

# **Immunization and Vaccine related Implementation Research (IVIR) Advisory Committee**

**May – June 2016 Meeting**

**SAGE Update October 2016**

**Professor Robert F. Breiman**

**Chair IVIR-AC**

# IVIR Advisory Committee 2016

Advises WHO on implementation research related to vaccines and immunization programs  
Provides guidance on quantitative methods useful to vaccine research



[http://www.who.int/immunization/research/committees/ivir\\_ac/en/](http://www.who.int/immunization/research/committees/ivir_ac/en/)

# WHO Implementation Research Themes

**1**

**Minimize barriers** and improve coverage of vaccines currently in use

**2**

Conduct **impact evaluation** of vaccines in use

**3**

Improve methods for **monitoring** of immunization programmes

# IVIR-AC Agenda Topics 2016

1

## Minimize barriers

- Missed opportunities for vaccination
- Non-specific effects of vaccination

2

## Evaluate impact

- WHO Framework on VPD Burden and impact assessment
- Modelling approaches to estimate rotavirus mortality
- Vaccine impact model comparisons
- HPV vaccine models to assess impact of schedules
- Influenza-specific economic guidelines
- Cholera disease burden modeling

3

## Monitoring

- Research on barriers to implement e-registries



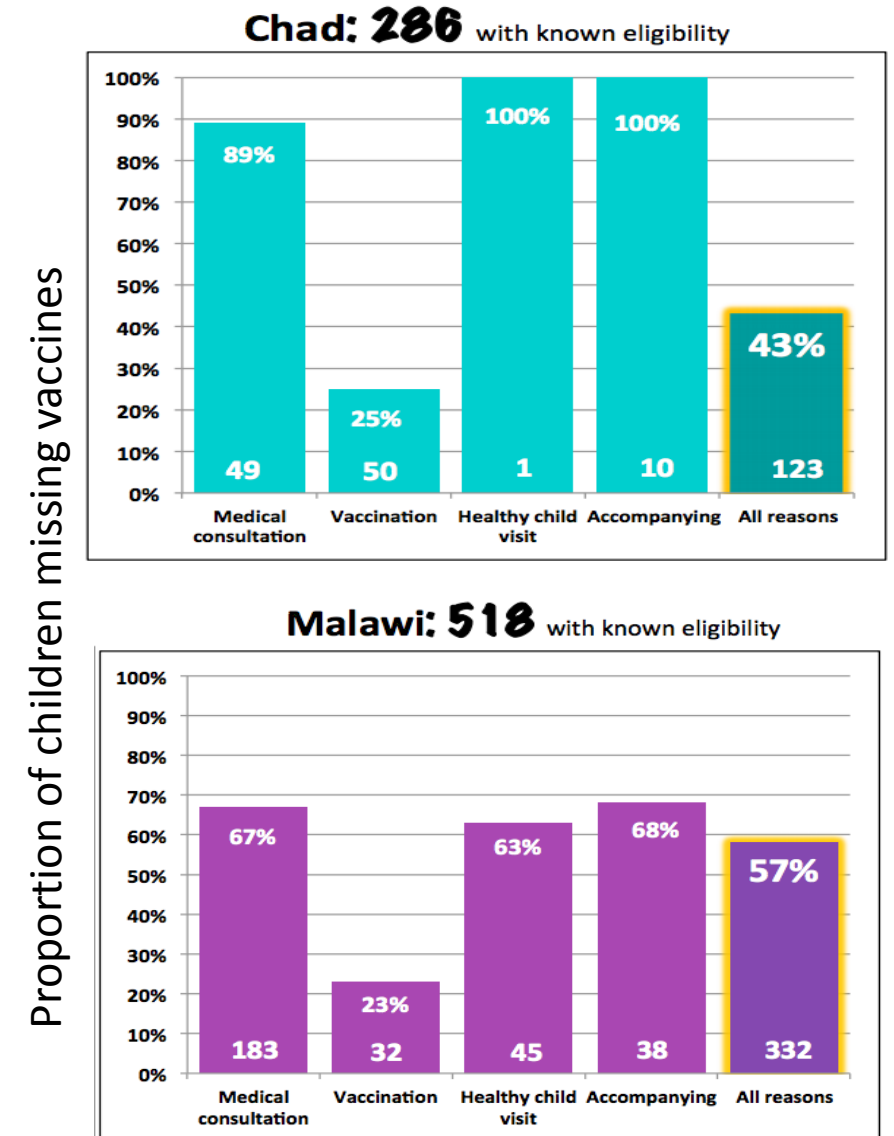
# Missed Opportunities for Vaccination (MOV)

