

Appendix A: References

- Abu-Lohom, N., Muzenda, D., & Mumssen, Y. U. (2018). A WASH response to Yemen's cholera outbreak. <https://blogs.worldbank.org/water/wash-response-yemen-s-cholera-outbreak>
- ACAPS. (2018). *Yemen: Displacement in Taizz and Al Hudaydah*. https://www.acaps.org/sites/acaps/files/products/files/20180329_acaps_thematic_report_yemen_displacement_fin_al.pdf
- Al-Gheethi, A., Noman, E., Jeremiah David, B., Mohamed, R., Abdullah, A., Nagapan, S., & Hashim Mohd, A. (2018). A review of potential factors contributing to epidemic cholera in Yemen. *Journal of Water and Health*, 16(5), 667-680.
- Al-Gheethi, A. A., Abdul-Monem, M., Al-Zubeiry, A., Efaq, A., Shamar, A., & Al-Amery, R. M. (2014). Effectiveness of selected wastewater treatment plants in Yemen for reduction of faecal indicators and pathogenic bacteria in secondary effluents and sludge. *Water Practice and Technology*, 9(3), 293-306.
- Al-Mekhlafi, H. M. (2018). Yemen in a Time of Cholera: Current Situation and Challenges. *The American journal of tropical medicine and hygiene*, 98(6), 1558-1562. <https://doi.org/10.4269/ajtmh.17-0811>
- Ali, A. (2021). *IDPs in Hudaydah: Where aid, protection don't always reach*.
- Ali, M., Nelson, A. R., Lopez, A. L., & Sack, D. A. (2015). Updated Global Burden of Cholera in Endemic Countries. *PLOS Neglected Tropical Diseases*, 9(6), e0003832. <https://doi.org/10.1371/journal.pntd.0003832>
- Barciela, R., Bilge, T., Brown, K., Champion, A. S., Christophe, Shields, M., Ticehurst, H., Jutla, A., Usmani, M., & Colwell, R. (2021). Early action for cholera project. Yemen case study. <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/business/international/yemen-case-study.pdf>
- Barlas, Y. (1996). Formal aspects of model validity and validation in system dynamics. *System Dynamics Review: The Journal of the System Dynamics Society*, 12(3), 183-210.
- Bellizzi, S., Pichierri, G., Cegolon, L., Panu Napodano, C. M., & Ali Maher, O. (2021). Coordination during Cholera Outbreak Response: Critical Insights from Yemen. *The American Journal of Tropical Medicine and Hygiene*, 105(5), 1155-1156. <https://doi.org/10.4269/ajtmh.21-0128>
- Bi, Q., Ferreras, E., Pezzoli, L., Legros, D., Ivers, L. C., Date, K., Qadri, F., Digilio, L., Sack, D. A., & Ali, M. (2017). Protection against cholera from killed whole-cell oral cholera vaccines: a systematic review and meta-analysis. *The Lancet Infectious Diseases*, 17(10), 1080-1088.
- Bray, D., & von Storch, H. (2009). "Prediction" or "projection"? The nomenclature of climate science. *Science Communication*, 30(4), 534-543.
- Burki, T. (2016). Yemen's neglected health and humanitarian crisis. *The Lancet*, 387(10020), 734-735. [https://doi.org/https://doi.org/10.1016/S0140-6736\(16\)00389-5](https://doi.org/https://doi.org/10.1016/S0140-6736(16)00389-5)
- Camacho, A., Bouhenia, M., Alyusfi, R., Alkohani, A., Naji, M. A. M., de Radiguès, X., Abubakar, A. M., Almoalmi, A., Seguin, C., Sagrado, M. J., Poncin, M., McRae, M., Musoke, M., Rakesh, A., Porten, K., Haskew, C., Atkins, K. E., Eggo, R. M., Azman, A. S., Broekhuijsen, M., Saatcioglu, M. A., Pezzoli, L., Quilici, M.-L., Al-Mesbahy, A. R., Zagaria, N., & Luquero, F. J. (2018). Cholera epidemic in Yemen, 2016-18: an analysis of surveillance data. *The Lancet. Global health*, 6(6), e680-e690. [https://doi.org/10.1016/S2214-109X\(18\)30230-4](https://doi.org/10.1016/S2214-109X(18)30230-4)
- Centers for Disease Control and Prevention. (2020). *Antibiotic Treatment*. Retrieved 12 March 2020 from <https://www.cdc.gov/cholera/treatment/antibiotic-treatment.html>
- Chao, D. L., Halloran, M. E., & Longini, I. M. (2011a). Vaccination strategies for epidemic cholera in Haiti with implications for the developing world. *Proceedings of the National Academy of Sciences*, 108(17), 7081-7085. <https://doi.org/doi:10.1073/pnas.1102149108>
- Chao, D. L., Halloran, M. E., & Longini, I. M., Jr. (2011b). Vaccination strategies for epidemic cholera in Haiti with implications for the developing world. *Proceedings of the National Academy of Sciences of the United States of America*, 108(17), 7081-7085. <https://doi.org/10.1073/pnas.1102149108>

