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Event Sponsor	Defense Science & Technology Laboratory (DSTL), Porton Down
Event location	Bath, England
Notes	
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15th August 2002

Dear Prof. Henderson

Subject: Dangerous Pathogens 2002 Conference

Thank you for agreeing to give a presentation at the forthcoming Dangerous Pathogens 2002 conference. Your presentation titled "Eradication of Smallpox and Polio" has been placed in the Prophylaxis and Treatment session on Day 3 (Wednesday 11th September) at 10.30am.

Change of Venue

Due to problems regarding security arrangements for the Dangerous Pathogens 2002 conference, Center Parcs are no longer able to offer us facilities for this conference. As a result of this, the venue for the Dangerous Pathogens conference has now moved to the Hilton Bath City Hotel, Bath. The dates of the conference, 9-11th September, remain unchanged. I would like to apologise for any inconvenience caused due to this venue change and hope that you will still be able to present at our conference. If this venue change does pose any immediate problems please let me know.

Hilton Bath City Hotel

We have made the appropriate accommodation reservations at the Hilton Bath City Hotel for you. If as a result of the venue change you would like to alter your accommodation requirements please let me know. Weekend accommodation will now include bed & breakfast. Other meals taken during the weekend are at the speakers own cost. Please note that unlike Center Parcs, weekend self-catering will now not be possible at the Hilton, however Bath has many places to eat with a range of prices, styles and cuisine's. Facilities at the Hilton Bath City Hotel include a small indoor pool, sauna, steam room and gym available to all residential guests. The hotel has 50 car-parking spaces available and a public car park 10 minutes from the hotel.

Directions

For directions and transportation advice we would advise you to make use of the Hilton Hotel route planner found within the "find a hotel" option of the Hilton Hotels website (http://www.hilton.com/en/hi/geo/uk/index.jhtml). The Hilton Bath City Hotel is situated in the heart of Bath City centre within walking distance of the Roman

Baths, the Pump Rooms and the Royal Crescent. It situated only half a mile from the railway station and a 30 minute drive from Bristol Airport. The address is

Hilton Bath City Hotel
Walcot Street
Bath
BA1 5BJ
UK

For further details on train times and routes can be obtained from
www.rail.co.uk/ukrail/planner/planner.htm

Evening Events

Due to the change in venue, there will also be a change to our Monday evening plans and a Welcome Dinner at the Hilton Bath City Hotel will now replace the Welcome reception. Both the conference dinner on Tuesday evening and the Drinks Reception and tour of Longleat House on Wednesday evening will both go ahead as planned. Coaches will be provided to Longleat House on Wednesday evening. If you previously expressed interest in attending any of these events and are no longer able to attend please let me know.

Reservations

We have made the following reservations on your behalf

Accommodation

Double Room for yourself and your wife at the Hilton Bath City Hotel for the following nights

Saturday 7th September
Sunday 8th September
Monday 9th September
Tuesday 10th September
Wednesday 11th September

Evening Events

Welcome Dinner
Conference Dinner at the Pump Rooms
Drinks Reception and Tour of Longleat House

If you would like to amend the above reservations please let me know

Conference Programme

Please find attached the current conference programme for your interest

Press Enquiries

Due to the date and nature of the Dangerous Pathogens 2002 conference it is possible that we may attract press enquiries. The Dstl press officer will be available at the conference to deal with such enquiries, however if you have any concerns regarding this matter please do not hesitate to contact me.

~~[illegible]~~ ~~[illegible] Polio – I will discuss [illegible] been [illegible] [illegible] for the future.~~ U.K. Eradication of Smallpox and Polio

36 years ago – WHA ~~decided~~ debated as to whether to embark upon a program of SE.

Proposal by USSR – joined by USA in 1966

There were serious doubts — Promise – eradicate organism – a program of large investment c̄ costs much larger than control – but then could stop all control measures, thereby recouping expenditures

① Money 2.4×10^6

② Questions about eradication as a feasible concept.

EL.OE PUBOS

WHA decided by 2 votes to provide 2.4×10^6/yr. – 10 year time

S–E – was launched. It concluded in 1980 – total intl. costs $100 million.

In 1988, a global polio eradication program was launched. It is still in progress. The costs ~~so~~ so far are $1.5 billion.

Examining the status of these 2 diseases today and the outcomes as presently measured it is clear that ~~[illegible]~~ the ~~product~~ ~~[illegible]~~ prospect has been far less salutary than what the optimists had dreamed and, although better than Dubos' gloomy prediction, it seems clear to me that ~~[illegible]~~ there are indeed weighty factors that now ~~that make it clear that disease eradication, for the foreseeable future, deserves to be [illegible] as a strategy for dealing with disease;~~ need to ~~[illegible]~~ be considered

Then I have been asked to explore with you today

Of all the potentially eradicable diseases, there is little question but that there were many more attributes that favored the success of SE than any other infectious agent. These I would propose briefly to remind you of. The next most likely candidate for eradication was, by general consensus, ~~[illegible]~~ polio. From the beginning, erad. of polio was recognized to be a far more difficult proposition for reasons I will elaborate – and, today, it is a struggling program – 2 years beyond its original target date and this year it will miss its second target date of Dec. 2002.

