all sectors' technical teams and the affected communities to develop contextualized messages that address the challenges and barriers to accessing health care.

5 Identify and address information voids, misinformation and rumours, and manage the infodemic:

Address flawed information and manage the infodemic by ensuring communities have access to trusted, culturally appropriate information. Invest in infodemic management, media coordination and documenting positive community responses to counteract the impact of misinformation on social cohesion and public opinion.

6 Ensure that sufficient staff with RCCE expertise are hired and embedded in each of the pillars, and support the implementation of different sectors' strategies:

Ensure there is recruitment and training of sufficient staff with RCCE expertise to establish vital links among communities and health and other sectors, thereby supporting national authorities in making informed decisions about safeguarding public health.



Virginia meets with her patient, Jane, at Tulagi Clinic [Solomon Islands]. © WHO / Blink Media - Neil Nuia

7 Implement RCCE activities in all agreed response strategies, at both the facility and community levels:

Collaborate to achieve the specific objectives defined by the different sectors and pillars (e.g. for case management, work in facilities to provide social support and information to patients, family members and visitors). Build trust, and collect and use social data to negotiate both better provision and community uptake of health services.

8 Facilitate community participation in planning services and co-designing solutions in all multisectoral and multiagency plans:

Facilitate community participation in planning services and co-designing solutions to improve the quality and potential uptake of services and to ensure equity, particularly when introducing new tools and services. Develop a comprehensive multisectoral and multiagency RCCE strategy, and use social data and feedback analysis to develop and regularly review and update RCCE activities and action plans for other sectors and pillars.

9 Build capacity and develop skills in the community health workforce and other frontline health workers that will go beyond the current outbreak:

Build and develop the capacity of the community health workforce and local organizations, including frontline workers, volunteers and community leaders. Extend training and capacity-building beyond the current outbreak to ensure local long-term sustainability, and initiate a peer-to-peer support system.

10 Design monitoring and evaluation plans to track progress, and actively include the community in these processes:

Make sure to integrate a monitoring and evaluation plan for RCCE when designing every new outbreak programme, and be certain to include tracking for marginalized and vulnerable populations and utilize both quantitative and qualitative data sources. Use the first data collection activity as the baseline, and measure the implementation of the defined strategy against it. If the indicators do not show positive change, collect information to understand the challenges, and adapt the strategy. Encourage widespread community involvement in monitoring and evaluation to ensure the sustainability of programmes and also joint accountability.

GOARN compendium resources for risk communication and community engagement

Please see the [GOARN resource compendium](#) for a collection of resources relevant to the area of RCCE.



Other technical areas and capacities

The preceding sections do not describe all of the capacities needed within a national outbreak response. Below are a few examples of additional areas that are part of many multidisciplinary, national outbreak response teams, some of which may be cross-cutting functions. For more information about each of the points below, see the WHO Emergency Response Framework (10).

Overall response leadership and coordination:

Operating through an IMS or similar platform, a unified structure is instrumental in providing a standard yet flexible approach to organize operations in a predictable fashion. This becomes increasingly important as the scale of an event increases and when multiple operational partners become involved. An incident manager should be designated as early as possible to manage the day-to-day emergency response and oversee the technical areas (or pillars) of the response. Typically, each pillar will have a designated lead, overseeing subfunctions of the pillar and reporting to the incident manager. There may be other existing coordination platforms in place, and it is crucial that all are working in a complementary fashion (see the Section [Interoperability across coordination structures](#)).

Context-specific public health interventions:

Depending on the hazard, specific activities should be implemented to prevent and control public health risks. Some examples that are not described in the preceding sections include vaccination campaigns, mass prophylaxis, safe and dignified burials, vector control, enhanced WASH activities, food safety and nutritional services, and linkages to the animal sector for outbreaks of zoonotic diseases and to broader environmental health sectors, as appropriate. For each type of activity, the recommended actions are defined based on a regular risk and needs assessment.

Operational research:

In every health emergency, there are gaps in the evidence used to support operations. Operational research is an integral part of an outbreak response because it forms the core of improved, evidence-informed activities. Operational research should be country-driven and interdisciplinary, with findings fed back to countries and communities and quickly integrated into response activities. Close collaboration between researchers and emergency responders can ensure that evidence-based adaptations to responses are feasible and have an impact. Partnerships must be developed and nurtured to ensure that all research activities are grounded in a country's or community's needs.

Planning and monitoring:

Effective planning requires contributions from governmental agencies, NGOs, civil society entities, the private sector and others, both within and outside the health sector. It involves the development of common strategic priorities and joint operational objectives and plans, and strong coordination within and among sectors. Monitoring and evaluation activities should track the progress of the response in terms of meeting its objectives, and reviews of operational risk management and the response (e.g. intra- and after action reviews, joint operational reviews) should also be conducted.

Operations support and logistics:

Operations support and logistics provides a reliable operational platform for delivering response activities, spanning supply chain management, field support and health logistics. This area includes the end-to-end provision of consumables and equipment, the ability to ensure secure and comfortable accommodation and functional working spaces for response teams, fleet management and the specific logistical needs of medical facilities, such as cold chain management, and management of laboratories and blood banks.



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Mental health and psychosocial support:

The Inter-Agency Standing Committee guidelines describe mental health and psychosocial support as “any type of local or outside support that aims to protect or promote psychosocial well-being and/or prevent or treat mental disorder” (27). The inclusion of mental health and psychosocial support is seen as an increasingly integral cross-cutting component in outbreak responses, given the unique stressors that disease outbreaks can pose to communities, families, vulnerable individuals and frontline workers (28). These services should be maintained as part of the overall essential health services, covered by community, primary and referral levels, through effective collaboration with the ministry of health, WHO and partners.

Finance and administration:

Finance and administrative support are needed to enable the smooth functioning of response operations, including the development of workplans and budgets, resource mobilization strategies, human resources and the procurement of supplies.

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Annex 6. GOARN's capacities: case management

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Annex 7. GOARN's capacities: infection prevention and control

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Annex 8. GOARN's capacities: risk communication and community engagement

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Annex 9. GOARN's Capacity-Strengthening and Training Programme

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Annex 1. GOARN overview

Guiding principles

It is critically important to convene and align stakeholders from multiple disciplines during preparedness, readiness and response, given that a country, sector or institution cannot prepare for and respond to outbreaks by acting alone. GOARN was first conceived of in 1997 and formally established in April 2000 as a mechanism for technical partners and networks around the world to coordinate and provide targeted technical surge support to national health authorities during public health emergencies.^{1,2} Notably, GOARN's guiding principles explicitly recognize the crucial roles played by local, national and international civil society organizations in public health and outbreak control, particularly in reaching vulnerable populations (Box A1.1). Spanning more than 24 years of operation, GOARN has become a large and diversified network with specific expertise in alerts and risk assessment, coordination of multidisciplinary partners, capacity-strengthening to prepare public health specialists for work in complex response environments, and rapid response capacities. Examples of historical GOARN response operations demonstrate the Network's sustained leadership and contributions across both outbreaks of infectious diseases (Box A1.2) and non-infectious emergencies, such as natural disasters and conflicts (Box A1.3).



WHO Infection Prevention and Control Specialist Rebecca Rachel Apolot and IRC volunteer, Tarekul I. visit Romida and her family in a Rohingya refugee camp to explain how to reduce the risk of COVID-19 infection [Bangladesh]. © WHO / Blink Media - Fabeha Moni

¹ A framework for global outbreak alert and response. Geneva: World Health Organization; 2000 (https://iris.who.int/bitstream/handle/10665/66789/WHO_CDS_CSR_2000.2.pdf, accessed 4 March 2024).

² Mackenzie JS, Drury P, Arthur RR, Ryan MJ, Grein T, Slattery R, et al. The global outbreak alert and response network. *Glob Public Health*. 2014;9:1023-39. doi:10.1080/17441692.2014.951870.

Box A1.1 GOARN's 10 guiding principles

- 1 WHO works with Member States that are party to the International Health Regulations (2005) to rapidly verify public health events that have the risk of spreading internationally and to share information with states that are party to the Regulations and, as needed, with GOARN.
- 2 Requests for GOARN's assistance that are received from affected Member States during WHO's response to a public health event are rapidly coordinated by the GOARN OST.
- 3 Experts will be deployed as quickly as possible to support coordinated and effective outbreak control activities.
- 4 The deployed team of international experts will integrate their activities to support national efforts and public health infrastructure by providing strong technical leadership and coordination in a country.
- 5 There is a fair and equitable process to ensure that Network partners with the required experience and skills have an opportunity to participate in international responses.
- 6 Partners make every effort to ensure the effective coordination of their participation and support during outbreak response activities.
- 7 GOARN recognizes the unique role played by national and international nongovernmental organizations in public health and outbreak control, with these organizations often providing support that would not otherwise be available, particularly in reaching vulnerable populations. While striving for effective collaboration and coordination, the Network will respect the independence and objectivity of all partners.
- 8 GOARN acknowledges that involving participants from a wide range of public health disciplines in coordinated responses contributes to building capacity for future outbreak responses; participants may come from field epidemiology training programmes, laboratory medicine, risk communication and community engagement, veterinary science, clinical care, and infection prevention and control.
- 9 GOARN commits to building national and regional capacities during and following outbreak responses to improve preparedness and reduce future vulnerability to epidemic-prone diseases.
- 10 All Network responses will proceed with full respect for ethical standards; human rights; national and local laws; efforts to prevent and respond to sexual exploitation, abuse and harassment; cultural sensitivities and traditions.



A Community engagement at the ALIMA (The Alliance for International Medical Action) district, in the insecure zone of Biakato during an Ebola virus disease (EVD) outbreak [Democratic Republic of Congo]. © WHO / Christopher Black

Box A1.2. Selected examples of GOARN's operations during infectious disease outbreaks, 2000–2023

Severe acute respiratory syndrome global response, 2003

Outbreak detected: **28 February 2003** | First request for assistance (RFA) launched: **12 March 2003**

No. of GOARN experts deployed: **78**

GOARN's first major test of resilience came in 2003 with the multicountry response to severe acute respiratory syndrome (SARS), during which GOARN played a central role in rapidly deploying multidisciplinary teams to China (Hong Kong Special Administrative Region), Singapore and Viet Nam. This response was the first time that GOARN identified and responded to an outbreak that was rapidly spreading internationally. This was made possible by the coordinated actions of several GOARN partners (i.e. the WHO Global Influenza Surveillance and Response System, the Canadian Global Public Health Intelligence Network, the United States' Global Emerging Infections Surveillance and Response System) that flagged similar media reports of influenza outbreaks in China beginning in late 2002. The containment of SARS represented a new way of working internationally, during which GOARN facilitated significant collaboration across the fields of virology, clinical medicine and epidemiology. In total, 78 experts were deployed through GOARN's mechanism. In addition, GOARN facilitated ongoing virtual fora for many partners to assist in different aspects of the response.^{1,2}

Cholera outbreak response, Haiti, 2010

Outbreak detected: **20 October 2010** | First RFA launched: **11 November 2010**

No. of GOARN experts deployed: **31**

One of the largest cholera epidemics in modern history began in the Centre and Artibonite Departments of Haiti in October 2010, just 10 months after the devastating earthquake in January 2010. By 25 December 2010, Haiti had reported more than 520 000 cases of cholera and 7 000 deaths, making this the largest cholera epidemic in the world in decades. On 11 November, a GOARN RFA was launched to support the operational outbreak response in the country. Experts from various GOARN partner institutions – including the International Centre for Diarrhoeal Disease Research, Bangladesh; the ministry of health of Spain; Institut de Veille Sanitaire, France; and the European Centre for Disease Prevention and Control's European Programme for Intervention Epidemiology Training – were sent to provide support to Haitian national authorities, and to strengthen the alert and response system, clinical case management, logistics and other functions already established by the Ministère de la Santé Publique et de la Population in Haiti. Throughout the course of the operation, a total of 31 GOARN experts were deployed.



