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CASE 5

The Precision of Aid: Remembering the Forgotten Disease in the Horn of Africa

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A HIGH OF 30°C

The hustle and bustle of volunteers and delegates in and out of the meeting room was a familiar sight. It was 10 a.m. on June 18, 2017, and the sun's rays made their way toward the meeting room tents. The beads of sweat that ran down the delegates' foreheads reflected the sunshine as the electric fans also suffered from the heat. The meeting had ended but discussions about data sharing were still transpiring. The Somaliland Ministry of Health (MOH), the Somali Red Crescent Society (SRCS), the World Health Organization (WHO), the United Nations International Children's Emergency Fund (UNICEF), Save the Children, World Vision International, the International Organization for Migration, Health Poverty Action, and other partner national societies such as the Norwegian Red Cross, the German Red Cross, the British Red Cross, and the Canadian Red Cross (CRC) all had a stake in the discussions.

Walking in the muggy heat, Eve Tinuviel's clothes seemed to have found solace in her sweat. It was not long before she found an empty tent. She placed her laptop on the table, turned on a small fan, and proceeded to lay out the reports she had collected from the meeting. One report came from the Cholera Treatment Centre (CTC) (Exhibit 1; Canadian Red Cross, 2017) supported by the Canadian Red Cross that had opened on May 25th (Exhibit 2; Canadian Red Cross, 2017). The CTC is an isolated treatment ward for managing and treating severely sick cholera patients (Médecins Sans Frontières, 2019). Hospital reports and reports from the Red Cross Red Crescent Movement Field Assessment Coordination Teams (FACT) were also included. Eve could hear the activity of people and voices echoing throughout her room. The volunteers and delegates from partner national Red Cross Red Crescent societies had organized themselves in the other tents where they were treating people who were confirmed cholera cases and were preparing for community mobilization to curb the epidemic. Eve plugged her USB into her laptop and delved into her analysis.

Eve is a global health advisor with the Canadian Red Cross and is responsible for emergency health services. Eve's role in the deployment is triangulating all cholera data pertaining to Somaliland, an autonomous region of Somalia. Eve had completed both a Master of Public Health degree and a Master of Global Health degree and had expertise in the areas of community health and epidemiology. Eve was supported by the Senior Health Manager, Dr. Ike Elos, who had also been deployed with her. Dr. Elos' main responsibility was overseeing the health programs already in place within the region. Eve had worked with the Canadian Red Cross for two years and her deployment to Somaliland was her second deployment.

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The Republic of Somaliland gained its autonomy as the country declared its independence from Somalia in 1991 (Somaliland, 2020). The country is located in the Horn of Africa and is bordered by Ethiopia and the adjacent region of Puntland in Somalia. The region has a separate government that is not recognized by the international community (“Why Somaliland is not a Recognized State,” 2020). Somaliland has a population of approximately 4.5 million people and an average life expectancy of 50 years. Its main source of income is livestock exportation (The World Bank, 2015). Somalia, neighbouring Puntland, and Somaliland are prone to La Niña and El Niño cycles, natural ocean–atmosphere phenomena that affect global temperatures and rainfall, resulting in extreme weather events such as drought, flooding, and tropical cyclones. These weather events are endemic to the region (IFRC, 2017a) promoting population displacement. One of those endemic weather events that initiate population movement is drought. Drought triggers epidemics such as acute watery diarrhea (AWD) or cholera and measles, some of which are cross border outbreaks (IFRC, 2017a). When there is a disease outbreak that compounds fragile health infrastructures it is difficult to mitigate disease spread and cases rise as a result of the movement of peoples across borders.

SITUATION ANALYSIS

Somaliland had early indications of food insecurity in September 2015. In February 2016, the Somaliland and Puntland governments issued an alert to humanitarian agencies and donors requesting support to deal with drought (IFRC, 2017a). The drought continued and worsened through the final months of 2015, affecting more than 50% of the population (IFRC, 2017a). The population suffered livelihood, livestock, water source, pasture, and food loss that contributed to 535,624 internally displaced people across the area (IFRC, 2017a).

