

Spx erad.

- One lesson learned

SMITHSONIAN EDUCATION

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HATHAWAY MED. SCHOOL GRAND
ROUNDS

DA Henderson

let me begin more or less at the end of the story - 1980 - and progress
both ~~forward~~ backward & then forward in time.

① Declares solemnly --

② Vaccination stops

- Last chapter for a disease which extends back in time at least ⁴⁰⁰⁰ ~~4000~~ -
probably originated soon after the first settlements - 10 000 $\pm$ yrs. ago.

③ Pharaoh Ramses V died 1157 B.C.

two cart. or mummies some 200-400 yrs. older.

Over time, almost certainly the most ~~for~~ lethal of the pestilences known to man.
+ Spread readily in every climate / any season.

+ Essentially everyone eventually acquired the disease - mortality 25-40%

Central Europe - naming of children. // 4A Gods/Gods - Father Matri

④ MacAulay - History of England

4B Saponia

- M. Kinnaird story

⑤ Jenner - 1796

⑥ Cowpox pustule.

Hailed as perhaps the most significant medical discovery of all time. - 18th vaccine
Req. of immun.

- Within 5 yrs. - cowpox transported across the world - arm to arm vac.

A time of sailing ships but a time before we had the FDA

What ^{was} the disease like -

A virus - transmitted by droplet spread - person to person
Incubation period 10-14 days. / fever

- ① Smallpox - day 2
- ② " - day 9
- ③ " - day 20
- ④ Blindness - a common problem

Many problems in using the Jenner concept -

Most important - Thermostability / growth on culture → vaccine

By 1950s - most industrial countries free & some develop. ones.

WHA - 1959 - Soviet Union proposed eradication.

little enthusiasm - little support - actually thought not doable.

~~1966 Decision~~

- ① WHA - 1966 - Decision to ^{provide} support for a 10 year program

- Why 10 years

- $\uparrow$ support = $\$2.5 \times 10^6$ = \$50 000 per country.

- ~~Decision~~ by 2 votes (closest in history)

Why? Discouraged by malaria / Rene Dubos 1967 Book 'Man Adapting'

- ② Status - 1967

$10 - 15 \times 10^6$ cases

$2 - 2.5 \times 10^6$ deaths

Concentrated in poorest countries & most limited in infrastructure

Note: all industrial countries cooperating at this time incl. U.S.

Strategy - Vaccination & Surveillance

• Vaccination of 80%

Why 80% - Quality control

~~Vaccinability~~
(13) Vaccines vials

Many producers - ~~the~~ One of 1st stops quality control. - terrible
1967-73 - 80% produced in developing countries

(14) Bifurcated needle. - greatest invention - Ben Rubin -
Sotnick model

Surveillance -

(15) Every case a failure.

Surveillance system - every health center / every unit.

Surveillance teams to investigate cases/control outbreaks.

~~2. 10. 15~~

Manpower + management

3 Assumptions: ① An army of workers under a military command structure in Geneva.

② Eirentico - eager & willing to participate

③ Unlimited flow of funds

① Army - General HQ - 5 professional staff + 2 secretaries.

50-100 interactional stuff in all

⑤ Countries - not eager & willing - INDIA'S INTEREST

Pakis Tan
Procs (16)

③ Flow of funds - all countries ask to make voluntary contributions

PS 403. - \$100.00 in cash

~~Near the top of the growth~~

- No lack of personnel in the developing world - dispirit & redundancy

Vaccination + sup. - containment.

- (17) 1967 - status
- (18) 1970 - CBC
- (19) 1973

"Only India Pakistan Bangladesh" - but 700×10^6 people
travelling frequently.
containment not working.

Summer of 1973 - Search - village/village → house by house
150 000 - 200 000 health workers

- (20) Results of 1st search in one state of India
50% of villages searched.
- (21) Asia 1974 - 1975

- (22) Ethiopia -
An area - equivalent to all ^{states} ~~countries~~ in Eastern Savannah
750% of population lives 73 days walk from accessible road.
- (23) Road in Ethiopia
- (24) Bridge in Ethiopia
- (25) Rebels + ransom note

Spread to Somalia -

- (26) Last case Oct 26 1977 10 yrs. / 9 mos. / 26 days.

Two years of intensive surveillance to reward
International Commissions to visit each country.

Not the end of the story / rather, the beginning
Follow-on

1970 - Expanded program of immun. promoted why?
Adopted 1974

1983 Became a pillar of UNICEF's Child Survival Program.
→ 1991 - 80%

1985 Decision to eradicate polio in the Americas.

Aug 1991 Last case of polio in the Americas.

Now - a global program for ^{polio} eradication.

Plans now for strengthening and expanding immunization - World Bank / WHO As Rep.
on Health
" ~~most cost~~ " single most cost-effective measure in medical armamentarium & simplest to execute "

President's Immunization Initiative is one important component of a global effort.

> 90%

> 5 polio / diph / tet. / M M R / hem. inf.

↑ funding for research on vaccines