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Ebola virus disease epidemic response, West Africa, 2014–2016

GOARN Alert sent: **22 March 2014** | Outbreak detected: **23 March 2014**
 First RFA launched: **01 April 2014** | No. of GOARN experts deployed: **1 133**

The 2014–2016 outbreak in West Africa was the largest Ebola outbreak since the virus was first discovered in 1976. It spread to eight additional countries after initial detection in the forested rural region of southeastern Guinea on 23 March 2014.^{3,4} The first team drawn from GOARN's institutional partners comprised epidemiologists, logistics personnel and laboratory specialists who travelled to Guinea on 28 March 2014, followed by the arrival in April of a specialized team of clinicians from across GOARN that supported frontline workers at Guinea's principal hospital in Conakry.⁴ A report prepared by the GOARN Steering Committee for WHO Director-General Margaret Chan on 27 June resulted in stronger response leadership from WHO. Throughout the course of the outbreak, more than 1 100 deployments were conducted through GOARN's mechanism.

Diphtheria outbreak response, Cox's Bazar, Bangladesh, 2017

Outbreak detected: **10 November 2017**
 First RFA launched: **20 December 2017** | No. of GOARN experts deployed: **46**

Following the mass displacement of more than 700 000 Rohingya from Myanmar to neighbouring Cox's Bazar, Bangladesh, after the onset of violence in August 2017, a large outbreak of diphtheria occurred and spread rapidly throughout the camps for 2 years.^{5,6} The first suspected case was reported on 10 November 2017 by the Médecins Sans Frontières clinic in Cox's Bazar. Through the WHO Regional Office for South-East Asia, the ministry of health requested technical assistance from GOARN to identify experts to work in close collaboration with provincial health authorities and other partners. Assistance was requested for functions spanning early warning, alert and response surveillance, infection prevention and control, laboratory capacity strengthening, data management, case management and clinical training. Subsequently, a large international response was mounted, during which GOARN deployed a total of 46 experts.



Reaching out to communities at risk of Ebola [Liberia]. © WHO / Christina Banluta



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Global COVID-19 response, 2020

Outbreak detected: **31 December 2019**

First RFA launched: **8 January 2020** | No. of GOARN experts deployed: **249**

The COVID-19 pandemic saw an increased scale and change in the way of working for GOARN, particularly in mobilizing the experience of the Network to advocate for collaboration, scientific information and solidarity. It was also a time when GOARN further developed innovations (e.g. the Go.Data platform for case and contact tracing and data visualization), its networking and methods (e.g. integrated outbreak analytics, risk communication and community engagement Collective Service, rapid response mobile laboratories) to close technical and operational gaps in COVID-19 responses. In addition to embedding major partners in the COVID-19 WHO Global Incident Management Support Team in January 2020 and participating in missions to Wuhan, China, GOARN hosted weekly virtual meetings about operational coordination, risk assessment and response, including hosting the online global consultation on COVID-19 contact tracing in June 2020 and more than 30 follow-up meetings with countries and partners to enhance their capacity for contact tracing. Throughout the global COVID-19 response, GOARN facilitated 249 deployments in support of 45 countries. Notably, 12 deployments were virtual, highlighting a key adaptation made during the pandemic to enable remote support during travel restrictions.



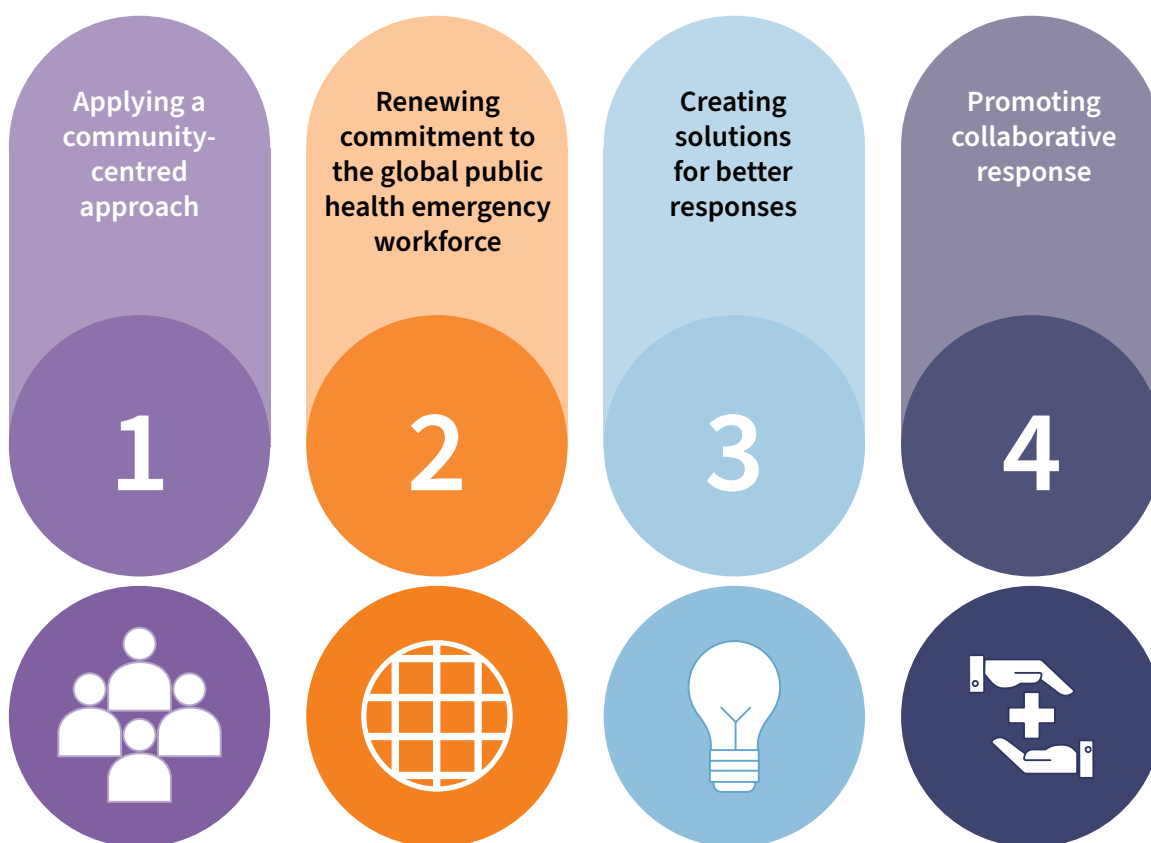
Training Strategy Coordinator Ana Patricia J. stands with members of the contact tracing team outside their offices at the Ministry of Public Health and Social Assistance in Guatemala City [Guatemala]. © WHO / NOOR / Mariceu Erthal

- ¹ Heymann DL. The international response to the outbreak of SARS in 2003. *Philos Trans R Soc Lond B Biol Sci.* 2004;359:1127-29. doi:10.1098/rstb.2004.1484.
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- ⁶ Polonsky JA, Ivey M, Mazhar MKA, Rahman Z, le Polain de Waroux O, Karo B, et al. Epidemiological, clinical, and public health response characteristics of a large outbreak of diphtheria among the Rohingya population in Cox's Bazar, Bangladesh, 2017 to 2019: a retrospective study. *PLoS Med* 2021;18(4):e1003587. doi:10.1371/journal.pmed.1003587.

Strategy and governance

While the deployment of individuals or groups of experts across key technical domains is an important hallmark of GOARN's history (Boxes A1.2 and A1.3), GOARN's strategy has adapted significantly to reflect the growing numbers of NPHAs and ministries of health becoming members of the Network. A strategy development process initiated in 2021 refined strategic themes and objectives for 2022–2026 (Fig. A1.1), and included a heightened focus on strengthening national capacities in a community-centred approach, with external deployments seen as a secondary option for assistance.³ The new GOARN Strategy has also prompted a more intentional strategic grouping of multidisciplinary partners, thus facilitating targeted collaborations and peer-to-peer support across areas of technical interest and expertise, geography or language commonalities that may not have been easily captured by solely focusing on WHO's regional groupings.

Fig. A1.1. Themes of the *GOARN Strategy 2022–2026*



GOARN governance is composed of Network partners; a 21-member Steering Committee, with representation from partners and WHO; a network of regional focal points embedded within WHO regional offices; and an Operational Support Team (OST).⁴ As of December 2023, there were more than 300 Network partners across all types of institutions, including NPHAs, ministries of health, United Nations (UN) agencies, nongovernmental organizations (NGOs), academic institutions and technical networks.⁵ The GOARN OST is based at WHO headquarters in Geneva and operates as the GOARN Secretariat. Beyond managing the

³ Global Outbreak Alert and Response Network (GOARN): strategy 2022–2026. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/366066>, accessed 4 March 2024).

⁴ Governance framework of the Global Outbreak Alert and Response Network. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/375736>, accessed 4 March 2024).

⁵ GOARN: about us. Partner institutions [website]. Geneva: World Health Organization; 2024 (<https://goarn.who.int/about>, accessed 4 March 2024).

Network's daily operations, the OST facilitates engagement across partners, coordinates GOARN's activities across strategic areas of work, provides linkages to relevant WHO technical teams and offices, and oversees end-to-end GOARN deployment processes during acute and protracted emergencies ([Annex 2](#)).

GOARN has been an active contributor to revising the architecture for health emergency prevention, preparedness, response and resilience, which is based on principles of coherence, equity and inclusion and described through the five Cs of collaborative surveillance, community protection, access to countermeasures, safe and scalable care, and emergency coordination.⁶ While a central part of GOARN's mandate since 2000 encompasses emergency coordination via its sustained and inclusive forum that enables partners to coordinate resources and operations before and during emergencies, the Network's activities also contribute to the remaining subsystems of health emergency prevention, preparedness, response and resilience by leveraging global-to-local expertise across diverse technical domains.

⁶ Strengthening health emergency prevention, preparedness, response and resilience. Geneva: World Health Organization; 2023 (<https://www.who.int/publications/m/item/strengthening-the-global-architecture-for-health-emergency-prevention--preparedness--response-and-resilience>, accessed 4 March 2024).

Box A1.3. Selected examples of GOARN's operations during non-infectious emergencies, such as natural disasters and conflicts, 2000–2023

Indian Ocean tsunami, Indonesia and Sri Lanka, 2004

Event detected: **26 December 2004** | First request for assistance (RFA) launched: **1 January 2005**

No. of GOARN experts deployed: **39**

On 26 December 2004, an undersea earthquake with a magnitude of 9.1 struck off the coast of the Indonesian island of Sumatra. The following tsunami caused one of the largest natural disasters in recorded history, killing at least 225 000 people across a dozen countries, with India, Indonesia, the Maldives, Sri Lanka and Thailand sustaining massive damage. WHO's Regional Office for South-East Asia launched a response to health concerns in the aftermath of the tsunami, with the immediate priority of assisting tsunami-affected countries in implementing early warning and response systems in the most-affected areas and strengthening operations to ensure the rapid detection and investigation of suspected outbreaks. GOARN deployed a total of 39 experts to Indonesia and Sri Lanka, including senior experts, to support disease surveillance, outbreak investigations, and information systems and logistics, and to provide laboratory support and coordination.