To address the occurrence of natural disasters, the Somaliland MOH submitted an appeal to the disaster emergency relief fund of the International Federation of Red Cross and Red Crescent (IFRC) on April 2017 and was granted approximately CHF300,000 Swiss francs in epidemic relief aid (IFRC, 2017a). The MOH also requested aid from other relief organizations to address capacity shortages induced by the AWD/cholera epidemic (IFRC, 2017a).

Prior to her arrival in Somaliland, Eve reviewed the WHO bulletins, the case fatality rates and local health authority reports from UNICEF and the United Nations High Commissioner for Refugees (UNHCR). Also included in the documents were the emergency appeal update reports from the IFRC and MOH reports. Eve needed to gather as much surveillance data and information as possible to understand the context of the region in order to develop a plan, identify necessary health interventions, and advocate for implementing those interventions.

THE FORGOTTEN DISEASE

Known as the “disease of inequity”, cholera threatens the world’s most vulnerable communities (Legros, D., 2018). A forgotten disease in high-income countries, cholera is prevalent in low-income countries where infrastructure is lacking and natural phenomena compound and trigger disease outbreaks (Legros, D., 2018; WHO, 2019). An outbreak is defined as disease in a localized area or community, whereas an epidemic is when cases suddenly increase within a community or region, and an endemic is the constant presence of a disease within a geographic area (CDC, 2020a & Gordis, 2014). According to the World Health Organization, cholera can either be an epidemic or an endemic (WHO, 2019). In countries where cholera is endemic, the outbreak of the disease can be seasonal or sporadic or result from an influx of confirmed cases (WHO, 2019). In addition, cholera-endemic countries are classified to have unimported cholera

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cases within that last three years (WHO, 2019). The outbreak or epidemic of this virulent disease can occur in both endemic countries and non-endemic countries (WHO, 2019).

Natural disasters such as drought and floods increase the likelihood of disease epidemics, and this is particularly true for cholera (IFRC, 2017a). Low-income countries are disease hotspots, experiencing more than 70% of the world's natural disaster phenomena (United Nations, 2018). One-third of the people living in these multi-hazard zones are affected by disease outbreaks, the severity of which is compounded by lack of infrastructure and treatment availability (United Nations, 2018).

In Somaliland, the response to drought has been compounded by cholera and measles, some of which are cross-border epidemics (IFRC, 2017a). The surveillance guidelines by the Global Task Force on Cholera Control in 2017 deem cholera an outbreak once there is at least one confirmed case of cholera plus evidence of local transmission (WHO, 2020b). The co-existing challenges of drought, cholera and measles lead to calls-to-action by the MOH for humanitarian organizations to respond because the region's own resources have been overwhelmed.

As cholera is also often associated with shame and social stigma, trained personnel can help by providing counselling and support to affected people and their families (IFRC, 2020e). The social stigma can reduce rates of treatment seeking (Tamason et al., 2016), influence case reporting and jeopardize receipt of international aid (Ali et al. 2015; Jerving, 2017 & Jerving, 2018). Furthermore, when countries report cholera outbreaks it can negatively affect trade and tourism and is viewed as serving notice to other communities that the nation failed to protect the citizens' health (Jerving, 2018). As a result, countries often report 'Acute Watery Diarrhea' instead of cholera, but this has the unintended consequence of jeopardizing the disease response. Miscommunication about the specific nature of the outbreak, reduces the likelihood of receiving timely financial aid (Harden, 1985 & Jerving, 2018). Cholera is classified as an AWD (WHO, 2019) and other types of organisms and factors such as malnutrition can also cause AWD (WHO, 2020a). Humanitarian organizations tend to mirror the governments' language in order to maintain good relationships, continue operating in the country and continue their humanitarian efforts (Jerving, 2018). In Somaliland, cholera is an endemic disease and it is reported as "AWD/Cholera Outbreak" (IFRC, 2017a & Jerving, 2018).

John Snow famously recorded the distribution and incidence of cholera cases that ravaged the region of Soho in London, England (Hare, 1955), giving birth to the branch of science known as epidemiology. *Vibrio cholerae* is a water-borne bacterium responsible for outbreaks of cholera in afflicted populations (Jahan, 2016). It is estimated that 1.3 million to 4 million confirmed cases of cholera lead to anywhere between 21,000 and 143,000 deaths worldwide each year (Ali et al. 2015). Cholera is transmitted by ingesting food and water that is contaminated with the bacterium (Jahan, 2016). The water and food sources are usually contaminated by *Vibrio cholerae* strains from human feces and can survive in aquatic environments for extended periods (WHO, 2020b). The transmission is closely linked to poor sanitation, access to clean water and poorly cooked seafood. Most populations at risk are in peri-urban slums and internally displaced persons or refugee camps (WHO, 2019).

