Am. J. Trop. Med. Hyg., 105(5), 2021, pp. 1155–1156
doi:10.4269/ajtmh.21-0128

Perspective Piece

Coordination during Cholera Outbreak Response: Critical Insights from Yemen

Saverio Bellizzi,[1]* Giuseppe Pichierri,[2] Luca Cegolon,[3] Catello Mario Panu Napodano,[4] and Osama Ali Maher[5]

[1]*Independent Consultant, Medical Epidemiologist, Geneva, Switzerland;* [2]*Microbiology Department, Kingston Hospital NHS Foundation Trust, Kingston upon Thames, London, United Kingdom;* [3]*Public Health Department, Local Health Unit N. 2 "Marca Trevigiana", Treviso, Veneto, Italy;* [4]*Infectious Diseases Department, Sassari University Hospital, University of Sassari, Sassari, Italy;* [5]*Division of Water Resources Engineering, Lund University, Lund, Sweden*

Abstract. Within the humanitarian arena and since the introduction of the humanitarian reform process in 2005, the cluster approach was introduced to strengthen the cooperation and accountability between agencies working in the same field. Such an integrated approach is particularly needed and relevant in emergencies like cholera, especially in countries undergoing internal conflicts like Yemen. Several areas of concern have been identified during the past field experiences, which include dysfunctional cooperation as a result of different mandates as well as the relationship between nongovernmental organizations and their donors. Control of environmental health services is, for instance, the responsibility of several clusters/agencies and stakeholders, which usually results in a complicated and sometimes confusing approaches to address gaps and barriers. As far as the drinking water quality monitoring and surveillance are concerned, sampling and testing and compilation of data are usually carried out by many agencies included in the Health and water sanitation ad hygiene (WASH) clusters. We believe that the cluster theoretical approach for emergency response remains a turning point for the humanitarian arena. However, lessons from the recent past, especially in the management of cholera outbreak in fragile settings, may serve for a serious reflection on roles and dynamics within the blurred border between health and WASH. Specifically, cluster leads in the field have the responsibility for ensuring that humanitarian actors working in their sectors remain actively engaged in addressing crosscutting concerns such as the environment.

The WHO Eastern Mediterranean Region has been accommodating many of the world's Humanitarian crises during the past few decades,[1] including several communicable disease outbreaks. In 2017, Yemen witnessed one of the worst cholera epidemics in modern history with more than one million suspected cases.[2]

Since the introduction of the humanitarian reform process in 2005, the humanitarian response agenda has adopted the cluster approach to enhance the coordination and integration between United Nations agencies and partners (including international and national nongovernmental organizations [NGOs], and donors) working in the same field as well as to foster accountability in response operations.[3]

Such an approach is particularly needed and relevant in humanitarian emergencies like cholera outbreaks: the health Cluster, led by the WHO, collectively prepares for and responds to improve the health outcomes of affected populations through timely, predictable, appropriate, and effective coordinated health action. On the other hand, UNICEF leads the water sanitation ad hygiene (WASH) interventions to improve water quality, promote proper waste management, and raise health awareness (Figure 1).[3]

Although the cluster approach is relatively easy to pursue in stable contexts, ensuring proper and effective coordination becomes more problematic in countries experiencing internal conflicts. Specifically, the management and response for humanitarian crises is usually articulated around a national preparedness and response plan, which is led by the Ministry of Health through a task force, operating from an emergency operation center that coordinate all actors at national and subnational level. In the case of Yemen, however, the ongoing human-made disaster (the internal conflict has been ongoing since 2014) resulted in the inability of coordination of emergency response by the government; this was compounded by the widespread disruption of services, from health to water and sanitation. This has warranted a supplementary leadership and coordination mechanism to address the epidemic.

For this short communication, we relied on two different sources of information. Publicly available information from international health organizations involved in the humanitarian response in Yemen as well as from international institutes involved in the review of the response were retrieved; this included reports from the official websites of Medecins Sans Frontieres and Johns Hopkins University. In addition, we conducted a literature review using the Medline, Embase and Global Health databases until June 2020. The search terms included "Yemen," "cholera," "health cluster," "WASH," and "coordination." The initial search provided 37 records, of which 24 full texts were assessed for eligibility. After controlling for duplication of the reported pieces of information, we retained the four most recent articles that summarized the key aspects on the coordination aspects during the crisis. We finally complemented our results and conclusion sessions with the authors' direct field experience.

Our search identified various areas of concern with regards to the cholera response in Yemen. One critical issue relies on the dysfunctional integration and coordination between international agencies mandated to address the health and the WASH clusters, both critical interventions during cholera epidemics. As in several previous emergencies when the cluster approach was implemented, the misinterpretations and quarrels over mandates have frequently affected cross sector cooperation; as a consequences, the Yemen response has witnessed clusters often working in parallel and with no efficient coordination[4]; unfortunately such an attitude has been further driven by the donor community.[4]

The control of environmental health services (drinking water, sanitation, hygiene, solid waste management, and so on), for instance, is the responsibility of several clusters/agencies

*Address correspondence to Saverio Bellizzi, Avenue Appia 20, 1211 Geneva 27, Switzerland. E-mail: saverio.bellizzi@gmail.com