GOARN's actions were critical to identifying the risk of a unique and isolated tetanus outbreak in Aceh Province, Indonesia.¹

Disaster and conflict, Philippines, 2013

Event detected: **9 September 2013** | First RFA launched: **16 October 2013**

No. of GOARN experts deployed: **37**

A crisis in the Philippines erupted on 9 September 2013 when fighting broke out between the armed forces of the Philippines and the Moro National Liberation Front; the confrontation involved hostage-taking and the loss of civilian lives. Large numbers of people were displaced, coupled with severe flooding around several evacuation centres in Zamboanga City, and Basilan and North Cotabato municipalities that posed life-threatening health risks to the displaced people, who were living in tents with only temporary water and sanitation facilities. The vulnerabilities of displaced populations and overstretched health facilities were further exacerbated by subsequent natural disasters, including Typhoon Haiyan in November 2013, during which a second GOARN RFA was launched. For this complex and multifaceted response, GOARN facilitated rapid surge support, deploying 37 experts to provide senior technical support to the WHO country office in Manila in the areas of epidemiology and surveillance, data management, case management, coordination and logistics.



Background

Existing structures & governance

Technical areas

Partner coordination

Health info & epidemiology

Lab & diagnostics

Case management

IPC

RCCE

Other

References

Annexes

Cyclone Idai, Mozambique, 2019

Event detected: **14 March 2019** | First RFA launched: **25 March 2019**
No. of GOARN experts deployed: **12**

In March 2019, Cyclone Idai made landfall in Beira, Mozambique, killing more than 1 000 people across Malawi, Mozambique and Zimbabwe, and leaving 2.6 million people in desperate need of humanitarian assistance. Cyclone Idai was closely followed by Cyclone Kenneth, further exacerbating the scale of humanitarian need. Many health facilities were destroyed, leaving people with limited access to essential health services at resettlement sites. In total, 12 experts were deployed through GOARN, with expertise in infection prevention and control, epidemiology and surveillance and data management.

Ukraine war and refugee crisis, 2022

Event detected: **24 February 2022** | First RFA launched: **28 February 2022**
No. of GOARN experts deployed: **34**

After the Russian invasion of Ukraine on 24 February 2022, GOARN launched an RFA on 28 February, seeking experts from across a number of technical areas. GOARN deployed a total of 34 experts throughout 2022 and 2023, including two liaison officers in Ukraine and Poland to coordinate GOARN's support for, respectively, the Ukraine ministry of health and the refugee situation.



WHO Mobile Mental Health Clinic in Bylbasyvka [Ukraine]. © WHO / Blink Media - Brendan Hoffman

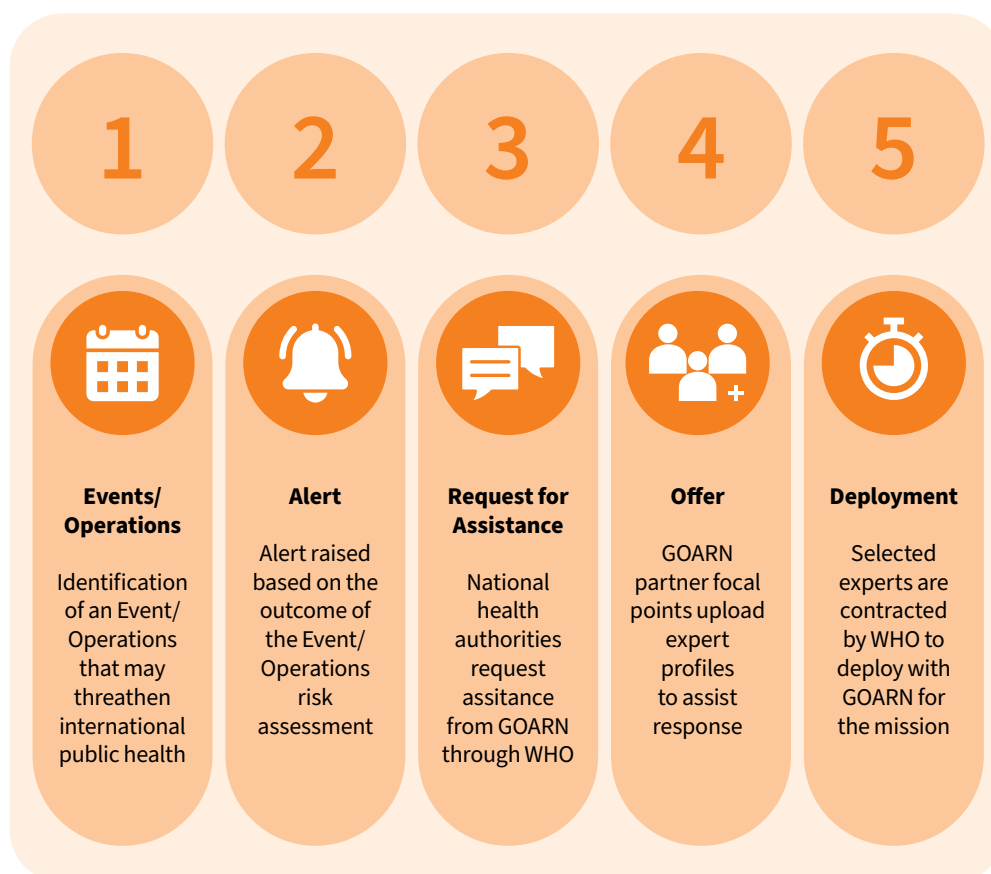
¹ Aceh Epidemiology Group. Outbreak of tetanus cases following the tsunami in Aceh Province, Indonesia. Glob Public Health. 2006;1:173-7. doi:10.1080/17441690600652803.

Annex 2. The GOARN deployment mechanism

Participation in alert and response activities during outbreaks is an essential activity of GOARN, and it includes the rapid integration of targeted technical expertise from a wide range of partners across national, regional and global levels through the Network's deployment mechanism. The process for alerting the Network, circulating requests for assistance (RFAs), collecting offers of support from partners, and deploying experts or teams from multiple disciplines has been continually improved since the Network's inception (Fig. A2.1).

Individuals and teams deployed through GOARN follow WHO's rules and procedures. Individuals must provide the requested relevant documentation – such as human resources information, certificates of completion of mandatory WHO training and fitness-for-work checks – prior to being issued a nil-remuneration standard WHO contract for a short-term consultancy. The Operational Support Team (OST) is working with several partners to identify options to expand the GOARN deployment mechanism to enable management of deployments through other GOARN partner institutions. More details about deployment operations can be found in the GOARN Governance Framework¹, but the main aspects are highlighted below.

Fig. A2.1. Key steps in the GOARN deployment mechanism, from event detection to deployment



¹ Governance framework of the Global Outbreak Alert and Response Network. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/375736>, accessed 4 March 2024).

Rapid response assets and capacities

GOARN maintains a growing list of response assets and capacities across the Network that can be deployed through the mechanism described in Fig. A2.1. Rosters at each individual institution are maintained and updated continually by focal points at GOARN's partners. During the preparedness phase, the GOARN Capacity-Strengthening and Training Programme supports the continued strengthening of core rapid response capacities through ongoing trainings using outbreak response scenarios and leadership training. Over time, technical experts become better prepared to be deployed nationally, regionally or globally when an outbreak occurs. More details about the skill sets available across GOARN's technical experts can be found in Annexes 3–8.

Requests for assistance

As early as possible after an outbreak emerges, national authorities and partners assess the situation to see if additional surge support is required to complement national and subnational capacities. If so, national health authorities, in discussion with WHO and other partners, can request technical assistance from GOARN through a request for assistance (RFA). This request typically comes from the response lead in the country (i.e. an incident manager at WHO's country office), but it may also come through other United Nations agencies or GOARN partners (Box A2.1).

An RFA is used to trigger the GOARN OST and the incident management team (IMT) or incident management support team (IMST) to begin matching suitable GOARN experts to the identified response gaps as quickly as possible. RFAs have the following structure:

- background (i.e. the situation update);
- outbreak response activities undertaken to date;
- additional functions required; as many as needed can be listed;
- requirements, including language and areas of expertise;
- instructions for applying;
- operational contacts.

After the draft RFA is cleared by the IMT and IMST, it is published on the secure GOARN Knowledge Platform, which automatically notifies by email all focal points at GOARN's partners. The partner focal points are the main contact for GOARN in each of the partner institutions. Focal points have the responsibility for reviewing the RFA and sending it to relevant staff within their institution, following their organization's internal processes.



Box A2.1. Who can request support from GOARN, host a GOARN expert or process a GOARN deployment?

Requesting partner

To date, requests for assistance (RFAs) from GOARN have typically been initiated by a local WHO country office, based on needs identified by the ministry of health or the national public health agency leading the response. However, other GOARN partners outside of WHO can also initiate an RFA. For example, as of April 2024 there have been three deployments to support various country offices of the United Nations Children's Fund, or UNICEF.

Hosting partner

It is up to the requesting partner to determine where GOARN experts will be hosted in country, but typically they are embedded within the partner institution that initiated the RFA. For example, if WHO requests support, the expert deployed will embed within the WHO or ministry of health response structures. Typically, if UNICEF requests support, the expert deployed will embed within the UNICEF country office. Regardless of the expert's institutional background before deployment, they will be treated as personnel of the hosting partner institution for the duration of their deployment.

Partner covering operational and human resources support

WHO through the GOARN Operational Support Team is the main partner providing duty of care, including elements of contracting, travel logistics, procurement of emergency insurance and medical evacuation and safety via the United Nations Security Management System. Other partner institutions, such as UNICEF, have replicated this model. The model is meant to be flexible to encompass a wider range of GOARN partner institutions over time should suitable logistics capacity be in place for them to operationally support deployments.



Yellow fever response in Delta State [Nigeria]. © WHO / NOOR / Benedicte Kurzen

Offers of support

All offers of support from GOARN's partners are submitted through the GOARN Knowledge Platform. There are three ways to submit offer to an ongoing RFA:

- 1 as a GOARN focal point in a partner institution, submitting offers for others at the institution;
- 2 as a GOARN focal point in a partner institution, submitting an offer for themselves;
- 3 through a hyperlink which is provided to GOARN expert by the focal point in their home institution, and which will enable expert to submit the offer.

GOARN is committed to applying a fair and equitable process to ensure that experts within GOARN's partner institutions who have the required experience and skills have an opportunity to participate in outbreak responses. Screening is a three-part process involving the partner that is requesting support, focal points at partner institutions, the OST and regional focal points.

- 1 All applications from a partner institution are prescreened by the focal point at that institution to ensure the relevance of the expert's experience, that they meet the minimum requirements and that they have a positive recommendation;
- 2 applicants who pass the prescreening are reviewed by the OST, and the suitable candidates are proposed in discussion with the IMST, the requesting partner and regional focal points, as needed;
- 3 final approval is granted by the relevant authority of the requesting partner (e.g. an Incident Manager or a WHO country representative if the request was made by WHO) and endorsed by the country's ministry of health.

The specific training, skills and experience required for a deployment depend on the type of public health emergency and the specific roles requested by in-country counterparts. The minimum criteria to be deployed that apply across any function require:

- a current affiliation with a GOARN partner institution at the time the RFA is published;
- language fluency, as outlined in the RFA;
- public health expertise, with a base set of technical skills and experience that match the specifics in the RFA, which usually entails previous field experience or work in resource-constrained environments;
- experience and familiarity with working in a multidisciplinary environment;
- the ability to adapt to various cultural contexts;
- strong communication skills;
- positive performance evaluations from previous deployments, if applicable;
- the ability to adhere to GOARN's code of conduct for preventing and responding to sexual exploitation, abuse and harassment;
- submission of all required documentation (i.e. curriculum vitae, dates of availability, maximum duration available, proposed start and end dates, languages spoken, indication of interest in the role);
- completion of mandatory training.

It is considered desirable for an expert to have completed GOARN's tiered training offerings ([Annex 8](#)).

The requesting partner institution may first want to identify GOARN experts within their country or region before expanding their search to the international pool of candidates. Regardless, all RFAs will always be published to the entire network to promote transparency.

