Summary of WHO Quantitative Immunization and Vaccines Related Research (QUIVER) Advisory Committee activities 2008

Introduction

QUIVER is a technical Advisory Committee providing expert advice in quantitative immunization and vaccine related research which was inaugurated in October 2007. The terms of reference (TORs) for the committee are to advise the Initiative for Vaccine Research (IVR) and the Department of Immunization, Vaccines and Biologicals (IVB) on the estimation of burden of vaccine preventable diseases; on modelling vaccine interventions, economic evaluations, and other analytical components of operational and implementation research. Currently, the advisory committee has 12 members (including the chair) with multidisciplinary expertise in the areas of immunology, infectious disease and vaccine mathematical modelling, epidemiology, statistics, health economics and health systems.

The second meeting of QUIVER was held from 21-22 October 2008 in Geneva. This brief covers selective aspects of the QUIVER advisory committee in 2008. A full meeting report is available on the SAGE sharepoint site.

WHO Guide on standardization of economic evaluations of immunization programmes endorsed by QUIVER

This guide provides clear and concise, practical, high-quality guidance to those who conduct economic evaluations of vaccines. Its aim is to set quality standards and harmonize approaches for such health economic studies, hereby addressing the need of decision-makers for relevant, reliable and consistent economic information.

The main target audience for this guide is economists and health service researchers in the public and private sectors who conduct and critically appraise economic evaluations of immunization programmes at the local, national, regional and global levels. The secondary target audience is programme staff at national level to use this guide to assess the transparency, completeness and comparability of economic evaluations that have been conducted for their own country or for other countries in their region. A third target audience is international agencies in health, as well as funders of health economic studies, who may wish to use this guide to help draw up terms of reference for future economic evaluations.

The guide which was commissioned by IVR and was endorsed by QUIVER in 2008 after an extensive review process (including comments from representatives of vaccine

Studies commissioned by QUIVER

In 2007/08 the committee commissioned five studies on pandemic influenza mathematical modelling:

1. Quantifying the effect of vaccination and non-pharmaceutical interventions during influenza pandemic via a simulation model (School of Computer Science and Software Engineering, University of Western Australia, Crawley, Australia);
2. Simulator of pandemic influenza intervention strategies (Department of Biostatistics and Bioinformatics, Emory University, Atlanta, USA);
3. Vaccination strategies against pandemic influenza: Mexico as a case study (School of Human Evolution and Social Change, Arizona State University, Tempe, USA);
4. Modeling cost-effectiveness of pandemic influenza vaccination: developing an international model piloted in 3 countries (Groningen Research Institute of Pharmacy (GRIP), University of Groningen, Groningen, Netherlands);

The results of these studies were presented and discussed. The Committee felt that more field data are required to feed into the models, particularly relating to behavioural contact patterns, disease data (e.g. case numbers) and information on trans-national movement. Potentially, these data could be obtained for little extra cost as there could be studies in progress which might collect some of these data relatively easily.

The Committee recommended that WHO should more precisely formulate public health questions that could be addressed by mathematical modelling and define certain key parameters in these models, in particular Ro, incubation period, the population age structure and vaccine efficacy, hereby greatly increasing the comparability of results. As a follow up the WHO Global Influenza Programme (GIP) and IVR in collaboration with the NIH Fogarty International Center will organize a joint technical meeting in June 2009 on influenza modelling where public health questions and standardization of model parameters will be addressed.

Burden of vaccine preventable disease

Sessions were held the estimation burden due to neonatal tetanus, measles, pertussis, rubella. A new method for calculating the global burden of neonatal tetanus, rubella and pertussis were presented, and specific recommendations were issued for their further development. An evaluation of the measles strategic planning tool (MSP) against
simulated and empiric data was presented and specific recommendations were issued to address some shortcomings of the MSP tool. With those improvements, the tool was considered acceptable for annual measles burden estimates, but in the medium term a dynamic model should be developed.

**Establishment of Ad-hoc working groups by QUIVER**

The Committee established three ad-hoc technical working groups under QUIVER:

1. **Measles working group (Dr Grenfell to lead, with Dr Laxminarayan as an additional member).**

   This ad-hoc working group should guide the measles eradication project in particular on the cost-effectiveness and health systems implications.

2. **GIVS costing working group (Dr Postma to lead, with Dr Somanathan and Dr Grenfell as additional group members).**

   The working group should provide guidance on adequate validation of the immunization coverage predictions based on the Immunization and Estimates Trajectories tool (ICE-T); whether elements of new vaccines in the tool are plausible and the adaptation of proxies if the tool is used at country level.

3. **Grading evidence working group (Dr Bhutta to lead, with Dr Nelson as an additional group member).**

   GRADE was suggested to rate the quality of evidence. The usefulness of GRADE for the purposes of the group should be formally assessed and a decision made on whether to use this system or to establish one more appropriate.