Smallpox

Topic today is SMALLPOX - The question might logically be posed as to the necessity of discussing a disease so esoteric in the USA when there is so much else to be covered.

How many of you, in fact, have seen a ~~the~~ case of smallpox.
No confirmed cases of smallpox in the US. in 17 years.

I would wager, however, that there are few here who have not been vaccinated. There are, in fact, about 14 million vaccinations carried out annually in the USA. In quite a number of states, vaccination before entering school is compulsory and in quite a number of school systems, this is quite rigorously enforced - as we learned personally in Balto. when we tried to enroll our eczematous non-vaccinated son - ~~a physician's certificate even if the physician happened to be Locke [illegible] excused vaccination~~ I always had the sense, in fact, when this subject came up with school authorities that we ~~[illegible]~~ were asking some sort of special dispensation to enroll a plague ridden child in ~~the sanitary school district~~ a highly aseptic school system.

Why all this nonsense about vaccination? ~~and why~~ and, in fact, why devote a period like this to smallpox?

First - a brief story as to what happens when smallpox is introduced into a country - the setting is Sweden - the year - 1963.

A number of outbreaks ~~in preceding [illegible] years~~ in 1962 in the U.K. - high mortality, several physicians included among the deaths.
Sweden - no cases ~~[illegible]~~ in over 30 years. Nevertheless alerted (1) sent two MD's to India to gain 1st hand acquaintance

~~no smallpox in Sweden in 3x years~~

with the disease (2) Hospital-vaccination program (3) General alert in the ~~hospital~~ medical community.

The 1st case — 1963 bricklayer — May 13
Onset 5/5 — (Never out of country, never vaccinated)
Severe prodrome, fever, headache, backache
~~Rash~~ Entered hosp. @ end of prodrome —
Went on inf. dis. ~~hosp.~~ ward — on ward 3-4 days c̄ rash. confluent, velvety lesions.
(? leukemia c̄ leukemoid reaction; Zetterberg said Spox.
5/13 — 14 cases c̄ onset by this time)
L-1

Aunt — living c̄ dead
IV
V Inf. dis. wards — 80 +
Traced contact

(SLIDE) Initial case —
24 year old seaman — sailing Indonesia
2 wks Australia clearing up LGV (no smallpox in Australia)
Flew back to Sweden
Transit at Djkarta, Calcutta + Karachi. (endemic areas but no known contact). Arrived Stockholm 3/23 stayed c̄ g. mother
13 days after the flight — April 6 — mod. fever + mild rash
not seen by M.D. — stayed @ home 1 wk. ?30 lesions face, arms, face.
→ Vaccination history — sev. times — 3 yrs before V+RV.

2 wks. later 4 cases developed
1. 80 yr. old grandmother — Hosp. teaching case etc.
Stockholm Inf. Dis. Hosp. by the Prof. of Inf Dis. Hosp. to med. students
2. 58 ♀ died fulminating hem. dis. — 4 days p̄ onset.
P.M. done — c̄ 2 pathologists + med students in attendance.
3. 24 ♀ girl friend, mild headache, sl. fever — no rash
retrospective sero. dx.
4. 24 ♀ sister Seen by M.D. @ home; dx as chickenpox Prev. vaccinated 1943.

— headache + fever
Rx c̄ sulfas → rash.
transferred to dem. ward.

~~? 6 additional cases (18 in all by time 1st case recognized)~~

Epidemic continued to total of **25** cases 4 deaths despite heroic efforts on part of Swedish authorities. Control procedures in brief:

Ring vaccination - 400 community; 3000 incl. hospitals.

Quarantine - 3000 CLOSED 3 major hospitals - at least 3 weeks each

> 600,000 presented for vaccination despite efforts to keep the public within perspective.

What does all this tell us? ① Nothing in this case hx is unique or unusual - it could happen here - this week, next year. Travel ↑; poor dx acumen in this country.