Key activities for deployment

The key activities of GOARN's deployment mechanism which are conducted after the selection of deployees are summarized in Table A2.1. They span predeployment, deployment and postdeployment, as well as ongoing activities.

Table A2.1. Key activities during different phases of deployment

Phase of deployment		
Predeployment	Deployment	Postdeployment
• Requesting partner to define clear terms of reference in discussion with IMT/IMST focal points • WHO to assign a human resources focal point and activate onboarding (i.e. issue nil remuneration consultancy contract)^a • Deployee to complete required trainings and forms^b • OST to organize and chair a predeployment briefing	• WHO to ensure adequate support as needed with deployee • Deployee to perform duties in line with terms of reference • Deployee to attend and provide relevant updates during GOARN's weekly operations call, as needed	• OST to organize and chair postdeployment briefing • Deployee to ensure postdeployment formalities are submitted, including mission report and performance evaluation form
Ongoing OST to update the GOARN Knowledge Platform operations pages to keep all details up to date for requests for assistance, offers and ongoing deployments.		

IMST: incident management support team; IMT: incident management team; OST: GOARN Operational Support Team

^a Since GOARN's inception, WHO has utilized the US\$ 1.00 contract for deployments; in these contracts, the expert is treated as a WHO consultant for the duration of the deployment (i.e. granted emergency insurance, insurance for medical evacuation and a per diem allowance), while the home institution continues paying the expert's salary and covering their basic health insurance.

^b The required forms include a declaration of interests; medical certificate; bank details; designation of beneficiaries; a deployment checklist for preventing and responding to sexual exploitation, abuse and harassment; the WHO code of conduct; and a visa packet. The trainings that should be completed include BSAFE, an online security awareness course; the UN Prevention of sexual harassment and abuse of authority course; the UN United to respect course; the WHO Ethics empowerment course; and WHO Standard operating procedures for emergencies.

Annex 3. GOARN's capacities: partner coordination and engagement

Defining GOARN's coordination capacity

GOARN's coordination capacity is implemented through a range of local-to-global activities by the GOARN Operational Support Team (OST) and partners during preparedness, readiness and response activities. This entails specially trained staff at GOARN's partner organizations at the national level (e.g. at national public health agencies, ministries of health, United Nations agencies, and nongovernmental organizations) working together with individuals temporarily deployed by other partners at the national, regional and global levels.

The GOARN coordination capacity has three main functions, which may intersect with one another:

- 1 **partner coordination and engagement** – this coordination ensures deployed staff from GOARN's partners are connected with other response actors and surge response mechanisms activated within the local response;
- 2 **strategic grouping across partners** – this grouping promotes strategic collaboration across partners (e.g. by region, language or technical interest) by introducing an important element of peer-to-peer support among countries, territories or partners that have similar objectives, capacities and focus;
- 3 **local-to-global information-sharing** – this sharing provides real-time, relevant operational updates from the local response to partners who are supporting the regional and global levels.

Partner coordination and engagement

GOARN's partner coordination capacity can be embedded within or linked to existing national response structures (e.g. within an in-country incident management team [IMT] or similar) to support the national public health agency, ministry of health or other entity that is leading the response. A Partner Coordinator from GOARN or another partner network can actively support or lead the partner coordination and engagement pillar within an IMT (Fig. A3.1)

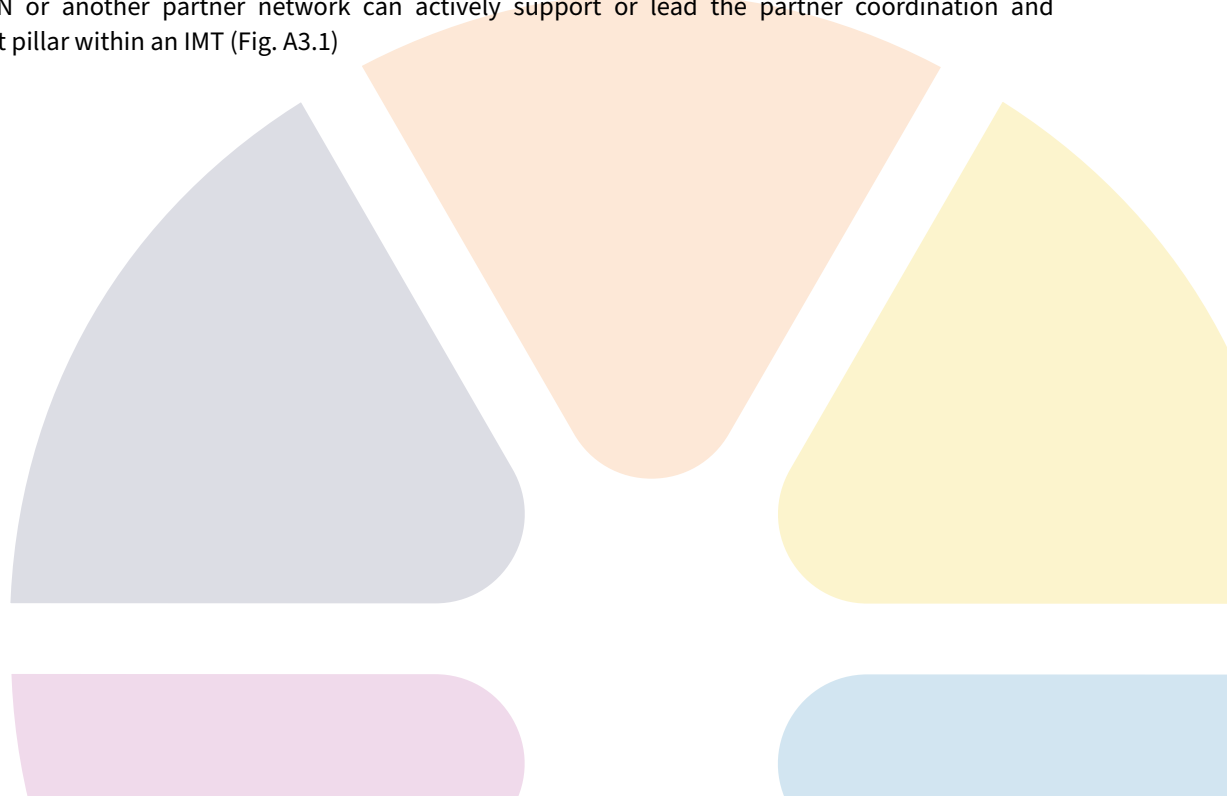
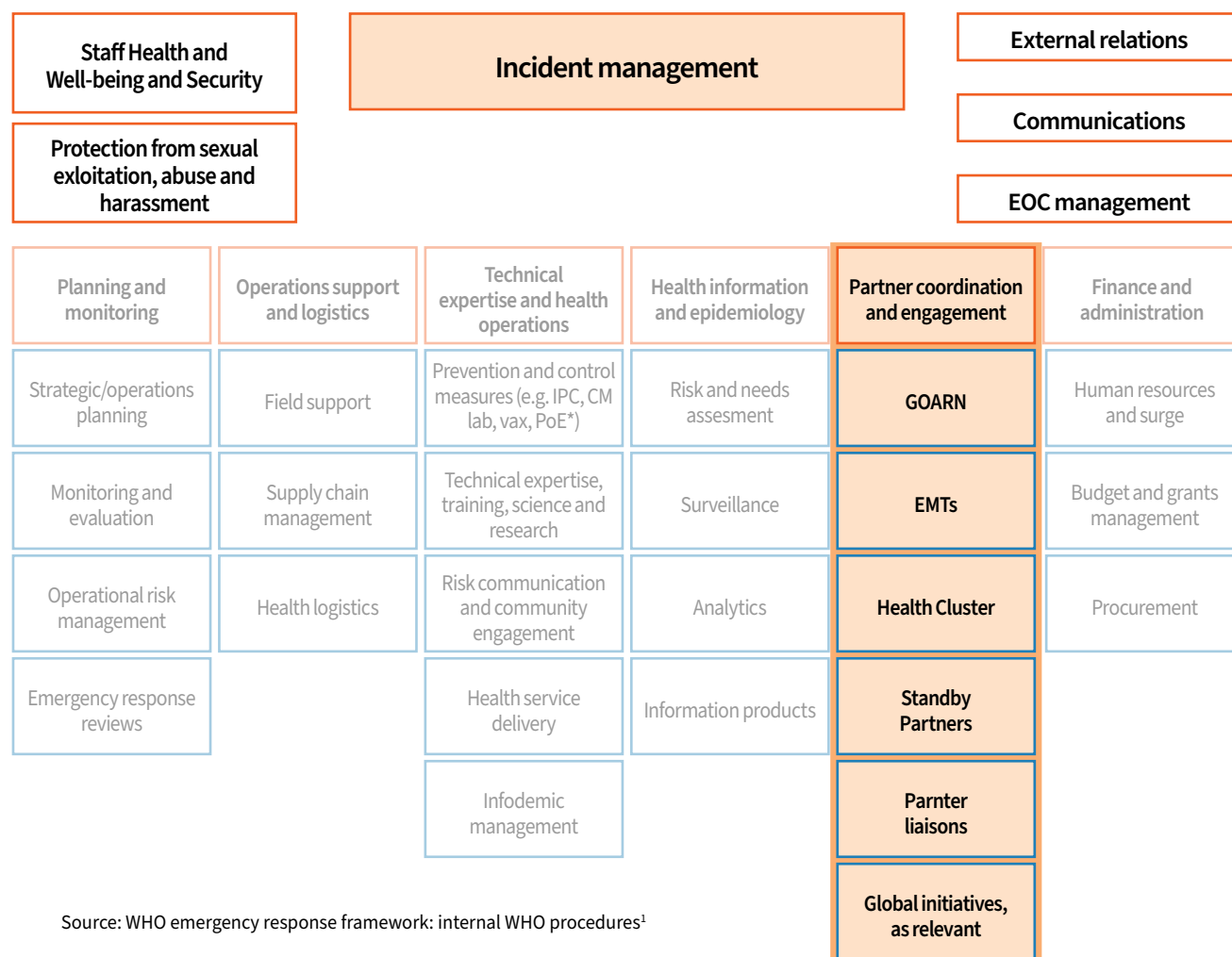


Fig. A3.1. Partner coordination and engagement within the Incident Management System

Source: WHO emergency response framework: internal WHO procedures¹

GOARN Partner Coordinator: Terms of reference

The main goal of a partner coordinator is to ensure that all outbreak response actors and other relevant stakeholders are operationally aligned and to facilitate timely information-sharing with other coordination mechanisms at the local, regional and global levels. It should be noted that the partner coordination function may be covered by a number of mechanisms (i.e., health cluster coordination²) depending on the setting. This terms of reference is an illustrative example of what the partner coordination role has looked like for historical GOARN deployments.

At the national or subnational level the function can be covered through GOARN's deployment of an individual with suitable experience in coordinating partners during public health emergencies.

At the global level the function is directly integrated into a global- or regional-level incident management support team (IMST) by, respectively, members of the OST based at WHO headquarters or by GOARN's regional focal points.

The roles and responsibilities of the coordinator are tailored so that each response best suits the needs and requirements of the local situation. Table A3.1 summarizes the broadly applicable responsibilities of a Partner Coordinator.

¹ WHO emergency response framework: internal WHO procedures. Geneva: World Health Organization; 2024 (<https://iris.who.int/handle/10665/375964>, accessed 4 March 2024).

² Cluster coordination [website]. Geneva: ReliefWeb, United Nations Office for the Coordination of Humanitarian Affairs; 2024 (<https://reliefweb.int/topics/cluster-coordination>, accessed 4 March 2024).

