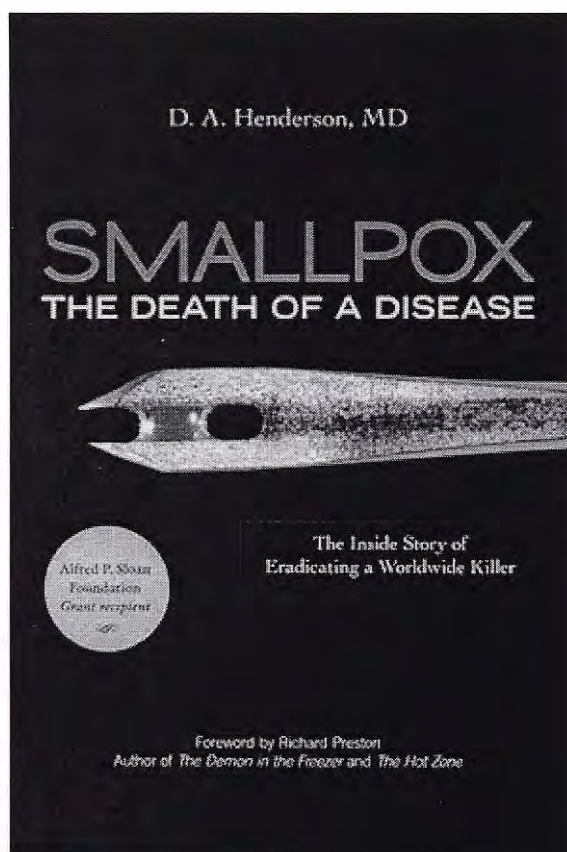


Next Event

Elucian Islands

Smallpox: The Death of a Disease



Location: Amphitheatre

Date: Tuesday 3rd November

Time: 6pm GMT / 10am PST

Contact: Joanna Wombat

For more than 3000 years, hundreds of millions of people have died or been left permanently scarred or blind by the relentless, incurable disease called smallpox. In 1967, Dr. D.A. Henderson became director of a worldwide campaign to eliminate this disease from the face of the earth.

Regular Events

Title: Nature Podcast in Second Life

Date: Every Thursday

11am PST / 7pm GMT

Location: Rooftop Cafe

Every Thursday at 11am PST (7pm GMT), the Nature Podcast is broadcast at the Rooftop Cafe on the Elucian Islands, Nature's home in Second Life. The event is free and all are welcome to come and listen to the Podcast and chat with other science enthusiasts.

More details

Recent Events

The Source Event

25 September 2009

The careers fair for scientists from bench to business

The Nature Debate: Science and the Financial Crisis

21 September 2009

Science and the Financial Crisis

Plastic Fantastic

11 August 2009

On November 3rd at 10am PDT, Dr Henderson will join Nature Publishing Group in the virtual world Second Life to tell his personal story of how he led the World Health Organization's campaign to eradicate smallpox - the only disease in history to have been deliberately eliminated.

How the Biggest Fraud in
Physics Shook the Scientific
World

[go to archive](#)

In his **new book** on which this lecture is based, Dr. Henderson tells how the gargantuan international effort involved more than straightforward mass vaccination. He and his staff had to cope with civil wars, floods, impassable roads, and refugees as well as formidable bureaucratic and cultural obstacles, shortages of local health personnel and meager budgets. Countries across the world joined in the effort; the United States and the Soviet Union worked together through the darkest cold war days; and professionals from more than 70 nations served as WHO field staff. On October 26, 1976, the last case of smallpox occurred. The disease that annually had killed two million people or more had been vanquished - and in just over ten years.

The story did not end there. Dr. Henderson recounts the continuing struggle over whether to destroy the remaining virus in the two laboratories still that held it. Then came the startling discovery that the Soviet Union had been experimenting with smallpox virus as a biological weapon and producing it in large quantities. The threat of its possible use by a rogue nation or a terrorist has had to be taken seriously and Dr. Henderson has been a central figure in plans for coping with it. New methods for mass smallpox vaccination were so successful that he sought to expand the program of smallpox immunization to include polio, measles, whooping cough, diphtheria, and tetanus vaccines. That program now reaches more than four out of five children in the world and is eradicating poliomyelitis.

In this live event, Dr Henderson will talk about all of this and more, for about 45 minutes and then take questions from the audience. The event is free and open to all, so please do come along to hear this fascinating story. To attend the event, you will need to register with Second Life. Registration is free and easy: to get started, go to **Second Life** or read our **Beginner's Guide**.

