Public Safety Smallpox Seminar

North Dakota Department of Health
Smallpox Overview

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State Health Officer
North Dakota Department of Health
History

- 1977 – Last naturally acquired case in Somalia
- 1978 – Laboratory-related death at the University of Birmingham, England
- 1980 – Global eradication certified by the World Health Organization
- Method of eradication – Ring vaccination, not mass vaccination
Ring Vaccination Concept

- Isolation of confirmed and suspected cases
- Identification, vaccination and surveillance of significant contacts of proven cases
- Vaccination of household contacts of contacts
Smallpox – Basic Facts

- **Cause** – Variola Virus
- **Can infect only humans**
- **Transmission** – Close face to face (generally within 6 feet) via respiratory droplets of a person who has the disease
Smallpox - Disease

- Onset is 12 to 14 days after exposure
- Days 2 to 3 – High fever, bed-ridden, headache and backache
- Days 4 to 5 – Onset of the rash (small bump – blister – pustule – scab)
- Most infectious during the first week of the rash. No longer infectious once the scabs fall off (3 to 4 weeks)
- Death rate is about 30 percent
Smallpox
Smallpox Vaccination

- Live virus vaccine – Vaccinia (this is not the smallpox virus)
- Highly effective in preventing illness or severe disease if given within 3 to 4 days of definite exposure to smallpox
Smallpox Vaccination

- Skin reactions are an indicator that the vaccine was effective (vaccine “take”)
  - 3 to 4 days – Redness and itching
  - 7 to 11 days – Vesicle (blister) develops into a pustule, redness increases
  - 14 to 21 days – Pustule dries, scab forms
  - 21 days – Scabs falls off, leaving a permanent scar
- Commonly see fever and tender, enlarged lymph nodes
Vaccination – Adverse Reactions

- Death – 1 / million
- Accidental infection of other body part (i.e. eye) – 1 / 2000
- Generalized vaccinia – 1 / 5000
- Eczema vaccinatum – 1 / 26,000
- Post vaccination encephalitis – 1 / 300,000
- Progressive vaccinia – 0.83 / million
Vaccination Site Progression
Vaccination Site Progression

DAY 4
DAY 7
DAY 14
DAY 21

PRIMARY VACCINATION SITE REACTION
Vaccination Site Progression
Vaccination Site Progression
Smallpox Surveillance and Diagnosis

Larry A. Shireley, MS, MPH
State Epidemiologist
North Dakota Department of Health
Early Detection

“Atypical” Rash Illnesses

Dial:

1.800.472.2180

24 hours/day - 7 days/week

Call weekdays, evenings, weekends or holidays

For questions, reportable disease recommendations, reporting issues or consultations

North Dakota Department of Health
Division of Disease Control
Rash Illnesses

- Rule Out Chickenpox (Varicella)
  - Reporting of hospitalized patients
  - Consultation
    - Infectious Disease Physicians
    - Dermatologists
- Consultation/Confirmation
  - Centers for Disease Control and Prevention
Laboratory

- ND Public Health Laboratory
  - “Rule in Varicella”
    - DFA
    - Real time PCR
  - Pan-Orthopox
    - Real time PCR
  - Vaccinia - Non-variola E9L
    - Real time PCR

- Variola
  - Centers for Disease Control and Prevention
    - Regional Laboratories
Syndromic Surveillance

- Regional Ask-A-Nurse
- Emergency Room
- Others
  - Ambulance “Runs”
  - Pharmaceutical Sales
Case Investigation

- Ring Vaccination

Contact to Contact
Contact to Case
Case
Smallpox Plan Overview

Brenda Vossler, Hospital Coordinator
Bioterrorism Preparedness and Response
North Dakota Department of Health
Smallpox Plan Categories

- Pre-event
  - Phase I
    - Initial Responders
    - Public Health
    - Hospital
    - About 2,000
Smallpox Plan Categories

- **Pre-event**
  - **Phase II**
    - All Responders
    - Public Health
    - Hospital
    - Clinic/Physician
    - Public Safety
      - Law enforcement
      - Fire
      - EMS
Smallpox Plan Categories

- Pre-event
  - Phase III
  - Public
Smallpox Plan Categories

- Post-event
  - Ring vaccination
  - Mass vaccination
Public Health Regional Resources

- Lead Public Health Units
- Bioterrorism Directors
- Field Epidemiologists
- Medical Consultants
- Public Information Officers
Phase I Pre-event Vaccination Clinics

- **State Responsibilities**
  - Receipt and delivery of vaccine
  - Establishment of regional consultants
  - Data registration
  - Training
  - Public education

- **Regional and Local Responsibilities**
  - Identification of public & hospital response teams
  - Clinic Planning
    - Site selections
    - Supply acquisitions
    - Staffing
    - Schedule planning
    - Supervision and evaluation
Making the Decision