In temperate regions, the bacterium is often found in estuaries, rivers, and coastal waters (Jahan, 2016). Once inside the body, the bacterium's incubation period is short—symptoms appear 0.5-5 days after ingestion of contaminated food or water (WHO, 2019). The main symptoms of infection are often mild or asymptomatic, however 1 in 10 infected individuals can

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develop severe symptoms and experience profuse watery diarrhea, leg cramps and vomiting and if left untreated the severity of the symptoms can lead to death (CDC, 2020b).

Cholera is a virulent disease that can kill its victims within hours if left untreated (WHO, 2019). According to the World Health Organization, cholera can successfully be treated with immediate application of oral rehydration solutions (WHO, 2019). Oral rehydration solutions can be used to treat up to 80% of cases, with severe cases needing rapid treatment with intravenous fluids and antibiotics (WHO, 2019). Oral cholera vaccines have recently been developed to mitigate infection and if administered in conjunction with strategies to improve regional infrastructure to promote clean water and sanitation, can be effective at preventing and controlling cholera outbreaks in at-risk populations (WHO, 2019). Health education programs delivered through community mobilization, adapted to local and cultural norms, which advocate for and promote hygiene are key to long-term changes in behavior to prevent the spread of cholera (WHO, 2019). Long-term solutions however, require economic development and the universal access to safe, clean drinking water and sanitation (WHO, 2019).

THE INTERNATIONAL FEDERATION OF THE RED CROSS AND RED CRESCENT MOVEMENT

One of the most recognized humanitarian networks around the world, the International Federation of the Red Cross and Red Crescent Movement, headquartered in Geneva, Switzerland, is impartial and neutral in providing assistance and protection to those affected by natural disasters and man-made conflict (IFRC, 2019a). The Movement is composed of three components: the IFRC provides humanitarian assistance to people affected by natural disasters and differs from its counterpart, the International Committee of the Red Cross (ICRC), whose sole objective is to provide humanitarian assistance to victims of armed conflict and strife (ICRC, 2019). The third component, the National Societies, are the backbone of the Movement, with 192 national societies around the globe composed of 13.7 million volunteers (IFRC, 2019a). Each of these bodies are independent and hold no authority over the other. Their roles are to aid and empower communities in humanitarian and development projects in collaboration with governments and other aid organizations (IFRC, 2019a).

When an appeal to IFRC has been made by a country whose capacities are overwhelmed by a natural disaster or infectious disease, the IFRC coordinates its response and collaborates with other national societies by selecting delegates from approved rosters. The emergency response units from national societies—that have the capacity and tools, such as CTCs, begin their deployment to aid (L. Olson, personal communication, June 21st, 2019). In 2017, the Canadian Red Cross deployed an emergency response unit to Somaliland that consisted of 27 delegates who were rostered and required by the IFRC to facilitate health interventions and data analysis in the region (IFRC, 2017b). An auxiliary actor in national and international humanitarian responses, the Canadian Red Cross' critical role is emphasized in its preparedness and response to local, national, and international public health crises (Canadian Red Cross, 2016). A CTC was also established in response to the request from the MOH to support the Somaliland effort to treat the disease. The CTC is mainly staffed by nurses and doctors who provide the additional human resource support required to relieve the overwhelmed hospitals and health care providers in the region (IFRC, 2017a). The IFRC also works with FACT delegates who are experienced Red Cross and Red Crescent Movement disaster managers supporting national societies with expertise in finance and administration, logistics, health services, relief, nutrition, epidemiology, psychological support, water and sanitation, and language capabilities (IFRC, 2019b).

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The IFRC has developed approaches and tools to fight outbreaks and epidemics based on its previous experiences in various countries and regions. These approaches are:

Community-based surveillance involves training community volunteers to detect specific conditions and highlight unusual disease trends (IFRC, 2017c). This approach has been effective at curbing outbreaks early (IFRC, 2017c).