Table A3.1. Summary of GOARN's responsibilities for partner coordination and engagement**Cross-cutting responsibilities for partner coordination (subnational, national and global)**

- Embed within the relevant response structure (e.g. IMT, IMST) to lead or support the partner coordination pillar; this includes bringing any issues or concerns raised by partners to the attention of the incident manager along with a recommended course of action.
- Assist the incident manager in response planning, including identifying any gaps in human resources so that staff may potentially be sourced from GOARN's partner institutions through an RFA, if needed.
- Communicate with the Network and IMT or IMST about ongoing updates to RFAs and deployments. Identify additional relevant fora for information-sharing across partners, including facilitating recurring meetings as needed for a subset of operational partners to discuss a specific thematic area during a response.
- Strengthen information management processes across partners by holding regular meetings and documenting proceedings and outcomes.

National and subnational Partner Coordinator's responsibilities	Global Partner Coordinator's responsibilities
• Serve as liaison to the global Partner Coordinator to address partners' queries and verify operational status. • Serve as the primary point of contact for representatives from partner agencies and other stakeholders; ensure there are close linkages among actors at the local response level, including permanent and surge personnel. • If the health cluster is activated, liaise with the Health Cluster Coordination Team to triangulate information about the partner's presence and response activities. If the health cluster is not activated, develop and maintain rosters of participating response agencies by working with the partner coordination pillar and other stakeholders. • If an EMT Coordination Cell has been activated, make contact and establish information-sharing processes. • Participate in GOARN's weekly operations call and provide relevant updates about response operations, including sharing information transparently and communicating about challenges and needs.	• Serve as liaison among the national or subnational Partner Coordinator, the IMST and the Network more broadly, and provide support with drafting, proposing and publishing RFAs if gaps in human resources and needs are identified. • Chair recurring operational forums to facilitate coordination of activities and information exchange across partners involved in the response (i.e. GOARN's weekly operations calls). • Facilitate cross-agency and cross-partner discussions at the global secretariat level to ensure optimal alignment and collaboration, including, for example, across GOARN's OST, the EMT Secretariat, the Global Health Cluster and the Standby Partnership. • Establish new operational fora as needed (e.g. an event-specific operations call) with all or a subset of partners to discuss specific issues and expedite action items. • Facilitate pre- and post-deployment debriefings with members of the IMST and technical teams, and monitor performance reports, operational issues and gaps for follow up. • Contribute to global advocacy materials and communications via the IMST.

EMT: emergency medical team; IMST: incident management support team; IMT: incident management team; OST: GOARN Operational Support Team; RFA: GOARN request for assistance.

Strategic grouping across partners

GOARN brings partners together during the preparedness and response phases to work towards strategic goals and to strengthen collaboration, promote participation and coordination, and to deliver common priorities and interests. It is an approach that provides guidance and opportunities for partners to better engage in GOARN's activities at the national and regional levels.

Strategic groups can be formed based on one of three criteria:

- 1 **technical interests and expertise** in a public health specialty area – Creating a strategic grouping based on a shared technical interest can support partners to join purposefully to share their technical knowledge, expertise and lessons learned to create innovative solutions for better responses or to leverage the Network's resources and promote collaboration for preparedness and response activities;
- 2 **geographical**, based on location (i.e. national, regional or cross-regional) – Using this type of grouping, partners can place GOARN's objectives and activities within their own specific context. Partners working together in the same geographical area may be able to mobilize resources and strengthen multidisciplinary and multiagency collaboration and coordination for rapid responses at the most appropriate level. Geographical grouping might also contribute to developing a deeper understanding of local communities and to creating stronger networks at the community level, which may promote more sustainable and strong relationships and responses;
- 2 **language commonality**, such as a working coalition of Francophone or Portuguese-speaking communities – This type of grouping can support partners in communicating better, help them to avoid misunderstandings and help to create a critical platform for exchanging knowledge and information about lessons learned.

Strategic grouping within GOARN aims to:

- **foster collaboration, and the exchange of knowledge and best practices** among partners with mutual technical interests, geographical scope or language commonality, and maximize the collective impact of the participating organizations within GOARN;
- **promote the opportunity for new partners to join GOARN**, including community-based organizations and those at the national, regional and cross-regional levels;
- **promote new opportunities for partners** that have not actively engaged in Network activities and deployments recently;
- **promote resource utilization and sharing** among partners to support the implementation of Network activities.

Regional focal points work with the OST to coordinate and review applications for strategic group membership when their particular region is involved to ensure alignment with GOARN's Strategy 2022–2026, promote collaboration and achieve time-limited objectives. GOARN's strategic groups may have different operating formats, depending on the area of work, objectives and selected grouping criteria. The GOARN OST is responsible for enabling effective communication among partners and establishing a virtual space on the GOARN Knowledge Platform for knowledge exchange, communication and coordination, both within the group and across the Network.

Local-to-global information-sharing

There are a variety of ways in which GOARN promotes both the informal and formal sharing of knowledge and information across its diverse network of partners. This includes through platforms and tools that enhance and systematize information exchange, of which two examples are discussed here. These functions are typically facilitated through GOARN OST.

Weekly operations coordination call

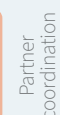
GOARN's weekly operational calls began in January 2017 and have been running on a weekly basis ever since. These calls serve as an informal means for exchanging information and operational updates by partners during acute events or discussing new signals detected by WHO and its partners. They take place each Thursday at 14:00 CET, are chaired by the OST from WHO's headquarters in Geneva, and about 100–150 participants join during any given week. The agenda reflects ongoing events that WHO and its partners are responding to and the incoming signals from across the WHO Public Health Intelligence Unit and GOARN's partner institutions. Regular participants on the call include members of the GOARN Steering Committee, technical leads at WHO headquarters, GOARN regional focal points and representatives from GOARN's partner institutions. Additional partners may be added to the call, depending on the events included on the agenda. Information and documentation are uploaded to the GOARN Knowledge Platform both before and after the weekly operations coordination call. The calls are confidential, and materials and updates are not shared beyond the forum. The calls have proved to be a reliable and useful mechanism for receiving transparent and real-time updates about WHO's and partners' operational activities.

Knowledge Platform

The purpose of the GOARN Knowledge Platform (<https://goarn.who.int>) is to enable WHO, the GOARN OST and GOARN's partners to share information securely and rapidly throughout the Network. It aims to improve the visibility of operational updates, facilitate mobilization of partners' resources and strengthen partners' routine engagement with the Network. There are two sections of the Knowledge Platform – the public section and the focal point section. For the latter, users include focal points in more than 300 partner institutions, as of December 2023, accessing through a username and password. Here, the GOARN Knowledge Platform hosts and streamlines information related to events, operations, relevant documents and applications for deployments, and partner institutional profiles. It also creates a forum through which partners can collaborate in virtual spaces, including spaces created for specific purposes, such as for the GOARN Steering Committee, the weekly operations call, operational research and the Go.Data project.

Key opportunities for partner coordination and engagement

Regardless of the coordination structure, the partner coordination and engagement function (by GOARN or other) plays an important role as the interface between the national response, WHO, the Network's partners and all other international partners. As such, it can be a conduit for substantial resources in service of a national response. If effective, it can also alleviate challenges related to management of partners' expectations, misaligned or overlapping organizational mandates, or navigating political sensitivities. Efforts should be made to ensure that both linkages across coordination mechanisms (see the Section [Existing structures and governance during national outbreak response](#)) and principles of effective partner coordination (see the Section [Partner coordination and engagement](#)) are upheld.



Annex 4. GOARN's capacities: health information and epidemiology

Deployment of health information and epidemiology experts

Since **2000**, GOARN has facilitated **1 315** deployments of health information and epidemiology experts as of April **2024**.

The typical terms of reference highlighted in requests for assistance for this technical area could require experts to:

- provide technical support to enhance the incident management team's overall understanding of the outbreak dynamics;
- assist in developing surveys and monitoring surveillance systems to detect, verify and respond to public health incidents;
- ensure the efficiency of data collection, correlation, analysis, interpretation and timely reporting at the health facility and district levels;
- collate and verify data about reported outbreaks or rumours received from multiple sources;
- conduct retrospective analyses of reported incidents by determining trends and distribution patterns and by assessing the efficiency of the verification mechanism;
- brief the incident management team about how to improve the quality of data, how to use data to monitor trends, triggers for alert and action thresholds, as well as methods for performing data quality audits at the district and health facility levels;
- conduct in-depth epidemiological investigations, for example, to identify populations at risk, sources of transmission and contributing risk factors.



An outbreak response team from the ministry of health searches for contacts of a recently confirmed measles case in El Fasher, North Darfur [Sudan]. © WHO / Lindsay Mackenzie



Background

Existing structures & governance

Technical areas

Partner coordination

Health info & epidemiology

Lab & diagnostics

Case management

IPC

RCCE

Other

References

Annexes

Spotlight: integrated outbreak analytics

During the 2018–2020 Ebola virus disease outbreak in the Democratic Republic of the Congo, integrated outbreak analytics (IOA) emerged as an approach to ensure the timely generation of consolidated and actionable evidence for decision-makers.¹

IOA is defined as a holistic and multidisciplinary approach to data collection, management and analysis that can drive comprehensive, accountable and effective responses to an outbreak at the local, subnational and national levels. It is implemented at the same time as response activities and teams are organized, soon after an initial assessment has been finalized. IOA aims at informing a rapid local response while building subnational and national response capacities. It is often applied by a ministry of health or national public health authority, and it may be implemented through multipartner collaborations that ideally include the proactive involvement of the affected communities. This approach aims to maximize the resilience of the populations affected, while minimizing the direct and indirect negative impacts on them of outbreaks and the associated responses.

To advance the use of IOA, several agencies and organizations that work or are interested in working with this approach have come together under the umbrella of GOARN. Because one of GOARN's key strategic objectives is to drive outbreak-related research and analyses to strengthen responses to outbreaks, it became a natural home for establishing the IOA Network and advancing this approach to promote multipartner collaboration that could benefit from GOARN's experience in bringing technical agencies together to respond to outbreaks and public health emergencies. The IOA Network mobilizes multiple actors, entities and organizations to work together before, during and after an outbreak, and optimizes resources.

An IOA response includes the following steps:

- 1 It begins with a specific trigger question raised by stakeholders and decision-makers affected by the public health emergency, seeking to explain a particular trend, observation or change in local health or outbreak dynamics. Short terms of reference are rapidly developed and approved by all IOA Network stakeholders, describing the objective, methods and expected outputs.
- 2 Information from various sources is collated and reviewed. This allows the multidisciplinary team to identify which information is missing and to agree on the next steps.
- 3 If evidence gaps are identified, all stakeholders collaborate to agree on the data to be collected and the appropriate method. This complementary information is collected rapidly.
- 4 The multifaceted data sets are analysed in a collaborative and iterative manner by the local multidisciplinary team.
- 5 The results are presented to all stakeholders, thus fostering a common understanding and interpretation of the situation and leading to the co-development of actionable and time-bound recommendations.
- 6 Finally, the recommended actions are implemented and closely and regularly monitored.

These steps should be completed in no more than 10 days, meaning that in an emergency context, each step is completed in 1 or 2 days.

IOA brings added value to the response to a public health emergency by:

- operating at the local level, where the outbreak unfolds;
- involving local health actors, thus ensuring ownership and accountability;
- building local capacity for critical appraisal;
- developing methods to rapidly integrate nontraditional contextual information;
- bringing wider perspectives and making available information (even if data are incomplete or imperfect) and intelligence from an array of disciplines and sources;

¹ Carter, Simone E et al. How to improve outbreak response: a case study of integrated outbreak analytics from Ebola in Eastern Democratic Republic of the Congo. *BMJ global health* vol. 6,8 (2021): e006736. doi:10.1136/bmjgh-2021-006736.

- producing rapid and operational evidence to provide a holistic situational understanding and to inform the response; and
- systematically creating a forum for national public health authorities, communities and relevant stakeholders to interact and share actionable information, streamline decision-making and improve coordination.

