

Update on HPV vaccine introduction and programmatic perspectives

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World Health
Organization



Presentation Outline

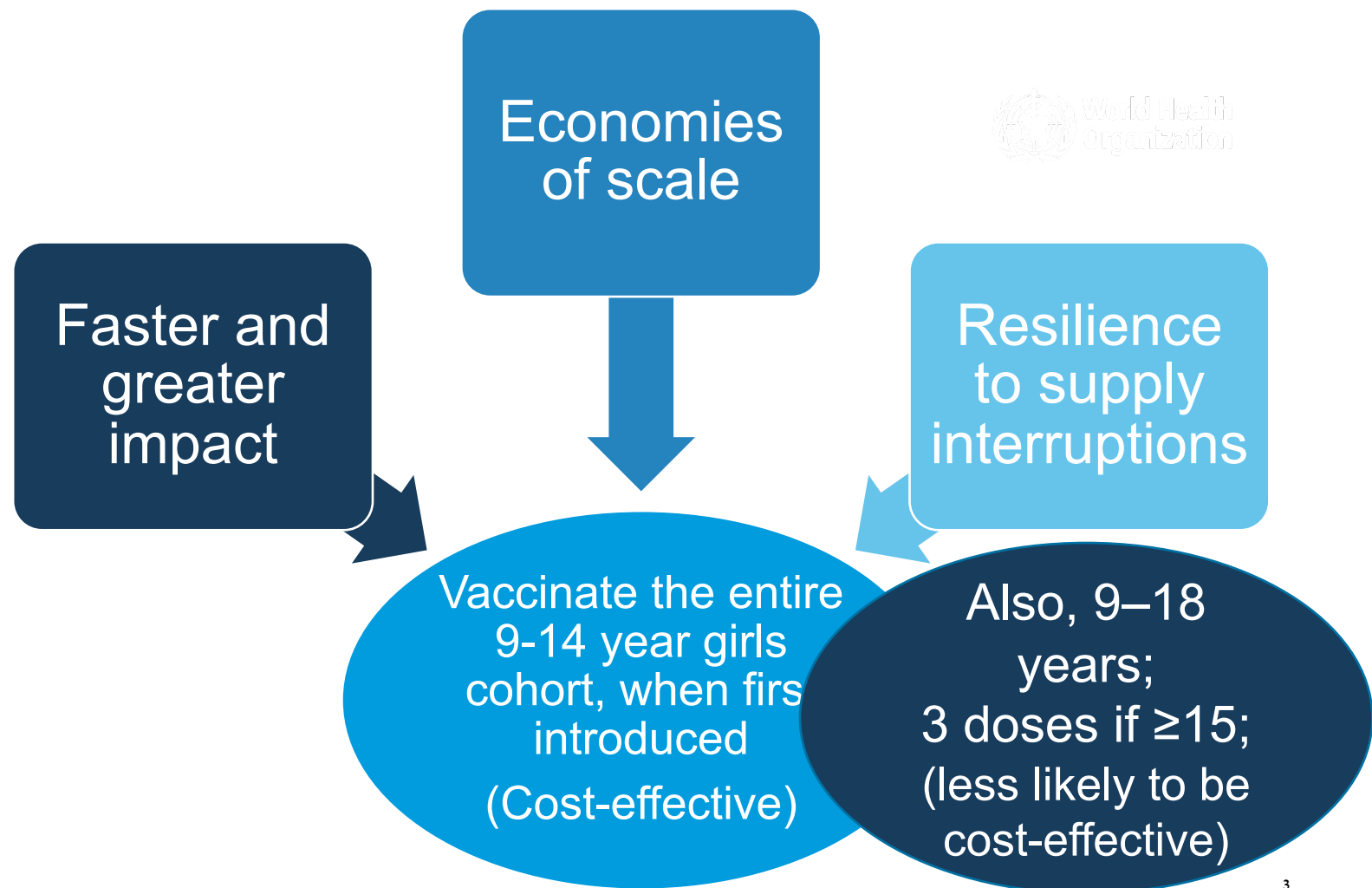
1. Where we are today:
 - Global status of HPV introduction, progress & challenges
2. What has been learned getting here:
 - What works; what does not work
3. Looking to the future:
 - Exciting developments and road ahead



