Cessation of polio vaccination in the US: Benefits, risks, and what is not known
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No Vaccine--Benefits, Risks and What is not Known

Some have suggested that we may have reached a point in 1995 vis-a-vis polio eradication which is comparable in time to 1971 vis-a-vis smallpox eradication. As you will recall, a decision was made in 1971 to stop smallpox vaccination even though smallpox remained endemic in eastern and southern Africa and South Asia. Might this be the rationale for a "no polio vaccine" option?

Circumstances differ significantly in a number of important ways with respect to these two diseases and this, in my view, precludes cessation of polio vaccination as a reasonable option. 1) Probability of importations: Presently endemic areas for polio are only slightly more extensive than they were for smallpox in 1971 but the volume of international traffic--both tourists and migrants--is vastly larger and includes many young children, the likely carriers of polio. 2) Deterrence of spread through use of vaccination certificates: Through the 1970s all travellers were required to bear certificates attesting to vaccination against smallpox within the preceding three years. As we know, a successful vaccination provided close to absolute protection. No such certificates are required vis-a-vis polio and the international political climate is such as to preclude such requirements being invoked. Moreover, at least two or three doses of vaccine would be required and, even then, there is less certainty of protection against infection than is the case with smallpox vaccine. 3) Detection and containment of an importation: Smallpox with its visible, clinically distinctive rash could be readily detected, identified and contained.

Subclinical infections played no role in transmission. Control could be rapidly achieved by a highly targeted vaccination program involving, at most, a few hundred immediate possible contacts. In contrast, clinically identifiable paralytic polio constitutes perhaps one in 100 otherwise asymptomatic polio infections. Thus, should an importation occur, it could readily spread widely before detection. Outbreak containment of the type employed in smallpox is not possible. Rather, mass vaccination of most of a city or perhaps a state or region of the country might well be required to effect control. 4) Risks of vaccination: Smallpox vaccination was associated with more serious and more frequent adverse reactions than is polio vaccination and so there was considerable motivation to stop vaccination at the earliest possible time even if it meant taking certain risks with regard to importations. Fever, malaise and a sore arm occurred after virtually every smallpox vaccination but, more important, between 6 and 12 died each year from complications of vaccination and another 10 to 12 developed postvaccinal encephalopathy, often with permanent residua.

The possible impact which a U.S. decision to stop vaccination might have on the global program was carefully weighed at that time. In fact, a decision to stop vaccination in the U.S. was deferred when initially raised in 1970 because of a concern that it might encourage other countries prematurely to do likewise. I believe that at this time, a decision by the United States to stop polio vaccination or to cease use of OPV could seriously and adversely impact momentum in at least some of the presently endemic areas. The global strategy is based on the exclusive use of OPV primarily because it provides the needed intestinal immunity to prevent spread of the wild virus. It has other

advantages: potential for spread of vaccine to susceptible household contacts, cost, ease of application and availability. The OPV strategy was one decided upon by an international consultant group. However the U.S. might justify its own change in strategy, it is well recognized that some countries will all but automatically adopt U.S. policies whether or not the circumstances warrant it. Active marketing by a private producer would enhance that probability. Indeed, it is fact that such marketing adversely impacted Latin American programs at a critical phase in the eradication effort.

In brief, cessation of vaccination at this time would be most ill-advised.

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