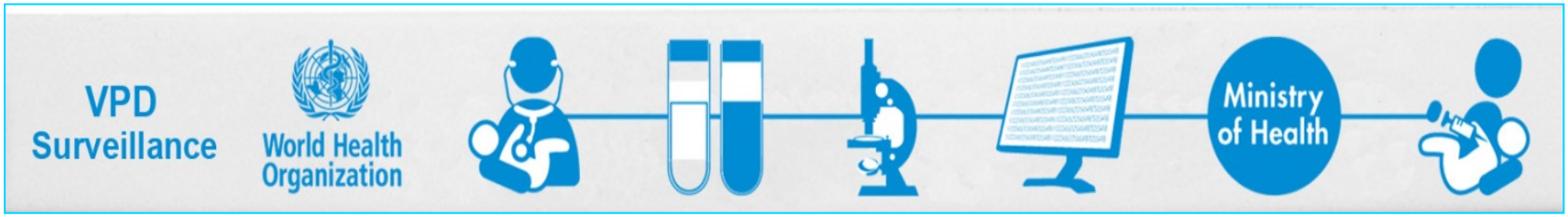

Strategic Review of the Invasive Bacterial Vaccine Preventable Diseases (IB-VPD) Surveillance Network: Key Findings, Conclusions and Recommendations

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Genesis of Strategic Review

- RV & IB VPD sentinel hospital surveillance networks
  - Transitioned to WHO in 2008
- Current context:
  - Competing health priorities; scarce human & financial resources
  - Accelerating vaccine introductions
  - Call for quality case-based surveillance in 2011-2020 Global Vaccine Action Plan
  - Need to identify strengths, weaknesses, strategic approach for future
- February 2013: strategic review launched
- Partnership with iTAG for NUVI surveillance
  - Monthly calls: WHO RO/HQ, iTAG
  - Jointly agreed objectives & scope of review
- Primary assessment: were original 2008 objectives met?

2008 NUVI Surveillance Review Objectives

- **Pre-vaccine introduction period**:
  - Document presence of disease, describe disease epidemiology, provide data for estimating disease burden
  - Establish system to measure impact after vaccine introduction
  - Identify circulating serotypes & measure serotype distribution
  - Monitor antibiotic sensitivity
- **Post-vaccine introduction period**
  - Assess disease trends over time
  - Monitor vaccination program impact
  - Monitor changes in circulating strains/serotypes
  - Platform for effectiveness and safety evaluation

Scope of Strategic Review

Issues Assessed		Source of Information
1	Were 2008 objectives met?	• Original documents, Network data • Use of data (literature, GAVI applications, WHO)
2	MoH perspectives	• MoH questionnaire
3	Laboratory network, including 2008 goals	• Independent consultant
4	WHO: Build capacity & 2008 roles/resp.	• WHO
5	Data management	• Independent consultant: Data landscape analysis
6	Funding	• WHO

Methods: IB-VPD (I)

- Surveillance data available to WHO
  - IBVPD: case-based x 4 ROs; aggregated x 2 ROs
  - >90 databases consolidated, cleaned & IB-VPD variables mapped across Regions & countries
- IB-VPD sites categorized
  - Based on consistency of reporting & case enrolment
  - 2010 - 2012

Methods (II): Categorization of IB-VPD Sites

New : Began reporting in 2011 or 2012

A :

- Reported data ≥ **11** months per year for ≥ 2 years during 2010-2012
- Tier 1: enrolled ≥100 suspected meningitis cases **per year for at least 2 years** during 2010-2012
- Tier 2: enrolled a ≥500 suspected meningitis/pneumonia/sepsis cases **per year for at least 2 years** during 2010-2012

B :

- Reported data ≥ **10** months per year for ≥ 2 years during 2010-2012
- Tier 1: enrolled **TOTAL** of ≥100 suspected meningitis cases during 2010-2012
- Tier 2: enrolled **TOTAL** of ≥500 suspected meningitis/pneumonia/ sepsis cases during 2010-2012

C :

- Improved in consistency of reporting & case enrolment between 2011 & 2012

D: all other sites

WHO IB-VPD Network Timeline

Pre 2008

Regional networks

2008/2009

Transition to WHO

Funding

GAVI: 1 site / country

Data

- Standardization Meeting
- RO: 4 case-based; 2 aggregate
- RO: 1/4ly feedback, HQ 2x yearly bulletin
- ST: 1 x yearly