Community-based health and first aid emphasizes health promotion and is grounded in evidence-based behaviour changes and principles, and in empowering communities to identify and address their own health issues and concerns (IFRC, 2020a). Community volunteers help with programs and areas such as water management, personal hygiene, immunizations, acute respiratory infections, and waste/garbage management (IFRC, 2020a).

Community engagement and accountability empowers communities to be at the centre of health promotion and protection (IFRC, 2020b). This approach includes listening to community needs, feedback, and complaints to ensure community members can and are actively participating in and guiding the IFRC's actions (Canadian Red Cross, 2019 & IFRC, 2020b).

Protection, gender and inclusion is an approach to ensure that programs and interventions are inclusive (IFRC, 2020c). For example, national societies provide resources such as menstrual hygiene management toolkits and clinical and psychosocial care for rape victims, helping build the capacity of national societies to move toward gender inclusivity (Canadian Red Cross, 2019).

Infection, prevention, and control works to prevent and contain disease spread through safe and dignified burials and specialized isolated treatment centres such as CTCs and malaria treatment centres (IFRC, 2020d). This intervention includes decontaminating households and public places (including public latrines) in addition to other prevention activities. Volunteers can use The Epidemic Control for Volunteers toolkit, which was designed to help them in their roles preparing for and responding to epidemics and disease outbreaks in a variety of contexts (IFRC, 2008).

Psychosocial support provides counselling services by trained community volunteers to communities affected by an epidemic and/or natural disaster (IFRC, 2020e).

Water, sanitation, and hygiene involves providing communities with sanitation platforms, well protection, latrines, soap, and disinfectants (IFRC, 2020f). Organizations also provide equipment and education to ensure community ownership and commitment to water and sanitation sustainability (IFRC, 2020f). This intervention also consists of training volunteers in water and sanitation techniques through the use of the Participatory Hygiene and Sanitation Transformation tool (WHO, 2020d).

The Global Health Unit at CRC advocates for and evaluates the health programs and interventions implemented during natural disasters and epidemics (H. Qosa, personal communication, May 30, 2019). Other organizations such as UNICEF, the WHO, Save the Children, World Vision International, the International Organization for Migration, and Health Poverty Action are also involved in aiding the country with fighting the epidemic by providing funds, nonfood items such as household items, and services such as maternal care and nutrition support (IFRC, 2017a). Under the leadership of the WHO, the different aid organizations coordinate their roles and deploy their services with the goal of allocating services

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appropriately and efficiently (IFRC, 2017a; H. Qosa, personal communication, May 30, 2019). The WHO schedules regular health cluster coordination meetings in the affected regions devastated by the disease. UNICEF is responsible for the upkeep of wells and latrines, whereas the WHO and MOH are responsible for clinical responses and data gathering within the regional hospitals affected by the disease (H. Qosa, personal communication, May 30, 2019).

When Eve first arrived in Burao, a district in Togdheer, Somaliland, she attended a health cluster coordination meeting that included other colleagues from the CRC, the MOH, SRCS, other national societies, and partner organizations. The goal of these meetings was to share information on interventions already in place and outline the gaps in health services that require partner attention and coordinated responses.

The organizations reported on several activities. The MOH and the SRCS had already begun community mobilization campaigns promoting the drinking of safe water and the establishment of appropriate personal hygiene practices (IFRC, 2017a). The IFRC, in coordination with the MOH, had implemented social mobilization strategies to facilitate the training of volunteers to help promote better washing, sanitation, and hygiene in their communities. Volunteers conducted chlorination campaigns in the community and distributed chlorine tablets to families and individuals (IFRC, 2017a). The IFRC established oral rehydration stations in camps for displaced migrants, providing four chlorinated water reservoirs in the camp to prevent the spread of cholera (IFRC, 2017a).

