INFORMATION PAPER: MEASLES RISK AND NAVY AND MARINE CORPS ACCESSION SITES
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ISSUE: With an increased number of measles cases across the U.S. and decreased vaccine uptake, how do we reduce risk to U.S. Navy and Marine Corps Accession Sites.

BACKGROUND: Measles is one of the most contagious diseases impacting humans and outbreaks can be costly, disruptive, and difficult to control. As of April 17, the Centers for Disease Control and Prevention (CDC) reported over 800 confirmed measles cases in 2025 (an increase from a total of 285 in 2024). In 2025, 96% of cases have occurred in individuals who were unvaccinated or had an unknown vaccination status, and 6-7% of cases in individuals aged 5 and over resulted in hospitalization[1]. While endemic measles transmission was eliminated from the U.S. in 2000, recent prolonged outbreaks in the U.S. highlight the challenges in maintaining measles elimination. Vaccination remains the most effective intervention to prevent measles infection, with vaccine effectiveness of 93% after one dose and 97% after two doses. Herd immunity for measles is achieved at a 95% population vaccination rate. This high vaccination rate required for herd immunity is due to the highly infectious nature of measles, with secondary attack rates over 90% reported among susceptible household and institutional contacts.

Previous outbreaks in congregate settings (like detention facilities, migrant shelters, and college campuses) have demonstrated the value of herd immunity to prevent and curtail outbreaks. Where herd immunity is not present, rapid and comprehensive vaccination campaigns have been shown to quickly control measles outbreaks, with reported post-exposure prophylaxis effectiveness ranging from 83.4-100% in published studies[2].

Delays in achieving herd immunity for vaccine-preventable disease in military accession sites have repeatedly been shown to result in outbreaks resulting in increased morbidity and training delays, as was recently demonstrated by a large adenovirus outbreak at a recruit depot (Medical Surveillance Monthly Report publication pending).

DISCUSSION: Data published in 2015 pertaining to Air Force recruits as well as recent data collected from Navy and Marine Corps accession sites indicate that 10-20% of incoming recruits require measles, mumps and rubella (MMR) vaccination based on low antibody levels to at least one component of the vaccine[3]. While low antibody levels do not necessarily represent measles susceptibility, it is unlikely that accession sites have adequate herd immunity to prevent measles spread upon arrival. Accession practices that prioritize vaccination on arrival achieve herd immunity in their population by 20 days after arrival, while sites that do not prioritize early vaccination may achieve herd immunity much later in training. Based on the large number of recruits that present to these training commands from geographically disperse locations, it is not unreasonable to expect a measles case to occur in a newly arrived recruit. While highly infectious, measles has a relatively long incubation period (10-21 days) which allows for rapid vaccination to interrupt transmission. **Delayed vaccination is the single most important risk factor for a measles outbreak to occur at an accession site**.

With the significant intermingling in the first few days of arrival, one measles case introduced into a new accessions cohort could infect 90% of susceptible recruits within 21 days without prompt intervention. The risk to force associated with this scenario is assessed to be moderate (critical severity due to degradation of accessions mission combined with seldom probability). Rapid identification of a suspected case followed by quick vaccination of susceptible accessions (within 72 hours of initial exposure) would significantly reduce the number of secondary cases. With early accession site vaccination and the implementation of the measures outlined below, the assessed risk becomes low (negligible to moderate severity with seldom probability). A widespread outbreak is highly unlikely as herd immunity is assumed to be achieved within the first three-four weeks of training and active duty staff are fully vaccinated.

RECOMMENDATIONS: After query of accession site practices, Navy and Marine Corps Force Health Protection Command (NMCFHPC) recommends the following actions to unify practices and reduce risk.

Recommended baseline accession site measures:

1. Prioritize rapid verification of vaccination status and vaccination of susceptible individuals as early as possible in the intake process to quickly establish herd immunity.
2. Ensure documentation of vaccination status of all accession site staff, particularly civilian staff who are less likely to be fully vaccinated. Conduct catch-up vaccination as appropriate.
3. Maintain a low index of suspicion for measles cases. Educating providers and drill instructors on measles presentation and reporting, establishing lab testing protocols for quick confirmation, and exercising measles case investigation and contact tracing are all activities that Navy medical departments can undertake in advance to prepare for a measles case response. More specific recommendations can be found in the below NMCFHPC Measles Case Investigation Guide.
4. Supporting Navy Environmental and Preventive Medicine Units can provide consultative assistance with mitigation, education, messaging, and reporting (link to contact information can be found in resource link below).

