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Candida Auris: A Case Study

Introduction: Candida Auris is a deadly fungus that is highly infectious, can be resistant to antifungal treatments (90% of infections are resistant to one drug, and 30% of infections are resistant to two or more drugs), and is acquired mainly in hospitals and nursing homes.[1] Between 2013-2021, 4,757 cases of C. auris have been documented in the United States (roughly 50% of those cases resulted in death), with most cases confined to New York, New Jersey, and Illinois.[1,2]

Facts of the Case: In June 2016, the CDC and the New York State Department of Health issued advisories to healthcare facilities about the emergence of C. auris.[2] Soon after, in August 2016, the current, ongoing C. auris outbreak in New York City began. The first identified cases presented in immuno-compromised patients, who were in the hospital for other treatments and acquired the fungal infection while there.[3] Since this time, 1,025 cases of C. auris have been confirmed by screening tests in New York State, with most concentrated in New York City hospitals and nursing homes.[4] Data on deaths associated with C. auris is limited, but the fungus has a high death rate between 30-60%.[5] There has been no infrastructural cost associated with the outbreak, however, there is a cost associated with the response. New York State proposed guidelines of screening for those at risk, isolation of those infected, and contact tracing; however, these guidelines have yet to be enforced.[1] The state also conducts clinical and environmental sampling and provides education to all clinical staff in New York City that wants to participate.[1] The available literature does not quantify the costs associated with these actions.

Epidemiological Aspects of the Event: C. auris is an extremely aggressive fungus that mainly infects immunocompromised individuals.[6] In hospital settings (the majority of cases in New York State occurred in hospitals), patients usually become infected when they are undergoing treatment for another condition that weakens their immune system.[6] The cases of C. auris were confirmed through blood tests of patients exhibiting the normal symptoms of infection.[7] Real-time PCR assays are used for patient screening and environmental quantification of the fungus.[5] There is very little information on the cases of the patients who died from infection, but these cases mainly exhibited multi-drug resistance. C. auris is treated with antifungal medication, but, due to overuse and misuse, fungi are becoming more and more resistant to medication. With the current antifungals available, only 10% of C. auris are susceptible to all treatments, and 30% of infections are resistant to at least two types of treatments.[1] Of the patients that died, it is estimated that all cases were resistant to at least one treatment.

Due to the lack of concrete facts surrounding the C. auris outbreak in New York, most information regarding the infections comes from journalism, contributing to media bias. The authors were able to give estimates of death rates and potential sites of cases, but much of that information is not confirmed. This bias may contribute to a view that hospitals and departments of health mismanaged the outbreak.

Management of the Event: The response to the C. auris outbreak in New York State has been limited. Because C. auris is a newly identified fungus, and treatment resistance is on the rise, there has been a gap in how the state has handled the outbreak. At first, there were no guidelines for handling or reporting suspected or confirmed cases, and proper precautionary measures were not necessarily taken to contain the infection.[1] The hospitals reported cases to the New York State Department of Health, but they were not required to publicly release the threat of infection.[1] This meant that there was very little media attention given to the fungus, and

people were oblivious to the risk in hospitals and nursing homes. The infection spread throughout high risk groups in these areas. Finally, in 2019, New York State proposed new guidelines that would take the threat of C. auris more seriously. Although it is recognized as a public health threat of great importance, it is not mandatory for hospitals to screen for C. auris cases or to inform patients/nursing home residents if they are at risk of infection.[1] The state does do follow-ups for cases and contact tracing, but hospitals have no mandatory guidelines to contribute to this.[1]

Medical practitioners handled the outbreak to the best of their abilities, and patients even recognized that the infection was of no fault to the physicians.[8] Patients received the best medical care that they could, and death commonly resulted from the fact that some C. auris infections are multi-drug resistant or pan-resistant (resistant to all available treatments). The initial mismanagement of the outbreak came, because the infection was new; hospitals did not know how to respond to the outbreak and how to best move forward to ensure that there were no new cases. Further, there was not a consensus from the city or state health departments in how to communicate the health information. Future improvements include a need to enforce state guidelines on screening and isolation, as this is the best way to stop the spread of infection. Guidelines are also needed for hospitals and nursing homes to prepare for and respond to potential outbreaks. Lastly, there should be set rules for disclosure of cases to potential patients, in order for patients to make an informed decision for their care.

