

# **Strategic Review of the Rotavirus Surveillance Network: Key Findings, Conclusions and Recommendations**

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SAGE

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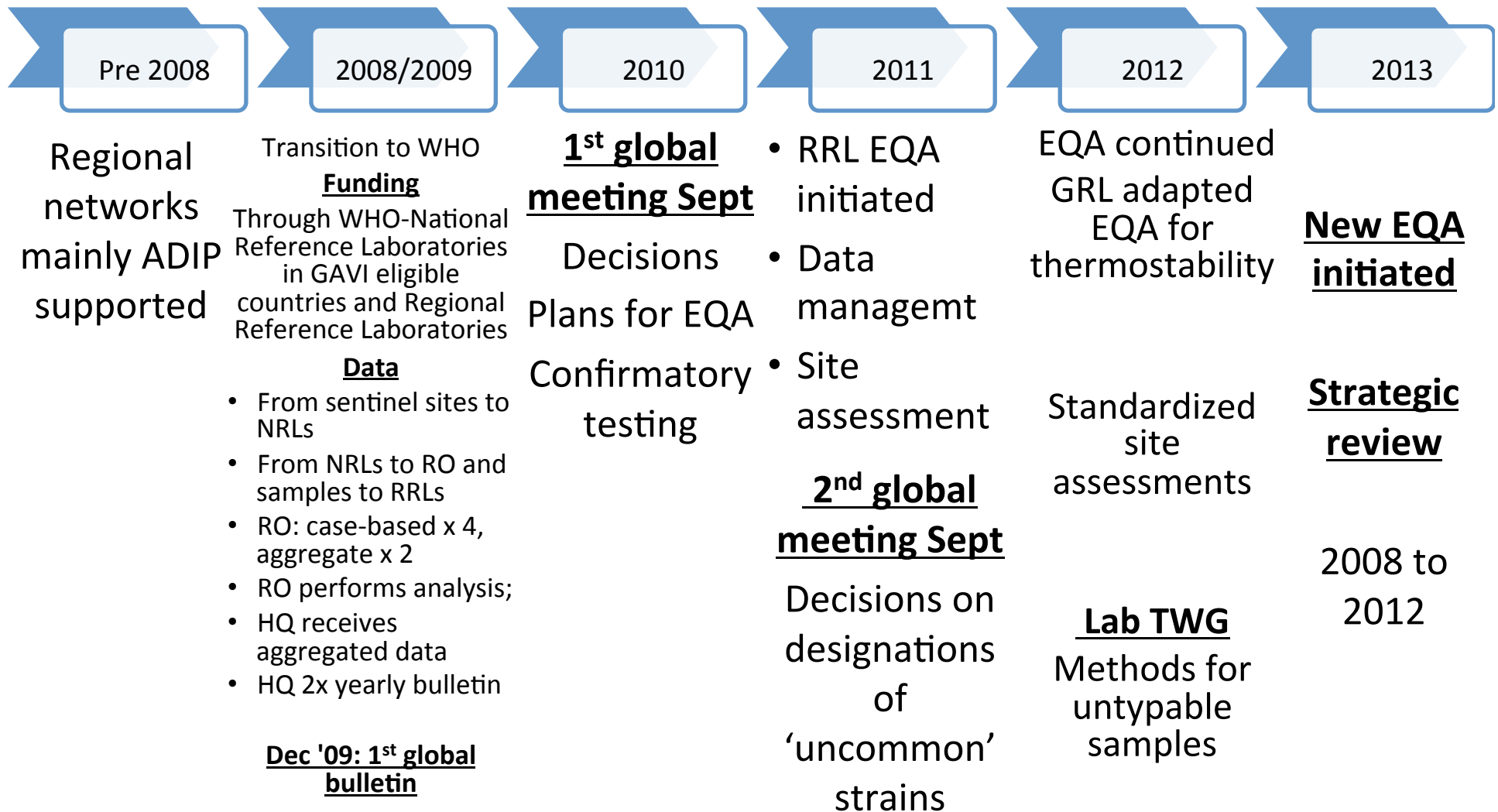
# Methods: RV (I)