- Chao, D. L., Longini, I. M., Jr., & Morris, J. G., Jr. (2014). Modeling cholera outbreaks. *Current topics in microbiology and immunology*, 379, 195-209. https://doi.org/10.1007/82_2013_307
- Chinedu, A. (2021). Nigeria faces one of its worst cholera outbreaks in years. *CTV News*. <https://www.ctvnews.ca/health/nigeria-faces-one-of-its-worst-cholera-outbreaks-in-years-1.5584515>
- Codeço, C. T. (2001). Endemic and epidemic dynamics of cholera: the role of the aquatic reservoir. *BMC infectious diseases*, 1, 1-1. <https://doi.org/10.1186/1471-2334-1-1>
- Davis, W., Narra, R., & Mintz, E. D. (2018). Cholera. *Curr Epidemiol Rep*, 5(3), 303-315. <https://doi.org/10.1007/s40471-018-0162-z>
- Elimian, K., King, C., Diaconu, K., Ansah, J., Yennan, S., Ochu, C., Pemb, E., Benjamin, G., Forsberg, B., & Ihekweazu, C. (2021). Understanding the factors enabling and blocking sustained implementation of cholera interventions in a fragile region of Nigeria: a multi-phase group model building study protocol. *F1000Research*, 10(85), 85.
- Elimian, K. O., Mezue, S., Musah, A., Oyeboji, O., Fall, I. S., Yennan, S., Yao, M., Abok, P. O., Williams, N., Omar, L. H., Balde, T., Ampah, K., Okudo, I., Ibrahim, L., Jinadu, A., Alemu, W., Peter, C., & Ihekweazu, C. (2020). What are the drivers of recurrent cholera transmission in Nigeria? Evidence from a scoping review. *BMC public health*, 20(1), 432-432. <https://doi.org/10.1186/s12889-020-08521-y>
- Emergency Operation Center. (2018). *Yemen: Diphtheria & Cholera Response*. https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/eoc_sitrep_25_yemen.pdf
- Emergency Operation Center. (2021). *Cholera response health actors and partner activities*. <https://app.powerbi.com/view?r=eyJrIjoiaNTY3YmU0NTItMmFiYy00OTUxLWI2NzEtOTU5N2Q0MDBjMiE5IiwidCI6ImI3ZTNlYmJlTE2ZTctNGVmMi05NmE5LTVkODc4ZDg3MDM5ZCIsImMiOiJ9>
- EMRO. (2018). *Yemen: Cholera Response: Weekly Epidemiological Bulletin*. http://www.emro.who.int/images/stories/yemen/cholera_week_2.pdf?ua=1
- European Centre for Disease Prevention and Control. (2021). *Cholera worldwide overview*. <https://www.ecdc.europa.eu/en/all-topics-z/cholera/surveillance-and-disease-data/cholera-monthly>
- Federspiel, F., & Ali, M. (2018). The cholera outbreak in Yemen: lessons learned and way forward. *BMC public health*, 18(1), 1338-1338. <https://doi.org/10.1186/s12889-018-6227-6>
- Fournier, J. M., & Quilici, M. L. (2007). [Cholera]. *Presse Med*, 36(4 Pt 2), 727-739. <https://doi.org/10.1016/j.lpm.2006.11.029> (Choléra.)
- Fung, I. C.-H. (2014). Cholera transmission dynamic models for public health practitioners. *Emerging themes in epidemiology*, 11(1), 1-1. <https://doi.org/10.1186/1742-7622-11-1>
- Gkini, C. (2020). *Health Behaviour Theories and the Norwegian response to COVID-19: a System Dynamics Modeling approach*. The University of Bergen].
- Global Task Force on Cholera Control. (2020). *Roadmap 2030*. <https://www.gtfcc.org/about-gtfcc/roadmap-2030/>
- Gonçalves, P. (2011). System dynamics modeling of humanitarian relief operations. *Now titled Balancing Provision of Relief and Recovery with Capacity Building in Humanitarian Operations. Operations Management Research*, 4(1-2), 39-50.
- Grad, Y. H., Miller, J. C., & Lipsitch, M. (2012). Cholera modeling: challenges to quantitative analysis and predicting the impact of interventions. *Epidemiology (Cambridge, Mass.)*, 23(4), 523-530. <https://doi.org/10.1097/EDE.0b013e3182572581>
- Haraldsson, H. V. (2004). *Introduction to system thinking and causal loop diagrams*. Department of chemical engineering, Lund University.
- Harpring, R., Maghsoudi, A., Fikar, C., Piotrowicz, W. D., & Heaslip, G. (2021). An analysis of compounding factors of epidemics in complex emergencies: a system dynamics approach. *Journal of Humanitarian Logistics and Supply Chain Management*.
- International Organization for Migration. (2021). *Task Force for Population Movement Yemen August 2018*. <https://displacement.iom.int/yemen>
- Kaper, J. B., Morris, J. G., Jr., & Levine, M. M. (1995). Cholera. *Clinical microbiology reviews*, 8(1), 48-86. <https://doi.org/10.1128/CMR.8.1.48>