New MOV survey methods capture both quantitative and qualitative information

MOV focus can help improve basic health systems

## IVIR-AC recommendations:

- Assess long-term impact of MOV interventions with district monthly coverage reports
- Support new ways to analyze MOV in demographic and health surveys of LMICs
- Standardize the questionnaire language
- Compile evidence for interventions and their impact on reducing MOV



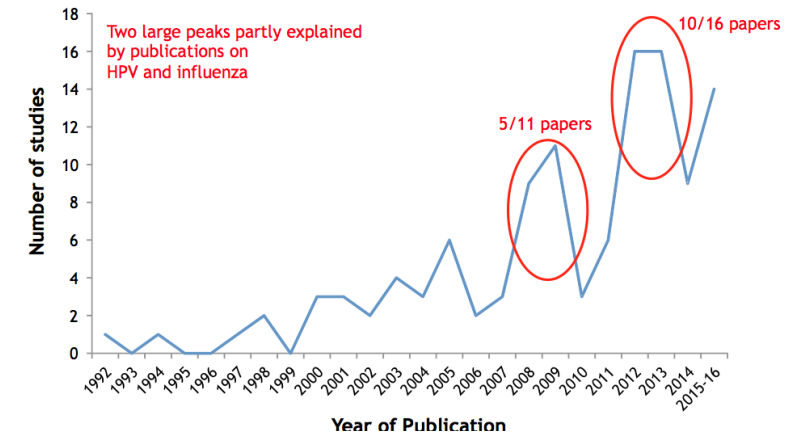
Source: WHO AFRO

# Development of WHO Guidelines for comparison of vaccine effectiveness and cost-effectiveness results

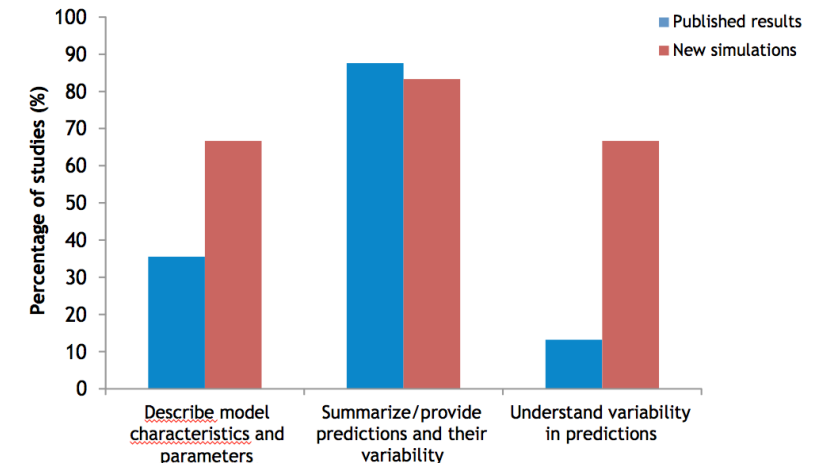
- **Systematic literature review\***
  - Over past 20 years – steep rise in model-based effectiveness and cost-effectiveness of vaccination
  - 121 model comparison studies identified since 1992
- **IVIR-AC recommendations:**
  - Guide should focus on standardization of reporting rather than methods
  - Guide should correspond with GATHER\*\* statement
  - Modelling methods should be transparent to allow for reproducibility of results
    - Call for open access & transparent databases to facilitate future model comparisons