To achieve these goals, the IOA approach seeks to foster:

- the identification of and collaboration among relevant local, national, regional and international partners that will support locally led data management, analysis and interpretation, and the co-development of recommendations;
- capacity-building and capacity development to strengthen the use of outbreak analytics in responses across national public health authorities, affected communities, and partners;
- information-sharing among all involved stakeholders; and
- the sharing and operationalization of guidance, methods and tools before, during and after the outbreak.

The information sources used by IOA include quantitative data pulled from various surveillance and information systems (e.g. data about syndromic surveillance; integrated disease surveillance; health care access and use; animal health; clinical operations and management; outbreak line lists; nutrition; demographics, including socioeconomic information; migration and population mobility) and contextual qualitative and quantitative information (e.g. historical, political and socioeconomic information; situation analyses; social, cultural and behavioural perceptions and attitudes; sex and gender norms; policy decisions and strategy).

Spotlight: Go.Data



The four Free State Provincial Go.Data Implementation Leads discussing the provincial Go.data dashboard in Free State [South Africa].
© WHO / Lehlohonolo Koekoe

Access to real-time and representative data is critical to enable key response activities during an outbreak, regardless of its scope or severity. This implies that outbreak response teams at all levels of the health care system have mechanisms in place for information management.

Go.Data² is a platform for outbreak response and contact tracing developed by WHO in collaboration with GOARN's partners. Its primary purposes are to streamline and integrate data collection for cases, contacts and exposure events, and to enable visualization of the linkages between them to reveal and describe chains of transmissions.

A workshop with GOARN's partners was held in October 2016 to outline the requirements for the Go.Data platform. The core development of Go.Data began in early 2018, with the first version ready 1 year later, in February 2019. Go.Data was deployed the following month in response to an outbreak of diphtheria in Cox's Bazar, Bangladesh. This was followed by deployments for the 2018–2020 outbreak of Ebola virus disease in Kasese, Uganda, and North Kivu, Democratic Republic of the Congo. With the start of the COVID-19 pandemic in 2020, the rollout moved to a large scale implementation and support to countries. When assessed in December 2021, Go.Data was being used in 65 countries and territories and more than 115 institutions worldwide.³

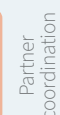
The global roll out of Go.Data is characterized by collaboration across different WHO departments, teams and organizational levels, and across GOARN's partner institutions. It offers a versatile approach that can be quickly adapted to a country's specific needs. This spirit of collaboration, coupled with regular forums to facilitate sharing experiences, has further enhanced the rapid exchange of knowledge between and within WHO, external partners and country implementers.

Go.Data was made available as a fully open-source platform in April 2024, in collaboration with WHO's Open Source Programme Office within the WHO Hub for Pandemic and Epidemic Intelligence. It is continuing to be incorporated into field epidemiology training program curriculums and utilized by GOARN partners as a structured way to collect data during outbreak response. A number of virtual training resources are available across multiple languages through the OpenWHO Go.Data channel⁴ and the GOARN Virtual Training Platform.

² Go.Data: Managing complex data in outbreaks [website]. Geneva: World Health Organization; 2024 (<https://www.who.int/tools/godata>, accessed 4 March 2024).

³ Go.Data annual report 2021. Geneva: World Health Organization; 2022 (<https://iris.who.int/handle/10665/352606>, accessed 6 March 2024).

⁴ The Go.Data Channel: Data collection and contact tracing in outbreak response [website]. Geneva: World Health Organization; 2024 (<https://openwho.org/channels/godata>, accessed 4 March 2024).



Annex 5. GOARN's capacities: laboratory and diagnostics

Deployment of laboratory and diagnostics experts

Since **2000**, GOARN has facilitated **777** deployments of laboratory and diagnostics experts as of April **2024**.

The typical terms of reference highlighted in requests for assistance for this technical area could require experts to:

- provide technical expertise and operational support to enable timely responses to outbreaks or epidemics and health emergencies in collaboration with national health officials, including laboratory staff and other partner organizations;
- adapt and coordinate the development and implementation of technical guidelines and standard operating procedures for laboratory testing practices for outbreak detection, including for outbreaks caused by emerging, re-emerging and other infectious diseases;
- coordinate participation in quality assurance systems by international mobile laboratories deployed in country and by national central laboratories involved in event management;
- lead the enhancement of laboratory infrastructure and the implementation of standard operating procedures to ensure the safe collection, handling, shipment, storage and analysis of human and environmental specimens.



A laboratory technician puts samples into a centrifuge at the National Reference Laboratory in Dushanbe [Tajikistan].

© WHO / Lindsay Mackenzie

Spotlight: rapid response mobile laboratory deployment to Lesbos, Greece, during COVID-19

GOARN supports the deployment of rapid response mobile laboratories (RRMLs) to provide critical laboratory diagnostic support during crisis situations. RRMLs are an important asset to GOARN and the global emergency workforce.¹ In 2018, the WHO Health Emergencies Programme at the Regional Office for Europe established the RRML Network, driven by the European partner institutions within GOARN, to advance and integrate RRMLs into preparedness and response structures and to standardize their operations in the field. A conceptual framework for minimum operational standards was developed and tested through a three-phase GOARN interregional field exercise launched in 2023.

One RRML deployment was to Moria camp in Greece, after a fire broke out in September 2020 during the COVID-19 pandemic, threatening nearly 13 000 refugees and migrants. In the temporary camp established after the fire, the first COVID-19 cases appeared quickly, resulting in several fatalities. To ensure the provision of adequate basic health services to the residents, prevent the further spread of the disease and treat those who were affected, the ministry of health in Greece issued a request for assistance for emergency medical teams (EMTs) and RRMLs from the EMT Initiative and GOARN, respectively.

In October 2020, a RRML and EMT were deployed to the camp to support local health authorities in providing COVID-19 diagnostics and health care to the camp's residents. This was complemented by the deployment of GOARN epidemiologists, data management officers and an EMT liaison officer to establish a link between the RRML and relevant health actors in the camp.

Initially the RRML service focused on providing COVID-19 diagnosis by polymerase chain reaction, but then it scaled up its diagnostic capacities to support the provision of primary health care in the camp by bringing in additional diagnostic modules, after consulting with all health actors represented in the camp. During its 3-month deployment, the RRML supported diagnoses and testing for 7 700 camp residents for COVID-19, for blood count and chemistry tests, urine tests, as well as pregnancy tests. In addition, the RRML supported the continued COVID-19 screening of 200 camp residents who were relocated to the European mainland by the International Organization for Migration.

The RRML worked seamlessly with numerous actors in the camp, including the EMT, national and international nongovernmental organizations, contact tracers and epidemiologists, demonstrating a flexible integration into the coordination structure of the ongoing response. The RRML liaison officer supported this high level of interoperability by providing technical expertise and operational support to local health authorities to ensure the optimal use of diagnostic tools and to define an evidence-base COVID-19 testing strategy. Altogether, this deployment showcased the efficient deployment of RRMLs to respond to emergencies in a complex context by bringing diagnostic services to the doorstep of affected communities.

¹ Rapid Response Mobile Laboratories (RRMLs): what's in a mobile laboratory? Copenhagen: World Health Organization Regional Office for Europe; 2023 (<https://iris.who.int/handle/10665/366110>, accessed 4 March 2024).

Annex 6. GOARN's capacities: case management

Deployment of case management experts

Since **2000**, GOARN has facilitated **210 deployments** of case management experts as of April **2024**.

The typical terms of reference highlighted in requests for assistance for this technical area could require experts to:

- support incident management with needs assessments, and liaise with technical units to determine the needs of the affected population in regard to case management, including referral pathways;
- provide technical advice on all issues related to case management, critically reviewing, analysing and using evidence-based data to set up or adapt case management tools, interventions and approaches;
- develop systems and procedures for emergency triage at health care facilities;
- support response teams in instituting appropriate case management measures; train health care workers, hospital management and auxiliary staff.

Spotlight: Emerging Diseases Clinical Assessment and Response Network

What is the Network and its role within GOARN?

The Emerging Diseases Clinical Assessment and Response Network (EDCARN) is a global partnership of more than 80 clinicians and 20 institutions, including WHO collaborating centres and individuals from governmental and nongovernmental organizations, academia and WHO.¹

The Network provides technical expertise to help set and implement standards for the high-quality management of patients with emerging infectious diseases, serving as a catalyst and operational arm for treatment, prevention and clinical research. EDCARN has a roster of expert clinicians who can be deployed during outbreaks to provide technical support, training and mentoring to the local, national and international health workforce.

The Network is coordinated by WHO's Clinical Management and Operations Unit and has been an active GOARN partner since 2016. Since then, various infectious disease specialists within EDCARN have participated in more than 110 GOARN deployments across 25 operations.

¹ Emerging Diseases Clinical Assessment and Response Network [website]. Geneva: World Health Organization; 2024 (<https://www.who.int/groups/edcarn>, accessed 6 March 2024).

What is the Network's vision?

EDCARN provides a frontline, expert clinician's perspective on the best ways to tackle multifaceted clinical case management issues, including during complex emergencies and conflicts. To ensure the quality and effectiveness of its emergency response, WHO and experts from EDCARN apply evidence-based and knowledge-based programming. This includes the promotion of and adherence to technical standards and best practices, and close monitoring of key performance indicators to guide clinical actions and operations. The Network aims to strengthen the essential links among frontline health workers, global clinical experts and researchers to provide enhanced technical expertise at the clinical interface of emerging infectious diseases.

EDCARN is planning to expand its membership, in particular by focusing on increasing its roster of trainers who are experts in responding to emerging infectious diseases to boost capacity-building efforts in countries. It is hoped that communities of practice will be fostered and initiate peer-to-peer knowledge exchange between individual EDCARN experts. Best practices for infection prevention and control will be further embedded into WHO's and GOARN's training for partners to address a range of threats, pathogens and emergency contexts in a comprehensive fashion.

EDCARN seeks to optimize its effectiveness by working through partners at all levels to collectively support country-led responses. Effective clinical responses to outbreaks of emerging infectious diseases depend on the collaborative work of WHO and its partners, all of whom are dedicated to improving the overall health and well-being of populations affected by emergencies.



WHO staff from Polio, Emergencies and Country Collaboration (PEC) Department responding to an Ebola outbreak [Sierra Leone].

© WHO / Rob Holden



Background

Existing structures & governance

Technical areas

Partner coordination

Health info & epidemiology

Lab & diagnostics

Case management

IPC

RCCE

Other

References

Annexes

Annex 7. GOARN's capacities: infection prevention and control

Deployment of infection prevention and control experts

Since **2000**, GOARN has facilitated **193** deployments of infection prevention and control (IPC) experts as of April **2024**.

The typical terms of reference highlighted in requests for assistance for this technical area could require experts to:

- work in coordination with the incident management team to ensure IPC priorities and activities are managed effectively within the overall outbreak or health emergency preparedness, response and recovery activities, in compliance with national standard operating procedures and WHO's IPC guidelines;
- assess IPC capacities and practices in emergency units, hospitals and health care facilities; identify action plans and priorities for improvement, and prepare a written report using WHO's templates, in collaboration with local ministry of health authorities and partners; provide technical recommendations to partners and key players to achieve improvement actions and to monitor implementation; according to local needs and requests, review the IPC measures implemented and advise about preventing health care-associated infections in health care settings;
- assess training needs; develop training plans; and conduct IPC training for staff at district hospitals and health facilities.



