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## netSPEAR

*The network for Surveillance of Pneumococcal Disease in the East African Region*

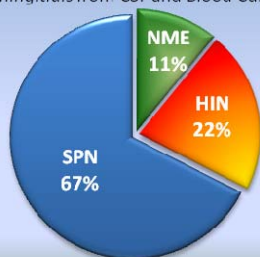
IS AN INDEPENDENT PROJECT HOSTED BY THE KEMRI/WELLCOME TRUST COLLABORATIVE RESEARCH PROGRAMME IN NAIROBI, KENYA. NETSPEAR IS FUNDED BY THE PNEUMOADIP AND GAVI AND WORKS CLOSELY WITH THE WHO/PBMS PROJECT AND WHO REGIONAL OFFICES TO PROVIDE REGIONAL SURVEILLANCE DATA ON PNEUMOCOCCAL DISEASE AND OTHER CAUSES OF MENINGITIS THAT KILL LARGE NUMBERS OF AFRICAN CHILDREN EACH YEAR.

**HIB CONJUGATE VACCINE HIGHLY EFFECTIVE IN UGANDA**

*Contributed by Dr. Wamae Maranga of netSPEAR*

**PNEUMOCOCCAL ISOLATE DISTRIBUTION**

Isolation of *S. pneumoniae*, *H. influenzae* and *N. meningitidis* from CSF and Blood Cultures



Source: netSPEAR data for Kenya, Uganda & Tanzania from 2003-2007

Uganda introduced the pentavalent conjugate Hib vaccine in its routine immunization programme in June 2002 and recent studies have found the vaccine to be highly effective in the prevention of Hib Meningitis in Uganda. A study by the Ministry of Health Uganda, WHO and CDC estimated that 76% of children had more than three doses of pentavalent vaccine with an effectiveness of more than 90% in this group of children, using only documented history for vaccination. A case control study and a review of three hospital surveillance data on Hib Meningitis in Uganda adds to the existing evidence on the high effectiveness of Conjugate Hib vaccines in the Sub-Sahara Africa under routine immunization use. Similar results have been observed and

documented in Gambia, Malawi, Kenya and South Africa. The results translate to a drop in meningitis mortality, prevention of more than 5000 death annually among children less than 5 years old, due to better collaboration between health workers involved in surveillance. The emerging surveillance data also contributed to policy change on the first line antibiotics for meningitis from Chloramphenicol to Ceftriaxone. These studies were based on causes of meningitis only and left out important Hib related diseases including sepsis and pneumonia. It is estimated that for every Hib meningitis case, there are eight to ten pneumonia cases. From current surveillance data, *Streptococcus pneumoniae* has now emerged as the single most common cause of meningitis among children less than 5 years old in Uganda. The successful implementation of conjugate Hib vaccine and the favorable effectiveness data from several early uptake countries should be used to support informed decision making on the introduction of newer vaccines such as conjugate Pneumococcal vaccine and Rota virus vaccines that are now available with support from GAVI. Equally important is the availability of local evidence to support continued use of such newer vaccines and the great need to ensure such vaccines will continue to be available for children from developing countries like Uganda.

**NEW PNEUMOCOCCAL VACCINE INTRODUCTION TO BOOST CHILD HEALTH**

*Contributed by Dr. Isaac Mugoya of Division of Vaccines and Immunization, Kenya*

The Ministry of Public Health and Sanitation in Kenya plans to introduce the 7-valent Pneumococcal Conjugate Vaccine (PCV7) in the routine schedule in July 2009. To this end, the Division of Vaccines and Immunization (DVI) re-submitted the application for the vaccine to GAVI on 2<sup>nd</sup> May 2008. The introduction will follow the existing EPI schedule in Kenya and the vaccine will be provided for children aged less than 1 year. The target immunization age will be 6, 10, and 14 weeks (three doses) when infants presently come for Pentavalent and OPV vaccines. Catch-up immunization will be conducted in two selected districts (Kilifi in Coast Province and Bondo in Nyanza Province) for children aged 12 months to 59 months as part of two



special studies to be done to monitor herd protection effects in the general population. This will be implemented from July 2009 to September 2009 whereby all children less than 1 year in both districts will follow the same vaccination schedule as the rest of country. Those between 12 to 59 months will receive 2 doses of pneumococcal vaccine spaced eight weeks apart. The DVI through government funding has embarked on cold-chain expansion for the next three years. This will help ease existing storage pressure and meet storage needs of the new vaccine. On application approval, the DVI will review the data collection tools to include PCV. Health workers will be trained on the new vaccine to facilitate smooth introduction of the vaccine.