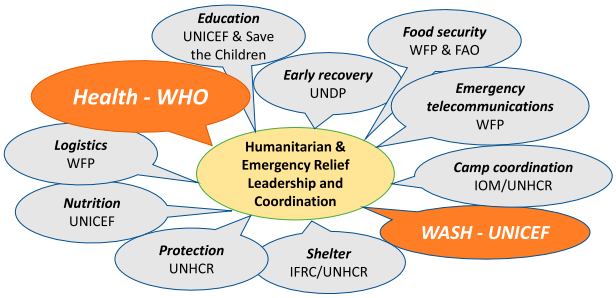

FIGURE 1. Humanitarian cluster approach during cholera emergency. WASH = water sanitation and hygiene. This figure appears in color at www.ajtmh.org.

and stakeholders. This usually results in a complicated and sometimes confusing approaches to address the gaps and barriers.[5] An important example is provided by drinking water supply within healthcare facilities: health cluster considers this as a core responsibility, to guarantee the functionality of the facilities, while the WASH cluster is usually the responsible body for water supply in general.[5]

As far as the drinking water quality monitoring and surveillance are concerned, sampling and testing and compilation of data are usually carried out by many agencies included in the Health and WASH clusters, and even beyond, and that prevents having a unified overview available for all clusters. It is important to note how between the two clusters there is no agreement on common parameters nor a unified system for data collection by all actors.

Solid waste management and food safety are two other main areas during cholera outbreak preparedness and response. However, such fields are not clearly mandated to health nor WASH cluster, and are often neglected during response, or dealt with on ad-hoc basis.[6]

The role of donors in relation to the work of NGOs in the field make thing more complicated in specific situations: oftentimes the public's perception of NGO lack of effectiveness lead donors to take their resources elsewhere, thus disrupting the complementarity of actions on the ground with potentially devastating consequences.[7]

Most of the solutions to this problem have involved the introduction of new accountability measures and an accountability agenda. However, more is needed in terms of accurate and effective mechanisms to identify and leverage the action of committed partners.[8]

We believe that the cluster theoretical approach for emergency response remains a turning point for the humanitarian arena to ensure coordination. However, lessons from the recent past, especially in the management of cholera outbreak in fragile settings, may serve for a serious reflection on roles and dynamics within the blurred border between health and WASH as well as on the relevant role and influence played by donors.

Cluster leads in the field have the responsibility for ensuring that humanitarian actors working in their sectors remain actively engaged in addressing cross cutting concerns such as the environment with agreed roles and well-defined mechanisms. Sector/cluster leads at the country level are accountable to the humanitarian coordinator for facilitating a process aimed at ensuring integration of agreed priority crosscutting issues in sectoral needs assessment and analysis.

Received February 2, 2021. Accepted for publication June 28, 2021.

Published online August 16, 2021.

Authors' addresses: Saverio Bellizzi, Independent Consultant, Medical Epidemiologist, Geneva, Switzerland, E-mail: saverio.bellizzi@gmail.com. Giuseppe Pichierri, Microbiology Department, Kingston Hospital NHS Foundation Trust, Kingston upon Thames, London, United Kingdom, E-mail: giuseppe.pichierri@nhs.net. Luca Cegolon, Public Health Department, Local Health Unit N. 2 "Marca Trevigiana", Health, Treviso, Veneto, Italy, E-mail: l.cegolon@gmail.com. Catello Mario Panu Napodano, Infectious Diseases Department, Sassari University Hospital, University of Sassari, Sassari, Italy, E-mail: catellopanunap@hotmail.it. Osama Ali Maher, Division of Water Resources Engineering, Lund University, Lund, Sweden, E-mail: osama.ali_maher@tvrl.lth.se.

REFERENCES

1. World Health Organization, Eastern Mediterranean Region, 2017. *Emergencies in the Eastern Mediterranean Region in 2017: The Year in Review*. Cairo, Egypt: WHO EMRO. Available at: http://www.emro.who.int/eha/news/emergencies-in-the-eastern-mediterranean-region2017-theyear-in-review.html.
2. Al-Mandhari A, Musani A, Abubakar A, Malik M, 2018. Cholera in Yemen: concerns remain over recent spike but control efforts show promise (Editorial). *East Mediterr Health J 24:* 971–972.
3. Inter-Agency Standing Committee, 2005. *Transformative Agenda*. Available at: https://interagencystandingcommittee.org/iasc-transformative-agenda.
4. Federspiel F, Ali M, 2018. The cholera outbreak in Yemen: lessons learned and way forward. *BMC Public Health 18:* 1338.
5. Al-Mekhlafi HM, 2018. Yemen in a time of cholera: current situation and challenges. *Am J Trop Med Hyg 98:* 1558–1562.
6. Al-Gheethi A, Noman E, Jeremiah David B, Mohamed R, Abdullah AH, Nagapan S, Hashim Mohd A, 2018. A review of potential factors contributing to epidemic cholera in Yemen. *J Water Health 16:* 667–680.
7. Medecins Sans Frontieres, 2020. *Humanitarian Response in Yemen: Time to Go Back to the Drawing Board*. Available at: https://www.msf.org/back-drawing-board-humanitarian-response-yemen.
8. Spiegel P, Ratnayake R, Hellman N, Ververs M, Ngwa M, Wise PH, Lantagne D, 2019. Responding to epidemics in large-scale humanitarian crises: a case study of the cholera response in Yemen, 2016–2018. *BMJ Glob Health 4:* e001709.