- Surveillance data available to WHO
  - RV: Data from all regions as monthly and annual data
- Datasets cleaned and analysed
  - 15 variables total, 6 used for analyses
  - Data analysed from 2008 to 2012

# Methods for Analysis (II)

- Determination of inclusion sites
- Analysis of performance indicators
- Analysis of seasonality
- Analysis of rotavirus positivity by age group
- Literature review
- Impact evaluation

# WHO RV Network Timeline



# Analysis for Strategic Review

- Number of countries and sites that ever reported data to WHO, 2008-2012 by year and GAVI eligibility
- Countries and sites reported >10 months of data and Tested  $\geq 100$  Specimens for 2008-2012 and 2011-2012
  - Performance Indicator 1: % Eligible Enrolled per Month (Target  $\geq 80\%$ )
  - Performance Indicator 2: % Enrolled Rotavirus Positive Per Year (Target  $\geq 20\%$ )
  - Performance Indicator 3: % Enrolled with Stool Specimen within 2 Days of Admission per Year (Target  $\geq 90\%$ )
  - Performance Indicator 4: % Stool Specimens Arrive at Lab for Testing Per Year (Target  $\geq 95\%$ )
  - Performance Indicator 5: % Received Specimens that are Tested per Year (Target  $\geq 90\%$ )

- Genotyping data-global, regional and over time
- Designations for 'common' and 'uncommon' strains
- Quality control and quality assurance