## Description of model comparisons

Year of publication - 121 studies



## Objectives of model comparisons



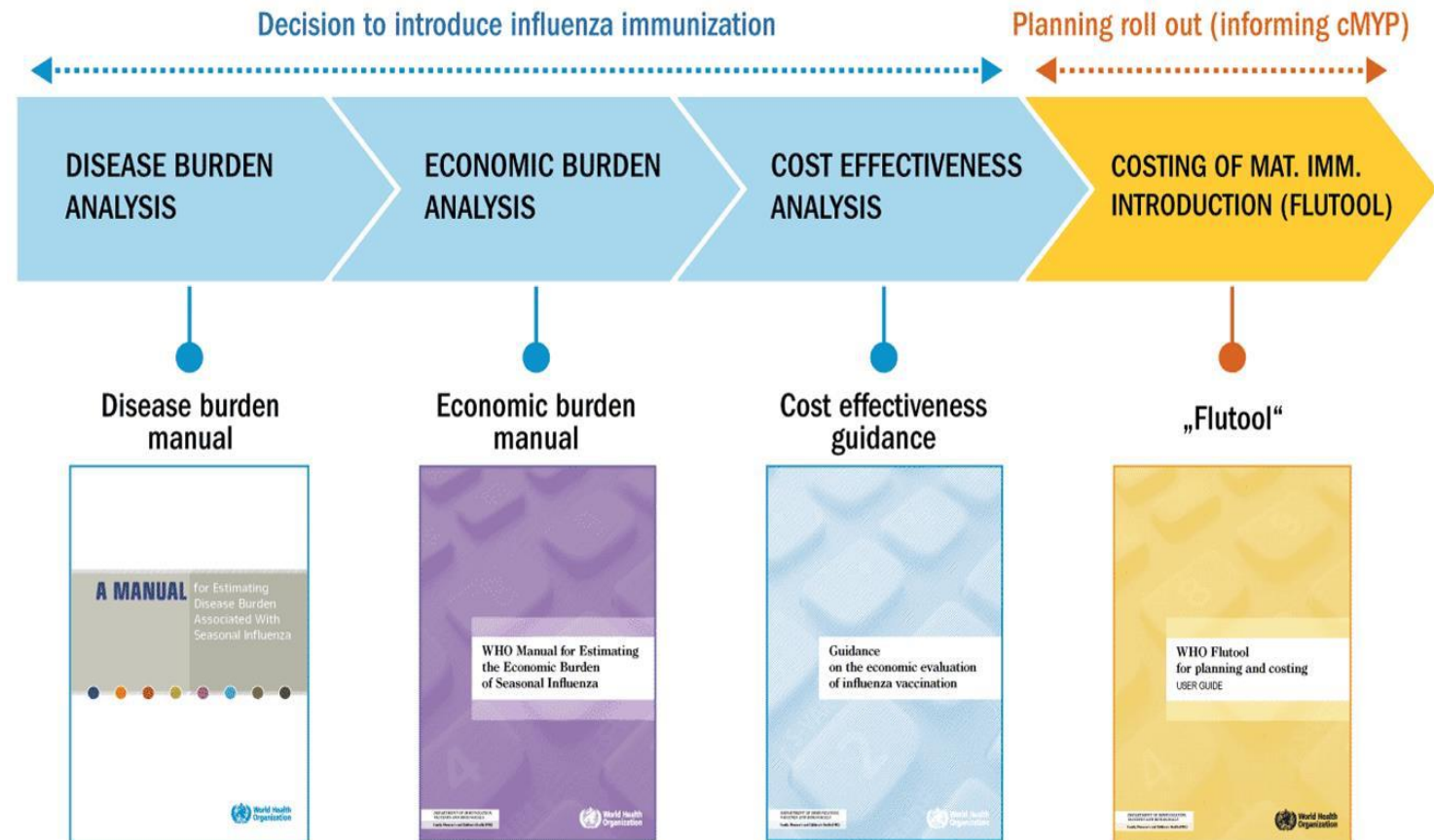
\* Brisson et al. work in progress \*\* Guidelines for Accurate and Transparent Health Estimates Reporting

# Economic value chain for seasonal influenza vaccines

Guidance documents and tools to inform decision-makers in assessing benefits of influenza vaccines.

## IVIR-AC recommendations:

- Support inclusion of epidemiological surveillance and local data
- Identify ways to effectively communicate the evidence
- Guides should recognize impact of formulation, and circulating types and subtypes over time and place on effectiveness



# Economic value chain for other vaccines in place or under development

Vaccines	Burden	Impact	Planning
Influenza	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HPV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HBV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
RV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PCV		<input checked="" type="checkbox"/>	
Pertussis	<input checked="" type="checkbox"/>		
Cholera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Typhoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dengue			<input type="checkbox"/>
Malaria			<input type="checkbox"/>

- ☒ Reviewed by IVIR-AC  
☐ Planned to be reviewed by IVIR-AC

**HPV vaccine modelling activities in LMICs to compare:**

- 9-valent to the 2/4-valent vaccines
- Gender-neutral to girls-only strategies
- 3-dose to 2-dose schedules

