



Contact Vaccinia: Update on the Military Smallpox Vaccination Experience

February 2004-May 2009

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Overview

- Objective
- Background
- Methodology
- Findings
- Cases of Interest
- Future Directions
- Take Home Points



Objective

- Summarize VHC contact vaccinia surveillance between Feb 2004 and May 2009



Definition

- **Contact Vaccinia:** an inadvertent vaccinia virus infection in a person other than the vaccine recipient; it is the result of the spread of vaccinia from a vaccination site to another person



Background

- DoD Smallpox Vaccination Program
 - Announced December 2002: to meet readiness requirements against potential use of smallpox as biological weapon
- Between December 2002 and January 2004, surveillance revealed 29 cases of contact vaccinia reported among 548,438 vaccinees.
Estimated overall incidence rate of 5 per 100,000.



Background (cont)

- DoD Smallpox Vaccination Program
 - Changed to ACAM product March 2008
- Between February 2004 and May 2009 among the ~1.2 million smallpox vaccines, 52 cases of contact vaccinia were reported
 - Observed rate of 5 per ~ 100,000
 - Similar to rate observed previously



Methodology

- Retrospective review of VHC cases and VAERS reports consistent with contact transmission of the vaccinia virus.
- Data represents case identification between February 2004 and May 2009
 - Building on previously reported experience between December 2002 to Jan 2004.