② Late recognition - 1st case not suspicious epidemiologically ~~SLIDE~~

~~1. Smallpox - still a lethal disease~~

~~2. Can be introduced into a country sensitized to the problem and cause no end of disturbance until finally brought under control.~~

~~? ЛИ U.S. recognition earlier~~

~~3. 1st case - just travelled abroad - not in contact with any known cases, etc.~~

3. Hospital transmission + family members. SLIDE (S-1)

U.S. still nowhere near as well vaccinated in the hospitals as Sweden

4. Still a lethal disease (S-2)

5. Ring vaccination effective - mass approach. Statistics

Each year - we are faced with diagnosis of at least 20 - 30 cases of suspect smallpox in the U.S. - emergency (? third generation case). Each of you in the EIS, esp. those assigned in states will face the same. ~~For each of you in the EIS, you undoubtedly will be called in to see suspects.~~

~~Briefly, what are the characteristics?~~

Diff dx - Hx: travel or known contact.

Briefly - let us review clinical features of Spox + Cpox - most commonly confused (Smallpox in general V. MAJOR vs. V. MINOR)

PRODROME	"FLU" - ++ note backache. 2-5 days	+/++ 0-2
RASH	MULTILOCULAR deep, shoddy, hobnailed ~~[illegible]~~ c̄ narrow reddened base.	UNILOCULAR "dew drop on a rose petal" (i.e. superficial - erythema.
	CENTRIFUGAL	CENTRIPEDAL
	(comment re: palms + soles)	
RASH EVOL.	1-2 days mac. prog. pap. → VS → pustule → scab SIMILAR LESIONS ~~similar in area~~ taking > 7 ~~day~~ - 10 days	2-5 days "crops" DISSIMILAR LESIONS ~~[illegible]~~ evolve - some fast, some slow. Scabs in area where vesicles. c̄ in 2-3 days.
FEVER	BIPHASIC	Drops 24-48 hrs. p̄ rash.

5-3	(14)	Day ~~1~~ 2	papular (? vesicles) - uniform.	
4	(15)	4	umbilication	
5	(16)	6		
6	(17)	8	pustules	
7	(21)	8 - Legs		
8	(18)	8 - trunk		note - centrifugal
9	(19)	10	more umbilication	
10	(23)	12 - legs	scabs -	note - soles of feet

More ~~severe~~ cases - benign confluent - (U.K. 1962)

S-11 Note hemorr. at base some lesions, oedema.
S-12 Same individual 2 mos. later

Hemorrhagic cases - virtually always fatal - NO typical RASH
S-13 1st day, Cyanotic erythema of upper face. Hem. papule over sternum. Died in 48 hrs.
S-14 Another case 5th day - purpuric eruption. Survived 5 days.

Lest we not forget -
Soccer player who used the jersey of a player recently vaccinated.

Many cases may be atypical - modified by vaccination - no point in going into the many variations possible - Then represent ~~the type~~ 90%+ of cases seen in usual epidemic.

May I reiterate: A suspicious case is an emergency
Confirmation is needed.
If question - call CDC.

~~Of recent date~~ -
So much for clinical story -
What of vaccination - very vocal proponent from Colorado who says "abandon" it - causing several hundred deaths a year - now have anti viral compound MARBORAN & control outbreak should it recur. Question posed to you in the state.
Any medical procedure carries with it some risk - risk of using must be balanced vs risk of ~~abandoning~~ disease process.
Let us look at the problem.

Risk of disease: (discussed - problem to assess)
1. Travel, military
2. Failure to recognize 1st cases.

Risk of ~~disease process~~ vaccination -
1. Neff data (SLIDE) L-2 3 4
2. Half of cases preventable; High rate in <1 yr.
3. ↑ risk c̄ adults
~1-2 million annually requiring 1° vaccination

Alternative
1. VIG. - short supply, contacts must be recognized.
Marboran - experimental, must recognize.

Concl.: Must continue vaccination but several things might be done. ~~Contraindications eg. eczema & pregnancy~~
~~Sec. > 1 yr.~~

1. Global eradication 5-15 (SLIDE)

2. Vaccinate >1 yr.
3. Observe contraindications - esp. eczema.
4. Specifics re: vaccination
   1st - ~~at~~ between 1st + 2nd birthdays.
   Revac. - at school entry
   Thereafter - q. 10 yrs. adequate.
   Lyophilized vaccine - ! imports.
   Hospitals. - !