Johns Hopkins Vaccine Initiative

2012 Vaccine Internship Experience at WHO (VIEW)

Terms of Reference

A. Strengthening the Evidence-Base of WHO Immunization Policy Recommendations

Background:

In accordance with WHO's mandate to provide technical guidance to Member States on health policy, the Immunization Policy Unit is charged with developing global immunization policy recommendations. In this context, the Unit carries out the secretariat function for the Strategic Advisory Group of Experts (SAGE) on immunization which is the main global advisory committee on immunization and provides policy recommendations on the use of vaccines. The Unit also publishes a series of vaccine position papers for vaccine preventable diseases that have an international public health impact. The papers follow the recommendations of SAGE and are submitted to an extended review process both inside and outside of WHO prior to publication.

During the implementation of the 2006-09 Strategic Plan, IVB convened an independent Stakeholder's Panel representing the global immunization community to determine the impact of policy recommendations and standards set by WHO and formulated by its key advisory committees. The panel concluded that WHO vaccine advisory committees play an increasingly central role in determining global vaccine policy, especially in developing countries, and recommended that WHO take immediate steps to build on this success. In response to the stakeholders' panel recommendations, the Immunization Policy Unit has improved the policy-setting processes and communications, and will in 2011, in particular, focus on further strengthening the evidence-base of the policy recommendations work.

Scope of Work:

The IVB Department is now recruiting an intern to work under the supervision of the Senior Health Adviser within the Immunization Policy Unit to assist in improving the formulation of evidence-based policy recommendations and the functioning of SAGE. The planned activities include:

- conducting systematic reviews of literature to assist SAGE working groups with preparation and review of evidence particularly with respect to vaccine efficacy and safety for updated WHO vaccine position papers (most likely in the area of varicella, co-administration of vaccines and/or delayed immunization schedules)
- developing GRADE tables by applying WHO guidelines to assess the strength of evidence in support of key recommendations
- conducting a survey of practices of the WHO regional technical advisory groups
- Implement a survey looking at the impact of WHO recommendations
- supporting the organization of the SAGE meetings and teleconferences and contribute to adjustments of SAGE standard operating practices

Skills Necessary:

- Proficiency with literature searches on PubMed and preferably other databases
- Background in epidemiology
- An understanding of GRADE methodology and its strengths and limitations would be a plus but not a requirement
- Fluency in English, working knowledge of another official HQ language including Arabic, Chinese, French, Spanish or Russian would be an asset
- Proficiency with email, web and MS Office software (Word, Excel, PowerPoint)
- Capacity to analyse data
- Good writing skills
- Tact and ability to work with people of different technical and cultural backgrounds

B. Supporting the Introduction and Use of New and Underutilized Vaccines through the Collection of Global VPD Surveillance Data and HPV Vaccine Coverage Data

Background: Vaccines are one of the most cost-effective interventions to improve public health. In addition to the six traditional vaccines against diphtheria, tetanus, pertussis, polio, measles and tuberculosis (BCG), recent years have seen a dramatic increase in the number of new vaccines that can provide additional prevention of untimely deaths and disabilities. These include vaccines against hepatitis B, invasive *Haemophilus influenzae* type b (Hib) disease, pneumococcus, rotavirus, Human Papilloma Virus (HPV) and rubella. As countries are considering including these new and relatively expensive vaccines into their immunization schedules, decision makers require reliable data to determine how to best allocate their resources in support of public health programmes. Additionally, vaccine coverage monitoring is critical in order to evaluate the effectiveness of vaccine delivery programmes and to evaluate vaccine impact 5-30 years after immunization.

During the past several years, various data collection systems have been established to provide surveillance data for decision makers around the introduction of new and underutilized vaccines. These various systems are being transitioned into the WHO surveillance reporting network and are now allowing global comparisons to be made between countries and over time. During this process, due attention is being paid to ensuring that data are collected in a standardized and routine manner for quality assurance and data comparison purposes.