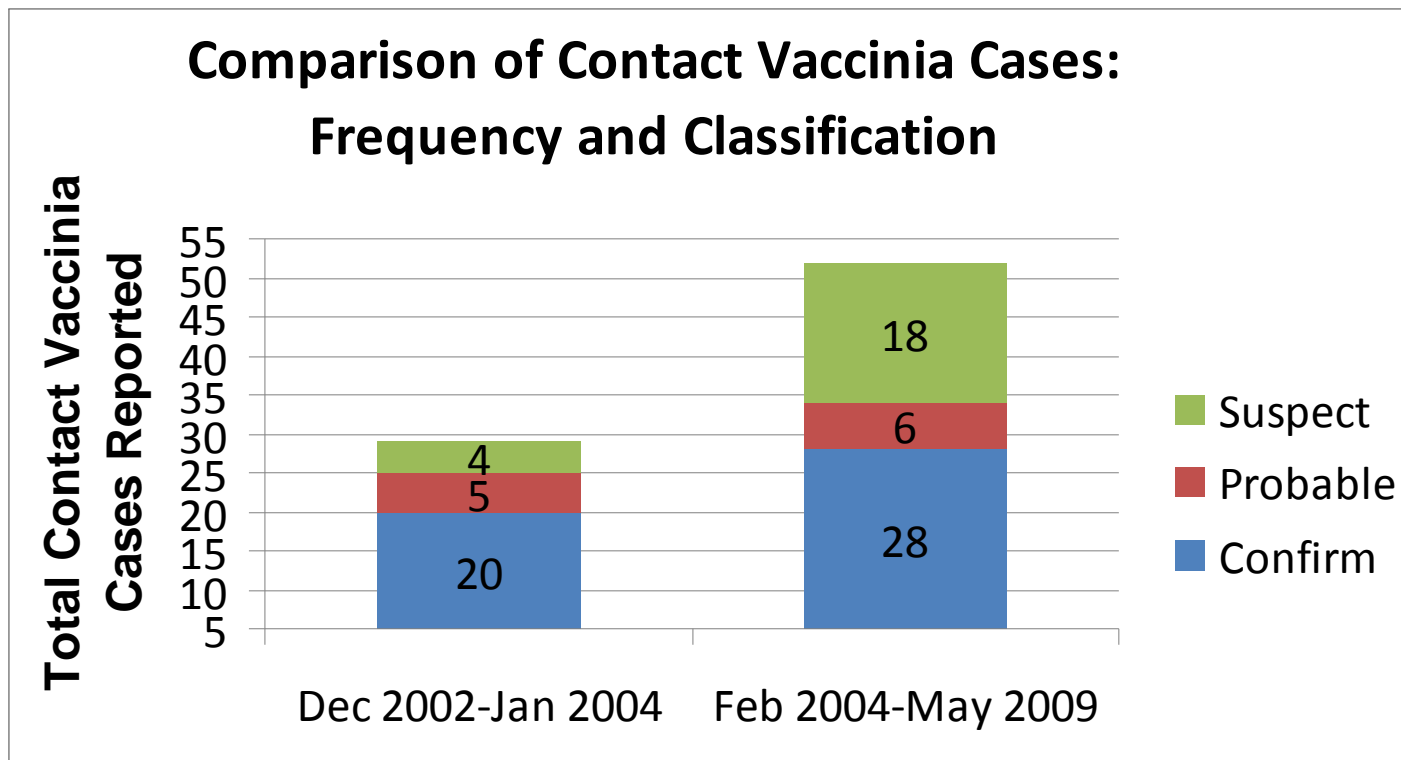


Contact Vaccinia: Case Definition

- **Suspect case:**
 - Develops one or more lesions that progress through papule, vesicle, pustule stages
 - H/o close contact with someone who received vaccine < 3 wks prior to exposure
 - Lesions appear 3-9 days after exposure
- **Probable case:**
 - Meet case definition for suspect case
 - Other etiologies (bacterial/virus infection) excluded
- **Laboratory confirmed case:**
 - Meet case definition for suspect/probable case
 - Positive vaccinia on PCR, DFA or culture



Findings

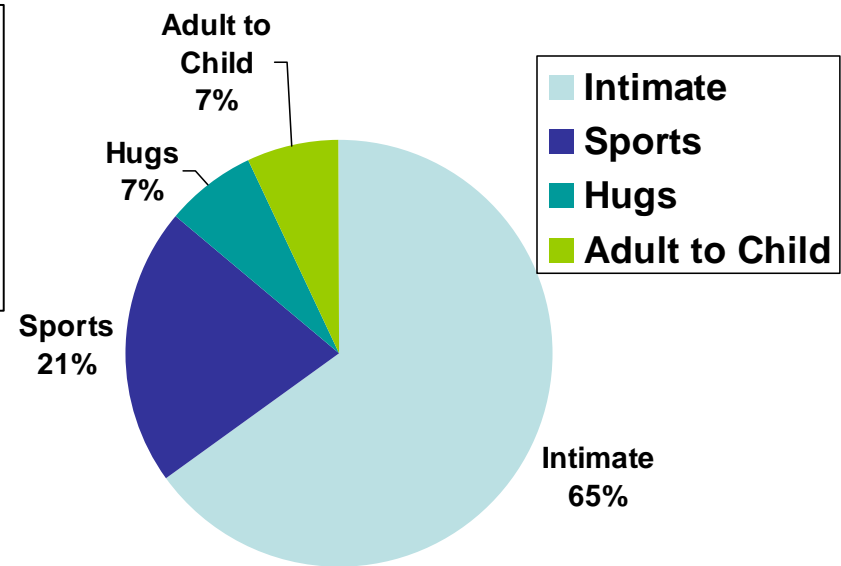
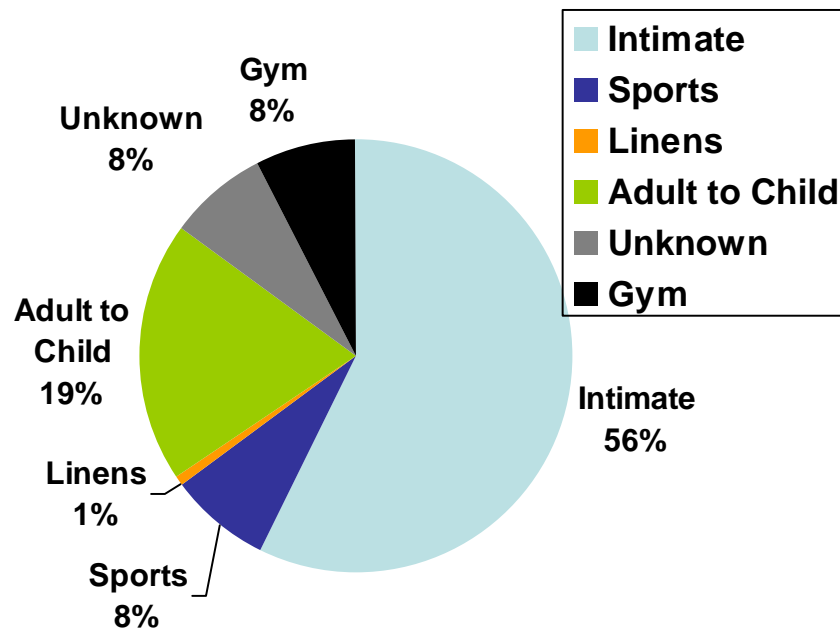




