

IMMUNIZATION PROGRAMS (C)
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Programs of immunization represent, by and large, one of the most productive public health investments which any country can make to improve the health of its people. Yet, immunization programs in the less industrialized countries have, to date, been limited in scope and restricted to few antigens.

The fault basically lies with us, ^{with} all of us, in ~~our~~ ^{over} emphasizing ^{expensive} clinical treatment rather than ^{inexpensive} prevention measures; in ~~failing to develop~~ ⁱⁿ ~~device~~ ^{effectively} and effectively

~~execute~~ ^{in defining} comparatively ~~straightforward~~ immunization programs; and, more fundamentally, ^{in defining} ~~to~~ ^{define} clearly the ~~scope~~ extent of disease problems and ~~to~~ ^{effectively} ~~manage~~ ^{most effectively and} ~~effectively~~ the ~~fewest~~ ^{most effective and} possible costly ^{immunization} programs to combat the problems.

In implementing immunization programs, many factors must be taken into account and time precludes detailing all of these. But let me note a

few which, based on ^{my} 15 years of experience with immunization programs

^{first} in the United States and ~~then~~ ^{subsequently} in other countries throughout the world, seem to

to be most significant.

Of first importance, ~~is this~~ without question, is the quality and proper preservation of the vaccine to be employed. In the smallpox eradication program,

we have had ~~no end of unpalatable problems~~ ^{no end of unpalatable problems} ~~a remarkable range of experiences~~ in endeavoring to assure that ^{and that this} ~~the~~ ^{properly preserved.}

potent, stable ^{and pure} ~~and stable~~ vaccines ^{are} used in all programs. Let me describe a few

of them (as I suspect that the ~~situation~~ ^{problems} in regard to other antigens is not better and probably worse.)

~~radically different.~~ At the beginning of the ^{eradication} program ~~in~~ 1967, we determined

that not more than 15% of all ^{smallpox} vaccine in use in the endemic countries met acceptable

standards:

1. One country - following up a containment action, 1% primary takes.
2. Another country - specimens submitted from an old, well-established laboratory for donation. Checked. Bacteria, hairs, dirt, no virus. In use in country concerned, however.
3. Another country - vaccine ^{donated (which was)} produced from a strain which ^{in voked} produced ~~Horner~~ stories such as these could be recounted by the hour. large, deep, ulcerative necrotic lesions. ~~The~~ Europeans thought

that the more severe the reaction, the better the protection.

Horner stories such as these could be recounted by the hour.

But what of vaccine preservation -

USA - liquid smallpox vaccine. change to freeze-dried. same strain, same filter

Severe reaction complaints. Using good vaccine for the first time

Good vaccine is, of course, essential - ~~an~~ obvious statement, you say -

and I agree but, I repeat, only 15% of smallpox vaccine in use in 1966 (met ^{in academic centres} accepted standards. - and this ^{is} a vaccine for which the efficacy ~~could~~ ^{can} readily

^{in the field} be checked by looking at the cutaneous responses. Can the situation in respect to other vaccines such as

diphtheria, typhoid, tetanus be better? I ~~doubt~~ ^{suspect} it is, in fact, less satisfactory.

To meet this problem - smallpox vaccine, ^{is} regularly tested ^{and} by an independent WHO testing laboratory ^{in addition, in many instances, by national control laboratories} such a procedure should be considered for all vaccines.

⑧ Vaccine preservation - a more difficult problem - requires constant checking and

supervision. With all deference to ~~the~~ all of you and your competence and concern for your patients,

~~I can only note that~~ I am most ^{doubtful that} ~~suspicious of~~ more than 1 physician in 10 pays

the slightest attention to labels on vaccine vials as to need for refrigeration or date

of expiry of vaccine. Such certainly is the case in my own country with the result that

who knows how much totally ineffective antigen is given every year.

The second ^{major} problem is regard to implementation of immunization programs

is the need to devise reasonable and practicable schedules for immunization of patients. All immunization schedules are today far ~~too~~ ^{too} complex, ~~and~~ ^{require} far too

many ~~of~~ visits and are far too costly to be implemented satisfactorily either in developed or developing countries. Many are based fundamentally on practices advised by the American Academy of Pediatrics, the ~~British~~ ^{UK} British Ministry of Health ^{and} other European countries. For a number of years, I served as Secretary for the U.S. National Committee on Immunization Practice and, in this capacity, worked closely with the AAP. I participated in the ^{deliberations} formulation of policy and thus know the background ^{debate} upon which many of the recommendations were made -

By and large, decisions ^{were} made on the basis of ^{optimism} ~~hope~~ ^{protection} for the individual private patient whom the pediatrician was happy to see at frequent intervals and to whom cost of vaccine was no object. The same applies as less in Europe.

For example, if 3 injections ^{of a vaccine} ^{appeared to produce} 98% protection and 4 doses, 99% protection - 4 doses ^{would be} ~~were~~ recommended. If studies showed that ^{protection} 100,000 persons ^{had been} ~~would be~~

given polio and smallpox vaccine simultaneously ~~with~~ with safety and efficacy

but one tenuous and totally theoretical possible objection ^{could be} ~~was~~ ^{such} raised, ~~the~~ ^{such} Committees ^{would} ~~would~~ recommend that the vaccines not be administered simultaneously - and, so it went.

