

THE ADDED VALUE OF EFFICACY AND SIMPLICITY: A CASE STUDY

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Background

The implementation of the WHO Expanded Program on Immunization (EPI) is one of the most effective public health initiatives worldwide. In order to achieve the Millennium Development Goal of reducing child mortality, the expanded use of childhood vaccines will be necessary. However, the full implementation of this program remains challenging for developing countries. There are many obstacles in providing the poorest countries of the world with appropriate vaccines to meet global objectives of WHO in eradicating vaccine-preventable diseases.

Rationalising vaccination programs, for example by combining vaccines, can enable the introduction of new vaccines into the immunization program without necessitating additional visits to the healthcare provider (Halsey, 2001). Furthermore, simplification of the administration of vaccines, by making them fully liquid, reduces the need for the potential for handling errors and training (WHO, 1996; CDC 1999; GAVI, 2005) as well as enabling vaccination programs to reach children in remote areas. Technological improvements such as fully liquid combination vaccines have been developed to rationalize vaccine delivery and to simplify the transport, storage and administration of vaccines.

The availability of these new vaccines and supportive technologies will contribute to reduce further the burden of infectious diseases, in particular for the countries that are the most affected by those problems. Improved vaccination delivery systems also present the potential for cost-effective new tools which can contribute to increasing health service performance.

Fully liquid combination vaccines such as pentavalent vaccines including DTP, hepatitis B and Hib vaccine, provide an opportunity in terms of simplifying vaccination delivery and are expected to provide advantages in terms of efficiency, safety and simplicity as compared to currently available vaccines requiring reconstitution. Fully liquid combination vaccines may prove to be friendlier for the health system as well as for the patients.

In order to test differences between fully liquid combination vaccines and vaccines requiring reconstitution and their potential impact on immunisation programs, a case study was conducted in a routine vaccination setting. The aim of the study was to contribute to a better understanding of the vaccination process and its determinants and required resources as well as to quality improvements in immunization procedures.

Methods

A time-motion case study was conducted at the Institute of Child Health in Calcutta, India. The study involved a comparative observational time-motion study on the administration and the logistic implications of delivering DTP-HepB-Hib in an actual program setting, comparing a single fully liquid vaccine vs. a lyophilized vaccine with two vials requiring reconstitution.

In order to increase the vaccination clinic attendance, a public vaccination campaign was organized (TV, radio, newspapers, flyers and community mobilization) and free vaccination was offered to parents/guardians of eligible children. Children to be vaccinated were included for the study as a convenience sample. There were no specific selection criteria for study participants except for standard clinical considerations. Ethical clearance was granted by the Ethics Committee of Basel, Switzerland and the Institute of Child Health in Calcutta, India.

A total of 271 children were vaccinated over 2 weeks in May 2006, alternating a fully liquid vaccine and a lyophilized vaccine requiring reconstitution.

Vaccination staff preparing, administering and disposing the vaccines, and eligible children for the routine childhood vaccination schedule were observed during the immunization procedure by trained data collectors. Every vaccination step was observed, timed and recorded.

Standardized questionnaires including relevant questions for qualitative data collection from vaccination staff as well as general observations of the vaccination setting relating to the whole process and the research questions were administered.

Results

Preliminary findings show important time gains for the delivery of the fully liquid combination vaccine as compared to the vaccine requiring reconstitution. In addition, qualitative data suggest improved handling convenience and simplicity in supply logistics. More detailed and additional results will be presented at the ICID.

Conclusions

In conclusion, fully liquid combination vaccines offer the potential for improved efficiency of vaccine delivery and thus add value to the efficacy of pentavalent childhood vaccines. Ultimately, study findings might contribute to improved physical and human resource management and better coverage within vaccination programs.

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Swiss Tropical Institute (Basel, Switzerland)

The Swiss Tropical Institute, founded in 1943, is a public organization associated with the University of Basel and is supported by the Swiss Federal Government and the Canton of Basel-Stadt. The aim of the organization is to contribute to the improvement of the health of populations internationally and nationally through excellence in research, services, teaching and training. The institute carries out studies investigating on host-parasite relationships and determinants of infection and morbidity. They also explore new approaches in epidemiology and provide parasitological and diagnostic services in travel and tropical medicine. The Institute's Centre for International Health provides assistance in the implementation of health projects and offers short- and long-term consultancies and expertise in all aspects of health services management.

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