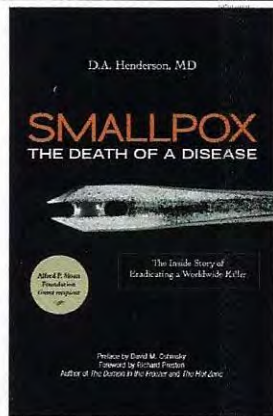
About Elucian Islands Events

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How to communicate using voice

Smallpox: The Death of a Disease

D.A. Henderson, MD, MPH
Professor of Medicine and Public Health
University of Pittsburgh

Elucian Islands Lecture
3 November 2009



"There has been no greater medical or humanitarian miracle in modern times than the eradication of smallpox... This book is more than a riveting account of the day-to-day struggle for international cooperation in a divided world; it offers a winning blueprint for the great medical challenges to come."

David Oshinsky - Winner of the 2006 Pulitzer Prize in History

Pleasure - speaking with you from the
Elucian Islands - a new experience for me.
I suspect none of you have ever seen a case of
smallpox - It has been 32 years since the last case
and to some it is only a vague memory
of a sort of rash disease, mostly in the tropics

Most devastating of all diseases ever known to man -
far more than measles, yellow fever, or
plague or cholera.

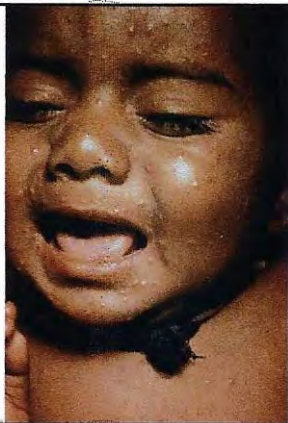
Smallpox, the disease

- Caused by a virus
Spread is by face-to-face contact during the time of rash
- Only humans can be infected
A chain of infection going back to the Pharaohs 3500+ years
- Death rate is 30%
There was no treatment

Sitala Mata

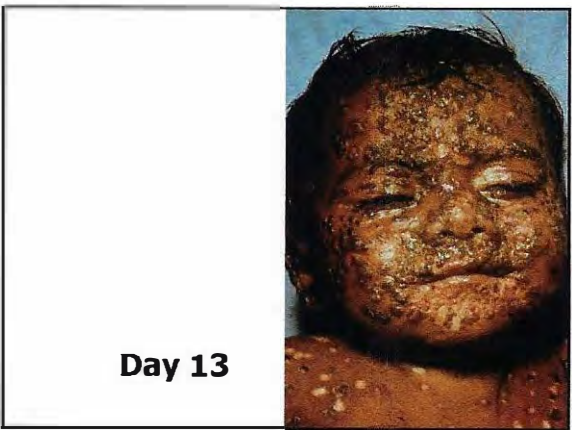


Day 3









Smallpox in the 20th Century

- Deaths – 300,000,000 before 1978
NYTimes: 120,000,000 died either directly or indirectly as a result of armed conflict
- Compulsory vaccination in the U.S. until 1972
Last U.S. case was 1949
- International travelers carried a “yellow booklet” documenting vaccination in past 3 years

The birth of the a WHO global program

- Director General submits a plan to World Health Assembly-- May 1966
10 year program – WHO budget of \$ 2.4 million/year
- Objections by delegates
 - Not feasible
 - Demand for no further increases in WHO budget
- 58 votes needed to pass; 60 voted in favor

A Director is selected

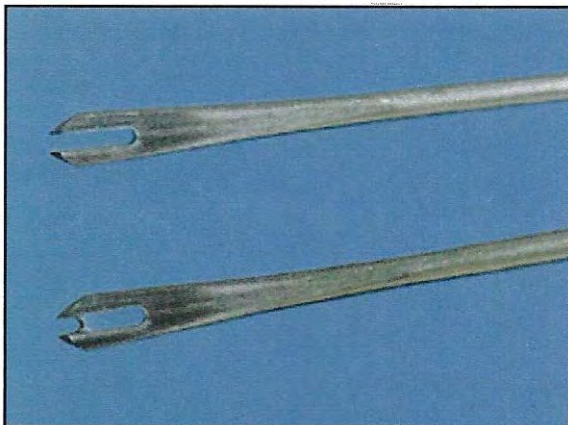
- Director General believed program would fail
Malaria eradication program was collapsing
WHO and public health credibility was threatened
- He demanded that an American serve as Director
The candidate was reluctant to accept:
 - A number of nations did not believe eradication possible
 - Budget was too small even to purchase needed vaccine
 - Inexperience in operating an international program