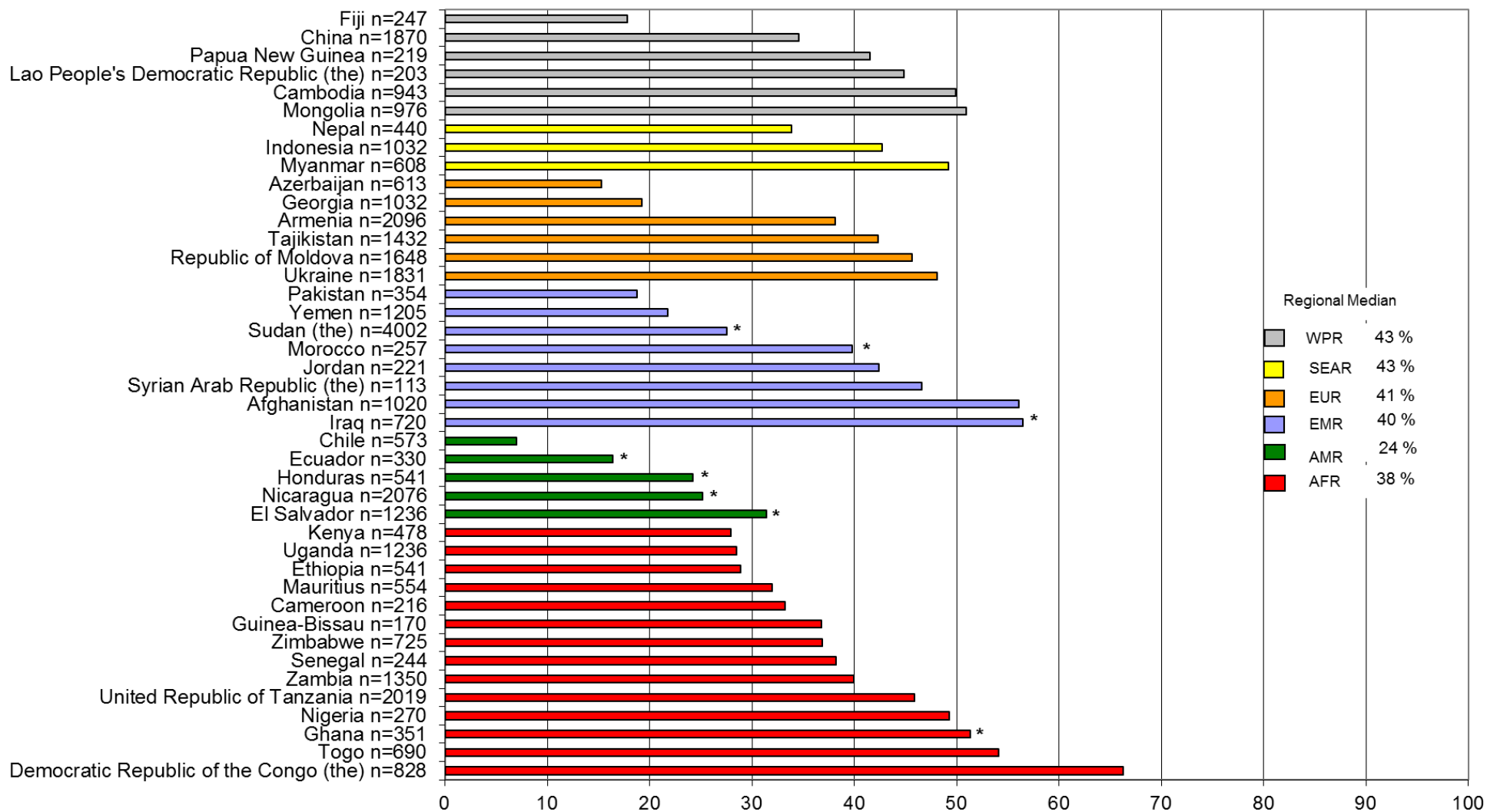


**Monthly  
rotavirus  
detection, by  
Member State  
and WHO  
region, January  
2011 through  
June 2012**

	Specimen tested from Jan 2011 to June 2012	2011												2012					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
AFR																			
Cameroon	1086																		
Central African Republic (the)	176	ND	ND	ND	ND	ND	ND	ND	ND										
Côte d'Ivoire	228			ND	ND	ND	ND		ND										
Democratic Republic of the Congo (the)	1154																		
Ethiopia	769																		
Gambia (the)	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					ND	ND	ND
Ghana	1338																		
Guinea-Bissau	791																		
Kenya	1128																		
Mauritius	336																		
Niger (the)	107	ND		ND								ND				ND	ND	ND	
Nigeria	572																		
Rwanda	610												ND						
Senegal	248					ND													
Togo	436																		
Uganda	1810																		
United Republic of Tanzania	463																		
Zambia	1871																		
Zimbabwe	2479																		
AMR																			
Bolivia (Plurinational State of)	1456													ND	ND	ND	ND	ND	ND
Brazil	779													ND	ND	ND	ND	ND	ND
Chile	1004																		
Colombia	681													ND	ND	ND	ND	ND	ND
Ecuador	1474																		
El Salvador	3834																		
Guatemala	2041													ND	ND	ND	ND	ND	ND
Guyana	24	ND										ND		ND	ND	ND	ND	ND	ND
Honduras	3376																		
Nicaragua	381	ND	ND	ND	ND	ND													
Paraguay	206													ND	ND	ND	ND	ND	ND
Saint Vincent and the Grenadines	7	ND		ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	ND
Suriname	180													ND	ND	ND	ND	ND	ND
Venezuela (Bolivarian Republic of)	405																		
EMR																			
Afghanistan	1246																		
Iraq	1962																		
Jordan	413																		
Morocco	261																		
Pakistan	1874																		
Sudan (the)	6731																		
Syrian Arab Republic (the)	322																		
Yemen	507																		
EUR																			
Armenia	3085																		
Azerbaijan	1587																		
Georgia	848																		
Republic of Moldova	2217																		
Tajikistan	2233																		
Ukraine	1701																		
SEAR																			
Indonesia	856																		
Myanmar	1042																		
Nepal	1548																		
Sri Lanka	218	ND	ND	ND	ND	ND	ND							ND	ND	ND	ND	ND	ND
WPR																			
Cambodia	1322																		
China	2788																		
Fiji	454																		
Lao People's Democratic Republic (the)	386																		
Mongolia	1248																		
Papua New Guinea	240																		
Viet Nam	1440													ND	ND	ND	ND	ND	ND

