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Background

- Afghan refugee evacuations in Fall 2021 had US health care effects
- 923-bed tertiary care facility in the Washington, D.C. metropolitan area **diagnosed 12 refugees with acute measles infection**
- Gaps in our emergency department (ED) communicable disease surveillance were identified and mitigation strategies implemented
- Prevented at least 10 more measles exposures**
- Health Department partnerships were imperative in:
 - Appropriate communication between refugee care and civilian health care system
 - Identifying exposed persons and providing post-exposure prophylaxis (PEP)



- Floor 10: Onc
- Floor 9: Peds MS
- Floor 8: PICU/IMC
- Floor 7
- Floor 6: FCC
- Floor 5: FCC
- Floor 4: GYN
- Floor 3: HRP
- Floor 2: NICU
- Floor 1: L&D
- Ground Floor: ORs
- Basement



Air Handling Units (AHUs) are shared between floors of the building. The AHUs come together in a common manifold and are filtered through MERV-13 filters with return of air equally to all floors.

Exposed Patients and Post Exposure Prophylaxis	
	n (%)
Exposed Patients	512
Inpatients at exposure investigation	278 (54%)
PEP	107 (21%)
IVIG	81 (76%)
MMR	26 (24%)
Secondary Cases of Measles in 28 days*	0

*Many more measles cases were noted in the evacuated refugee population over the following weeks until MMR vaccinations were widely distributed.

Conclusions

- Evaluation of highly contagious diseases such as measles must be forefront in clinicians' minds during refugee evacuations.
- Vaccination of refugees during evacuation and prior to resettlement is imperative.

Strengths & Opportunities

- Strengths**
- Rapid identification of infectious syndromes to prevent subsequent exposures in our EDs
 - Collaboration with local health department for PEP
 - Detailed and thorough immunization records for healthcare workers
 - Engaged leadership aided outbreak response
 - Multidisciplinary team chart reviewers ensured timely PEP
- Opportunities**
- Pre-screening of known exposed patients scheduled for outpatient appointments during infectious window
 - Confirmation of notification to all discharged exposed patients
 - Updated immunization records for all contractors
 - Renovation of air handling system
 - Evaluate adequate quantity of negative air pressure rooms in EDs and hospital

Measles Exposure Case Definition

Shared air space + 2 hours after vacating area/placed on airborne precautions

- Non-immune
 - Considered immune: term infant less than 6 months of age with maternal Rubella immunity*
- Severely immunocompromised
- Shared air space
 - determined in collaboration with engineering and the local health department

Smaller Spaces
Ambulance
Single patient room
Clinic waiting area

Larger Spaces
Large ED with triage and waiting area
Clinical work areas
Multiple individual patient rooms with common unfiltered air source

9-month-old child
8/18-9/2 Qatar
9/2 Washington Dulles International Airport
9/2-9/7 Refugee Holding Center, Fairfax, VA

7 days fevers, 5 days cough, 1-day erythematous rash face → neck, chest, abdomen, extremities
Respiratory pathogen panel: **SARS-CoV-2 positive**

Outstanding Questions

- Did all floors of the building with same AHU need to be considered exposed or just the unit where the patient was located?
- What other engineering measures can be considered in risk mitigation for airborne infectious particles?

References: Special thanks to our Peds ID, IP, and all clinical team members who worked on these exposures. Centers for Disease Control and Prevention. Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps, 2013 Summary Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2013;62(4):3-34. American Academy of Pediatrics. Committee on Infectious Diseases. Red Book : Report of the Committee on Infectious Diseases. Elk Grove Village, IL :American Academy of Pediatrics, 2021.