- Kapmeier, F., Greenspan, A. S., Jones, A. P., & Sterman, J. D. (2021). Science-based analysis for climate action: how HSBC Bank uses the En-ROADS climate policy simulation. *System Dynamics Review*, 37(4), 333-352. <https://doi.org/https://doi.org/10.1002/sdr.1697>
- King, A. A., Ionides, E. L., Pascual, M., & Bouma, M. J. (2008). Inapparent infections and cholera dynamics. *Nature*, 454(7206), 877-880. <https://doi.org/10.1038/nature07084>
- Leung, T., & Matrajt, L. (2021). Protection afforded by previous *Vibrio cholerae* infection against subsequent disease and infection: A review. *PLOS Neglected Tropical Diseases*, 15(5), e0009383. <https://doi.org/10.1371/journal.pntd.0009383>
- Lewnard, J. A., Antillón, M., Gonsalves, G., Miller, A. M., Ko, A. I., & Pitzer, V. E. (2016). Strategies to Prevent Cholera Introduction during International Personnel Deployments: A Computational Modeling Analysis Based on the 2010 Haiti Outbreak. *PLOS Medicine*, 13(1), e1001947. <https://doi.org/10.1371/journal.pmed.1001947>
- Maggie Michael. (2019). Vaccines blocked as deadly cholera raged across Yemen. *The Associated Press*. <https://apnews.com/article/health-united-nations-yemen-cholera-international-news-b821a9b1811d4b4d803fffd4fe132b4e>
- McCrickard, L., Massay, A. E., Narra, R., Mghamba, J., Mohamed, A. A., Kishimba, R. S., Urrio, L. J., Rusibayamila, N., Magembe, G., Bakari, M., Gibson, J., Eidex, R. B., & Quick, R. (2017). Cholera Mortality during Urban Epidemic, Dar es Salaam, Tanzania, August 16, 2015–January 16, 2016. *Emerging Infectious Disease journal*, 23(13). <https://doi.org/10.3201/eid2313.170529>
- Médecins Sans Frontières. (2018). *Management of a cholera epidemic* (2018 ed.) <https://medicalguidelines.msf.org/viewport/CHOL/english/management-of-a-cholera-epidemic-23444438.html>
- Michas, F. (2020). *Number of patients that physicians in the U.S. saw per day from 2012 to 2018* <https://www.statista.com/statistics/613959/us-physicans-patients-seen-per-day/>
- Miller Neilan, R. L., Schaefer, E., Gaff, H., Fister, K. R., & Lenhart, S. (2010). Modeling optimal intervention strategies for cholera. *Bulletin of mathematical biology*, 72(8), 2004-2018.
- Mwasa, A., & Tchuente, J. M. (2011). Mathematical analysis of a cholera model with public health interventions. *Biosystems*, 105(3), 190-200. <https://doi.org/https://doi.org/10.1016/j.biosystems.2011.04.001>
- Nelson, E. J., Harris, J. B., Morris, J. G., Jr., Calderwood, S. B., & Camilli, A. (2009). Cholera transmission: the host, pathogen and bacteriophage dynamic. *Nature reviews. Microbiology*, 7(10), 693-702. <https://doi.org/10.1038/nrmicro2204>
- Ng, Q. X., De Deyn, M. L. Z. Q., Loke, W., & Yeo, W. S. (2020). Yemen's cholera epidemic is a one health issue. *Journal of Preventive Medicine and Public Health*, 53(4), 289.
- Ochoa, B., & Surawicz, C. M. (2012). *Diarrheal Diseases – Acute and Chronic*. <https://gi.org/topics/diarrhea-acute-and-chronic/>
- Okoh, A. I., Sibanda, T., Nongogo, V., Adefisoye, M., Olayemi, O. O., & Nontongana, N. (2015). Prevalence and characterisation of non-cholerae *Vibrio* spp. in final effluents of wastewater treatment facilities in two districts of the Eastern Cape Province of South Africa: implications for public health. *Environmental Science and Pollution Research*, 22(3), 2008-2017. <https://doi.org/10.1007/s11356-014-3461-z>
- Organization, W. H. (1993). *Guidelines for cholera control*. World Health Organization.
- Organization, W. H. (2017). Ending cholera a global roadmap to 2030. In *Ending cholera a global roadmap to 2030* (pp. 32-32).
- Organization, W. H. (2018). *Fourth annual meeting of the Global Task Force on Cholera Control: 21–22 June 2017, Cape Town, South Africa*.
- Parker, L. A., Rumunu, J., Jamet, C., Kenyi, Y., Lino, R. L., Wamala, J. F., Mpairwe, A. M., Ciglenecki, I., Luquero, F. J., Azman, A. S., & Cabrol, J. C. (2017). Adapting to the global shortage of cholera vaccines: targeted single dose cholera vaccine in response to an outbreak in South Sudan. *Lancet Infect Dis*, 17(4), e123-e127. [https://doi.org/10.1016/s1473-3099\(16\)30472-8](https://doi.org/10.1016/s1473-3099(16)30472-8)
- Pascual, M., Koelle, K., & Dobson, A. P. (2006). Hyperinfectivity in cholera: a new mechanism for an old epidemiological model? *PLoS Medicine*, 3(6), e280.
- Pezzoli, L. (2020). Global oral cholera vaccine use, 2013–2018. *Vaccine*, 38, A132-A140. <https://doi.org/https://doi.org/10.1016/j.vaccine.2019.08.086>
- Pruyt, E. (2013). Small system dynamics models for big issues: Triple jump towards real-world complexity.