## LAB EFFICIENCY AND EFFECTIVENESS THROUGH AUTOMATED LABORATORY REPORTING

*Contributed by Angela Karani of KEMRI-Wellcome Trust, Kilifi*

The need to ensure a smooth flow of work and efficiency in organizations and institutions calls for proper documentation, dissemination and storage of data. At KEMRI-Wellcome Trust Kilifi, this task was undertaken as one of its main goals and hence the on-going integrated data management system that links all departments. This system hosted in 2002, carries the unit's data dating back to the last 10-15 years and information stored therein is easily accessible to authorized staff. For easy dissemination of clinical and laboratory information, data computed in the computer system in the ward can be accessed by the both the clinical and laboratory

staff using the networked computer system. The data is therefore available for analysis and interpretation by both teams at the click of a button making it possible for each team to execute their work efficiently and more effectively. For disease surveillance and evaluation of public health practice, this database has been used for more than 10 years, evidenced by references to the archive of stored sample results in a number of scientific papers that have been published. We encourage all institutions to up-hold the use of computerized data storage and management in order to improve disease surveillance and health practices.

## STAFF TRAINING: EFFECTS ON HOSPITAL SURVEILLANCE

*Contributed by Dr. Ben Amos of Hospital Teule, Tanzania*



*Clinical and lab staff from Kenya, Tanzania, Uganda who attended surveillance training over the past years*

In the past two and a half years, Hospital Teule in Muheza, Tanzania has sent five members of staff to the Kilifi reference laboratory in Kenya for training on serotyping and antibiotic sensitivity testing. Though being in different countries, the accessibility and proximity of Hospital Teule to the reference lab in Kilifi has made it more reliable and simpler for laboratory technicians to courier collected isolates and while there, receive training using these isolates for pneumococcal serotyping and E-tests and receive EQA's to carry back to the Teule laboratory. With the knowledge that in most hospitals, further education for laboratory technicians is normally difficult to achieve, the training received at the Kilifi referral laboratory is greatly appreciated. At present, we do not carry out serotyping at the hospital, but we may well be using E-test in the near future and everyone at the lab now feels comfortable on how to process E-tests. The trainings also have the positive effects of motivating the laboratory staff by exposing them to a different country and different healthcare systems. They return from these trips with a renewed understanding and appreciation of why they are involved in the surveillance, a feeling of being part of a larger team in the surveillance network. Many of the lab staff at Teule process CSF for out-of hour's on-call thus these trainings are an important tool in the effort of keeping everyone informed which is important for the quality of the surveillance.

## INTERNATIONAL NEWS:

### Strengthening Health systems:

One of the main barriers in extending immunization is the weak health systems found in various developing countries. Strong health systems make it possible for life-saving health interventions to be delivered in reliable and reasonable cost effective ways. In a bid to strengthen the health systems in the world's poorest countries, GAVI alliance invested an initial US \$500million for these activities in December 2005 and later increased its funding to US\$800 million in May 2008. Of the 40 countries that applied for this funding, 29 countries have been approved for funding and the rest are pending for board approval in June 2008. Dr. Lob-Levyt of the GAVI alliance stated that GAVI is hopeful that support for both vaccines and health systems will ensure sustained increased immunization coverage and prove to be a winning combination for the world's poorest countries. More at [www.gavialliance.org/media\\_centre](http://www.gavialliance.org/media_centre)

### Rates of Invasive Pneumococcal Disease Decline

At the 2008 International Conference on Emerging Infectious Diseases, held in the USA, researches from the Centers for Disease Control and Prevention (CDC) noted that since the approval and introduction of 7-valent pneumococcal conjugate vaccine (PCV7) in the United States in 2000 for children under 5 years of age, rates of invasive pneumococcal disease (IPD) have decreased. CDC compared the rates of IPD in 2006 with reported rates for the period 1998 to 1999 before the introduction of the vaccine and found that there was a considerable decline in IPD rates -78% for children younger than 5 years. Since a number of developing countries have put plans to introduce this vaccine into their health immunization programs, these findings give a positive boost and increases the confidence on the reduction of rates of IPD on their nation's children. More at [www.asm.org/Media/index.asp](http://www.asm.org/Media/index.asp)

### Editor's comments:

Dear Readers,

Our newsletter relates to some of our recent activities and projects. We remain extremely grateful to the staff at the surveillance sentinel sites for carrying out cultures and CSF's and providing samples and data in support of local, national and regional surveillances.

If you would like to subscribe for netSPEAR newsletters or send us news, questions or comments, please contact us at [netspear@nairobi.kemri-wellcome.org](mailto:netspear@nairobi.kemri-wellcome.org)