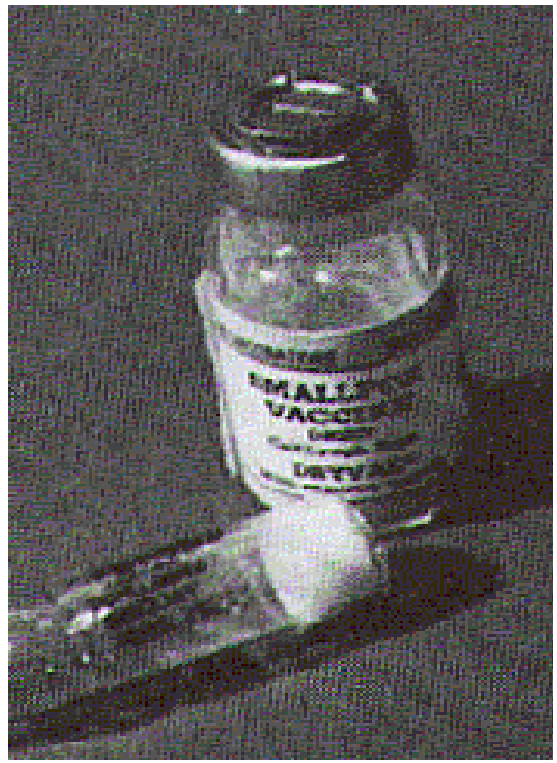
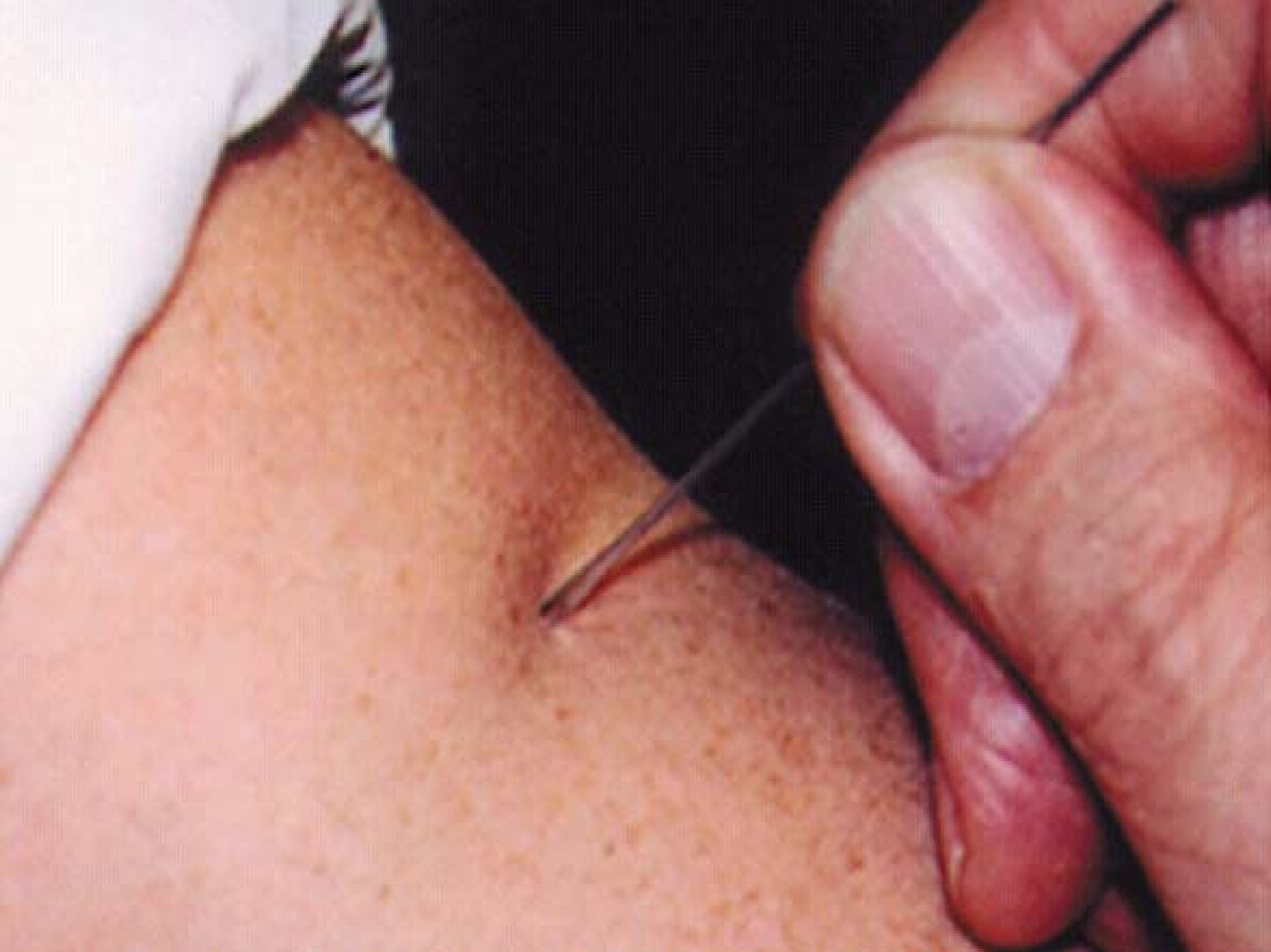
Smallpox Vaccination