Vaccinia Transmission by Type of Contact and Relationship

Data: 02/04-05/09

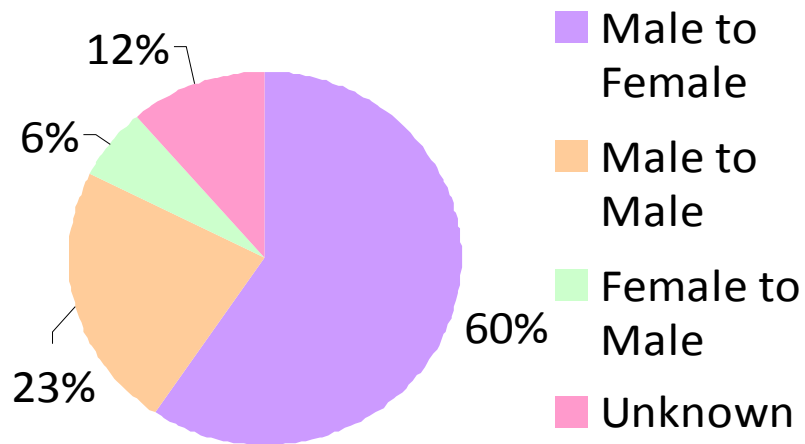
Data: 12/02 – 01/04



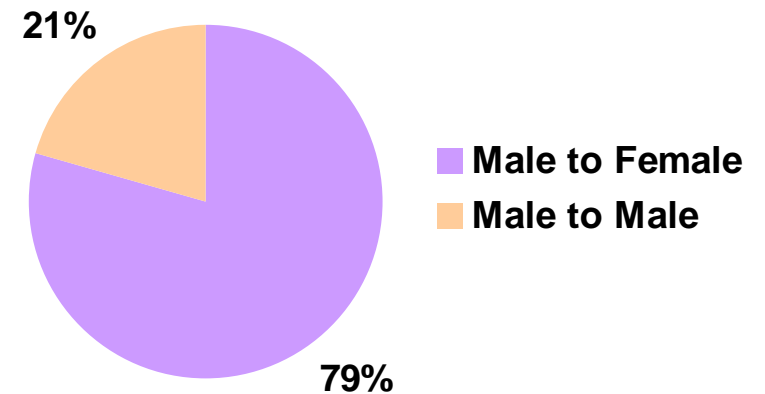


Vaccinia Transmission by Gender

Current Data



2004 Data





Additional Findings

- No cases of contact transmission from HCW to patients with 100% VAERS case review (military)
- The first case of contact transmission resulting in life-threatening eczema vaccinatum was reported
- 39% of all reviewed cases involve transmission to civilian non-beneficiaries, 5 involving genital lesions
- 10% of all reviewed cases involve >1 contact, with at least 2 cases involving tertiary transmission



Cases of Interest



Eczema Vaccinatum through Contact Transmission ^{6, 7}

28-month old with severe atopic dermatitis (AD) exposed to father (past history of AD) >21 days following vaccination.



Cases of Interest



**Contact Transmission
During Pregnancy**





Cases of Interest



Contact Transmission in an Unvaccinated Active Duty Service Member

Unvaccinated, 28 year-old male service member (SM) had contact with fellow SM's vaccine site during wrestling



Future Directions

- Ongoing educational efforts: HCW, vaccinees, families and other potential contact stakeholders.
- VHC VAERS surveillance to allow timely intervention as needed, with AHLTA documentation
- Development of VHC Contact Transmission Registry
- Semi-annual VHC reviews using Brighton Collaboration Case Definition
- Smallpox Vaccine Shedding Study; PI Col Phillip Pittman (USAMRIID)



Take Home Points

- Screening makes a difference!
- Provide exemptions when appropriate, consult provider or VHC if questions BEFORE immunizing.
- People with normal skin but history of atopic dermatitis are at ↑ risk for vaccinia complications.
- Vaccinia has been transferred >21 days post-immunization and scab has separated from site.



Take Home Points (cont)

- VAERS reports should be completed on any suspected contact transmission
- Refer to the VHC registry ([1-866-210-6469](tel:1-866-210-6469); www.vhcinfo.org)
- If contact transmission is confirmed, individual is considered immune (passively vaccinated).
- It is essential that vaccinees adhere to personal and site care precautions!
- Current incident rate of 5:100,000 is consistent with rate of 2-6:100,000 during the 1960's eradication program but may underestimate true incidence.



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