Dec '09: 1st global bulletin

2010

1st global meeting Sept

Decisions

Clinical

Meningitis case definition standardized

Data

Indicators revised

2011

Visual Aid SOPs Begun

- CSF collection
- Lab: CSF
- Data management
- Site assessment

Lab EQA piloted

2nd global meeting Sept

Lab

Add RDT, PCR at RRL

Data

RO report to HQ all lab confirmed cases (in suspect + probable)

2012

Full EQA

Standardized site assessments

Visual SOPs finalized, including lab manual

1st Lab TWG

3rd global meeting Oct

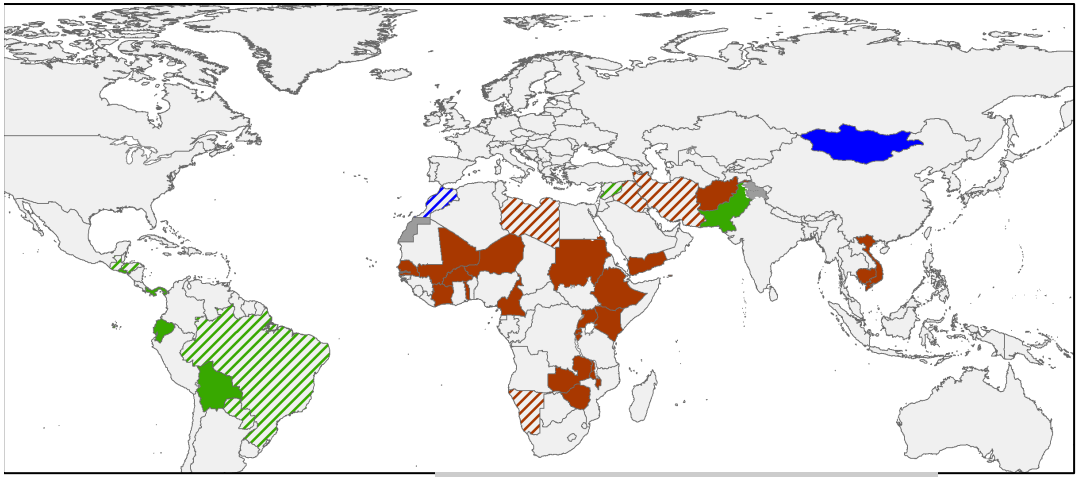
Implementation

2013

Strategic review

2008 to 2012

IB-VPD Network: 2008 versus 2012



2008

36 countries (+1 lab based),

69% GAVI

91 sites

- **60% GAVI**

Suspect cases

- **16,124 meningitis**
- **20,098 pneum/sepsis**

2012

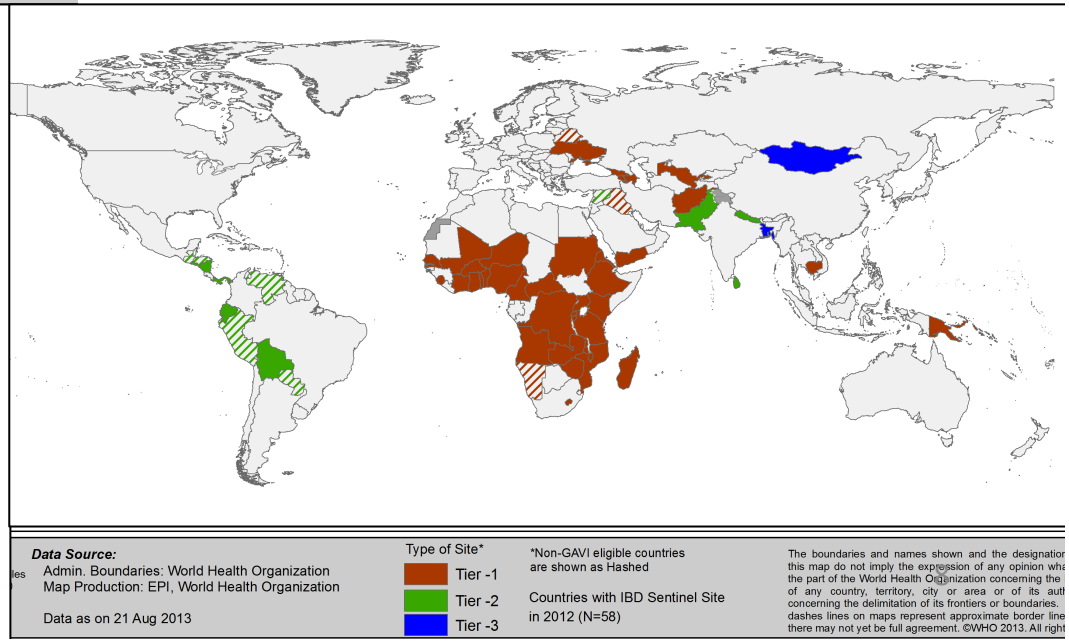
58 countries, 79% GAVI

150 sites

- **70% GAVI**

Suspect cases

- **20,098 meningitis**
- **35,480 pneum/sepsis**



IB-VPD Strategic Review

- Accomplishments
  - Met the 2008 objectives for presence of disease
  - Countries value and are using IBD surveillance platform and IB-VPD data
    - Mongolia & Brazil : platforms for special study
    - GAVI applications: 67% use country IB-VPD data
    - Capacity built for other VPDs: Isolation of S. enterica
    - Outbreak detection: meningitis outbreaks
    - Countries with 2 years baseline data of pneumococcal isolates and 1 year post intro data

Overarching Challenges

- System has developed and functions as six separate regional networks, not a single network
- Limited ability to use data for real time monitoring of reagents, site or lab performance
  - lack of case level data in standard format
  - difficulty linking laboratory results with the clinical and epidemiologic data on the same patient
- Variation in laboratory confirmed cases per site
  - some sites with small numbers of cases
  - substantial year-to-year variability

Challenges, Continued

- Resources needed for network of this size are insufficient and need more strategic allocation
  - Resources for network data management and analysis
  - Reference Lab capacity (tests, site visits) need to match number of sentinel sites supported

- Countries value network for
  - Technical standards for surveillance
  - Access to technical assistance, reference laboratories, and reagents;
  - Communication and collaboration among participants

