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Yemen Humanitarian Crisis and Cholera Outbreak: A Case Study

Overview: Since the civil war began in 2014, Yemen has been subject to one of the world's worst humanitarian crises of the 21st century.¹ The conflict, primarily between the Houthi rebels and the internationally recognized government, has devastated the nation, leaving millions in need of aid, decimation of the country's healthcare infrastructure, and widespread malnutrition and poor sanitation, which has resulted in a vulnerable population comprised largely of women and children susceptible to diseases like cholera.^{1,2}

Facts of the Case: Yemen, the Arab world's poorest country, has been torn apart by conflict since the Houthi rebels took control of the capital, Sanaa, in 2014.^{1,2} The conflict in Yemen has resulted in approximately 21.6 million people requiring humanitarian aid, 75% of which are women.^{1,2} The humanitarian crisis severely impacted access to food, with 17.3 million facing food insecurity.^{1,2}

Malnutrition makes children under 5 especially more susceptible to cholera. Over half of the healthcare facilities have been deemed non-functional, leading to the widespread disease outbreaks of cholera, and increased vulnerability amongst pregnant or breastfeeding women. The Saudi-led coalition's intervention in March 2015 further devastated the nation.^{1,2} As of July 2017, the cholera outbreak had resulted in nearly 2,000 deaths and over 542,000 infections. The conflict caused extensive damage to infrastructure, including bridges, hospitals, and factories, with many health professionals going unpaid for over a year.^{1,2} The cost of the damage and the response efforts has significantly burdened Yemen's already fragile economy.^{1,2,3}

Epidemiological aspects of the event: The spread of cholera, a bacterial infection linked to contaminated water, was amplified by the collapse of sanitation services and the healthcare system.¹ The cholera outbreak in Yemen is one of the largest in the world over the past 50 years.¹ The epidemiological investigation into Yemen's cholera outbreak involved observational study methods to track the incidence and spread of disease. While not explicitly stated, researchers most likely used case-control studies to identify risk factors and relied on relative risk (RR) and odds ratios (OR) to quantify the relationship between exposure to contaminated water sources and subsequent cholera infection. The epidemiological data in the case study reflects a rapid increase in cases from April to July 2017, highlighting the dire sanitation and health conditions in the country due to sewage system failures during rainy seasons.¹ The subsequent displacement of populations as a result of the war introduces potential biases and threats to validity, including selection bias and information bias, due to the difficulty in researching all affected populations. This may have also led to confounding variables, as displaced populations might have varying levels of exposure and susceptibility to cholera. This complicates the delivery of traditional public health interventions and demands innovative

approaches to manage the cholera outbreak. Further analysis would be vital to understand the magnitude of the public health crisis and manage targeted interventions of cholera cases.

Management of the event: The closure of Sanaa International Airport, the primary international airport of Yemen located in the capital city, by the Saudi-led coalition severely limited the import of essential goods such as medical supplies. This further complicated response efforts.^{1,4} Multilateral humanitarian aid agencies including the World Health Organization (WHO), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund, and the United States Agency for International Development (USAID), have been crucial in responding to the humanitarian crisis in the midst of conflict.^{2,3} While access to affected areas is restricted, and humanitarian organizations experienced difficulty in delivering aid, these agencies employed strategies for health professionals to provide necessary care by training community health workers in comprehensive approaches to provide medical supplies, funds, and support for water and sanitation projects.

Communications of the event: Communication about Yemen's humanitarian crisis has been challenging due to the civil war, resulting in limited access for international journalists and restrictions on local media to document the crisis and mobilize international support.⁵ The role of digital media and reports from fieldwork agencies has been essential, as the severity of the cholera outbreak and the dire humanitarian crisis attracted global attention, prompting calls for increased international aid, an end to the conflict, and increased advocacy for peace negotiations. The United Nations repeatedly highlighted the situation in Yemen as the world's worst humanitarian crisis, urging a greater international response.⁶

Summary: The humanitarian crisis and cholera outbreak in Yemen, due to the civil war, resulted in devastating impacts on health and infrastructure, and detrimental repercussions on the civilian populations. Despite the efforts of international humanitarian agencies, this crisis highlights the importance of sustained international aid and effective public health response in conflict zones. Without significant effort to rebuild Yemen's healthcare and sanitation infrastructure, the health of the population will continue to be at risk from cholera and other preventable diseases. The case of Yemen emphasizes the need for international solidarity and intervention to prevent human suffering and remains a stark reminder of how war exacerbates public health crises and complicates the delivery of essential humanitarian aid.

References

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