

## Intradermal Adapter

### Health need

Introduction of inactivated poliovirus vaccine (IPV) is a key part of the Global Polio Eradication Initiative's strategy in the final stages of achieving eradication of polio, and will be critical in preventing reemergence of the disease in the future. Due to a global supply shortage, many countries have been unable to introduce IPV or have experienced stockouts. However, studies have found that the same or better protection can be achieved by delivering smaller amounts of IPV intradermally (within the top layers of the skin). To stretch valuable supplies and provide coverage for more children, the World Health Organization (WHO) has recommended that countries adopt fractional dosing of IPV (fIPV). By reducing the amount of vaccine needed to immunize each child, this approach could also help to cut costs, which could be particularly meaningful to immunization programs in low- and middle-income countries.

Despite these benefits, adoption of fIPV is not yet universal, due in part to concerns regarding the difficulty and lack of reliability of giving an intradermal (ID) injection correctly using the Mantoux technique with a traditional needle and syringe. In many countries, only certain health care workers routinely perform ID injections, for delivery of post-exposure prophylaxis rabies vaccine and bacillus Calmette-Guérin, a vaccine that is administered at birth to prevent tuberculosis.

### Technology solution

An adapter that standardizes injection depth and angle could serve to expand the pool of health care workers capable of performing ID injections with a needle and syringe, and have a favorable impact in campaign delivery scenarios. In addition to fIPV, an ID adapter could be used for fractional delivery of other vaccines which are expensive or in short supply, such as rabies vaccine.

### Current status and results

PATH developed an ID adapter in partnership with SID Technologies LLC, advancing it forward from the initial concept stage through the manufacture of clinic-ready devices. As part of this effort, we modified and tested successive design prototypes, incorporating feedback from health care workers in the United States and India. The design was transferred to commercial partner West Pharmaceutical Services, Inc., which is working with a syringe manufacturer (Helm Medical) on regulatory clearance, manufacturing, and distribution. Clinical trials and pilot studies have demonstrated safety, efficacy, usability, and health care worker preference for the ID adapter for fIPV, and WHO has purchased a supply of 4 million devices for use by countries interested in introducing fractional dose delivery.



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**The intradermal adapter fits over a conventional needle and syringe.**

**“Given this situation and the high efficacy of 2-dose fractional intradermal IPV, SAGE strongly recommended that...the programme should explore the possible use of devices facilitating intradermal administration (e.g. jet injectors, intradermal adapters).”**

Recommendation of the World Health Organization Strategic Advisory Group of Experts (SAGE), December 2, 2016.

### Availability

For more information regarding this project, contact Darin Zehrung at [dzehrung@path.org](mailto:dzehrung@path.org).

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