WHO recommendations for HPV vaccination (2017)

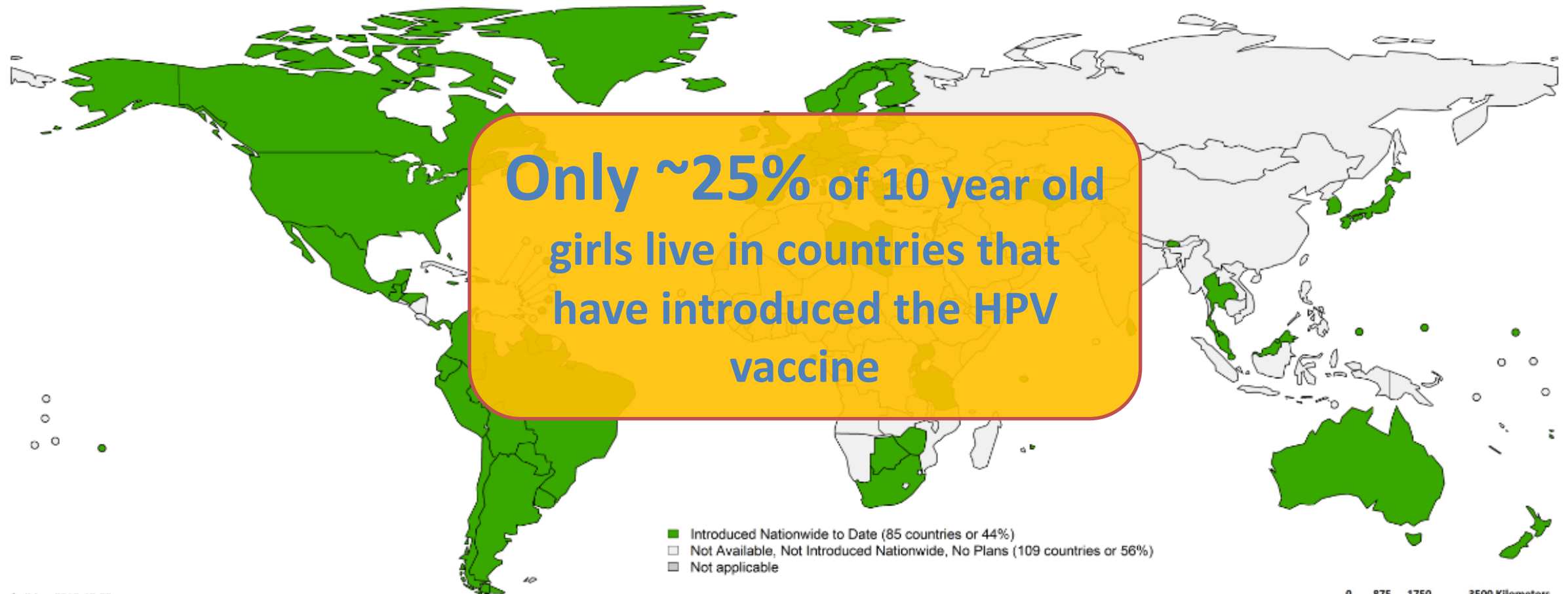
Multi-Age Cohort Vaccination (MAC)

- Primary target pop: girls 9-14 years
- 2 doses (6 months apart)
- No max interval (suggested not more than 12-15 months)
- If interval < 5 months, give another dose 6 months after 1st dose
- 3 doses if ≥ 15 years or immunocompromised



85 countries have introduced the HPV vaccine

(as of Oct. 2018)