- Qadri, F., Islam, T., & Clemens, J. D. (2017). Cholera in Yemen — An Old Foe Rearing Its Ugly Head. *New England Journal of Medicine*, 377(21), 2005-2007. <https://doi.org/10.1056/NEJMp1712099>
- Rahmandad, H., Lim, T. Y., & Sterman, J. (2021). Behavioral dynamics of COVID-19: Estimating under-reporting, multiple waves, and adherence fatigue across 92 nations. *Rahmandad, H., Lim, TY., Sterman, J., Behavioral Dynamics of COVID-19: Estimating Under-Reporting, Multiple Waves, and Adherence Fatigue Across, 92.*
- Rocca, R. (2021). *Complex Systems Modeling for Humanitarian Action: Methods and Opportunities.* <https://reliefweb.int/sites/reliefweb.int/files/resources/Complex%20systems%20modeling%20for%20humanitarian%20action%20-%20Methods%20and%20opportunities.pdf>
- Schlein, L. (2018). Oral Cholera Vaccination Campaign in Yemen Falls Short. *Voice of America.* <https://www.voanews.com/a/oral-cholera-vaccination-campaign-in-yemen-falls-short-of-mark/4518763.html>
- Schoenberg, W., Davidsen, P., & Eberlein, R. (2019). Understanding model behavior using loops that matter. *arXiv preprint arXiv:1908.11434.*
- Shim, E., & Galvani, A. P. (2012). Distinguishing vaccine efficacy and effectiveness. *Vaccine*, 30(47), 6700-6705. <https://doi.org/10.1016/j.vaccine.2012.08.045>
- Spiegel, P., Ratnayake, R., Hellman, N., Lantagne, D. S., Ververs, M., Ngwa, M., & Wise, P. (2018). Cholera in Yemen: a case study of epidemic preparedness and response. *Baltimore: Johns Hopkins Center for Humanitarian Health.*
- Spiegel, P., Ratnayake, R., Hellman, N., Ververs, M., Ngwa, M., Wise, P. H., & 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(4), e001709. <https://doi.org/10.1136/bmjgh-2019-001709>
- Sterman, J. (2000). *Business dynamics*. McGraw-Hill, Inc.
- Struben, J. (2020). The coronavirus disease (COVID-19) pandemic: simulation-based assessment of outbreak responses and postpeak strategies. *System dynamics review*, 10.1002/sdr.1660. <https://doi.org/10.1002/sdr.1660>
- The, L. (2017). Yemen and cholera: a modern humanity test. *The Lancet*, 390(10095), 626. [https://doi.org/10.1016/S0140-6736\(17\)32210-9](https://doi.org/10.1016/S0140-6736(17)32210-9)
- The Lancet Infectious, D. (2018). Ending cholera for all. *The Lancet Infectious Diseases*, 18(10), 1047. [https://doi.org/10.1016/S1473-3099\(18\)30562-0](https://doi.org/10.1016/S1473-3099(18)30562-0)
- Tuite, A. R., Tien, J., Eisenberg, M., Earn, D. J., Ma, J., & Fisman, D. N. (2011). Cholera epidemic in Haiti, 2010: using a transmission model to explain spatial spread of disease and identify optimal control interventions. *Ann Intern Med*, 154(9), 593-601. <https://doi.org/10.7326/0003-4819-154-9-201105030-00334>