Implementation of HPV vaccine requires the coordination and involvement of multiple programmes for vaccine delivery and for the assessment of vaccine impact. The programmes involved are ones that historically have worked more often in parallel rather than jointly. Coverage monitoring for HPV vaccine poses further unique challenges which have not previously been necessary to address to monitor routine infant vaccine coverage, such as: (1) administration of vaccine to children who are not infants; (2) broader target age for HPV vaccine than routine infant vaccines; (3) absence of routine fixed clinic visits as for infant immunization; (4) delivery of vaccine in schools rather than in immunization clinics; (5) Absence of adolescent immunization or health cards. Because of these unique issues, establishing best approaches for monitoring HPV vaccine coverage as part of routine vaccine delivery activities or as part of periodic assessments is needed.

Scope of Work for VPD Surveillance:

- Compare the 2010 and 2011 NUVI surveillance systems to determine any significant changes;
- Assess the gathered surveillance data for trends over time/compare data across WHO regions;
- Assist in the development of global standard operating procedures for the invasive bacterial vaccine preventable network;
- Synthesize the existing information to provide recommendations in how to target efforts to strengthen surveillance and to better understand the surveillance data.

Scope of Work for HPV:

- Analyze the 2011 WHO/UNICEF Joint Reporting Form (JRF) data on HPV vaccine coverage;
- Review Hepatitis B JRF vaccine coverage for adolescents and data reported by countries on school immunization;
- Review and refine current tools for collecting data on routine administrative coverage for HPV vaccine by age and by dose, including collection of denominator data;
- Design an adolescent immunization (or health) card with high likelihood of retention over time.

Necessary skills:

- Languages: Fluency in English. Working knowledge of French desirable.
- Computer skills: Proficiency with Microsoft Excel, Word, PowerPoint and e-mail. Experience with database software such as Microsoft Access desirable.
- Professional Experience: An understanding of surveillance systems and their strengths and limitations. Training and experience in quantitative data analysis.
- Useful, but not required: Experience with collection or analysis of survey data; experience evaluating vaccination coverage.

C. Support to Routine Immunization System Strengthening

Background:

Immunization is one of the most cost-effective public health interventions to reduce mortality and morbidity among children under five years of age. In addition to the seven traditional vaccines against diphtheria, tetanus, pertussis (DTP), polio, hepatitis B, measles and tuberculosis (BCG), recent years have seen a dramatic increase in the number of new vaccines -- Haemophilus influenzae type b (Hib), pneumococcal, rotavirus and human papillomavirus -- available to the Expanded Programme on Immunization (EPI) to protect infants from preventable death and disability.

Countries aim to reach to at least 90% national vaccination coverage and at least 80% vaccination coverage in every district, as measured by the third dose of DTP3. To effectively deliver high-quality vaccines to the most remote populations, EPI programmes must have in place immunization systems which include functional hardware (e.g., cold chain equipment, supplies and transport) as well as software (e.g., national policies, human-resource management and monitoring systems). WHO supports countries by providing policy recommendations, guidelines and capacity building tools to EPI managers to facilitate management of their immunization programmes.

Scope of Work:

The WHO Immunization, Vaccines & Biologicals Department seeks an intern to work under the supervision of WHO technical staff within the Immunization Systems team to support two components of work:

Policy Development:

The WHO Policy Statement on the use of opened multi-dose vials in subsequent immunization sessions (WHO/V&B/00.09) was issued in 2000. The policy is applied by numerous countries to properly identify which vaccines can be kept or discarded at the end of an immunization session. As a consequence of the new vaccines currently available to EPI, the global statement is under revision. The intern will be requested to help seek and gather published evidence on topics related to vaccine thermostability, preservative efficacy, multi-dose vials, vaccine vial monitors, antigenic stability, as well as provide coordination support to the policy revision process.

Cold chain and logistics:

Cold chain capacity of EPI and logistics systems of national immunization programmes are under increasing strain from the introduction of new vaccines. Trends in vaccine volume, wastage and usage need to be assessed, with a particular emphasis on middle income countries. The intern will be requested to collect, synthesise, project and analyse data on vaccine volume and usage over the years 2000-2010 based on national EPI schedules, as reported in the WHO/UNICEF Joint Reporting Forms. The databank will be used to inform global dialogue on the status of cold chain systems in the countries concerned.