The Challenge

- Status of smallpox – 1967
 - >10,000,000 cases
 - 2,000,000 deaths
 - 43 countries reported cases
- Program staff
 - Headquarters – 6 professional staff, 3 secretaries
 - Regions – one each in 4 WHO Regions
 - International staff – never more than 150

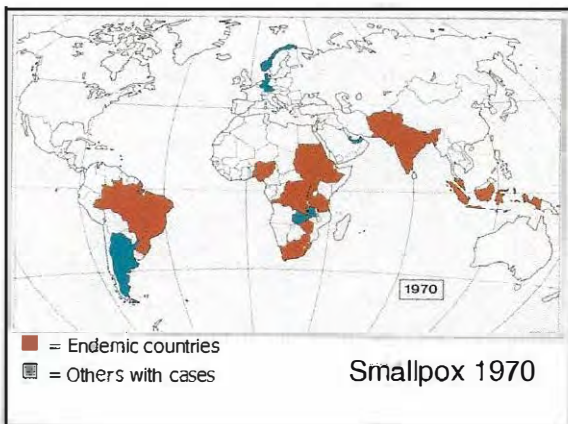
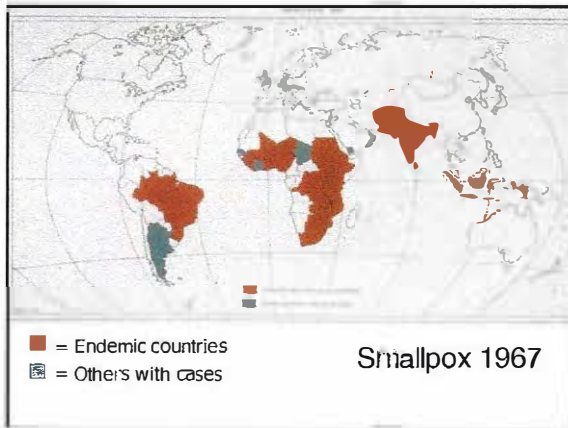
A new technique for vaccination

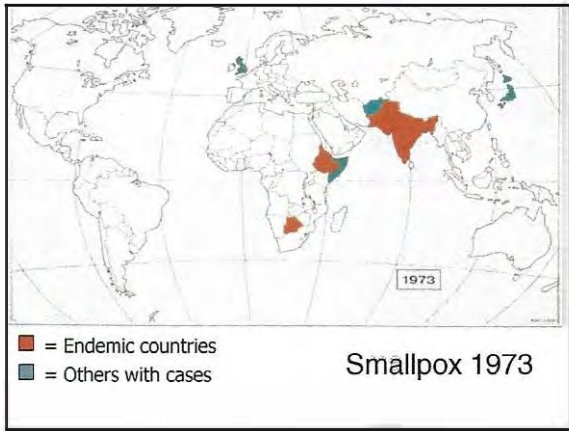
- Need for a more rapid, effective method
 - Traditional
 - scratch through a drop
 - Bifurcated needle—multiple puncture method
 - One-fourth as much vaccine required
 - Training time -- 15 minutes
 - Easily sterilized and reused
 - Cost -- \$5 per thousand



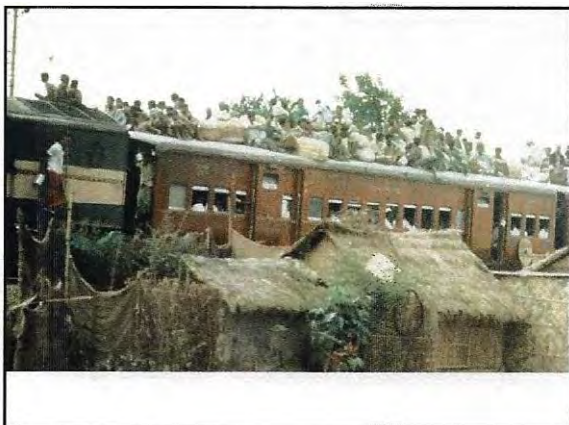
The strategy

- Vaccination of 80%
- Surveillance
 - To obtain a weekly report from every health center and hospital
- Containment
 - “Fire-fighting teams”
 - Investigate every case
 - Contain outbreaks with ring-vaccination