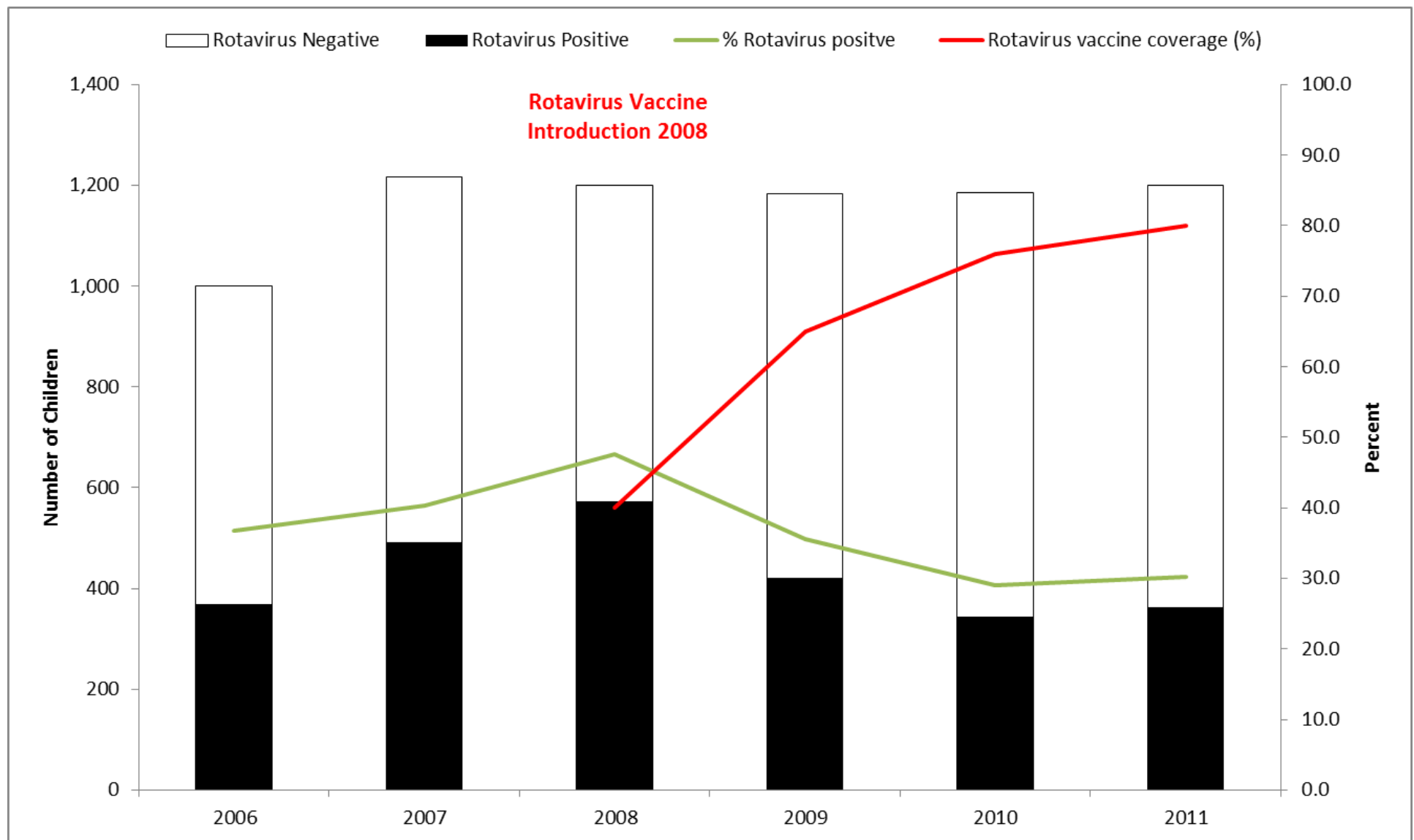
	>= 40% of tested samples were positive for Rotavirus
	>= 30% and < 40% of tested samples were positive for Rotavirus
	>= 20% and < 30% of tested samples were positive for Rotavirus
	>= 10% and < 20% of tested samples were positive for Rotavirus
	>= 0% of tested samples were positive for Rotavirus
ND	No data available

