Surveillance for New Vaccine Preventable Diseases (VPD) and Standardized Data Collection

With focus on
Invasive Bacterial disease (IBD) and Rotavirus Surveillance Networks

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Presentation Outline

1. Key strategies for surveillance of new VPDs [focus on rotavirus, IBD]
2. Standardization across countries
3. Minimum outcome and performance indicators
4. Issues and challenges
PART I

Key Strategies for surveillance of New Vaccine Preventable Diseases
Surveillance for new VPDs

- Differ from surveillance of traditional VPD
  - Have relatively specific clinical picture

- Multiple etiologies of the disease syndromes caused by new VPD (e.g. diarrhea, meningitis pneumonia)

- Started prior to vaccine introduction
  - Increasing awareness about the disease-advocacy
    - Diarrhea/pneumonia well known but not Rotavirus or Hib
  - Assessment of disease burden
  - Establishing disease epidemiology (genotype/serotype etc)
Evolution of surveillance of new VPDs

- Started through special global initiatives such as PneumoADIP, RotaADIP, Global Hib Initiative, between 2002-2008
- A regional/global network approach
- As special time-limited Sentinel-hospital studies—
  - Focus only on severe disease
  - generally one tertiary-level hospital
  - Age restricted for optimization (<5 years of age)
PneumoADIP and Hib Initiative supported IBD surveillance networks

Pneumococcal Surveillance Networks: Meningitis, Pneumonia, Sepsis

EMRO
- Morocco
- Egypt
- Syria
- Yemen
- Tunisia
- Pakistan

IBIS/SAPNA
- India
- Nepal
- Sri Lanka

IVI
- Vietnam

IEIP/MOH/CDC
- Thailand

ICDDR.B
- Bangladesh

netSPEAR
- Kenya
- Uganda
- Ethiopia
- Tanzania
- Burundi
- Eritrea
- Rwanda

SIREVA II
- 21 countries

Slides: Orin Levin/PneumoADIP
Transition from special projects to ‘Surveillance’

- Moving from time-limited projects to sustainable surveillance
- Country-owned managed and operated by NIP or MOH as part of overall VPD surveillance
- Under overall WHO regional offices coordination since January 2009
Layered Approach in a regional network:
Bridging to get more comprehensive data

- Sentinel hospital Based
- Sentinel hospital-based; All IBDs
- Population-based

**Core**
Key indicator: proportion

**Added**

**Enhanced**
- 1-site/Region
- Incidence measurement

*Discussed and agreed in October 08 in meeting on NUVI surveillance and data standardization, Geneva

1 Only for invasive bacterial diseases, where core site only focus on meningitis
PART II

Focus on Standardization
What standardization means and why it is needed

- Standardization for case-definitions and minimum indicators
- To answer key epidemiological questions to allow comparability across countries
- To spot any unusual pattern in some countries (special genotypes/serotypes, etc)
- Global and regional data will help frame regional/global recommendations for vaccine use
PART II

Minimum outcome and performance indicators*

*As agreed in October 2008 meeting in Geneva
Key outcome indicators calculated: Rotavirus (RV)

- Core site
  - % of children under-5 years of age hospitalized with primary diagnosis of acute watery diarrhea that are positive for RV antigen (disaggregated by broad age groups)
  - % of RV+ patients who died

- Enhanced site
  - Incidence of RV diarrhea in under-5 population
Key Performance indicators: RV

- Sentinel site performance
  - Proportion of children that met case definition from whom a case report form completed
  - Proportion of eligible children from whom an adequate sample was collected
  - Proportion of eligible children from whom a lab sample was collected within 48 hours of hospital admission

- Network performance indicators: timeliness of reporting
Key outcome indicators: IBD

- **Core** site
  - No. (%) of suspected meningitis cases that meet the case definition for probable bacterial meningitis
  - No. (%) of probable bacterial meningitis cases with HI/Pneumococcus/meningococcus identified by culture or latex

- **Added** site: above indicators+
  - Proportion of under-5 children admitted in hospital with diagnosis of pneumonia/septicemia and tested positive for Hib/ pneumococcus

- **Enhanced**: incidence of IBD due to Hib/pneumococcus/100,000 under-5 population
Key Performance indicators: IBD

- Core
  - No. (%) of LPs performed that have a culture result recorded

- Added
  - No. (%) of hospitalized pneumonia cases (admission diagnosis of suspected pneumonia) that had a blood culture preformed
  - No (%) of cases who had a blood culture performed with an outcome recorded
Reporting and dissemination of data*

- Development of a reporting calendar
- Reporting of case-based or aggregate data by the surveillance sites
- Monthly/quarterly by countries to MOH/WHO country/regional offices
- Publication of quarterly regional bulletins
- Publication of six-monthly global bulletins

* Based on conclusion of a global meeting on data standardization for surveillance of new VPD
PART IV

Issues and Challenges
Use of the Data Generated

- Key outcome Indicator: proportion of hospitalized children due to a particular pathogen may not provide data on disease burden at national level.
- But still has a value.
- Gives information on genotype/serotype coverage
- Provides a platform for doing case-control vaccine effectiveness studies
- When triangulated with nationally reported data can provides some estimates of national disease burden
- Give some information on trends
Issues

■ Mainly focused on GAVI eligible countries with few exceptions

■ Is the current sentinel surveillance for IBD and rotavirus diarrhea
  □ Public health research
  □ Public health surveillance

■ Integration with other VPD surveillance

■ Data collection is much more intensive and complex (esp for IBD)

■ Much less focus on triangulating with overall nationwide syndromic reporting

Needs a paradigm shift
Can the same model serve the need the post-vaccine introduction

- Post-vaccine introduction requirements may be different from pre-vaccine introduction requirement
  - May not help to monitor the performance of vaccination programs (low coverage pockets may not be covered by sentinel sites)
  - Will not help in monitoring the elimination/eradication of a disease
  - Current age-restriction mean that age-shifts may not be detected
  - But will help to monitor any changes in serotype post vaccine introduction
Conclusions

- NUVI surveillance: regional/global network with sentinel hospital-based surveillance with a ‘layered’ approach at least one core site
- Transitioning from public health ‘research’ to ‘surveillance’ mode with more mainstreaming with overall VPD disease surveillance
- Standardizing the case definitions and minimum outcome and performance indicators
- Has some limitations and challenges, but still has value—both pre- and post-vaccine introduction.
Thank You for your kind attention..