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Subject Category: COVID-19
CDC COVID-19 healthcare infection prevention and control assistance to health departments, January 2020–December 2021
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Background: Throughout the COVID-19 pandemic, CDC Division of Healthcare Quality Promotion (DHQP) has provided technical assistance in support of state, tribal, local, and territorial health departments for COVID-19 healthcare outbreak management and infection prevention and control (IPC). We characterized the volume and trends of technical assistance provided during the pandemic to inform the future needs of health departments for COVID-19 healthcare IPC and DHQP resources required to meet these needs. **Methods:** In January 2020, DHQP began receiving COVID-19 IPC TA requests directly from health departments for remote assistance or from CDC staff on field deployments providing onsite support. DHQP subject-matter experts provided responses via e-mail or, for more complex inquiries, outbreaks, or field deployments, via phone consultations. Records of e-mail communications and phone consultations were entered into an inquiry database for tracking. We calculated the number, mean, and range of technical-assistance responses by jurisdiction and by month from January 2020 through December 2021. We designated months as high-volume periods for technical assistance if inquiries surpassed the 75th percentile. **Results:** In total, 1,869 IPC technical-assistance responses were provided. Of all technical-assistance responses, 1,725 (92%) were to state or local health departments, 115 (6%) were tribal nations, and 28 (2%) were US territories. IPC technical assistance was provided to all 50 states and the District of Columbia, 16 tribal nations, and 5 US territories. The average total number of technical assistance responses per site during the 24-month period was 34 to state and local HDs (range, 2–111), 6 to tribal nations (when tribal nation was specified; range, 1–17), and 6 to US territories (range, 1–15). E-mail communications comprised 1,164 responses (62%); phone consultations made up the remaining 705 responses (38%). Of phone consultations, 350 (50%) were with CDC field deployers providing onsite support to health departments. The average number of technical-assistance responses provided each month across all jurisdictions was 78 (range, 0–334); months with high volumes included April–August 2020 and January 2021. **Conclusions:** These findings highlight the high-level collaboration between federal and state, tribal, local, and territorial health department partners in remote and onsite support of COVID-19 prevention and response efforts in healthcare settings. Variations in monthly volumes of health-department COVID-19 healthcare IPC technical assistance requests may reflect factors such as fluctuations in community infection rates and changes in CDC IPC guidance. The ability to provide effective technical assistance during pandemic response depends on the CDC maintaining sufficient healthcare IPC staffing and expertise.
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Monoclonal antibody therapy for prevention of severe disease in nosocomial COVID-19
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Background: In November 2020, the FDA issued an emergency use authorization (EUA) for monoclonal antibodies (mAbs) to be used in outpatients with COVID-19 infections who are at a high risk of progressing to severe disease. However, becuase the EUA had limited indications for inpatients, data on their use in hospitalized patients are limited. In this study, we have described the use of mAbs among hospitalized patients with nosocomial COVID-19. **Methods:** We retrospectively analyzed cases of nosocomial COVID-19 in 2 tertiary-care hospitals from November 1, 2020, to October 11, 2021, and we identified patients who received mAbs. The study period was prior to the o (omicron) variant (B.1.1.529) being detected in the United States, and infections in the patients were likely primarily with the α alpha variant (B.1.1.7) and the δ (delta) variant (B.1.617.2) of SARS-CoV-2, which responded well to treatment with bamlanivimab and casirivimab–imdevimab. All patients had a negative SARS-CoV-2 PCR on admission. Data on clinical outcomes, including administration of medications for COVID-19, increases in oxygen requirements, ICU admission, mechanical ventilation, and death were collected by a review of the electronic medical record. The study was approved by the institutional review board with expedited approval. Descriptive statistics, such as means and standard deviations of continuous variables and proportions of categorical events or variables, were tabulated to describe patient characteristics and outcomes. **Results:** The 71 patients included in the study (age range, 39–89 years; median age, 70 years; 51% female) received either bamlanivimab (n = 31) or casirivimab–imdevimab (n = 40). The length of stay ranged from 6 to 242 days (median, 26 days). The comorbidities present included cardiovascular disease (56%), diabetes (45%), obesity (31%), autoimmune disease or immunosuppression (27%), kidney disease (23%), and pulmonary disease (20%). Most of the patients included in the study were incompletely vaccinated or unvaccinated (94%) and were negative for SARS-CoV-2 antibodies (81%). Prior to receiving the mAbs, 23% of patients required supplemental oxygen, including 3 patients who required mechanical ventilation. These patients required oxygen support due to non–COVID-19–related conditions. After mAb infusion, 72% of patients had no increase in their oxygen requirements, and 93% did not progress to mechanical ventilation. Overall, 7 deaths were attributed to COVID-19 among the studied patients (10%). **Conclusions:** Our study describes the use of mAbs in hospitalized patients with nosocomial COVID-19. Most of the patients who received mAbs had no progression to severe COVID-19, despite having significant comorbidities. The use of mAbs in nosocomial COVID-19 may be associated with beneficial outcomes.
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Challenges in IPC training for non–healthcare workers
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Background: In the last 2 years of the COVID-19 pandemic, Singapore has been forced to explore alternative sites to quarantine persons or manage infected cases during surge periods in a national effort not to overwhelm the public healthcare facilities. External quarantine facilities were created at the EXPO and further extended to D'Resort and other hotels in May 2020. Infection prevention (IP) practices were implemented at these external facilities, where training non–healthcare staff to quickly learn and understand these required practices has been challenging. A team of staff from different clinical disciplines was formed to manage the COVID-19 patients at these facilities. The Infection Prevention and Epidemiology (IPE) department was invited to train all staff, including the clinical team, management agency, and security staff, regarding IP measures. We have described the system and approach used in the rapid training of all staff in IP measures where the goal is zero transmission while providing care to COVID-19 patients. **Methods:** Training materials were developed to facilitate rapid learning by all staff; medical jargon was avoided. Curriculum included precautions to be taken while performing terminal cleaning of patient rooms, serving meals, disinfecting phones and thermometers, as well as donning and doffing personal protective equipment (PPE). "Green" and "red" zones were created to assist staff in remembering appropriate PPE to be used. PPE training was provided using slides and