# Rotavirus Detection for 42 Member States that Tested > 100 Stool Specimens and Reported at Least One Specimen Tested for Each Reporting Period Used by WHO Region, July 2011 through June 2012

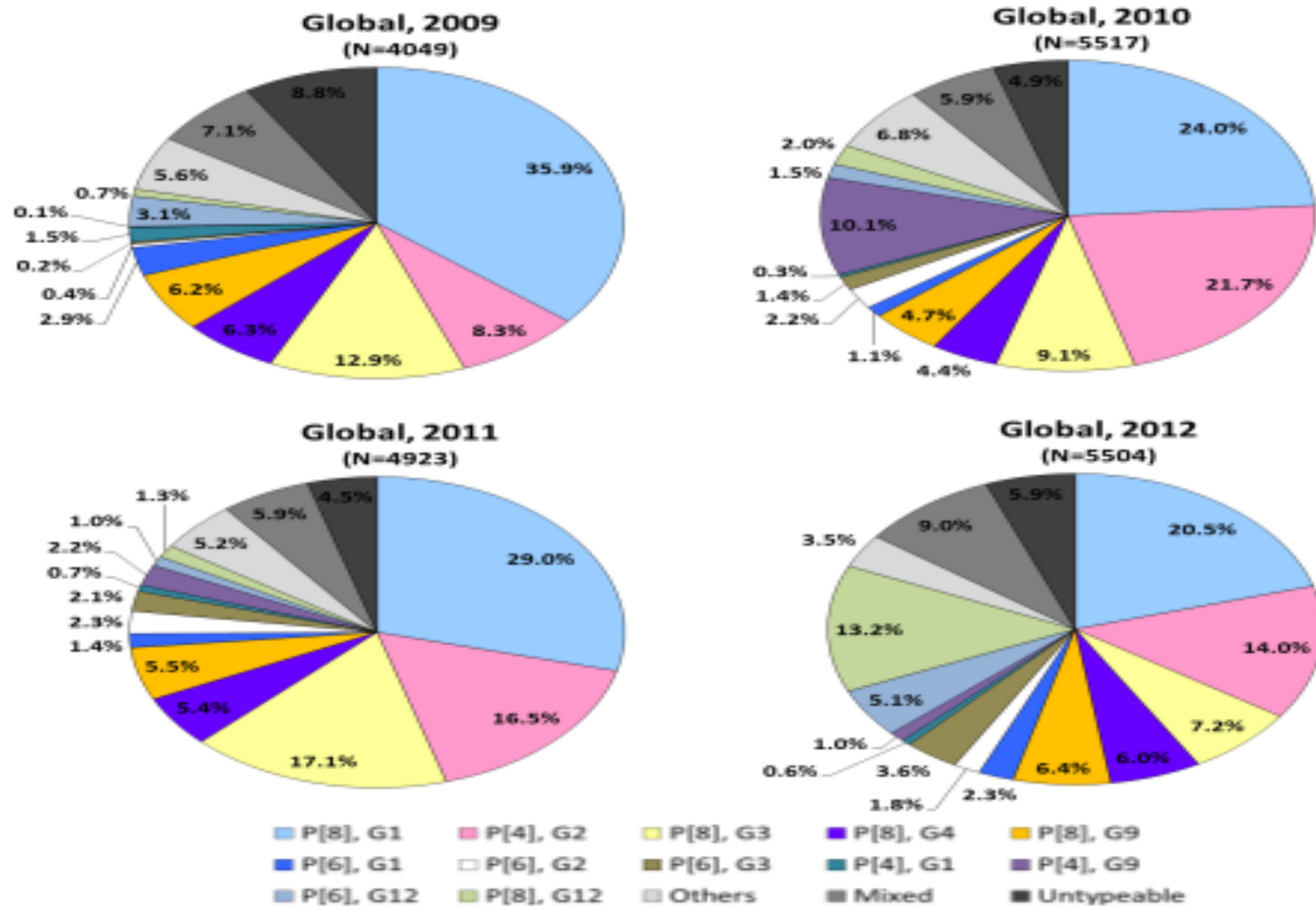




**Rotavirus detection in stool specimens of children <5 years of age admitted with acute gastroenteritis diarrhoea to hospital sentinel surveillance sites meeting inclusion criteria\* and national rotavirus vaccine coverage, 2006-2011, Bolivia**



# Global distribution of rotavirus genotypes reported to WHO – 2009-2012



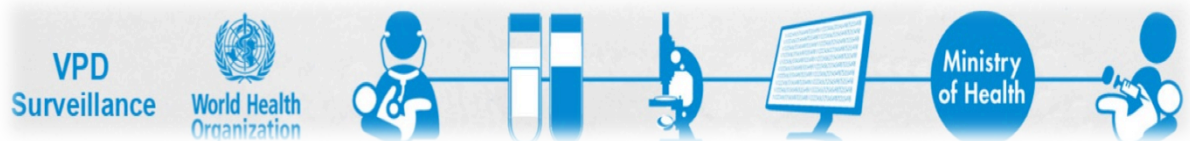
# RV Strategic Review

- Accomplishments
  - Met the 2008 objectives for
    - presence of disease
    - monitoring disease trends over time
    - genotype distribution
  - Countries value and are using RV surveillance platform and RV data
  - Countries in regions that have introduced vaccine have been able to use the surveillance network for special studies to demonstrate impact
  - Plans are being made to use the networks for surveillance of other pathogens



# Overarching Issues

- 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



# Issues, 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



# Recommendations for the RV Network (1)

## Overall surveillance system

- Standardize data across sites/regions
- Report surveillance data, possibly including genotype data, twice yearly
- **Report case-based data to HQ**
- Encourage non-GAVI eligible countries to report
- Examine current performance indicators for usefulness
- Improve data management and quality
- Modify future Global Bulletins to show all reporting countries on map, but limit analysis to subset of reporting sites