Skills Necessary:

- Fluency in oral and written English
- Proficiency with Microsoft Excel, Outlook and Microsoft Office
- Strong analytical and organisational skills
- Self-initiative with careful attention to detail
- Working knowledge of French an asset

D. Support On-Going Work on EPI Training Materials Development

Background:

The EPI team has been developing training materials for staff working at different levels (national, sub national, district, health facility). Several new vaccines are being introduced in developing countries with attributes that require specialized training of all staff at country level. WHO staff are also exploring different mediums for training (print and electronic) to ensure that the training provided is effective.

The previous Immunization in Practice handbook was prepared and printed in 2004 http://www.who.int/vaccines-documents/DoxTrng/h4iip.htm. This practical guide covers all aspects of immunization relevant for staff working at service delivery level. This publication was a huge success and over 10, 000 copies of the same were distributed worldwide. An update of this important publication is planned for 2012 as many aspects have changed since the last publication in all aspects of immunization but most prominently, many new vaccines are now available which were not available in 2004.

Terms of reference:

In order to develop EPI training materials, strong collaboration is needed between experts within WHO as well as partners. Under the supervision of WHO focalpoint, the intern will:

- Assist in identifying training needs at regional and country levels and getting feedback on draft training modules.
- Support review and consolidation of feedback from regional/field staff and partners.
- Assist with formatting, layout and graphics design of the materials providing input on making them more user-friendly.
- Assist with on-going research on alternative training techniques.
- Assist with the development of a CD-ROM containing important EPI documents.

Skills Necessary:

- Fluency in English
- Proficiency with Microsoft Excel, email and word processing software
- An understanding of EPI system at country well would be an asset
- Experience in document production and graphic design/document layout would be a an asset
- Working knowledge of French desirable

E. Financial Costs of HPV Vaccine Delivery in Low and Middle Income Countries

Background:

In November 2011 the GAVI Board decided to provide funding to GAVI-eligible countries for the introduction of human papillomavirus (HPV) and rubella vaccines. More widespread introduction of these vaccines will be key to further prevention of cervical cancer and congenital rubella syndrome. High coverage with both vaccines will be dependent on strong political commitment for introduction and sustainable use.

Because HPV vaccine is delivered to a population not previously routinely served by EPI in most GAVI-eligible countries, is specifically for girls rather than all children, and has a 3-dose schedule, some of the operational costs are expected to be higher than for a new infant EPI vaccine. Implementation of school-based or integrated outreach delivery strategies would still also require HPV vaccine delivery in health facilities so that girls who are not enrolled, not in attendance at schools or who missed a child health day campaign can get vaccinated. Thus, the total costs of adding this vaccine to the current immunization program schedule are likely to be higher since there will be additional transport, social mobilization/IEC, and personnel costs (outreach per diems) required to reach this target population.

However, current existing information on operational costs come from various pilot projects (PATH, LSHTM) and estimates the costs of scale-up for national HPV vaccine introduction (Tanzania, Uganda, Bhutan). In order to expand and built country based evidence on financial and economic costs for HPV vaccine delivery strategies WHO will initiate various demonstration projects in various WHO regions in 2012 to evaluate the effective and sustainable delivery of HPV vaccines from a economic perspective.

It is intended that a review publication will arise from this project.

Scope of Work:

The WHO Immunization, Vaccines and Biologicals (IVB) department seeks an intern to work under the supervision of WHO technical staff of the operational research team and the EPI team to undertake a project with the following aims:

- Assist in the coordination of C4P related demonstration projects in different WHO regions
- Set up a data base for HPV delivery financial and economic cost
- Assess data collected from demonstration projects
- Assist in synthesizing information collected for future recommendations

Skills Necessary:

- Fluency in English
- Proficiency with Microsoft Excel, email and word processing software
- Proficiency with literature searches on PubMed and preferably other databases
- Training and experience in health economics

F. The Broader Economic Impact of Vaccines

Background:

Over the next decade several new vaccines will become available against infectious diseases of major public health importance. Public health decision-makers will need to make choices, between vaccines and between other preventive interventions. New vaccines (e.g. pneumococcal, rotavirus and human papillomavirus vaccines) are more expensive compared to the dollar cents traditional vaccines costs (e.g. diphtheria, tetanus, pertussis, polio, measles and tuberculosis) while countries increasingly have to carry the full costs of vaccination programs. Among other things decision makers need information on the relative cost-effectiveness (CE) of vaccines compared to other preventive interventions.

