

ASSESSMENT OF VACCINE WASTAGE IN THE UNIVERSAL IMMUNIZATION AND PULSE POLIO IMMUNIZATION PROGRAMS OF INDIA

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Background: Indian council of medical research (ICMR) conducted a quick one-day study to assess wastage of oral polio vaccine (OPV) being used in the pulse polio immunization (PPI) campaign in the country in 1999 covering 31,000 immunization booths located all over the country. The wastage of OPV was estimated to be 14.5 % with a wastage multiplier factor (WMF) of 1.17. Both these estimates were well below the assumed wastage and WMF as adopted in the program. Taking lead from this work, ICMR launched a much larger well designed multicenter study to assess percent wastage and WMF of six vaccines being used in the Universal Immunization Programme (UIP) of India. The study was carried out in 10 districts of four states of India.

Objectives: To determine the amount of wastage of vaccines being used under UIP; to determine the reasons of wastage of vaccine; to suggest methods for reducing the wastage of vaccine.

Methods: The study was conducted through the network of five human reproduction research centers (HRRCs) in ten districts located in four states of India. Wastage at the point of administration of vaccine was estimated.

Results & Conclusion: WMF and % wastage were calculated separately for each of the six vaccines for each district. The estimated % wastage and its range, the estimated WMF and its range for DPT, DT, TT, OPV, BCG and Measles was respectively 38.9% (12.8-69.7), 1.64 (1.15-3.31); 39.1% (27.3-61.4), 1.64 (1.38-2.59); 48.0% (20.9-67.1), 1.92 (1.26-3.04); 52.7% (22.1-75.7), 2.12 (1.28-4.12); 49.3% (30.3-70.2), 1.97 (1.43-3.36); 38.7% (20.8-50.1), 1.39 (1.26-2.00). The estimated % wastage of five of the six vaccines namely, DPT, DT, TT, OPV and Measles was found to be significantly higher than what is assumed in the UIP ($p < 0.0001$). Among all the other reasons for wastage of vaccines, residual vaccine left in the vial was the most frequently reported reason for wastage of vaccines. Therefore, vials of variable size with house to house campaign were recommended to minimize wastage of vaccines in UIP.

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