**IVIR-AC recommendations:**

- Endorsed framework to evaluate different HPV immunization strategies
- Cost-effectiveness should include herd effects
- Adapt models to compare HPV vaccination alone or in combination with cervical cancer screening



# Methods to improve immunization program monitoring: Immunization e-registries (IERs)

Tool for implementation research, by indicating the immunization status of hard-to-reach populations

WHO prioritizes implementation because it improves data efficiency → accuracy, effectiveness, and timeliness

Immunization managers want them in clinic settings

## IVIR-AC recommendations:

- Link work on IERs to PATH study to identify implementation barriers
- Focus on country-level program manager transition to e-registries
- Identify resources needed for sustainability and to minimize failure risk



# Non-Specific Effects of Vaccines

Apr 2014	Sept 2014	Feb 2015	Jun 2015	Sept 2015 – Apr 2016	May 2016 – Oct 2016
<b>SAGE:</b> evidence did not support changes in schedules but recommended IVIR-AC to out research questions and designs	<b>IVIR-AC:</b> recommends high-quality prospective studies to address policy relevant questions with nested immunologic analyses	<b>Ad-hoc expert group on immunological studies:</b>  Identified opportunities to define immunologic effect mechanisms in interventional studies	<b>IVIR-AC:</b> further observational studies are unlikely to inform policy  It emphasized importance of randomized trials, with nested immunologic studies	<b>IVIR-AC:</b> research questions systematized and prioritized  Study protocols to be drafted  Ad-hoc expert consultation held in December 2015	<b>IVIR-AC meeting May 2016</b>  Priority questions selected  Study protocols drafted  Ad-hoc expert consultation held in Sept 2016 Oxford  Proposals presented to IVIR-AC and SAGE in 2017

# Large portfolio of topics and the compelling need to prioritize

1

**Research to  
minimize barriers**

Research methods on community acceptance

Non-Specific Effects of vaccines

Missed opportunities

2

**Research to  
conduct impact  
evaluations**

Pertussis burden and resurgence modelling

Hepatitis B vaccine impact

Rotavirus vaccine impact

Malaria vaccine impact and CEA

Dengue vaccine CE comparison

Cholera disease burden

Polio vaccine modelling

Review of pneumo/hib burden estimates

3

**Research to  
improve methods  
for monitoring**

Immunization IERs

EPI survey analysis

Themes	Topics	2013	2014	2015	2016	2017
1	Research methods on community acceptance					
	Non-Specific Effects of vaccines					
	Missed opportunities					
2	Pertussis burden and resurgence modelling					
	Hepatitis B vaccine impact					
	Rotavirus vaccine impact					
	Malaria vaccine impact and CEA					
	Dengue vaccine CE comparison					
	Cholera disease burden					
	Polio vaccine modelling					
	Review of pneumo/hib burden estimates					
3	Immunization IERs					
	EPI survey analysis					

**Thank you**

**IVIR-AC promotes  
research to close  
the immunization  
gap**



# IVIR-AC members 2016

- [Mary Amuyunzu-Nyamongo](#), Executive Director and co-founder, African Institute for Health and Development (AIHD), Nairobi, Kenya
- [Philippe Beutels](#), Associate Professor, Health Economics, Health Economics and Modeling Infectious Diseases Unit, University of Antwerp, Belgium
- [Robert F. Breiman \(Chair\)](#), Director, Emory Global Health Institute, Emory University, Atlanta, USA
- [Marc Brisson](#), Associate Professor, Department of social and preventive medicine, Faculty of Medicine, Laval University, Canada
- [Donald Burke](#), Dean of the Graduate School of Public Health and UPMC Jonas Salk Chair of Global Health, University of Pittsburgh, USA
- [Rachel Feilden](#), FBA Health System Analysts, Bath Somerset, UK
- [Brad Gessner](#), Scientific Director, Association pour la Médecine Préventive (AMP), Paris, France
- [Gagandeep Kang](#), Head, Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India
- [Peter McIntyre](#), Director, National Centre for Immunization Research & Surveillance, University of Sydney, Australia
- [Wilfred Ndifon](#), Chair, Career Development Research, African Institute for Mathematical, Sciences, Cape Town, South Africa
- [Yot Teerawattananon](#), Founding Leader of Health Intervention and Technology Assessment Program & Senior Researcher Scholar of Thailand's Research Fund, Ministry of Public Health, Thailand
- [Mitchell Weiss](#), Professor & Head, Swiss Tropical & Public Health Institute, Basel, Switzerland