However, traditional view of cost-effectiveness analysis (CEA) is too narrow which may lead to substantial underestimates of the value of some vaccinations. There are several pathways through which vaccinations can affect economic activity both at the individual and population level. Vaccination results in lifetime productivity gains as it prevents diseases that can cause cognitive impairment, lead to physical handicap, or reduce school attendance. As many vaccinations will significantly reduce child mortality from infectious diseases, fertility rates will be reduced which will lead to decreasing ratio of economically dependent people in a population, which increases the labor force and savings.

In order to assist countries in the collection of local evidence WHO is embarking on a broader economic impact of vaccines consultation meeting with the objective 1. to obtain an overview and feedback of existing and innovative measurement methods and tools 2. to propose generic manuals for quantifying the broader economic burden of vaccines for potential users in LMIC.

It is intended that a review publication will arise from this project.

Scope of Work:

In preparation to the above mentioned consultation the WHO Initiative for Vaccine Research seeks an intern to work under the supervision of WHO technical staff of the operational research group to undertake a project with the following aims:

- Assist in synthesizing preliminary results from economic studies of the broader impact of vaccines issued by WHO in 2011
- Contribute to the WHO framework and practical tool development of quantifying the broader economic impact of vaccines
- Facilitate in the preparation of the WHO Consultation meeting in 2012 with health economic experts

Skills Necessary:

- Fluency in English
- Proficiency with Microsoft Excel, email and word processing software
- Proficiency with literature searches on PubMed and preferably other databases
- Training and experience in health economics

G. Strengthening Global Dengue Surveillance

Background:

WHO estimates 2.5 billion people are now at risk from dengue, and more than 50 million infections occur worldwide annually. An estimated 500 000 people with DHF require hospitalization each year, a very large proportion of whom are children. Without proper treatment, DHF fatality rates can exceed 20%. There is no specific treatment for dengue, other than symptomatic and supportive care. Till now there is also no vaccine against dengue. However, that is likely to change very soon as there is the very real possibility of the availability of a vaccine as early as 2013. Therefore, it is important for countries to be prepared for dengue vaccine introduction. For developing appropriate immunization strategies, a strong dengue surveillance system is necessary to first define the epidemiology of dengue before the introduction of vaccine, and to be able to evaluate the impact of vaccination following introduction.

At the global level, dengue as a topic appears on several sites on the WHO webpage. The best linked is Dengue under the Health Topics which then lists linkages to the various sites, including regional dengue sites. Dengue is also reported as part of the Global Alert and Response, (GAR), which is the global alert and response system for epidemics and other public health emergencies. There is also the Dengue Factsheet and the global network for dengue known as DengueNet which WHO created as a central data management system to collect and analyse standardized epidemiological and virological data in a timely manner, and to present epidemiological trends, as soon as new data are entered and to provide both historical and real-time data. However, the onus of submitting data to this network is left to the goodwill of the countries. The topic of dengue also appears under the Program and Projects topic of the WHO webpage. Further, at the global level, other than WHO, there are other sites that also offer more current information on dengue. They include DengueMap and DengueWatch.

A cursory examination of the type and details of information on dengue for the three dengue endemic regions of WHO shows the details and the variability in the type of information on dengue collected by countries and regions. Clearly the Americas have the most up to date, and detailed information on dengue in countries and for the region. The Western Pacific Region too has detailed weekly reporting on dengue and dengue reporting is well integrated into the WPRO's webpage. Comparatively the WHO's South-East Asia has far less data on dengue at the regional level than the other two regions, namely the Americas and the Western Pacific. Most countries have some form of disease surveillance. They may include dengue or they may not. Therefore, it is important to support countries to assess the adequacy of their routine surveillance system to capture and report dengue. It may be mentioned that there is scope of working with WHO/HQ and PAHO on this subject beyond the period of internship.