- UNICEF. (2013). *UNICEF cholera toolkit 2013.* <https://sites.unicef.org/cholera/Cholera-Toolkit-2013.pdf>
- UNICEF. (2018). *UNICEF Yemen humanitarian situation report.* <https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF%20Yemen%20Humanitarian%20Situation%20Report%20-%20August%202018.pdf>
- United Nations High Commissioner for Refugees. (2018). *UNHCR extremely concerned about escalation of conflict in Yemen's Hudaydah.* not everyone vaccinated will be immune to infection. A recent meta-analysis of seven randomized trials and six observational studies estimates the mean effectiveness of standard two-dose killed oral cholera vaccination at 76% with protection lasting for at least 3 years (Shim and Galvani, 2012). Also, Fung (2014) summarized five models on the Haitian cholera epidemic model parameters in Table (Appendix). Vaccine effectiveness is included in this model but not vaccine efficacy.
- United Nations Office for the Coordination of Humanitarian Affairs. (2017). *Yemen: Cholera Outbreak Tracker Governorate Profiles.* https://public.tableau.com/views/001CholeraYemenTracker/FacilityBaseline?%3Aembed=y&%3AshowVizHome=no&%3Adisplay_count=y&%3Adisplay_static_image=y#!%2Fpublish-confirm
- United Nations Office for the Coordination of Humanitarian Affairs. (2021). *Yemen Humanitarian Needs Overview 2021.* <https://reliefweb.int/report/yemen/yemen-humanitarian-needs-overview-2021-february-2021-enar>
- Weil, A. A., Begum, Y., Chowdhury, F., Khan, A. I., Leung, D. T., LaRocque, R. C., Charles, R. C., Ryan, E. T., Calderwood, S. B., Qadri, F., & Harris, J. B. (2014). Bacterial shedding in household contacts of cholera patients in Dhaka, Bangladesh. *The American journal of tropical medicine and hygiene*, 91(4), 738-742. <https://doi.org/10.4269/ajtmh.14-0095>

Wolfe, M., Kaur, M., Yates, T., Woodin, M., & Lantagne, D. (2018). A Systematic Review and Meta-Analysis of the Association between Water, Sanitation, and Hygiene Exposures and Cholera in Case-Control Studies. *The American journal of tropical medicine and hygiene*, 99(2), 534-545. <https://doi.org/10.4269/ajtmh.17-0897>

World Health Organization. (2020). *Cholera Situation in Yemen December 2020 [Infographic]*. <https://applications.emro.who.int/docs/WHOEMCSR314E-eng.pdf?ua=1>

Yemen Data Project. (2022). *Data Airwar* <https://yemendataproiect.org/data.html>

Zhao, S., Musa, S. S., Qin, J., & He, D. (2019). Associations between Public Awareness, Local Precipitation, and Cholera in Yemen in 2017. *The American Journal of Tropical Medicine and Hygiene*, 101(3), 521-524. <https://doi.org/10.4269/ajtmh.18-1016>