A nurse washes her hands at the Ganta Clinic in Nimba County [Liberia]. © WHO / Ahmed Jallanzo

Spotlight: Australasian College for Infection Prevention and Control

The Australasian College for Infection Prevention and Control, formerly the Australian Infection Control Association, has been partnering with GOARN since the College's inception. The College is a network hub with more than 1 500 full members who represent a diverse group including, but not limited to, professionals working in IPC, veterinary medicine, laboratory diagnostics, infectious diseases, epidemiology, public health, education and research. During the past 20 years, the College has contributed to several deployments that requested experts in IPC and other disciplines, with 40 offers and 2 deployments in the past 5 years. The College is a key training partner for GOARN, contributing senior faculty and mentors to the development and delivery of Tier 1.5 and Tier 2 training ([Annex 8](#)), within and outside of WHO's Western Pacific Region while engaging in strategic planning for future education initiatives.

The College advocates for GOARN multiple times each year among its membership through webinars, newsletter articles, dedicated international conference streams and Tier 1.5 training, research publications, and sharing of deployment and representation opportunities. The College has been represented in various GOARN fora including the Global Meeting of Partners, the GOARN Strategy Implementation Workshop, and the Research Technical Working Group, while maintaining its role as a key partner within the Western Pacific Region. Members of the College have participated in Tier 3 leadership training (both online and in person) and Tier 1.5 and Tier 2 training.

The partnership between GOARN and the College continues to grow, both regionally and globally, supporting the capacity of other partners by delivering training and coordinating GOARN activities.²

² Australian College for Infection Prevention and Control [website]. Hobart (Tasmania): ACIPC; 2024 (<https://www.acipc.org.au/>, accessed 22 March 2024).

Annex 8. GOARN's capacities: risk communication and community engagement

Deployment of experts in risk communication and community engagement

Since **2000**, GOARN has facilitated **93 deployments** of risk communication and community engagement (RCCE) experts as of **April 2024**.

The typical terms of reference highlighted in requests for assistance for this technical area could require experts to:

- work with relevant stakeholders and partners to support the coordination, gathering, integrated analysis and use of a wide range of data to develop behavioural insights and inform and monitor interventions at speed; data sources include programmatic data and insights gleaned from social listening, quantitative surveys, qualitative research and rapid community assessments, among others;
- ensure evidence-based interventions are implemented, including enhancements to service quality, health worker capacity-building, communication and infodemic management, and community engagement, among others;
- develop and test locally sensitive communication content and dissemination strategies to reach diverse communities and to inform, engage and build resilience against infodemics and misinformation.



Reaching people at risk of malaria in remote areas of Chhattisgarh [India]. © WHO / Atul Loke / Panos Pictures



Existing structures & governance

Technical areas

Partner coordination

Health info & epidemiology

Lab & diagnostics

Case management

IPC

RCCE

Other

References

Annexes

Spotlight: Risk communication and community engagement – Collective Service

Established in June 2020 in response to the COVID-19 pandemic, and building on lessons learned around the need for coordination and data-driven, community-centred approaches during outbreaks of Ebola virus disease, the Collective Service is a global interagency partnership implemented through GOARN that includes the United Nations Children's Fund (UNICEF), WHO and the International Federation of Red Cross and Red Crescent Societies (IFRC), working to harmonize and strengthen approaches to RCCE for COVID-19.¹

Case study: using rapid qualitative assessments during multicountry cholera outbreak response to identify barriers and enablers of health-seeking behaviours

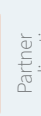
From 2022–2024, a series of rapid qualitative assessments (RQAs) by the Collective Service were implemented during the global, multicountry cholera outbreak to deepen understanding of the barriers to, and enablers of, health-seeking behaviours. These typically involve the deployment of one or more individuals from the RCCE Collective Service via GOARN or bilateral deployments to facilitate observational activities, key informant interviews and focus group discussions with health workers and community members around key thematic areas.

To inform response activities, findings from the RQAs are synthesized rapidly and shared with the Collective Service, wider GOARN partners and other response pillars. These assessments have provided valuable insights into the social, cultural and behavioural factors influencing the transmission and prevention of cholera within communities. By identifying the knowledge gaps, attitudes and practices that contribute to the spread of the disease and triangulating with findings from community feedback and other data, RQAs have guided the development of targeted interventions and communication strategies tailored to the specific needs and challenges of the affected community.

RQAs have been performed to improve understanding of the adaptations needed during cholera responses in Malawi, Mozambique and Zimbabwe, among others. Additional case studies from the RCCE Collective Service can be found online.²

¹ RCCE Collective Service [website]. British Red Cross; 2024 (<https://www.rcce-collective.net/>, accessed 6 March 2024).

² Case studies [website]. Geneva: Collective Service; 2024 (<https://www.rcce-collective.net/case-studies/>, accessed 6 March 2023).



Annex 9. GOARN's Capacity-Strengthening and Training Programme

Objectives and audiences

The goal of GOARN's Capacity Strengthening And Training Programme is to enhance individual and collective capacity to take part in multidisciplinary outbreak responses. Through repeated assessments with partners about which cross-functional skills are required during outbreak response, the GOARN Capacity-Strengthening and Training Programme addresses critical needs in essential field readiness activities that complement existing technical trainings conducted by the Network's partners.

The Capacity-Strengthening and Training Programme focuses on enhancing the multidisciplinary attributes required during responses, such as the ability of a multidisciplinary team to work effectively together, with each individual under their own and collective leadership. Ongoing needs assessments and discussions with partners support the evolution of the Programme, which allows it to be nimble and based on the ever-changing landscape of emergency responses and the dynamic challenges faced by leaders and those responding to public health outbreaks.

Leadership in outbreak response has emerged as a critical theme for partners, especially in light of global responses to the COVID-19 pandemic and mpox. Public health epidemics, pandemics and emergencies introduce new complexities to more traditional leadership concepts, and leadership during such times is a crucial component of an effective outbreak response and of emergency preparedness more broadly.

Through capacity-strengthening activities, GOARN strives to build, connect and maintain a network of leaders in outbreak response across a diverse set of institutions. The Capacity-Strengthening and Training Programme has three tiers, each with clearly defined goals and audiences (Fig. A9.1). The training is designed to build understanding and strengthen capacity at all levels of the response, and to have a sharp focus on leadership at all levels and in all disciplines.

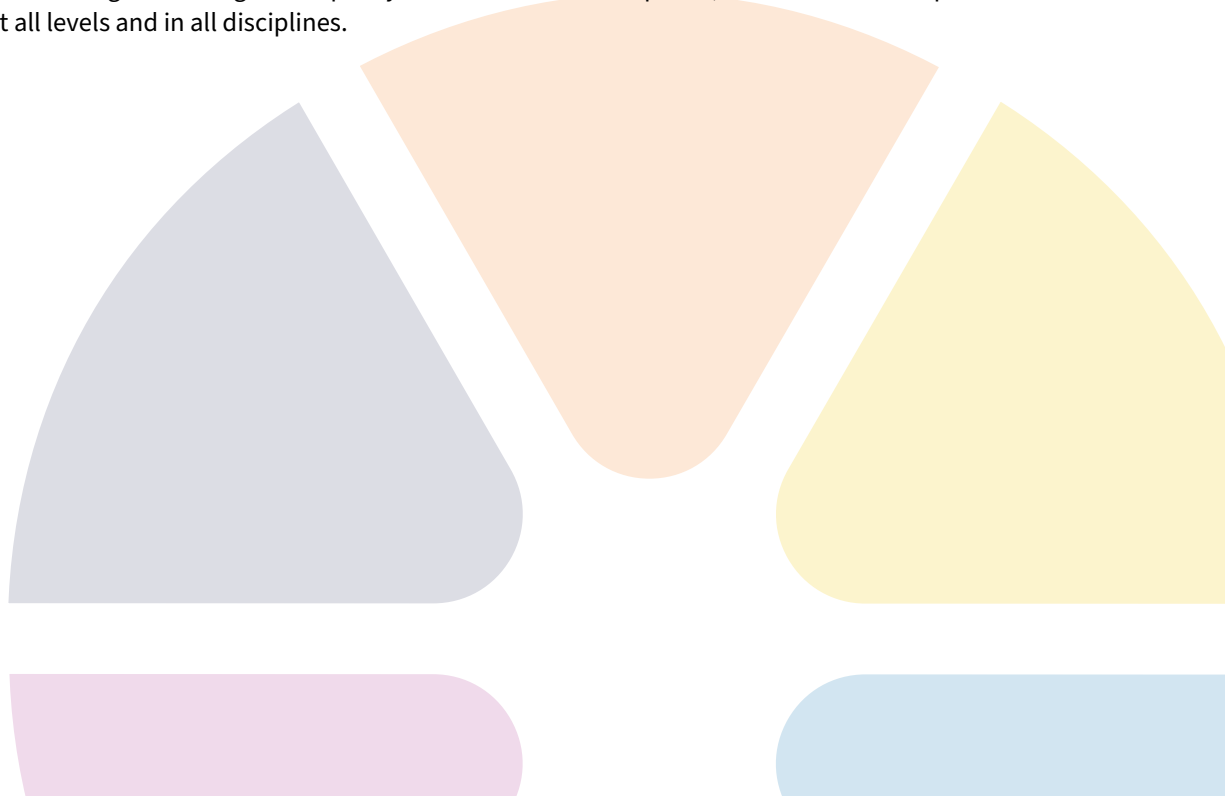
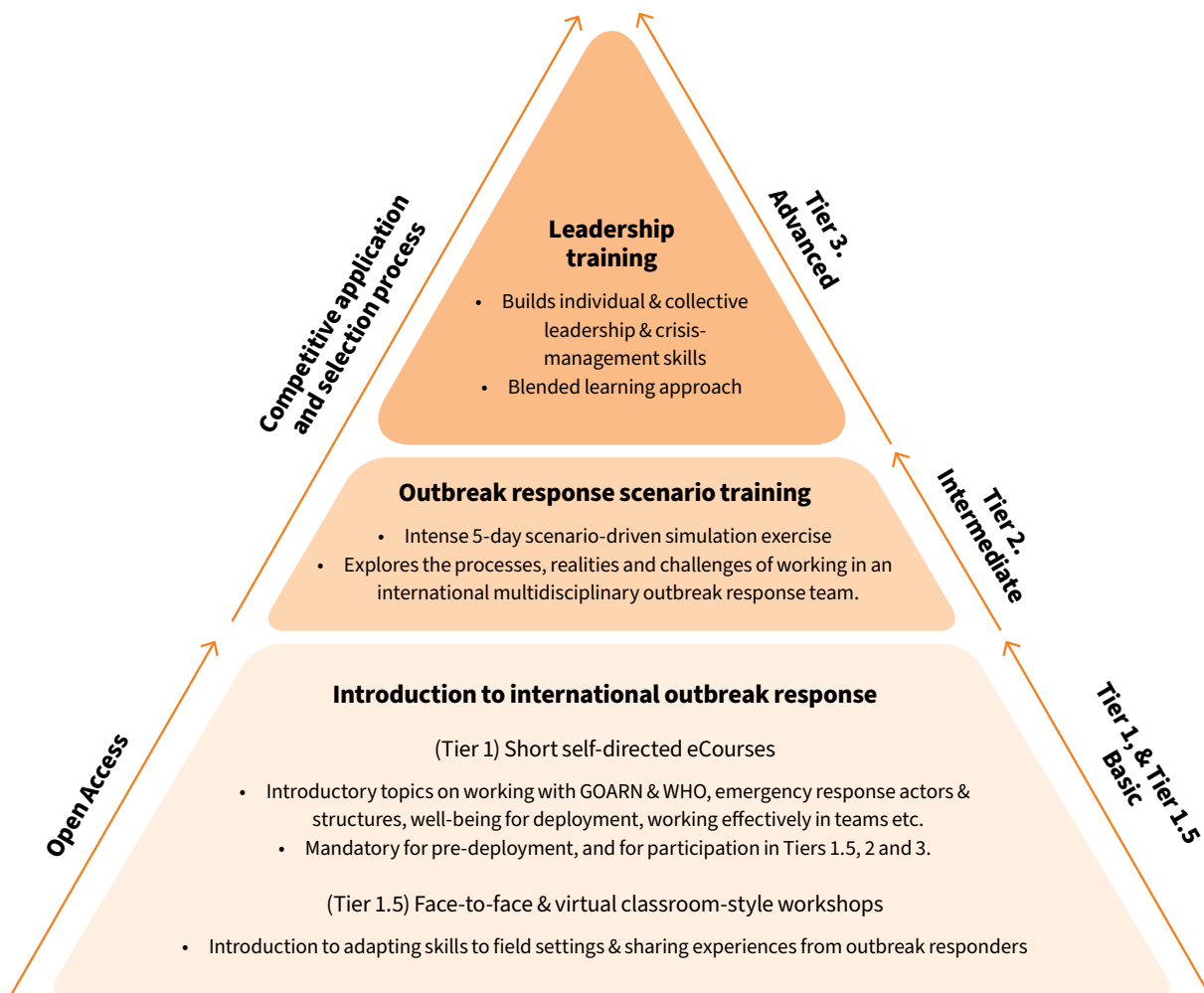