1. Refine network objectives –focus on vaccine impact assessment and country decisions for vaccine financing

- Possible approaches for vaccine impact
  - Invasive Bacterial Disease: new performance criteria –sufficient number of lab confirmed cases per site to provide reliable data– propose 20-30 cases per year IPD pre-vaccine introduction
  - Pediatric pneumonia: determine site capacity needed from PneumoConjugateVaccine (PCV) impact meeting
  - NP colonization: PCV impact meeting-concerns re cost, complexity, difficulty of interpretation
  - Models for vaccine impact on country's morbidity and mortality, cost-effectiveness of vaccination

Objectives, Continued

- Strategy for monitoring for emerging organisms and anti-microbial susceptibility
  - Special studies?
  - If done as part of surveillance, needs substantial infra-structure support, real time performance monitoring
  - Role of health system strengthening?

2. IB-VPD surveillance should function as single global network generating credible well-defined data

- Policies and data systems that can:
  - Monitor system performance in real time
  - Use data for laboratory quality assurance
  - Evaluate performance of new diagnostics
- Specific needs include:
  - Best practises system design used throughout network, including standard variable coding, case level data, unique identification numbers, zero reporting, built-in editing and verification
  - Policies to ensure linkage of laboratory results (site and RRL) to specimen/patient
  - Policies that assure an appropriate sample of specimens are tested in Regional Reference Laboratories—address “Materials Transfer” constraints
  - System flexibility and policies to incorporate new laboratory tests when officially added as standard procedure

3. Resources linked to new objectives, with accountability

- For 2014, resources should be focused on sites meeting the agreed on performance criteria and eliminating funding for the sites that have not met them
- Develop structured performance-based agreements for subsequent years
  - Sites identify approach for vaccine impact monitoring based on experience(IPD, pediatric pneumonia, modelling)
- Funding for reference laboratories linked to outputs (site visits to be done, specimens to be processed)
- Adequate funding for global data management and oversight