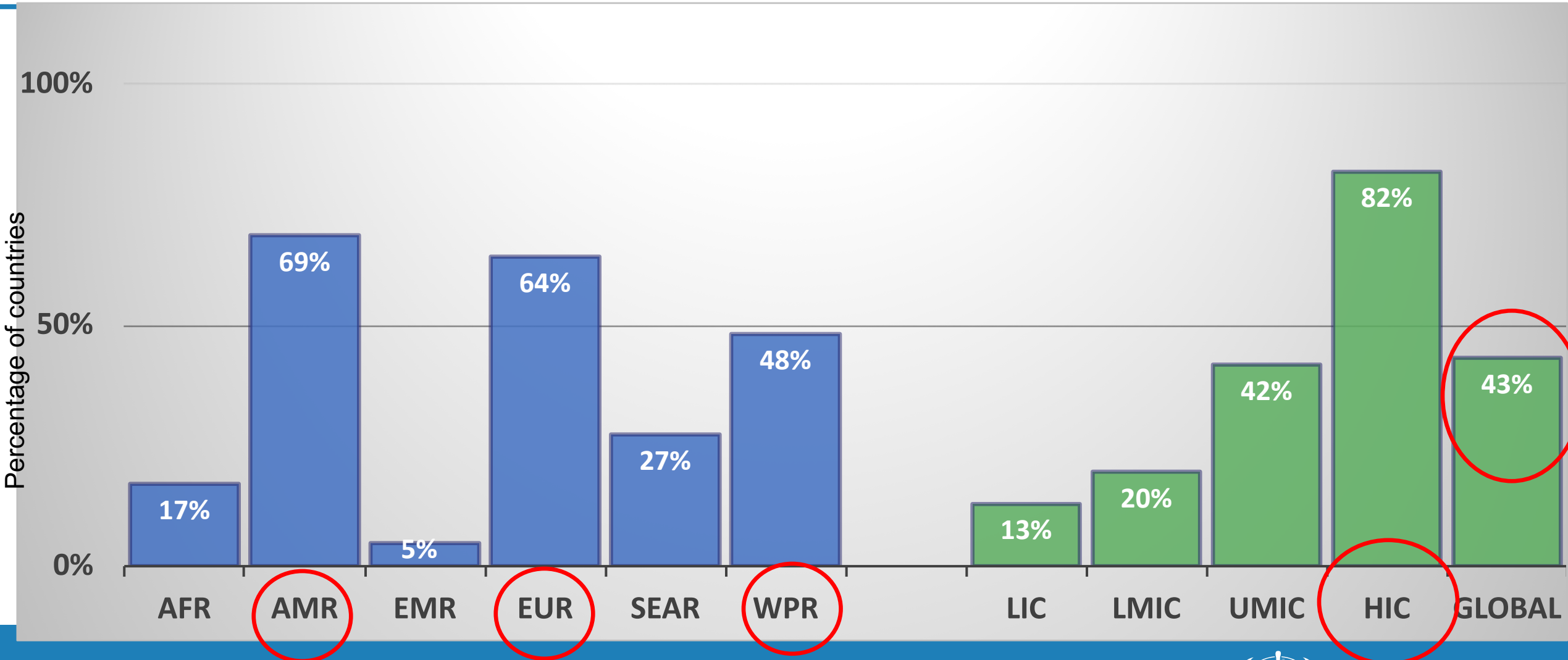
0 875 1750 3500 Kilometers



Date of slide: 2018-10-23
Map production: Immunization, Vaccines and Biologicals (IVB), World Health Organization(WHO)
Data source: IVB database as at 10th October 2018