- Vaccination is VOLUNTARY.
- Make an EDUCATED decision—Become knowledgeable.
- Personally weigh the risks and benefits.
- Obtain testing for contraindications if you have concerns.
- Persons previously vaccinated will shed less virus and may experience fewer side effects.
Contraindications

- Immunosuppression for any reason
- Eczema or atopic dermatitis or history
- Pregnancy or breast feeding
- Household members with above contraindications
- Allergic reaction to previous vaccination or vaccine ingredients
  - Polymyxin
  - Streptomycin
  - Tetracycline
  - Neomycin
  - Phenol
- Moderate or severe illness
- Persons younger than 18 years of age
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Administrative Leave and Sick Leave

- CDC recommendations do not require administrative leave from work.
- Vaccinated staff may be physically unable to work for several days.
- Employers must decide what their policy will be.
- Worker’s compensation decision regarding phase II coverage pending.
Post-Vaccination Site Care

- Cover vaccination site and any satellite lesions with gauze and semi-permeable dressing.
- Change dressing every 3-5 days and as needed when site is weeping.
- Long sleeved clothing recommended as additional barrier over vaccination site.
- Examine vaccination site each day to ensure complete coverage and seal of the dressing.
- If no contact with patients or high risk persons, may use gauze dressing only.
Post-vaccination Recommendations

- Practice good hand washing before and after each patient contact and after touching or dressing your vaccination site.

- Avoid touching the vaccination site.

- Vaccinee may provide care for persons without high risk if basic precautions are followed.
Post-Vaccination Recommendations

- Dispose of dressings in a sealed plastic bag placed in the garbage.
- May shower or bathe with vaccination site covered with a plastic barrier. Do not submerge the site in water.
- Launder clothing and towels in hot water with bleach.
Reasons to Exclude Vaccinee From Work

- Systemic symptoms.
- Vaccine-related complications.
- Inability to contain drainage from vaccination site.
- Inability to follow infection control practices.
Contact Precautions

- When treating patients with adverse events of smallpox vaccination, use contact precautions.
- Gown and gloves.
- Disposable equipment or dedicated equipment disinfected after each patient use.
- Environmental cleaning.
- Good hand washing.
Airborne Precautions

- If SMALLPOX is suspected follow contact precautions and airborne precautions.
- Negative air pressure room when hospitalized.
- Caregivers wear N 95 respirator.
- Only immune staff provide care.
- If unable to provide negative air pressure, the patient wears a surgical mask until transferred to appropriate room.
Decontamination

- For contact with vaccination site drainage or lesions (vaccinia virus) routine disinfecting agents are effective.

- Guidelines from CDC for decontamination after contact with smallpox (variola virus) are still pending.
References

- ND Department of Health website at www.health.state.nd.us
- CDC website at www.cdc.gov.
- Regional bioterrorism directors.
- State bioterrorism office 701-328-2270.
Guiding Principle

The public will need information that will help them minimize their risk.
Not Business as Usual

A public health emergency:

- Triggers a level of public interest and media inquiry that requires a response beyond normal operations and resources.
- Requires a significant diversion of department staff from regular duties.
Recent Events

- Anthrax concerns ~ 2001
- West Nile virus ~ 2002
Emergencies Are Media Events

- Emergency response would be hampered if media not involved
  - People rely on media for up-to-date information during an emergency
  - Media relay important protective actions for the public
  - Media know how to reach their audiences and what their audiences need
Psychology of a Crisis

Common human emotions may lead to negative behaviors that hamper recovery or cause more harm.
Negative Behaviors

- Demands for unneeded treatment
- Reliance on special relationships
- Unreasonable trade and travel restrictions
- Multiple unexplained physical symptoms
What Do People Feel During a Disaster?

- Denial
- Fear and avoidance
- Hopelessness or helplessness
- Vicarious rehearsal
- Seldom panic
Communicating During a Crisis

When in “fight or flight” moments of an emergency, more information leads to decreased anxiety.
Decision Making During a Crisis

- We simplify
- We cling to current beliefs
- We remember what we previously saw or experienced
How Do We Initially Communicate During a Crisis?

Simply
Timely
Accurately
Repeatedly
Credibly
Consistently
During an Emergency …

- Don’t over reassure
- State continued concern before stating reassuring updates
- Don’t make promises about outcomes
- Give people things to do
- Allow people the right to feel fear
  - Acknowledge fear in self and others
Avoid These Pitfalls

- Jargon
- Humor
- Personal opinions
- Speculation
Effective Messages

- Speed counts
- Facts
- Trusted source
Building Trust in the Message and the Messenger

- Express empathy
- Competence
- Honesty
- Commitment
- Accountability
Public Health’s Goal in Emergency Response

To efficiently and effectively reduce and prevent illness, injury and death and to return individuals and communities to normal.
Contact Information

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Questions?
During this Live program
Call 701-328-2614
or
Send E-mail
Following the Live Program
Call 701-328-2270 or Send E-mail to twiedric@state.nd.us

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