- **Network across all regions for lessons learned**



# Recommendations for the RV Network (2)

## Laboratory-specific

- Standardize sample selection for genotyping
- Consider linking case-based data to genotype data
- Examine country-level genotype distribution
  - In addition to distribution at regional and global levels
- Build additional technical capacity at the national laboratory (NL) level, if possible
  - e.g., involvement of NL staff in building capacity at national level
- Network with other labs (e.g., measles, polio, IBD) to look for opportunities for efficiencies



# Recommendations for the RV Network (3)

## Sentinel site-specific

- Review standard definition of a sentinel site to ensure that sites meet surveillance objectives
- Initiate zero reporting
- Update eligibility criteria for inclusion in data analyses
  - 12 months reporting and >100 specimens at a single site (no satellite sites)
- Develop strategies to improve performances at all sites (GAVI and non-GAVI)
  - Strategies may be based on findings from monitoring and evaluation of the surveillance system
  - e.g., allow all sites to participate in EQAs





# Recommendations for the RV Network (4)

- Focus on vaccine impact assessment and country decisions for vaccine financing
- Policies and data systems to monitor system performance in real time
- Specific needs include:
  - Best practices system design for use throughout network- including standard 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
  - Assurance of quality by appropriate use of RRL, address “Materials Transfer” constraints
  - System flexibility and policies to incorporate new laboratory tests when officially added as standard procedure