Communications of the Event: Hospitals chose not to disclose information on cases to the public, and patients entering hospitals were oblivious to the threat of infection. Although there is now information on the number of cases of infection, disclosure of where these cases occurred has not been officially released. Healthcare providers and hospitals did let patients know the origins and extent of their infections, as well as gave them reasonable estimates of treatment and survival. Hospitals effectively worked with patients who were infected with the fungus, however, they mismanaged communication with the public about the risk of infection and how the infection is acquired. As for communication from the media, information about C. auris and the risks of infection became more widespread years after the first cases were identified. More information should have been available previously, but, at least now, there is public awareness of the threat of C. auris.

Summary: Candida Auris is a deadly, infectious fungus that is rapidly gaining resistance to antifungal treatment.[1] New York State has seen an ongoing outbreak, mainly concentrated in hospitals in New York City.[1] Physicians handled infections to the best of their abilities, but a growing number of infections exhibited pan-resistance to treatment, which ultimately led to death. During the outbreak, hospitals did not disclose that there were C. auris infections to potential patients, and there are few enforceable guidelines to stop the spread of the infection. Communication to the public comes mainly from journalism. More guidance from the city and state departments of health, as well as preventative action by hospitals, is needed.

References

1. Richtel, M. (2019, May 23). *To fight deadly candida auris, New York State proposes new tactics*. The New York Times. Retrieved February 22, 2022, from https://www.nytimes.com/2019/05/23/health/candida-auris-hospitals-ny.html
2. Centers for Disease Control and Prevention. (2021, October 27). *Tracking candida Auris*. Centers for Disease Control and Prevention. Retrieved February 22, 2022, from https://www.cdc.gov/fungal/candida-auris/tracking-c-auris.html
3. Richtel, M., & Jacobs, A. (2019, April 6). *A mysterious infection, spanning the globe in a climate of secrecy*. The New York Times. Retrieved February 22, 2022, from https://www.nytimes.com/2019/04/06/health/drug-resistant-candida-auris.html
4. *Department of Health*. Get the Facts About Candida Auris. (n.d.). Retrieved February 22, 2022, from https://www.health.ny.gov/diseases/communicable/c_auris/
5. Zhu Y., O'Brien B., Leach L., Clarke A., Bates M., Adams E., Ostrowsky B., Quinn M., Dufort E, Southwick K., Erazo R., Haley VB., Bucher C., Chaturvedi V., Limberger RJ., Blog D., Lutterloh E. (2020, Mar 25). Chaturvedi S. Laboratory Analysis of an Outbreak of Candida auris in New York from 2016 to 2018: Impact and Lessons Learned. J Clin Microbiol. 58(4):e01503-19. doi: 10.1128/JCM.01503-19. PMID: 31852764; PMCID: PMC7098748.
6. Richtel, M. (2019, April 6). *What you need to know about candida auris*. The New York Times. Retrieved February 22, 2022, from https://www.nytimes.com/2019/04/06/health/candida-auris-facts.html?action=click&module=RelatedLinks&pgtype=Articlehttps%3A%2F%2Fwww.nytimes.com%2F2021%2F07%2F23%2Fhealth%2Fsuperbug-fungus-cdc.html
7. Richtel, M. (2019, April 8). *Candida auris: The fungus nobody wants to talk about*. The New York Times. Retrieved February 22, 2022, from https://www.nytimes.com/2019/04/08/health/candida-auris-hospitals.html
8. Richtel, M. (2019, April 17). *How a Chicago woman fell victim to candida auris, a drug-resistant fungus*. The New York Times. Retrieved February 22, 2022, from https://www.nytimes.com/2019/04/17/health/candida-auris-fungus-chicago.html