The SRCS and the MOH established primary health care clinics for case management and passive surveillance (IFRC, 2017a). Passive surveillance was used as it is less expensive compared to other surveillance strategies (WHO, 2020c). Health institutions that see patients and/or test specimens report case data to higher administrative sources, and there is no active search for cases (WHO, 2020c). Even though this type of surveillance covers a large area, it relies on hospitals or health facility networks to produce case reports (WHO, 2020c). If a country does not have the support to identify all cases or has limited resources, completeness of the data is difficult to ensure (WHO, 2020c). On the other hand, active surveillance is the 'active' search of cases, where health agencies contact health providers in a region garnering reports and recording the data (WHO, 2020e). Active surveillance involves extensive observation and investigation of healthcare facility reports (WHO, 2020e). This type of surveillance requires designated staff who regularly visit affected health facilities, documenting epidemiological data, sending specimens to laboratories, conducting interviews of healthcare providers and patients and visiting hospital wards in accordance with national health policies (WHO, 2020e). If Eve were able to gather enough data on the origins of the cholera cases in Burao and the other surrounding communities, her next meeting with partner organizations would be well-informed. She would be able to present data identifying key areas to implement health programs. Eve hoped that the SRCS and MOH had generated early warning surveillance data that provided information on the location and number of cases within the region—key analytic information needed to support intervention planning.

Despite the many activities reported during the meeting, key gaps in health services were identified by the organizations. Access to lifesaving services in communities where outbreaks had occurred was inadequate (IFRC, 2017a). Funding was deficient and the logistics of responding were poorly implemented; therefore, outbreak responses were slow (IFRC, 2017a). Coordination among the MOH and different service providers on the ground was poor (IFRC, 2017a). The number of health personnel and case managers was insufficient (IFRC, 2017a).

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More water, sanitation, and hygiene interventions for access to safe water (IFRC, 2017a) were needed (IFRC, 2017a). Lastly, the early warning surveillance to assist investigations and responses was not adequate (IFRC, 2017a). Eve grew worried.

DATA, DATA, AND MORE DATA OR LACK THEREOF?

As of April 10th, 2017, on the Somaliland/Ethiopian border there have been 291 cases and 14 deaths indicating a case-fatality rate of 4.8% (IFRC, 2017a). Eve had arrived in the Burao district during the 16th epidemiologic week; the number of significant cholera cases had increased in Togdheer from 134 to 780 in the past week with 18 reported deaths from the disease (Exhibit 3; International Federation of Red Cross and Red Crescent Societies, 2017b). The health cluster meetings identified that the Burao Regional Hospital needed to be prioritized for support since caseloads overwhelmed the hospital and patients were being managed in nurses' quarters, thus the CTC would be established and supported in Burao by the CRC (IFRC, 2017d).

Eve's collection of passive surveillance data, health maps, infographics, and reports painted an incomplete picture of the cholera outbreak. She was the first public health delegate to be deployed with her specific expertise, and she wished that she had been deployed earlier before the cholera cases overwhelmed the hospital. In most regions, only the established CTCs and regional hospitals had collected information on cholera cases since the beginning of the outbreak as resources were overburdened. Because data have been collected only in the one hospital and CTC in the Burao district, Eve did not have enough information on the origins of the disease within the region. She only had three weeks to overcome this knowledge deficit, but she did not have the human resources she needed. Delegates and volunteers were scarce, and all had pre-designated tasks assigned to them by their operations managers and/or aid organizations. Some Red Cross Red Crescent Movement delegates and hospital volunteers used a limited number of mobile phones to record the number of cases and report case severity, but these personnel worked in the CTC and regional hospital. None of them were out in the communities actively searching for cases where the outbreak had begun and continued to rage. Because the CTC and regional hospital were so busy, the likelihood that delegates and volunteers could be deployed to the affected communities was low.

Eve wiped the beads of sweat from her forehead, attempting to triangulate the data that was available to her. She proceeded to schedule another meeting with the MOH and pertinent partner organizations to see if they could garner more resources for data collection in different areas in Burao. The reports on her table were swaying to the breeze generated by the fan's hard work. Eve sighed.

