

# **Advisory Committee on Immunization Practices Guidelines**

**Smallpox Vaccination of Health Care  
Workers with Vaccinia Vaccine**

**December 12-13, 2002**

# Advisory Committee for Immunization Practices (ACIP) Guidelines

- A. Vaccination of Health Care Workers
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# Vaccination of Health Care Workers

- Historically, a low risk of transmission of vaccinia virus from vaccinated health care workers (HCW) to hospital contacts (staff or patients). Neff et al, JAMA, 2002
- No virus isolated in 97-100% of viral cultures taken from the outside of semi-permeable dressings over folded dry gauze. Change when exudates appears (every 3-5 days). Frey NEJM, 2002

# Smallpox Vaccine Efficacy

- Among 680 cases of variola major occurring after importation of smallpox into Europe
  - CFR\* in never vaccinated: 52%
  - CFR if vaccinated > 20 years: 11%
  - CFR if vaccinated  $\leq$  10 years: 1%

\*CFR=Case Fatality Rate

**Mack, JID 125:161-9,1972**

# Smallpox Health Care Teams

- Emergency Room Staff (MDs, RNs)
- Intensive Care Unit Staff (MDs, RNs, )
- General Medical Unit Staff
- Medical House Staff (selected staff)
- Medical Subspecialists
- Infection Control Professionals
- Respiratory Therapists
- Radiology Technicians
- Security Personnel
- Housekeeping Staff

# Contraindications for Vaccination

Applies to person to be vaccinated AND household or close contacts:

- Immunodeficiency (HIV, leukemia, lymphoma, generalized malignancy, current cancer chemotherapy including radiation, solid organ or stem cell transplant, systemic steroids)
- Diagnosis now, or in the past, with eczema or atopic dermatitis (even mild or resolved conditions)
- Pregnancy
- Other acute, chronic or exfoliative skin conditions, while condition is active

# Contraindications for Vaccination

**Applies only to person receiving vaccination:**

- Previous allergic reaction to smallpox vaccine or any of the vaccine components (polymixin B, streptomycin, tetracycline, neomycin, phenol)
- Less than 18 years old
- Moderate or severe acute illness
- Breastfeeding

# FAQ on Vaccination Contraindications

- I work with patients who have contraindications (immunocompromised/have eczema/pregnant), will I transmit vaccinia to them if I get vaccinated?
  - Studies have shown that vaccinated individuals whose vaccination site is covered with gauze and a semi-permeable occlusive dressing and covered by a layer of clothing (shirt, white coat) AND WHO PRACTICE STRICT HAND WASHING are at low risk of transmitting vaccinia virus to patients (Frey NEJM, April 2002)

