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Immunization
World Bank Remarks
Baltimore
Dec. 1 1992

Immunization programs

Global prog. in immun. has been and remains today centerpiece of child survival program.

Not surprising – as paper points out – immun. represents the single most cost-effect and most readily applied health intervention which we have today.

Hx – slide

Antigens – slide

With advances in bio medical research & biotechnology, excellent potential for
- many more effective antigens
- more antigenic, i.e. only 2 or perhaps 1 dose & protect for life
- more heat stable
- able to be given as combined vaccines and by mouth.

Potentially At the beginning of a revolutionary era in disease prevention.

1990 CVI launched c intent of advancing this dream

After 2 years – a reality check that there is trouble in Paradise – realities which apply to every real or potential intervention we are discussing at this Conference.

To simply maintain what has already been achieved will require imaginative and heroic efforts.

The problems being encountered are embedded in the history of development of EPI.

Simplified scheme of vaccine dev. & application

SMALLPOX PROGRAM

EPI beginning – Application only
no research or development in vaccines
~~surveillance, etc.~~
~~Production and quality control – UNICEF + Biol. Unit.~~

1985 Prog. Vac. Develop. – another unit.
Supports good basic research + limited early develop. research.
Not concerned c program needs –
None of the vaccines – fully satisfactory antigenic / heat stable
except e.g. OPV.

Research – some support by such as NIH and other national rs. efforts.
Little support for development.
No effort to develop national capacity for vaccine production
or self-sufficiency (except Americas)
No effort to develop quality control – other than UNICEF provided
CVI com. study now reveals 70% of DPT produced in
third world. (? WHO authority & invoke standards)
Some estimate that as much as 40% of locally produced
DPT meets standards – my estimate (spo oppor.)
little recognition that vaccine may not be satisfactory – because
No effort ~~date~~ to develop surveillance until very recently.
Prodded by Americas – polio surveillance
Finding – type III problem.
Americas – now c 20 000 reporting units / weekly

Prod + dual control undermined biologics unit + UNICEF product

Program – EPI
A vaccine application program not a disease control effort.
During the spx era – we referred to such programs as SE-India-1964
enormous effort vaccinating not a number equal to one-tenth of the pop. annually
Chicago – epidemic in New Delhi where 120% of the pop. had been vaccinated

Problems – now in early stages of discussion –

Consensus – Need for integration of management & bring under one control authority Prog. operations (incl. storing recv. components), research (incl. vaccine development), vaccine production strategy, and vaccine quality control.

? whether this might apply to other programs.

Emerging Consensus – Vaccines (and vaccination) may need to be dealt with in a special manner.

Vaccines – not generally attractive to commercial sector – not especially profitable even for those vaccines & result in dev. countries

How to expand capacity, how to bring new vaccines on line

Priv. sector – not interested in contract res. or production.

However valuable as a legal case interaction

Public sector is now quite limited –

III. of problems – acellular P – Incorporate in one

Vaccine containing Hep B and Hemin in DPT – 70% of DPT in dev. countries.

New vaccines – who is to produce?

If assistance for vaccine prod. to be provided – what standards?

U.S. – code for GMP or other

note: USSR initiative.

Priorities in development – vaccinia recombinants.

SURVEILLANCE
World Bank Review
Baltimore
Dec. 1. 1992 (Slide)

Hard to make judg. as to what are important problem.
B/ mg. Bill Game, Knowing problem.
smallpox - Eth.
Rockefeller - Ken Warren

Surveillance - (CHe, Jenner, Quetelet & Farr)

A simple, straightforward concept which ADL pioneered at CDC.
Intended to provide at least a crude indication of trends and epidemiological patterns in incidence of the disease problem for which control measures are being applied.

Note: outcome measures such as ~~these~~ are exemplified in surveillance are still little known and little used in health care systems.

Why? Such data are seldom used. ~~Ours is a sick care systems.~~ but if data such ~~My own ... could tell you little or nothing~~ as are provided by surveillance were used for programming, or for allocation of resources - structure could change rapidly.

Second reason - disdain by many epidemiologists for data which are not on a computer, and the proliferation of computerized sys. shoe leather epidemiologists - HIV infection

Points:
- Reporting sites - how many - as many as can be persuaded.
  hospitals - yes (special measures); clinics
  how frequently - for inf. dis. & action implied - weekly
  impossible - smallpox - 1 to 2 yrs. in a country.
  polio in Americas - 20 000 units > 90% on time weekly
  amount of data - minimum necessary - no more than that on one-line. at most
  academics - one page form → 2, 3 pages.
  Spx - no fatality data - not necessary
  VP Ford Motor Co. - daily report on operations - one page of data.
  Key symptoms or indicators of total functioning to be followed up prn.
  ~~Compilation and~~
  Are all cases reported - no!; what proportion of total - interesting but not critical
  BAD
- Compilation and interpretation -
  Usually confined to archives
  Geographical concentrations; indications of age affected; ? vaccine failures

Much too complicated for starting tetanus program for mothers - country of 10 × 10⁶ - 6 Hosp. ~~What~~ call up polio in 5 hosps. and began c report from them what does it tell you?

(Slide)

Endemic - How many cases really
Need accurate case definition

see page 2

- Reporting back - impossible task — not enough personnel.
  Brazilian spro surveillance report - 2000 copies sent weekly throughout the country. Time = ½ time clerk; 1 day of professional.
  Results - Brazil -
  Point — involve a larger community
- Action -

A corollary
~~Another~~ concept - every case of "x" which occurs is in some way a failure in the program. Provides a focus of attention of ~~all~~ all concerned.

Evaluation - Necessary but inevitably subsidiary to surveillance mechanism
Principle - fewest possible indicators to monitor progress
Keep it simple stupid. The better thought out and understood the program, the fewer the indicators. (Ford example) Bane of existence of many programmes, the funding agencies

Indicators must be seen to be used by those providing the data - not an archive

- Interval between 1st case in outbreak & detection - surveillance quality
- Interval between detection & last case - containment quality.
- Assessment of coverage - ~5% sample - Afghanistan.

Problem: addition of many other measures - duration of time to begin containment, % of population vaccinated, no. of vaccinators employed, no. of vaccinations given per day, etc. etc. - fatally common problem.

Conclusion: Surveillance & assessment different for every disease & every intervention, but absolutely critical. Principles: Keep it simple, use it and make sure all concerned in the program know that the reports they provide are used.

LANDMARKS - GLOBAL IMMUNIZATION

- 1970 International conference - plan proposed
- 1974 EPI (Expanded program on immunization) - WHA
- 1983 1st Bellagio Summit Conference
- 1985 Polio eradication campaign - Americas
  1988 " " " - World
- 1990 Immunization coverage = 75% +
  2 600 000 deaths prevented
  A delivery system in place