Recommended actions should a suspected measles case occur at an accession site:

1. Follow CDC guidance as well as guidance found in NMCFHPC Measles Case Investigation Guide[4]. Laboratory testing for confirmation of the diagnosis may be faster through the county public health agency; Preventive Medicine can coordinate.
2. Immediately isolate the suspected case and implement standard and airborne precautions.
3. Consider anyone who was inside the impacted training environment during the index patient's infectious period (four days before until four days after rash onset) to be exposed.
4. Limit interaction between recruit cohorts to minimize risk of spread between groups.
5. Staff should verify vaccination records for all individuals (staff and recruits) who were exposed. Administer MMR vaccine within 72 hours of initial exposure to all susceptible contacts without a contraindication to the vaccine[5,6]. Susceptible contacts are those who do not have **documentation** of receiving two doses of vaccine, positive titers, previous disease, or being born before 1957. In a post-exposure situation, do not wait for titers if they will delay vaccination beyond the 72-hour window. If outside of the 72-hour exposure window, immunization should still be administered to susceptible individuals as soon as possible to provide protection against subsequent measles exposures.
6. Previously vaccinated individuals as well as susceptible individuals who receive vaccination within 72 hours of initial exposure may continue with training and do not require quarantine. Individuals without evidence of receipt of 1 dose of measles vaccine prior to first known exposure (and who are not

vaccinated within 72 hours of exposure) should be closely monitored for signs of measles until 21 days from last known exposure[7]. If vaccination is delayed, quarantine should be considered if trainee movement cannot be limited to the accession environment[8]. Several examples exist in the literature of quarantine being applied to large affected units where interaction with external individuals is limited[9,10]. If trainee movement can be limited to the accession environment, mixing with newer arriving units (where herd immunity has not yet been achieved) can be prevented, and the additional recommendations listed here have been implemented, then quarantine will functionally have been applied. Because all trainees/staff should be immune by the time a secondary case becomes infectious, additional quarantine measures are not absolutely required. Consultation with Preventive Medicine authorities for specific risk evaluation is recommended. Isolate and test any trainee who becomes ill after exposure. Confirmed measles cases are no longer infectious five days after the onset of rash, and if clinically well may return to training.

7. Immunoglobulin, if indicated, should be administered within six days of exposure. Individuals who receive immunoglobulin cannot be immediately returned to the training environment and should be excluded for 28 days from last known exposure (immunoglobulin prolongs the incubation period).
8. To limit risk of spread to the local community, staff, visitors, and vendors who cannot demonstrate immunity against measles should be excluded from the facility for 42 days after the last case of measles.
9. Pregnant women and others who are at increased risk of severe disease (like those with immunocompromising conditions) should be removed from the training environment during an outbreak, and an Infectious Disease specialist should be consulted if known measles exposure occurs.
10. Conduct active case-finding activities for the duration of the outbreak. Screen all recruits daily for signs and symptoms. If measles is suspected, symptomatic individuals should be tested and moved to isolation.
11. Follow best practices for environmental control measures to limit spread.
12. Continue active surveillance for additional cases for at least two incubation periods. The outbreak is considered over after two incubation periods (42 days) have passed without new cases.

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ADDITIONAL RESOURCES:

Navy and Marine Corps Force Health Protection Command Measles Information Page
https://www.med.navy.mil/Navy-and-Marine-Corps-Force-Health-Protection-Command/Preventive-Medicine/Program-and-Policy-Support/Diseases-and-Conditions/Measles/

Navy and Marine Corps Force Health Protection Command Measles Case Investigation Guide
https://www.med.navy.mil/Portals/62/Documents/NMFA/NMCPHC/root/Program%20and%20Policy%20Support/Diseases%20and%20Conditions/NMCFHPC_Measles_Case_Response_Guide_29May2024.docx

Navy Environmental and Preventive Medicine Units and contact information:
https://www.med.navy.mil/Navy-Marine-Corps-Public-Health-Center/Field-Activities/