video. Posters were created as a guide for staff at donning and doffing stations. Additionally, the IPE training team utilized an online data collection tool to capture staff completion on IP training and PPE competency for record keeping. We used a 'soft' approach because staff members were fearful of the unknown when caring for COVID-19 patients. Daily audits were conducted with immediate concurrent feedback to engage the relevant stakeholders. Infection prevention liaison officers (IPLOs) were appointed to assist in the daily audits. An electronic audit tool was used to facilitate audit and quick analysis. **Conclusions:** The experience gained in the last 2 years has been useful and may provide a template if new external sites are needed in the future because of the potential surge associated with the o (omicron) variant.

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Mitigation strategies to control a carbapenem-resistant *Acinetobacter baumannii* outbreak in a dedicated COVID-19 unit

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Background: Carbapenem-resistant *Acinetobacter baumannii* (CRAb) is considered a public health threat, and this pathogen is typically associated with hospital infections. At 3 months after opening the hospital's dedicated COVID-19 unit, 2 patients were identified with CRAb. Infection prevention staff collaborated with staff in the COVID-19 unit, hospital leadership, and health department partners to develop mitigation strategies and to prevent additional transmission. **Methods:** Admissions to the COVID-19 unit were stopped. Biweekly surveillance cultures were collected to identify any patients potentially colonized with CRAb. An infection control risk assessment was conducted to determine breaches in infection prevention practices. The risk assessment included environmental rounding of the area, epidemiological investigation, environmental testing, pulsed-field gel electrophoresis (PFGE) testing, and observing infection prevention practices. **Results:** The risk assessment identified multiple gaps in infection control practices, for example, gaps in hand and environmental hygiene practices. The extended use of personal protective equipment (PPE), staff shortages, fatigue, and staff taking on multiple roles and tasks outside their general job duties were other gaps identified by the team. Between June and September 2020, 43 additional CRAb cases were identified in the facility, with 4 (9.8%) cases outside the COVID-19 unit. Moreover, 29 cases (64%) were considered clinical infections and 16 (36%) were identified from surveillance efforts. Environmental cultures identified 1 positive surface with CRAb. PFGE testing was completed on 44 isolates; 42 isolates had identical PFGE patterns, and 2 isolates were unrelated to the COVID-19 unit; 2 isolates were closely related (with 3-band differences) but were not identified in the COVID-19 unit. **Conclusions:** The inability to definitively identify the source of transmission made it challenging to determine the best approach to eradicating the pathogen. Mitigation for outbreaks should focus on not deviating from core infection control practices.