# FAQ on Vaccination Contraindications

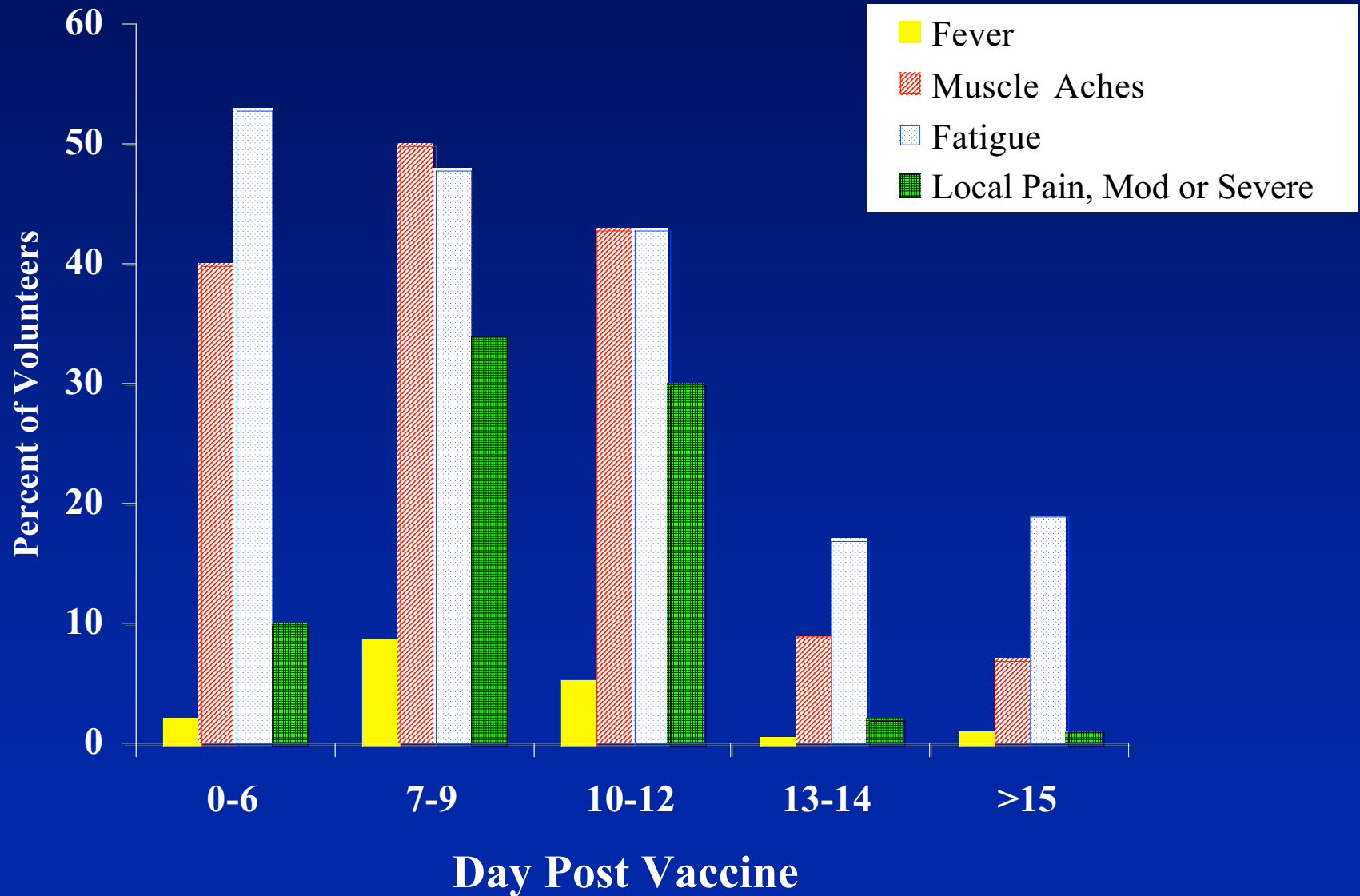
- Do contraindications listed for household contacts also apply to close personal contacts (e.g. sexual partners) who do not live in the same household?
  - Close contacts are considered to be the same as household contacts.  
Contraindications apply.

# FAQ on Vaccination Contraindications

- Are cancer survivors considered to have a contraindication to vaccination?
  - No, it is current, ongoing immunosuppressive states which are risk factors for vaccination.
- I have HIV and my CD4 count is >800. Can I get vaccinated?
  - No, at this time we do not know what impact the level of CD4 count plays in progressive vaccinia.



# Acute Viral Illness Associated with Vaccinia



# Smallpox Vaccine Adverse Events

- Moderate side effects/million 1<sup>o</sup> vaccinees:
  - Inadvertent inoculation (skin, eye) 25-529
  - Generalized vaccinia 241
- Severe side effects/million 1<sup>o</sup> vaccinees:
  - Fetal infection rare
  - Vaccinia necrosum 1-2
  - Post-vaccination encephalitis 3-12
  - Eczema vaccinatum 10-39

# Smallpox Vaccine Adverse Events

- Death rate/million 1<sup>o</sup> vaccinees:
  - Primary vaccination 1-2
  - Re-vaccination 0.2

# Preventing Contact Transmission of Vaccinia Virus

- Transmissibility from site begins from development of papule till scab separates from skin lesion.
- Handwashing with soap and water or disinfecting agents should be performed after all contact with vaccination site or dressing materials that have come into contact with site.

# Vaccination of Health Care Workers

- Administrative leave is not required for vaccinated HCWs unless:
  - Physically unable to work;
  - Vaccination site is unable to be completely covered by dressing;
  - HCW's non-adherent to infection control recommendations;
  - Individual institutions may choose to re-assign or place on leave if feasible.

# Summary

- The goal is to have a health care response team ready to care for initial cases of smallpox.
- There needs to be effective education on the contraindications to getting vaccinated in the pre-event setting to minimize the number of adverse events.
- Transmission of vaccinia virus to contacts can be minimized with careful wound hygiene and appropriate monitoring and dressing.
- Furlough is not recommended for vaccinees.