Scope of Work:

- Review the current global dengue surveillance policies and practices to assess gaps, if any, with a view to strengthen current practices, including need and means to harmonize various surveillance systems and databases;
- Review current dengue surveillance in WHO Regions, including country surveillance practices for priority countries (Viet Nam, Thailand, Brazil, Thailand), to evaluate their strengths/weaknesses;
- Interact with technical experts outside the Immunization and Vaccines such as Vector Borne Diseases Department, the Special Programme for Research and Training in Tropical Diseases and, where feasible, Regional Focal Persons on Dengue and Dengue Surveillance
- Put together a well researched document that assess the current state of knowledge and practices on dengue surveillance, the strengths and weaknesses of the existing surveillance systems, and recommend ways or strategies to harmonize and strengthen dengue surveillance at all levels in dengue endemic regions and countries

Skills required:

- Fluency in English with good writing skills.
- Proficiency in the use of computers and common software such as Word, Excel, PowerPoint etc.
- A good analytical skill and the ability to summarize concisely huge amount of information
- An understanding of surveillance systems and their strengths and limitations

H. Developments in Global Standards for Vaccines and Other Biologicals

Background:

WHO has a mandate to develop and establish global written and measurement standards. The latter serves, for example, as the reference preparations used to benchmark potency tests. The global written standards are technical specifications that are scientific and advisory in nature and include explanatory text. The scope is to provide guidance for national regulatory authorities and manufacturers on international regulatory expectations for the production and quality control and also for nonclinical and clinical evaluation of vaccines. They also facilitate international harmonization of vaccine licensure. These are living documents that are revised in response to scientific advances. Global measurement standards facilitate the comparison of results from different laboratories, support harmonization of international regulations, and define the international unit (IU). These reference standards facilitate the development of in vitro biological diagnostics, vaccines, and biotherapeutics. In our post-genome era, the advent of various new technologies and explosive innovative products challenges us to revisit the traditional paradigm of international biological standardization in terms of its programmatic adaptability and management efficiency. Therefore inputs to this end are sought from brilliant young minds.

Scope of Work:

- The WHO Immunization, Vaccines & Biologicals Department seeks an intern to work under the supervision of WHO technical staff within the Quality, Safety and Standards Team to undertake a project with the following aims:
- Develop, build and analyse a database on endorsed projects to establish new or replacement WHO International Standards and Reference Reagents;
- Review collaborative study report (BS document) and checklist, and design a common report format to help update the WHO catalogue of International Biological Reference Preparations;
- Catalogue, review and analyse vaccine nomenclature and abbreviations in various WHO publications, national/international organizations, and scientific articles; and
- Review and analyse the present status and future direction of biological standardization.

Skills Necessary:

- Fluency in English
- Proficiency with Microsoft Access (prior experience highly desirable), Excel, email and word processing software
- An understanding of the concept of biological standardization, and regulation and testing of vaccines and other biologicals
- Working knowledge of French and Spanish desirable

I. Vaccine Price and Immunization Financing in GAVI Graduating and Middle Income Countries

Objective

Working as part of the FFP group within the EPI team, the intern will have the primary responsibility to contribute to the work related to vaccine price and immunization financing in GAVI graduating and middle income countries.

Specific Duties

Under the direct supervision of Mr Miloud Kaddar, the intern will contributing to the activities related to vaccine price, vaccine product and procurement (V3P project) and immunization financing in GAVI graduating and middle income countries such as:

- Short case studies
- Contribute to the V3P project work
- Collecting and reviewing country and partners data
- Country case studies
- Updating SharePoint site
- Maintaining list of references and annotating key documents
- Preparing meeting and conferences
- Drafting and editing notes
- Updating web pages
- Writing and reviewing draft reports and notes
- Preparing presentations and talking points
- Participate in activities related to GAVI graduating countries and sustainable new vaccine implementation and financing
- Collecting and reviewing country and partners data
- Monitoring co-financing trends and issues
- Coordinating with UNICEF and GAVI secretariat
- Preparing reports and notes for the Immunization Financing task team
- Contributing to country case studies
- Updating web pages and share point
- Writing and reviewing draft reports and notes
- Preparing meetings, presentations and conference calls
- Develop and maintain an annotated bibliography on GAVI graduating countries and co-financing issues

Required Experience and Skills:

- Strong research and analytical skills related to public health and economics.
- Experience in data collection, management and analysis.
- Good computer skills including advanced knowledge of main statistical packages.
- Written and spoken fluency in English. Excellent knowledge of French (desirable).

Time frame:

Minimum 4 Months. Dates to be determined

Supervision:

Mr Miloud Kaddar

Health Economist & Group Leader

FWC/IVB/EPI