- Made from live Vaccinia virus
  - Up to 150 million doses in US Stores
- Intradermal inoculation with bifurcated needle (scarification)
  - Pustular lesion or induration surrounding central lesion (scab or ulcer) 6-8 days post-vaccination
  - Low grade fever, axillary lymphadenopathy
  - Scar (permanent) demonstrates successful vaccination
  - Immunity not life-long
  - Reduces mortality if given within 4 days of exposure






Day 0
Day 3
Day 7
Day 10
Day 14

Eczema Vaccinatum

Vaccinia Necrosum

Smallpox Vaccination

- We will vaccinate
  - "Response Teams"
  - All ED/ID/hospital?
  - All HCW?
  - Entire population (AAP against it for kids)
- Should HCW's be furloughed?
  - Who works? Who pays?
  - What risk to families and patients?
- How and when to do mass vaxx?

Israeli data...?

Logistics of Vaccination

- Track people
- Track side effects
- Where to vaccinate?
- Who will vaccinate?

Who NOT to Vaccinate?

- Any contraindications
- Any contacts with contraindications
- ACIP recommendations?

- See NEJM Jan 30 2003

Smallpox: Vaccinia Immune Globulin (VIG)

- **Treatment of adverse reactions (AR)**
  - **Approximately 25AR's/100,000 vaccinations**
  - **AR rate may be increased due to higher immunocompromised population**
- **Post-exposure prophylaxis**
  - **Pregnant patients (VIG + vaccine)**
  - **Eczema (VIG + vaccine)**
  - **Immunocompromised patients, No consensus (VIG alone vs. VIG + vaccine?)**
- **Current supplies very limited**

Tularemia

- Francisella tularensis - non-motile, facultative, Gram-negative, coccobacillus
- Usually zoonotic - direct contact, fleas, inhalation, ingestion
- Intracellular pathogen

Avoid rabbits…

Tularemia: Clinical Forms

- **Ulceroglandular - Ulcer with regional adenopathy**
- **Glandular - Regional adenopathy without skin lesions**
- **Oculoglandular - Painful purulent conjunctivitis with adenopathy**
- **Pneumonic – fever, cough, SOB**
- **Gastro-intestinal**
- **Typhoidal/Sepsis**

Tularemia - Lesions

Tularemia

- Almost all exposed will become infected
- Only a small infective dose needed
- 5% of treated victims die, untreated mortality rate is 20 - 30%
- Recovery is followed by permanent immunity
- No person-to-person transmission
  - But warn the lab!

Specimen Collection: F. tularensis

Specimen	Comments
Serum for serology	Collect an acute phase sample as soon as possible after onset of disease. Collect convalescent phase sample 21-28 days after the acute sample. (1ml min.)
Nasal swab	Collect only within 24 h of exposure
Blood	
Sputum	Collect or induce specimen from symptomatic patients. Bronchial or tracheal wash may produce better yield.
Ulcer	Collect swab specimen from ulcer on skin or throat
Eye	Collect swab specimen if eyes affected

Q Fever - Pathogenesis

- Causes disease in animals (sheep, cattle, goats)
- Humans acquire disease by inhaling infectious aerosols