

Food and Waterborne Disease Outbreaks after a Super Typhoon Hit the Southern Philippines during the COVID-19 Pandemic: A Triple Public Health Emergency

Ian Christopher N. Rocha, MD, MBA, MHSS, RN, LPT;^{1,2} Kimberly G. Ramos, MD, RN;^{1,3} Kevin T. Crispino, RN^{4,5}

1. School of Medicine, Centro Escolar University, Manila, Philippines
2. Department of Medical Education and Research, University of Santo Tomas Hospital, Manila, Philippines
3. Professional Education, Training and Research Office, Quirino Memorial Medical Center, Quezon City, Philippines
4. Department of Health, Health Emergency Management Bureau, Manila, Philippines
5. Department of Health, National Patient Navigation and Referral Center, Pasay City, Philippines

Correspondence:

Dr. Ian Christopher N. Rocha
School of Medicine
Centro Escolar University
Manila, Philippines
Email: rocha1750018@ceu.edu.ph

Conflicts of interest/funding: The authors declare none.

Keywords: COVID-19 pandemic; food and waterborne diseases; Philippines; super typhoon; tropical cyclone

Abbreviation:

COVID-19: coronavirus disease 2019

Received: January 6, 2022

Accepted: January 29, 2022

doi:[10.1017/S1049023X2200053X](https://doi.org/10.1017/S1049023X2200053X)

© The Author(s), 2022. Published by Cambridge University Press on behalf of the World Association for Disaster and Emergency Medicine.

Rocha ICN, Ramos KG, Crispino KT. Food and waterborne disease outbreaks after a super typhoon hit the Southern Philippines during the COVID-19 pandemic: a triple public health emergency. *Prehosp Disaster Med.* 2022;37(3):421–422.

On December 16, 2021, super typhoon Rai, locally known as super typhoon Odette, made its landfall in the Philippines. It was the strongest tropical cyclone to hit the country in 2021, killing more than 400 people while displacing almost 800,000 Filipinos since its first landfall. It also damaged around 600,000 houses and ruined over one million livelihoods. Approximately 4.9 million people were affected from 11 regions and 38 provinces.¹

Located along the typhoon belt and the Ring of Fire in the Pacific, the Philippines is highly exposed to various natural disasters, including typhoons, flooding, landslides, earthquakes, and volcanic eruptions that wreak havoc often resulting in significant losses of lives and livelihoods while causing many people to lose their homes and require billions of pesos for recovery and reconstruction.² This poses another threat to public health as the Philippines continues to grapple with the challenges of being the most severely affected country by the coronavirus disease 2019 (COVID-19) pandemic in the Western Pacific Region, with more than 2.8 million confirmed cases as of January 4, 2022.³

In a letter published in *Prehospital and Disaster Medicine*, the author discussed how natural disasters such as typhoons can make the pandemic crisis extra difficult to handle, especially for the Philippines, a disaster-prone country in the Asian continent and the Western Pacific Region.⁴ Natural disasters, such as the recent super typhoon Rai, have an immense impact on poor and disadvantaged communities in the Philippines, especially during the COVID-19 pandemic. In humanitarian catastrophes, calamities, and outbreaks, poverty is always a key socioeconomic concern. Humanitarian emergencies, regardless of type or cause, have a number of common risk factors for communicable diseases, such as mass population movement and resettlement in temporary locations, overcrowding, economic and environmental degradation, scarcity of safe water, poor sanitation and waste management, absence of shelter, poor nutritional status as a result of food shortages, and limited access to health care.² These risk factors contribute significantly to the risk of morbidity and mortality during emergencies.