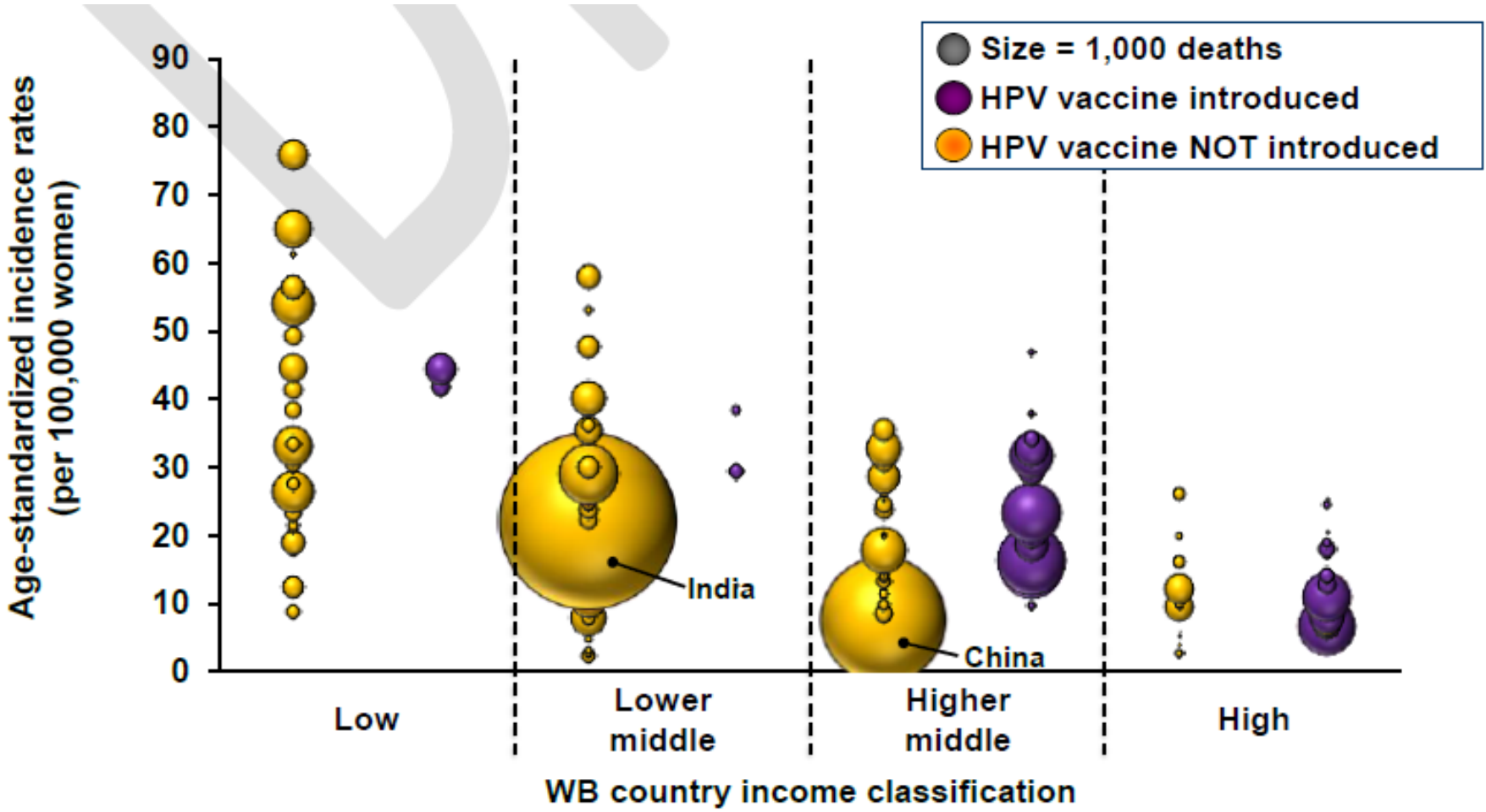
Disclaimer:
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
World Health Organization, WHO, 2018. All rights reserved

Proportion of countries that have introduced HPV vaccine, by WHO region and WB income classification



Source: IVB Database as of 31 August 2018

Comparison of cervical cancer incidence in countries that have/have not introduced HPV vaccine (2017)*

