Emergency Preparedness

EP-46

Infection Prevention Resources to Respond to the Initial Coronavirus Disease Pandemic at an Academic Medical Center

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Background: Infection prevention specialists (IPS) are relied on as subject matter experts, providing guidance and support within healthcare facilities. During the coronavirus disease (COVID-19) pandemic, infection prevention (IP) department resources were heavily taxed, creating an increased IP staffing need. The objective of this study is to quantify the additional IP resources needed to support pandemic response at a large, academic medical center.
Methods: Pre-pandemic, our IP department included 12 full-time IPS, providing support to a 1315-bed hospital, 138 outpatient clinics, and 2 ambulatory surgery centers. The increased level of organizational support needed for the COVID-19 pandemic response required more full-time employees (FTE) to assist in managing additional duties. Duties included: conducting employee cluster investigations and contact tracing; reviewing positive COVID-19 lab specimens reported each shift to ensure appropriate isolation and bed placement; developing and reviewing COVID-19 related protocols across multiple hospital areas; and instituting a clinical case review process with infectious disease (ID) physicians to respond to call questions about testing, isolation requirements, and discontinuation criteria in complex patients.
Results: The first known COVID-19 positive patient was admitted on 3/17/2020. Department call volumes peaked between May 2020 and end of June 2020. Calls during that time frame totaled 2,825 with an average of 202 calls daily. In response our IP department added 6 additional FTE. These FTE consisted of 2 reassigned bedside nurses and 4 contract nurses, supporting the 24/7 on-call service from 3/31/2020- 4/6/2021. Physician support increased to 2 dedicated epidemiologists managing COVID-19 guidance and IPS escalation needs, and a 24/7 on-call clinical review team, involving 16 ID physicians was implemented.
Conclusions: A pandemic response effort can have a major impact on infection prevention staffing resources. Repurposing and/or onboarding non-IP staff and training them to support concrete IP processes can be an effective strategy to reduce strain on department resources.

EP-47

Is Pneumocystis Jirovecii Transmitted by the Airborne Route?

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Background: Pneumocystis jirovecii (p.jirovecii) is a fungus responsible for causing opportunistic Pneumocystis pneumonia (PCP) in immunocompromised patients. Currently the Centers for Disease Control and Prevention (CDC) recommends following standard precautions while also avoiding placing a PCP patient in the same room with an immunocompromised patient. There has been recent scientific evidence that indicates P.jirovecii may be transmitted by the airborne route. The purpose of this literature review is to evaluate the recent research findings to assess whether escalating transmission-based precautions from droplet to airborne isolation is necessary to best prevent transmission of P.jirovecii in the immunocompromised oncologic patient population at a 514-bed inpatient comprehensive cancer center.
Methods: PubMed was utilized to identify articles describing PCP outbreaks, the fungal characteristics, and mode of transmission. The articles reviewed comprised of systematic reviews, case control, and case report studies published between years 2016 through 2021, with one influential case control study published in 2010. The patient population studied in the outbreaks included those with heart, kidney, or liver transplants and patient populations with other immunocompromising conditions.
Results: Nine articles, including 4 systematic reviews, 4 case control studies, and 1 case report were reviewed. The scientific evidence of the fungal characteristics, mode of transmission, and occurrence of clusters of PCP cases favored the hypothesis that airborne transmission is possible. There are still some unknowns including the length of time that the fungal cysts can remain in the air and if the cysts are spread via droplet or aerosolized route.
Conclusions: Despite the recent findings demonstrating possible airborne transmission, until further studies increase the strength of evidence for airborne transmission, droplet precautions should be considered for PCP patients to prevent transmission in the immunocompromised population.

EP-49

Stewardship of Personal Protective Equipment (PPE) During a Pandemic

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Background: The use of PPE is fundamental in protecting healthcare workers (HCWs) from being exposed to SARS-CoV2. The pandemic caused global PPE shortages forcing institutions to address appropriate utilization and conservation. Initial efforts to limit PPE distribution to avoid misuse and frequent changes in public health guidance created confusion and apprehension amongst HCWs.
Methods: Infection Prevention and Control (IP&C) implemented a PPE stewardship initiative, consisting of daily rounds on patients positive or suspected of COVID-19. Principles included: 1.) supporting HCWs caring for these patients, 2.) assure implementation of infection prevention principles for a safe environment, 3.) advise on appropriate PPE and isolation precautions with respect to patient acuity, and 4.) promote best practices aligning with the most up-to-date guidance.
Rounds addressed questions and concerns regarding PPE availability and utilization. We partnered with Nursing and Respiratory Therapy to alleviate demands on IP &C. The "PPE Spotters" team, monitored and optimized PPE utilization, supply, and distribution; provided training on donning/doffing, PAPR use, PPE reuse; and provided general support to HCWs for questions.
Results: We measured number of isolation days of confirmed or suspected patients with COVID-19 and the numbers of N95 masks distributed to units during the 4-week period before (18.2 mask per isolation day) and the 8-week period after (3.0 masks per isolation day) the PPE Spotter team was formed. Our PPE stewardship efforts successfully limited N95 misuse as community COVID-19 burden increased.