Fig. A9.1. The three-tiered GOARN Capacity-Strengthening and Training Programme

Overview of the three tiers of the Programme

Tier 1: introduction to international outbreak response

Purpose:

The purpose of this tier is to provide all of GOARN's partners with access to a common minimum set of knowledge-based predeployment training and learning materials. GOARN's partners bring their own technical skills and experience to deployments, and through these entry-level training courses, they will build their foundational knowledge of the principles and structures of GOARN and responses to outbreaks, public health emergencies and humanitarian crises; be exposed to the desirable personal attributes and skills of deployed experts; and gain insights into the codes of conduct and realities of working with governments, public health partners and United Nations agencies on the ground. Successful completion of Tier 1 training modules will ensure there are common standards and a baseline of knowledge across all partners, which will enhance the level of predictability of technical experts' actions and facilitate more seamless integration with government, national and international partners in their response teams.

Format:

Tier 1 consists of a series of online self-directed e-courses, each lasting 20 to 90 minutes, hosted on GOARN's virtual training platform. In addition to hosting the e-courses, the platform also maintains the learning records of graduates across all tiers of the Capacity-Strengthening and Training Programme and is linked to GOARN's operational deployment platform, enabling the learning records to be seen of persons who are applying for deployment. Courses are available in Arabic, Chinese, English, French, Portuguese, Russian and Spanish.

Target audience:

The audience for this tier is public health specialists from GOARN's partner institutions who are interested in deploying on an international outbreak response mission.

The courses include:

- an overview of GOARN;
- working with GOARN in the field;
- public health emergencies and humanitarian landscape and architecture;
- well-being for deployment;
- working in an international, multidisciplinary outbreak response team.

Other courses are also available through the GOARN virtual training platform. Among these are BSAFE an online security awareness training developed by the United Nations Department of Safety and Security, and other technical courses, such as introductory trainings for Go.Data, an outbreak investigation tool developed by WHO and GOARN's partners.¹

Access:

The virtual GOARN training platform is available after self-registration at <https://goarnlms.org>.

Tier 1.5: orientation to international outbreak responses with GOARN**Purpose:**

This course introduces participants to the opportunities, processes, challenges and realities of working as part of an international, multidisciplinary outbreak response team on a GOARN deployment. It also details the steps involved in applying for deployment and introduces concepts for adapting specialized technical public health skills to a field setting. Experts previously deployed by GOARN are invited to be guest speakers and share their experiences; participants on the course are encouraged to reflect upon their suitability and interest in volunteering to deploy with GOARN internationally in the future.

Format:

This highly interactive course is a mixture of presentations, case studies, sharing of deployment experiences and discussions among participants and faculty. The course is delivered in both virtual and face-to-face formats, with approximately 30-35 participants per course. This course can be tailored to a specific public health discipline, such as epidemiology or infection prevention and control, or delivered to a multidisciplinary audience. The course is currently being transitioned to partner-led delivery to increase its reach and to increase access to the course.

Target audience:

This course is targeted to individuals based at GOARN's partner institutions who are interested in learning more about opportunities to deploy internationally with GOARN. It is designed for public health specialists who may have limited experience in responding to international outbreaks, for example recent graduates of in-service public health technical training programmes, such as those from field epidemiology training programmes or hospital-based infection prevention and control specialists.

Access:

This course is run upon request from partner institutions, who select participants from their institution based on their own criteria. Participants are required to complete mandatory pre-course work, which includes the Tier 1 GOARN e-courses.

¹ Go.Data: managing complex data in outbreaks [website]. Geneva: World Health Organization; 2024 (<https://www.who.int/tools/godata>, accessed 6 March 2024).

Tier 1.5: training of trainers session

Purpose:

The goal of the Tier 1.5 training of trainers session is to prepare experienced, previously deployed experts to provide predeployment preparedness training to national or regional technical experts interested in participating in international deployments with GOARN. The Tier 1.5 training of trainers course is available for virtual or in-person training to support the transition to partner-led Tier 1.5 delivery. While the focus is on responding to international outbreaks, there are many competencies and discussions in the training that are pertinent to and helpful for domestic response activities.

Participants:

Experienced, previously deployed experts who will be delivering Tier 1.5 orientation training to others on behalf of GOARN are eligible to participate. The selection criteria for Tier 1.5 training of trainers participants include –

- essential criteria
 - at least 5 years' experience in public health emergency response at the national or international level;
 - experience delivering training or workshops using best practices for adult learning;
 - participation in GOARN's Tier 1.5 orientation training and Tier 1.5 training of trainers or Tier 2 training;
- desirable criteria
 - previously deployed through GOARN;
 - have a working knowledge of GOARN and related activities.

Note that other criteria can be included as desired, such as language skills or being a staff member of a field epidemiology programme.

Tier 2: outbreak response scenario training

GOARN's outbreak response training was first launched in 2005, and over the years it has evolved into an intensive 5-day scenario-driven course that aims to simulate the technical and operational challenges of responding to an outbreak.

Purpose:

The outbreak response scenario training is a unique field adaptation training designed to orient personnel from multiple disciplines to the processes, realities and challenges of working as part of an international outbreak response team. This training provides a safe space for public health experts from various specialties to build and test their skills, behaviours and attitudes as they work as part of an international, multidisciplinary team. Teammates are required to apply their technical skills in a new, challenging and dynamic environment to effectively problem-solve during an evolving outbreak of unknown etiology.

This training focuses on developing and assessing the GOARN's core competencies for working effectively as part of an international, multidisciplinary outbreak response team.

Format:

This course is an intense 5-day residential scenario-driven training examining an evolving outbreak of unknown etiology, with approximately 80% of the course taking place in a simulation. Throughout this course, participants take part in one of three separate, multidisciplinary outbreak response teams, and they must demonstrate that they can work effectively with other team members to overcome challenges, allocate roles and responsibilities among themselves, manage their time appropriately, set priorities and produce deliverables. The course emphasizes the need to ensure that the work done by the team member from each technical discipline complements that done by members from other disciplines, while operating under increasing public health, community and political pressure to correctly identify the pathogen rapidly and recommend appropriate control measures. For the purposes of the simulation role plays, costumes, props and real physical locations are used, including actual WHO country offices, hospitals, and city and field locations.



Background

Existing
structures &
governance

Technical
areas

Partner
coordination

Health info &
epidemiology

Lab &
diagnostics

Case
management

IPC

RCCE

Other

References

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Target audience:

The audience for this course is mid-level staff at GOARN's partner institutions who have technical expertise in a relevant field and previous outbreak response experience (i.e. two or more deployments at the national or international level) and who are committed to deploying on a GOARN field mission. Participants must have a minimum of 7 years' relevant professional experience.

Access:

Selection is competitive. This course is run periodically and coordinated by the GOARN Operational Support Team, in collaboration with WHO's regional and country offices and GOARN's partners. Calls for applications to participate are made in consultation with WHO's regional offices and may be disseminated via GOARN's institutional focal points. The application process includes submission of a résumé and a letter of motivation, as well as an indication of institutional support for future deployment from the GOARN institutional focal point or the applicant's supervisor. The final selection of 24 participants is made to ensure there is appropriate diversity of technical disciplines and gender, and global geographical representation. Usual course participants work across the domains of epidemiology, infection prevention and control, clinical management, risk communication and community engagement, laboratory, logistics and animal health.

Faculty:

This course is delivered by international faculty from multiple disciplines and includes WHO experts and a carefully curated group of highly experienced outbreak responders drawn from across the Network. Faculty specialities include epidemiology, infection prevention and control, clinical management, risk communication and community engagement, laboratory, logistics and animal health.

Tier 3: outbreak response leadership training**Purpose:**

The GOARN outbreak response leadership training programme is designed to build skills in individual and collective leadership and crisis management among highly experienced outbreak responders so they can become influential and trusted leaders during public health emergencies. This series of courses also aims to give senior experts being deployed by GOARN the ability to adapt and apply these leadership and crisis management skills to any kind of public health emergency response structure or system.

Objectives:

The objectives of Tier 3 training are to help trainees –

- recognize that leadership is both a function and a set of shared practices that anyone can apply to increase a group's capacity to lead collectively;
- demonstrate both advanced public health expertise and advanced influencing capabilities during emergency response situations;
- diagnose and interpret complex situations involving multiple actors, often with only incomplete, ambiguous or conflicting information (i.e. sense-making), and act accordingly (i.e. decision-making) and in ways that build trust and increase collective commitment (i.e. communicating);
- develop individual and collective capacities to identify, prevent and respond to risks while operating in complex, adverse and volatile conditions;
- develop individual and collective capacities to endure, respond to and navigate the adversity, setbacks and challenges that will affect all aspects of the planning and execution of GOARN's emergency response.

Target audience:

The audience for this training is senior-level staff at GOARN partner institutions who have technical expertise in a relevant field and significant experience in outbreak response in a leadership capacity at the international, regional or national level. Applicants must have a minimum of 10 years' relevant professional experience.

Access:

Selection is competitive. This course is run periodically and coordinated by GOARN's Operational Support Team in collaboration with partners. Calls for applications to participate are made in consultation with WHO's regional offices and may be disseminated via GOARN's focal points at partner organizations. The final selection of participants is balanced to ensure appropriate diversity of technical disciplines and gender, and global geographical representation.

Format:

This programme has evolved into two distinct delivery formats as a result of the COVID-19 pandemic; it is delivered as a series of short virtual facilitated workshops and as an in-person week-long workshop. There are 12–20 participants in each virtual workshop and 24 in the in-person workshop.

The in-person leadership training workshop is designed to strengthen the individual and collective leadership skills of highly experienced outbreak responders so that they can become influential and trusted leaders during public health emergencies. It builds on the GOARN's tiered training approach.

While virtual seminars on leadership were held throughout the acute stages of the COVID-19 pandemic, the first in-person implementation of this leadership training programme was held in September 2023.

During the 5-day course, experienced public health emergency responders deepened and broadened their leadership strengths and identities. Together, course participants explored a range of topics and exchanged perspectives not only with other participants but also with highly experienced facilitators, speakers and senior mentors working within and beyond health emergency response, so that participants could learn to better navigate the complex tensions that exist at national, regional and international levels.

Participants strengthened leadership practices by exploring topics such as advanced interpersonal and collective situational awareness, how to leverage polarizing tensions, and how to span boundaries and establish trusted relationships with key stakeholders to influence collective decision-making. Together with technical expertise, these leadership skills are essential for optimizing emergency responses and will allow participants to increase collaboration and build trust based on the principles of diversity, equity and inclusion.



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