OVERHEAD

U. K. Eradication of Spox and Polio

(1A)

- Gratitude
- Subject - the erad. progs. for spox and polio - a successful erad. effort in its 14th year - and the relevance these might have for the future, disease control efforts.

As I will argue - these progs. and the challenges the 2 diseases (may) pose for future policy are of the greatest relevance. The realities and implications, however, have in substantial measure, been ignored ~~(in a ...)~~ or ~~openly~~ in some circles - even suppressed.

Note parenthetically

- In my career, I have been deeply immersed in smallpox (erad.). But, in fact, I have devoted almost as much time to polio beginning my career at CDC as we wrestled with the 1955 Cutter disaster when, in the early weeks of its use, > 200 cases.
  - I/c of polio surveillance as OPV was introduced and we documented that the vaccine could occasionally revert to virulence.
  - Since 85 Chair of PAHO TAG. - that recommended an erad. prog. for the Americas and worked c̄ de Quadros to devise the strategy which resulted in the erad. of polio from the Americas in 1991 and was adopted by WHO for the global program.

~~Protected labs. & destroy [illegible] the [illegible]~~

What is the message?

~~FOR SPOX~~

- There was the hope that with the eradication of smallpox, we should never again have to be concerned about its reappearance. We were naive
- We now know that there are stocks of spox virus and there is a risk – small but definite – of potentially catastrophic if we cannot contain its spread.
- Vaccine is needed ~~and~~ for emergency purposes and some would argue for at least partial reinstitution of vaccination. In brief – eternal vigilance is critical and a supply of vaccine ever ready for possible use

FOR POLIO – The problem is more serious – even if natural transmission appears to stop.

+ Long-Term carriers
+ Revertant strains of OPV – arising for years
+ ~~[illegible]~~ Countless labs. c̄ specs. that might contain polio.
+ Possibility of synthesis of virus strains. (as recently reported)
+ IPV production facilities
+ Many areas where 3 yrs. of ~~surveillance~~ careful surveillance is impossible

~~Any~~

~~[illegible] two vaccines, IPV and OPV, only one is effective [illegible] epidemic [illegible] the [illegible] have stocks of OPV available.~~

In brief, eradication ~~of [illegible]~~ the dream of the next most likely virus candidate has faded and can ~~[illegible]~~ now be perceived only by ~~[illegible]~~ romantics.

The lesson: Best we apply our resources now to developing improved vaccines both for polio and smallpox. and, in the end, to acknowledge Rene Dubos as having been perceptive nearly 40 years ago. Eradication programs properly should be consigned to library shelves.

Reflections on Eradication

"Eradication involves a new biological philosophy. It implies that it is possible and desirable to get rid of certain disease problems by eliminating completely the etiological agents, once and for all…. Social considerations, in fact, make it probably useless to discuss the theoretical flaws and technical difficulties of eradication programs, because more earthy factors will certainly bring them soon to a gentle and silent death…eradication programs will eventually become a curiosity item on library shelves, just as have all social utopias."

Man Adapting, by Dr. Rene Dubos (1965)

Key Attributes in Smallpox Eradication I

- Vaccine
  - Inexpensive
  - Heat stable
  - Production in endemic countries
  - One dose
  - Protects against all strains
  - No reversion to virulence
  - Easily stored for 45+ years
  - International quality control
- Vaccination
  - Simple, easily taught

Comparison of Key Attributes of Smallpox and Polio Eradication I

Smallpox	Polio
Vaccine	
Inexpensive	Inexpensive
Heat stable	Very labile
Production in endemic countries	No
One dose	5+ OPV: 4+ IPV
Protects against all strains	3 vaccine strains
No reversion to virulence	Reverts
Easily stored for 45+ years	c. 5 years
International quality control	Partial as of 2001
Vaccination	
Simple, easily taught	Same

Key Attributes in Smallpox Eradication II

- Surveillance-Containment
  - Visible rash – all cases
  - Readily diagnosed
  - Minimal demand for lab
  - Targeted containment
- Epidemiology
  - Transmission only by cases
  - No long-term carriers
  - Moderately contagious
- Research
  - Active throughout program

Comparison of Key Attributes of Smallpox and Polio Eradication II

Smallpox	Polio
Surveillance-Containment	
Visible rash – all cases	1/200 with paralysis
Readily diagnosed	Flaccid paralysis problem
Minimal demand for lab	Heavy lab demand
Targeted containment	Area-wide campaigns
Epidemiology	
Transmission only by cases	Primarily by asymptomatic
No long-term carriers	Some for 10+ years
Moderately contagious	More contagious
Research	
Active throughout program	Very limited

Possible Reservoirs of Virus

- Polio
  - Areas where surveillance is limited or not possible
  - Long-term carriers
  - Revertant strains of the oral vaccine
  - Any of numerous diagnostic and research labs
  - Any of countless labs with fecal specimens in storage
- Smallpox
  - Laboratories in the U.S. and Russia
  - Unknown labs in other countries

ENHANCED FUNDING FOR ANTI-TERRORISM EFFORTS

State and Local Assets

Federal Government Assets

Research and Development

II. Prepare Health Care System to Respond to Intentional Epidemics

- Train clinicians to diagnose, treat, and report cases
- Enhance diagnostic capacities of laboratories
- Equip health care system to handle mass casualties
- Integrate hospitals into community-wide response