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EXHIBIT 1

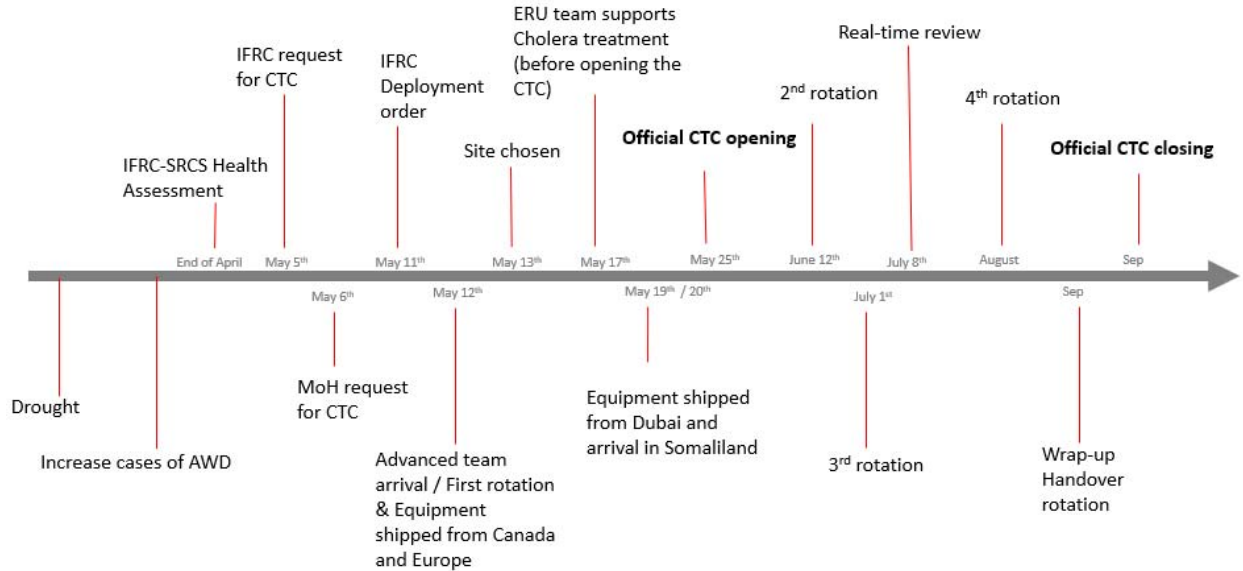
Cholera Treatment Centre Tents/Partner National Society Camp in Burao, Somaliland



Source: Canadian Red Cross, 2017.

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EXHIBIT 2 Canadian Red Cross Review and Support Timeline in Somaliland