A new strategy – June 1973

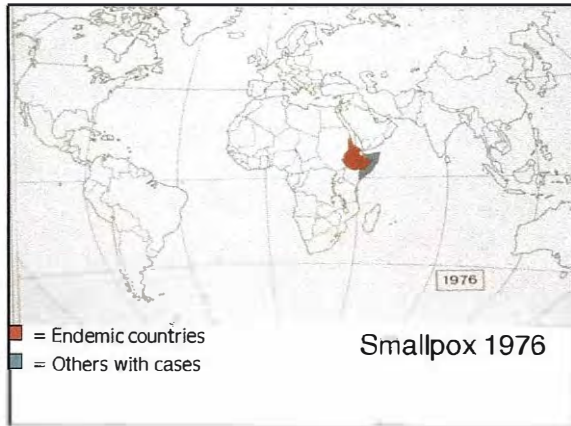
- Search every village in India in 10 days
 - Population—550 million people
 - 120,000 health staff required
 - Containment teams to go to every outbreak
 - By the third round, every house was to be visited
- Catastrophic problems Jan to May 1974
 - Gasoline crisis
 - Strikes -- railroads, airlines, some health workers
 - Worst floods in three decades
 - India detonates an atomic weapon—May 1974



Indian Independence Day August 15, 1975

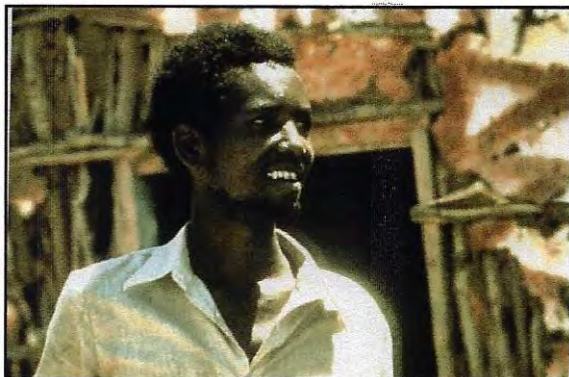
Prime Minister Indira Gandhi

- Salutes India on its 28th Anniversary
- Announces India's freedom from smallpox for the first time in written history



The Final Chapter

- Ethiopia -- 25 million people
 - Size of France and Germany combined
 - Few roads – travel on foot and with donkeys
 - Marxist revolution and continuing civil wars
 - Teams kidnapped on nine different occasions
 - Program helicopter captured and held for ransom
 - Smallpox staff -- only foreigners allowed out of Addis
- Somalia
 - Nationwide epidemic – government suppressed reports
 - A race to the finish before the Hajj migration



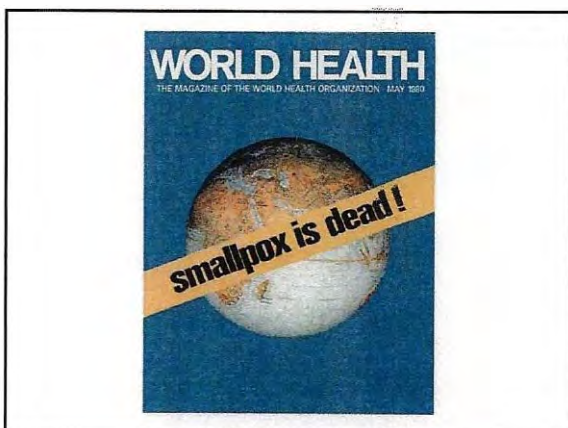
Ali Maalin - 26 October 1977



World Health Assembly --1980

- Declares solemnly that the world and all its peoples have won freedom from smallpox
- Smallpox vaccination should be discontinued in every country

» *Thirty-third World Health Assembly, 8 May 1980*



Meanwhile, we expanded horizons

- 1974

- An Expanded Program on Immunization

- A global program to vaccinate all children vs. smallpox, measles, polio, pertussis, diphtheria, tetanus

- Target: 1990 – 80% coverage: achieved

- Polio and measles – eradicated from the Americas

- Deaths in those under 5 fell dramatically

- From the book's introduction:

We are only beginning to realize the potential of public health...It is a field begging for fresh, resourceful ideas and a new generation of staff who are not constrained by 'knowing' what can't be done. So it was with those who contributed so much to achieving smallpox eradication. Their stories, as well as mine, constitute the heart of this book.

