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Report on the WHO Quantitative Immunization and Vaccines Related Research (QUIVER)

Advisory Committee Meeting
5-7 October 2010
Geneva, Switzerland

Immunization, Vaccines and Biologicals

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World Health Organization
Department of Immunization, Vaccines and Biologicals
CH-1211 Geneva 27, Switzerland
• *Fax:* + 41 22 791 4227 • *Email:* vaccines@who.int •

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Abbreviations and acronyms

BMGF	Bill and Melinda Gates Foundation
CEA	cost-effectiveness analysis
CFR	case-fatality rate
CHERG	Child Health Epidemiology Reference Group
EPI	Expanded Programme on Immunisation
HIS	Health Statistics and Informatics (WHO)
HPV	Human Papillomavirus
IHME	Institute of Health Metrics and Evaluation
IARC	International Agency for Research on Cancer
IVB	Immunization, Vaccines and Biologicals (WHO)
IVR	Initiative for Vaccine Research (IVR)
JHSPH	John Hopkins School of Public Health
JTEG	Joint Technical Expert Group
LSHTM	London School of Hygiene and Tropical Medicine
PCV	pneumococcal conjugate vaccine
PCV7	7-valent pneumococcal conjugate vaccine
SAGE	Strategic Advisory Group of Experts of Immunization (WHO)
SIA	Special Immunisation Activity
QUIVER	Quantitative Immunization and Vaccines Related Research
SAGE	Strategic Advisory Group of Experts on Immunization
UNDP	United Nations Development Programme
UNFPA	United Nations Food
UNICEF	United Nations Children's Fund
VMI	Vaccine Modelling Initiative
WHA	World Health Assembly
WHO	World Health Organization

Executive Summary

The fourth annual meeting of the WHO Quantitative Immunization and Vaccine-Related Research (QUIVER) advisory committee was held in October 2010 in Geneva. The 12 members of the advisory committee provide advice to WHO on estimates of the burden of vaccine-preventable diseases, mathematical modeling related to vaccines and immunization programmes, estimates of the impact of vaccines, economic evaluations of vaccines and immunization programmes, and other quantitative methods of generating information relevant to policy decisions about the introduction of vaccines. The demands on QUIVER have been growing as a result of the increasing emphasis being placed on evidence-based policy-making.

Several groups within WHO (for example, the departments of Health Statistics and Informatics (HIS), and Immunization, Vaccines and Biologicals (IVB)) and outside WHO (for example, the Institute for Health Metrics and Evaluation (IHME)) have methods for estimating worldwide cause- specific childhood mortality. Each method has its strengths and weaknesses, but all focus on a single cause of death despite the fact that many people die from multiple interacting factors. QUIVER recommends that methods for estimating childhood mortality reflect the multi-cause nature of many deaths and the uncertainty of point estimates. QUIVER recommends that the activities on estimation of childhood mortality carried out by the WHO Child Health Epidemiology Reference Group (CHERG) and IVB be coordinated, particularly in terms of harmonizing total deaths with deaths attributed to a specific condition when there are multiple causes of death. QUIVER recommends that an independent group review the methods used by entities within and outside WHO to estimate child mortality, and clarify the uncertainties around point estimates, so that general audiences understand why estimates of child mortality may differ.

A natural-history model of pertussis is being developed by the Ontario Agency for Health Protection and Promotion in Canada in collaboration with WHO to estimate