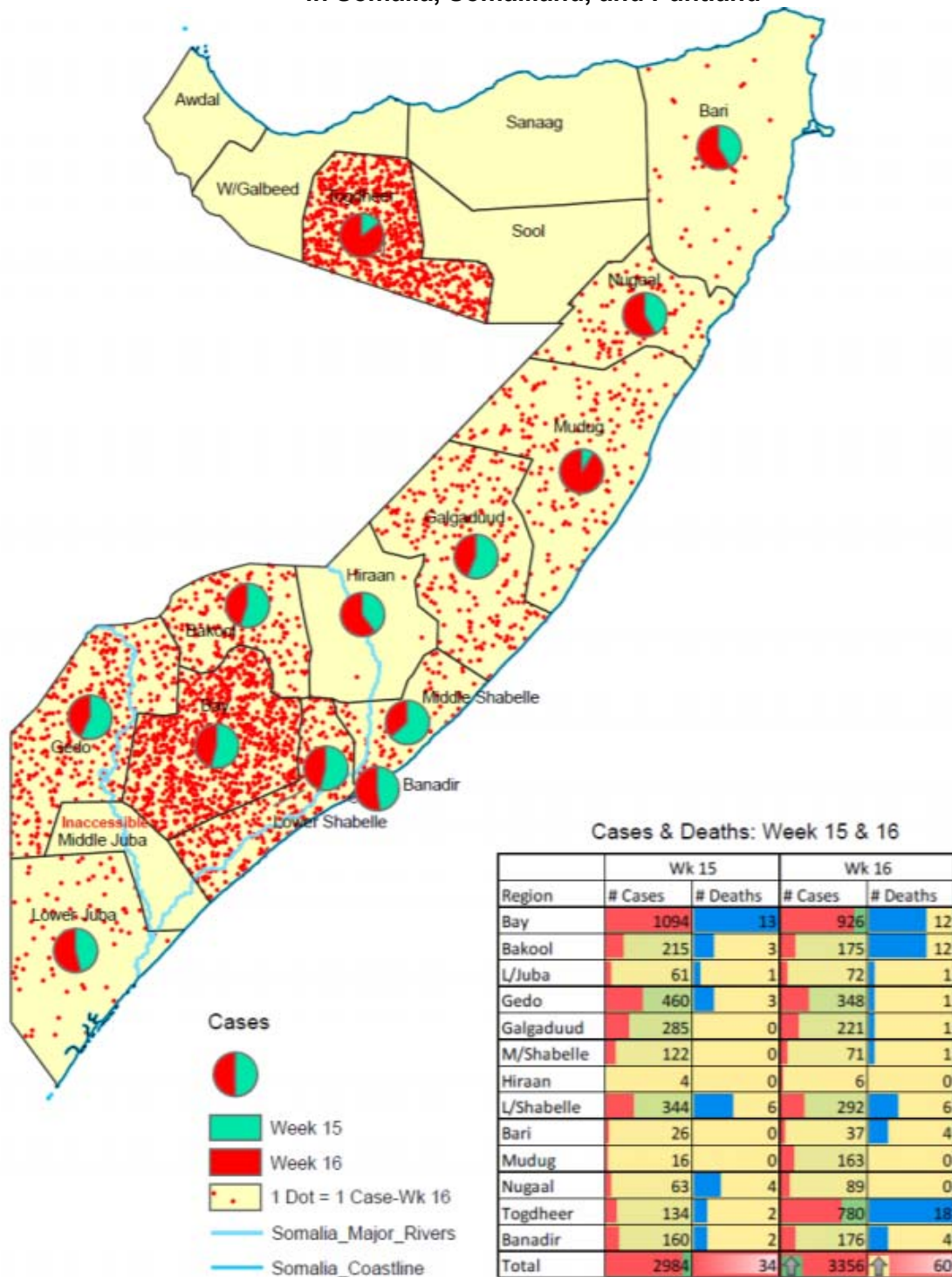


Timeline of key events relating to the Cholera Treatment Centre. Acronyms listed are: AWD: Acute Watery Diarrhea, IFRC-SRCS: International Federation of Red Cross and Red Crescent – Somali Red Crescent Society; MoH: Ministry of Health, CTC: Cholera Treatment Centre (**specifically in Burao**), ERU: Emergency Response Unit

Source: Canadian Red Cross, 2017.

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EXHIBIT 3
**Timeline of Cholera Cases and Deaths for Weeks 15 and 16 of the Outbreak
in Somalia, Somaliland, and Puntland**



Burao is the district capital in the region of Togdheer where it was recorded to have the highest number of cholera cases.

Source: Canadian Red Cross, 2017.

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INSTRUCTOR GUIDANCE

The Precision of Aid: Remembering the Forgotten Disease in the Horn of Africa

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BACKGROUND

The district of Burao, Somaliland is in its 16th epidemiologic week in the midst of a cholera outbreak. The Somaliland Ministry of Health, in need of emergency relief, has requested that humanitarian organizations come to its aid. Eve Tinuviel has been deployed to Burao as a member of the Canadian Red Cross, where she serves as a global health advisor responsible for emergency health services. Eve's main responsibility is to analyze disease surveillance data, triangulating data from different sources. A Health Cluster Coordination meeting amongst different health and humanitarian organizations reveals gaps in the epidemic response. The scarcity of resources and volunteers, and more importantly the incompleteness and inadequacy of the passive surveillance data, threaten Eve's ability to trace newly affected individuals, identify the origins of the disease and develop strategies to help the affected communities.

OBJECTIVES

1. Understand the difference between active and passive surveillance.
2. Define outbreak, epidemic and endemic infection and differentiate among these concepts.
3. Understand the value of surveillance data and how these data can inform emergency responses and program implementation.
4. Recognize the challenges of conducting surveillance and coordinating amongst different organizations when resources are inadequate to support an epidemic response.

DISCUSSION QUESTIONS

1. Summarize the case.
2. Discuss the importance of surveillance data and the different types.
3. In your own words, briefly explain how data aids in implementing health programs.

KEYWORDS

Somaliland; Canadian Red Cross; International Federation of Red Cross and Red Crescent Societies; cholera; epidemiology; precision public health; disease surveillance