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Enhancing respiratory protection in skilled nursing facilities during the COVID-19 pandemic: A public health fit-test training program

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Background: The Occupational Safety and Health Administration (OSHA) Respiratory Protection standard (29 CFR 1910.134) states that it is an employer's responsibility to establish and maintain a respiratory protection program when a respirator is necessary to protect the health of employees, including annual assessment of adequate respirator fit. Prior to the COVID-19 pandemic, N95 respirators were rarely used in Philadelphia skilled-nursing facilities (SNFs), and many facilities did not have programs in place or materials to fit test their staff. **Methods:** The Philadelphia Department of Public Health's (PDPH) Healthcare Associated Infections/Antimicrobial Resistance (HAI/AR) Program designed and pilot-tested 1.5-hour "train-the-trainer" sessions on OSHA-compliant fit-testing requirements and qualitative procedures. This training was offered to all 47 SNFs beginning May 2021. Training covered the role N95 respirators play in healthcare, proper donning and doffing, OSHA training requirements, medical clearances, record keeping, fit-testing procedure, and demonstrated competency to perform fit testing. Resources that were provided after training included templates of a respiratory protection policy for SNFs, a fit-test record, the OSHA medical clearance form, and a competency checklist. This bundle was designed to help SNFs establish self-sustaining respiratory protection programs. Post-training evaluations were administered on a 6-point Likert scale as well as qualitative, open-ended questions to evaluate the overall quality and effectiveness of the training session. **Results:** In total, 50 employees (clinical and nonclinical) from 13 Philadelphia SNFs received N95 fit-test training from June through December 2021. The average rating for the training overall was very high (5.9 of 6 points). On average, participants strongly agreed that content presented was directly applicable to their work (5.9 of 6 points), and most strongly agreed that information they learned would alter practices and procedures (5.79 of 6 points). When asked qualitatively what the participant would do differently in practice as a result of the training, the most frequent responses were fit test staff (58%) and educate staff on proper N95 use (60%). **Conclusions:** The PDPH HAI/AR program created a successful pilot fit-test training program for SNFs, demonstrated by program enrollment and high ratings by participants. This relatively low-cost intervention has provided tools to enhance respiratory protection during the COVID-19 pandemic and has increases the capacity of SNFs to provide essential services for their staff and residents. The PDPH will continue to offer these training sessions to SNFs, with plans to expand to other care settings, such as inpatient behavioral health facilities, outpatient clinics, and emergency medical services.

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SARS-CoV-2 N95 contamination worn under a face shield, via medical mask surrogate, in healthcare providers treating COVID-19

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Background: SARS-CoV-2 N95 mask contamination in healthcare providers (HCPs) treating patients with COVID-19 is poorly understood. **Method:** We performed a prospective observational study of HCP N95 respirator SARS-CoV-2 contamination during aerosol-generating procedures (AGPs) on SARS-CoV-2–positive patients housed in a COVID-19–specific unit at an academic medical center. Medical masks were used as surrogates for N95 respirators to avoid waste and were worn on top of HCP N95 respirators during study AGPs. Study masks were provided to HCPs while donning PPE and were retrieved during doffing. Additionally, during doffing, face shields were swabbed with Floq swabs premoistened with viral transport media (VTM) prior to disinfection. Medical masks were cut into 9 position-based pieces, placed in VTM, vortexed, and centrifuged (Fig. 1). RNA extraction and RT-PCR were completed on all samples. RT-PCR–positive samples underwent cell culture infection to detect cytopathic effects (CPE). Contamination was characterized by mask location and front and back of face shields. Patient COVID-19 symptoms were collected