Disaster and Emergency Preparedness and the Impact of the COVID-19 Pandemic on Child Care Programs in Michigan: A Mixed-Methods Analysis

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Introduction: Historically, the child care industry has been unprepared for emergencies. A previous study identified gaps in Michigan's child care programs' emergency plans. Study objectives were to reassess programs' preparedness plans after the introduction of state-mandated emergency plans and to examine the effect of the COVID-19 pandemic on programs' operations.
Method: A 29-question survey was sent to ~500 child care programs across Michigan in 2020 to assess emergency plans and response to COVID-19. Data were analyzed using descriptive statistics and qualitative methods.
Results: Overall, 346 programs (70%) responded. Most (92%) reported having a written plan, but one-third reported having no infectious outbreak plan pre-pandemic. One-third of programs lacked plans for special needs children (vs. 40% in 2014); 62% lacked plans for child reunification (vs. 60% in 2014); 46% reported staff received no preparedness training. COVID-19 impacted programs substantially: 59% closed, 20% decreased capacity, and 27% changed disinfecting protocols. Several themes related to the pandemic's effect on programs were identified: 1) changes in learning 2) changes in socialization 3) increased family burden 4) financial challenges 5) lack of guidance.
Conclusion: Significant preparedness gaps remain among Michigan's child care programs, suggesting the need for increased support and the addition of emergency preparedness to programs' quality ratings.

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Overview of Medical Countermeasures (MCM) for the Treatment of Monkeypox in United States (US) Children During the 2022 Multinational Monkeypox Response

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Introduction: During the 2022 Multinational Monkeypox Response, cases of Monkeypox illness reported in children and adolescents in the US were rare. Early in the response, little was known about MCM safety and efficacy for treating monkeypox in children and adolescents. As cases in children and adolescents increased, knowledge about safety and efficacy evolved.
Method: Cases of monkeypox in children <18 years of age across the US were reported to CDC. MCM consultations from clinical and regulatory affairs subject matter experts supported clinician administration and management of antiviral and immunoglobulin treatment. Data from the first pediatric cases were collected to help answer some of these questions on the use of MCM in pediatric populations.
Results: Across the US, 116 cases of monkeypox in children <18 years of age have been verified through October 2022. Of these cases, 41 occurred in patients twelve years of age or less, with 75 cases in adolescents 13-17 years of age. Ten percent of patients were hospitalized, none required ICU care and no deaths occurred. Children were most commonly hospitalized due to young age, rash near or including the eye, secondary bacterial infections, or pain management. At least eleven patients with confirmed orthopoxvirus were treated with tecovirimat and two with Vaccinia Immune Globulin. Those who received MCM recovered and tolerated treatments well with one patient stopping treatment secondary to development of a drug rash.
Conclusion: Data on the safety and efficacy of MCM for monkeypox are limited in pediatric populations. As of November 3, 2022, most cases of monkeypox in the pediatric population in the 2022 monkeypox outbreak were mild and self-limited. Patients who received MCM recovered and tolerated treatments without serious adverse events. These findings can inform clinicians and public health providers about the clinical features of monkeypox in children and provide information about MCM treatment options.

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Development and Validation of a Novel "Luminescent Guidewire" for more Efficient and Safer Guidance During Endovascular Rescue Procedures

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Introduction: Endovascular procedures in emergencies like the implantation of tubes for a life support system are increasing. Guidewires are the essential basis for the regularly used Seldinger Technique. We present a novel concept that may further optimize the safety and efficacy of guidewire handling and navigation during endovascular procedures.
Method: Using specifically designed luminescent particles, a novel, clinical-grade coating protocol was created to develop a new luminescent guidewire. Different prototypes were designed and tested for their luminescent capacity following a short exposure to any light-source. Chemical-analysis, hemocompatibility, hemolysis and cytotoxicity testing of the new guidewire was performed. The usability of the new prototype was compared to regular guidewires by application into needles, catheters and tubes which are used during percutaneous procedures.
Results: The engineered guidewires demonstrated a luminescent capacity of at least 20 minutes after less than ten seconds of exposure to a light source. Chemical analysis, cytotoxicity, hemolysis, and hemocompatibility indicated a biocompatibility profile of the guidewire. Good usability, safe and rapid handling was demonstrated when simulating endovascular procedures. Under dimmed-light conditions, the luminescent guidewire