The result is what we call the "train schedule" of the AAP which calls for something like 15 visits of the child to the practitioner if he is to be satisfactorily

immunized. ^{Such a schedule) in fact,)} It is not ^{significant)} suitable for ~~large~~ population segments in the United States and,

in fact, it is not particularly suitable for a substantial proportion of private patients who simply will not return that frequently to the physician. It is totally unsuited

for use in developing countries.

Practically, we know that ~~the~~ ^{than the presently recommended number of} fewer ~~immunizations~~ ^{vaccinations} doses of the

inactivated vaccines, for example, can be given and that ^{a number} ~~various~~ of different

antigens can be applied simultaneously. For example, ^{studies} ~~we had administered~~ ^{have been conducted} in which a number of antigens have been administered ^{at the time)}

both with safety and efficacy ~~at one time~~ ^{at the time)}. These include the following: D P T typhoid

polio) yellow fever, measles, smallpox and BCG vaccines. Once the child is

in hand - why not vaccinate to the ^{extent} maximum possible.

Alternate schedules of immunization for the developing countries must be devised and these must be tailored specifically to the needs and resources

of the individual country. Possible alternate approaches are suggested in the paper before you.

The third principal problem in the implementation of immunization programs relates to the question as to where and by whom ~~imm~~ immunization should be given. There is prevalent today ~~a remarkably~~ ^{the} naive concept that if vaccines are made available at health centers, physicians offices, etc. and some publicity or health education is given that ^{a large proportion of the} people will automatically come forward to be vaccinated - provided, of course, that there are sufficient health centers and physicians. I know of no where where such an approach has been successful. From various studies, we know that beyond 1 to 2 kilometers from a health center, vaccination coverage declines precipitously even of in well-conducted programs and even within this radius, coverage is ^{at best only borderline} ~~not generally so~~ ^{satisfactory}. The better educated middle and upper classes will usually insure that their children are vaccinated. Motivation of the lower socio-economic, less well-educated persons is far more difficult. And yet - these groups is one of the most important as it is among these people living ^{under} ~~in~~ crowded, often unsanitary conditions among whom disease spreads most readily and who serve as a major focus of infection for the community at large.

Various studies have been done to determine how best to motivate such groups.

When all is said and done, ^{it is clear that the best way to get them} ~~the most significant~~ is to make

The vaccine readily available - to ^{administer} ~~take the~~ vaccine ^{in the} ~~from~~ villages ~~to visit~~ and, if necessary, on a house by house basis. In this respect, we need to pay less

attention to barnacle encrusted, academic public health theory and more

attention to the salesman for coca-cola, ice-cream, etc. ^{If we are serious about providing} ~~Immunization can~~ protection through vaccination, we should look to ~~and should be sold by~~ techniques such as ^{those} ~~as~~ used by commercial companies -

plenty of propaganda and ready availability of the product to the customer. ~~As~~

~~intend to vaccinate~~ ^{permanently} those in the middle and upper class, keep the vaccine in the

office or clinic but be prepared for simple disease throughout the community.

^{To have} Special persons or groups applying vaccines ^{on an extensive scale in rural and lower socio-economic groups} offers other advantages.

Vaccine packaged in 25 or even 50 dose containers can be used. Vaccine produced

in this manner may be as ^{bottle} ~~much~~ as 1/2 to 1/10 the cost of vaccine produced in

containers of 2 to 5 doses. With ^{large-scale} ~~special~~ programs, ^{problems in} vaccine procurement

are more readily dealt with and supervision is simplified. When vaccines such as diphtheria, pertussis or smallpox is administered on an extensive scale, an

⑧

element of further protection is conferred as "herd immunity" is produced.

When there is continuing, extensive spread of disease in an area, virtually all who are susceptible will be afflicted; when disease levels are markedly reduced, many of those who remain unprotected ~~and~~ ^{may} still escape infection.

Lastly, in the implementation of the program, ~~one additional significant~~ ^{then}

It is important to bear in mind that an immunization program is intended ^{as I mentioned earlier,} to prevent disease. Both before and throughout the entire duration of the program, the occurrence

of the disease must be continually monitored. If the incidence fails to decline, something is seriously ~~wrong~~ - perhaps the vaccine, for example. If particular groups

continue to experience illness, some additional measures need to be taken to reach

such groups. Again, as simple and straightforward as this concept may be, there are,

in fact, comparatively few programs in which the slightest attention is paid to surveillance of the disease ^{to} which efforts at prevention are being directed.

In brief, I would submit that a program of immunization for Indonesia

should be designed specifically to meet the needs and resources in Indonesia. While it may resemble other programs, I cannot conceive ^{of} how such a program

or, for that matter, the program in any two countries ~~would~~ ^{could} be identical.

Perhaps, a national committee is required - perhaps there are other mechanisms

already in operation to permit ~~development~~ ^{consideration} of such a program. Whatever is

devised, however, it is ~~absolutely essential~~ ^{you the} for pediatricians and ^{your counterparts} public health ~~people~~ ^{both} to ~~join together in the enterprise~~ ^{who bear the principal responsibility and opportunity to contribute to}

The very best investment ^{you} a country can make ~~is~~ in the health of its children