In addition, even temporary interruption of basic health care delivery that is very crucial during the COVID-19 pandemic or after natural disasters such as typhoons and floods may lead to secondary public health crises from disease outbreaks like acute infectious diarrhea. This amplifies the socioeconomic damages brought by the public health emergency and creates further morbidity and mortality. Unfortunately, outbreaks of food and waterborne diseases such as diarrhea and gastroenteritis have been reported in the rural areas hit by super typhoon Rai, including Siargao Island and Dinagat Islands.⁵ Since the super typhoon devastated the southern part of the country, the Department of Health has reported around 150 cases of food and waterborne infections, with some unfortunate cases of mortality.⁵

The imminent outbreak is due to contamination of water in these areas as a result of damaged water pipes and water supply outage, as well as food contamination due to poor sanitation and unsafe food storage, handling, and preparation. Many poor communities were already suffering from hunger as a result of the super typhoon's impact on delivery of goods, which are heavily reliant on supply lines disrupted by travel restrictions caused by the damaged roads and bridges, affected airports and seaports, and the COVID-19

lockdown. These triple public health emergencies of super typhoon, food and waterborne infections, and COVID-19 can be very challenging since 141 health care facilities have also been damaged by the recent natural disaster and many health care workers are also getting sick because of the appearance of the novel COVID-19 variants of concern in the Philippines, especially the Delta and Omicron variants.^{1,3,5,6}

Although it may be difficult for several Filipinos, especially during the Christmas season, the Philippine government has immediately responded to the effects of the triple public health crises by providing health care services to the affected individuals, dispatching epidemiology teams to identify what caused the outbreaks, giving temporary shelters for the displaced individuals, supplying safe food and water for the affected families and communities, and educating them on how to prevent and control disease outbreaks, among others. Several nongovernmental organizations and international agencies are also making efforts to help the affected areas.

Establishing resilience has also been highlighted and demonstrated by the government's immediate response and the joint efforts of private organizations, communities, and individuals in

assisting those affected by the triple public health emergency. Throughout the Christmas season, many Filipinos also launched donation drives and community pantries as a way of responding to their countrymen's suffering, which seemingly became Christmas gifts to those in need.^{7,8} In Filipino culture, there is a notion called *bayaniban*, which means communal solidarity and collaboration. Many health care professionals also volunteered to provide medical care to the people injured by the super typhoon and to address the COVID-19 infections and the food and waterborne outbreaks in the afflicted areas, as well as the mental health of the affected population.^{2,6,8}

These public health challenges can only be overcome when the government and private sectors, as well as the communities, collaborate and work together in developing and implementing sustainable solutions and resilient programs to mitigate the consequences of a triple public health emergency. Indeed, resilience, coupled with *bayaniban*, is most visible at difficult times. At no other point in modern history has the Philippines faced such an array of both familiar and unfamiliar risks and hazards, interacting in a very connected and rapidly changing environment.

References

1. National Disaster Risk Reduction and Management Council. Situational report for TC Odette. 2021. <https://monitoring-dashboard.ndrrmc.gov.ph/page/situation/situational-report-for-tc-odette-2021>. Accessed January 6, 2022.
2. Rocha ICN, Dos Santos Costa AC, Islam Z, et al. Typhoons during the COVID-19 pandemic in the Philippines: impact of a double crises on mental health. *Disaster Med Public Health Prep*. 2021. Epub ahead of print.
3. World Health Organization. COVID-19 situation report for the Western Pacific Region #86: December 29, 2021 - January 4, 2022. <https://www.who.int/westernpacific/publications/m/item/covid-19-situation-report-for-the-western-pacific-region-86-29-december-2021-4-january-2022>. Accessed January 5, 2022.
4. Kahambing JG. Natural disasters, ecological knowledge, and COVID-19 in the Philippines. *Prehosp Disaster Med*. 2021;36(5):657–658.
5. Crisostomo S. Diarrhea, gastroenteritis outbreak reported in Siargao, Dinagat Islands. One News. 2021. <https://www.onenews.ph/articles/diarrhea-gastroenteritis-outbreak-reported-in-siargao-dinagat-islands>. Accessed December 28, 2021.
6. Rocha ICN, Ramos KG, Solaiman-Balt AA, et al. Medical interns as volunteers in the COVID-19 vaccination drives in the Philippines. *Int J Med Students*. 2022. Epub ahead of print.
7. Canete JJO, Rocha IC, Dolosa JDP. The Filipino community pantries: a manifestation of the spirituality of 'Alay Kapwa' in the time of the pandemic. *J Public Health (Oxf)*. 2021. Epub ahead of print.
8. #ReliefPH: help communities affected by typhoon Odette. Rappler. 2021. <https://www.rappler.com/moveph/help-communities-affected-by-typhoon-odette/>. Accessed January 6, 2022.