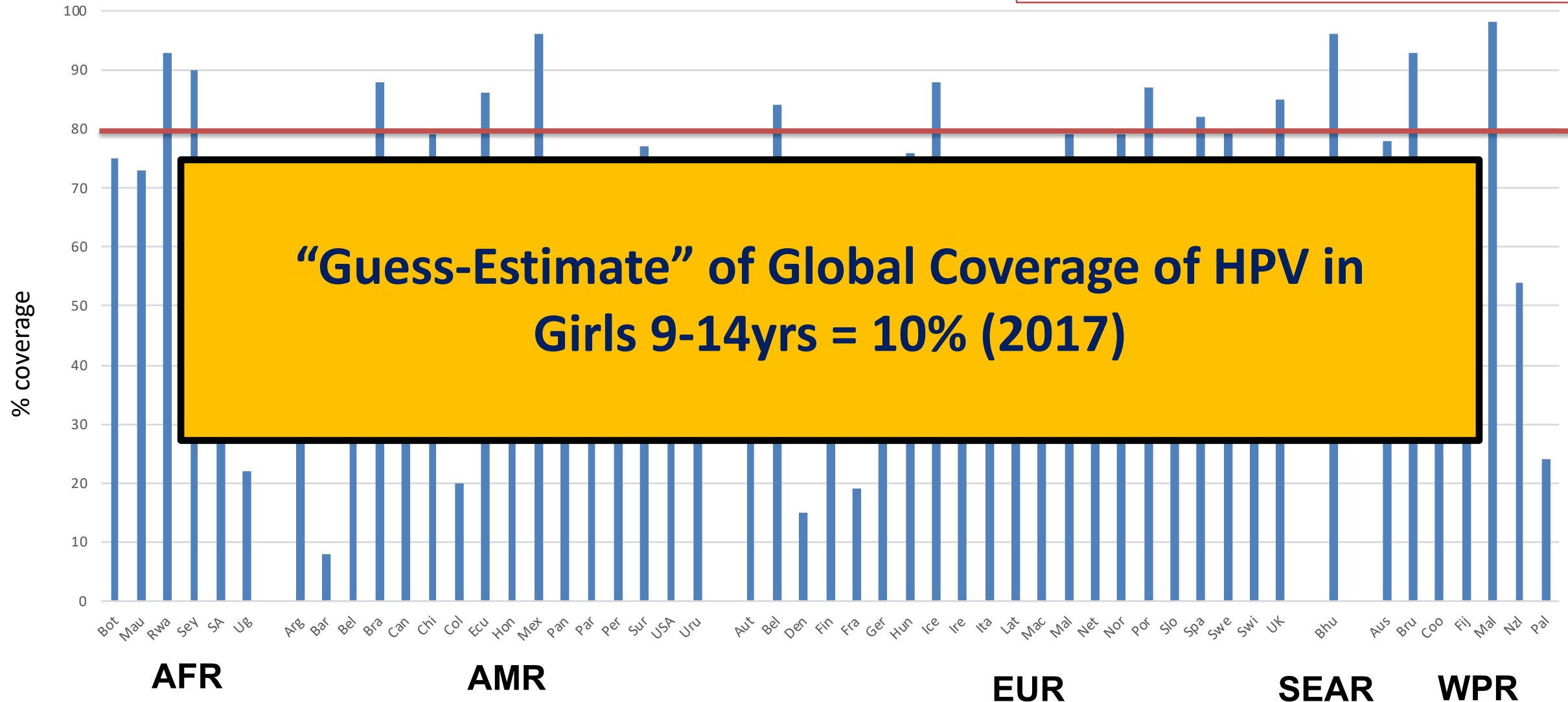


Reported HPV vaccine coverage

Various ages and years, 2014-2016

27% of countries (n=14) ≥ 80%

25% of countries (n=13) < 50%



Source: Brotherton & Bloem, 2017¹

Current HPV Vaccine Supply Landscape

Key Takeaways:

- Twelve years after the first HPV vaccine registration, less than half of WHO Member States have introduced HPV vaccine into the routine national immunization schedule. Introductions are lowest in Gavi countries and non-Gavi, non-P4MD middle-income countries (MICs) and countries and non-Gavi, non-P4MD middle-income countries and some countries and non-Gavi, non-P4MD middle-income countries.
- Supply is currently insufficient to meet demand and some countries have or will have to postpone introductions.
- WHO issued a call for action towards global cervical cancer elimination in May 2018 which, through national introductions in all countries and increased coverage, is estimated to increase total demand for HPV vaccines by at least 100M doses over the next 10 years.
- To meet the expected increase in demand due to the cervical cancer elimination initiative, sizeable increases in supply will be required. Constraints are expected until at least 2024, assuming the best case supply scenario. This timing may change depending on selected vaccination strategies and investment decisions of current manufacturers, as well as on the timing of the three products in advanced stage of clinical development.
- Meeting the projected demand volumes required for multi-epitope (IMAC) introductions (9-14 years of age), as per WHO recommendation, will remain especially problematic in large countries, as well as meeting additional demand generated by implementing gender-neutral HPV vaccination.
- Affordability of HPV vaccines in non-Gavi MICs is a barrier which needs to be addressed to encourage introduction.

Purpose & Background

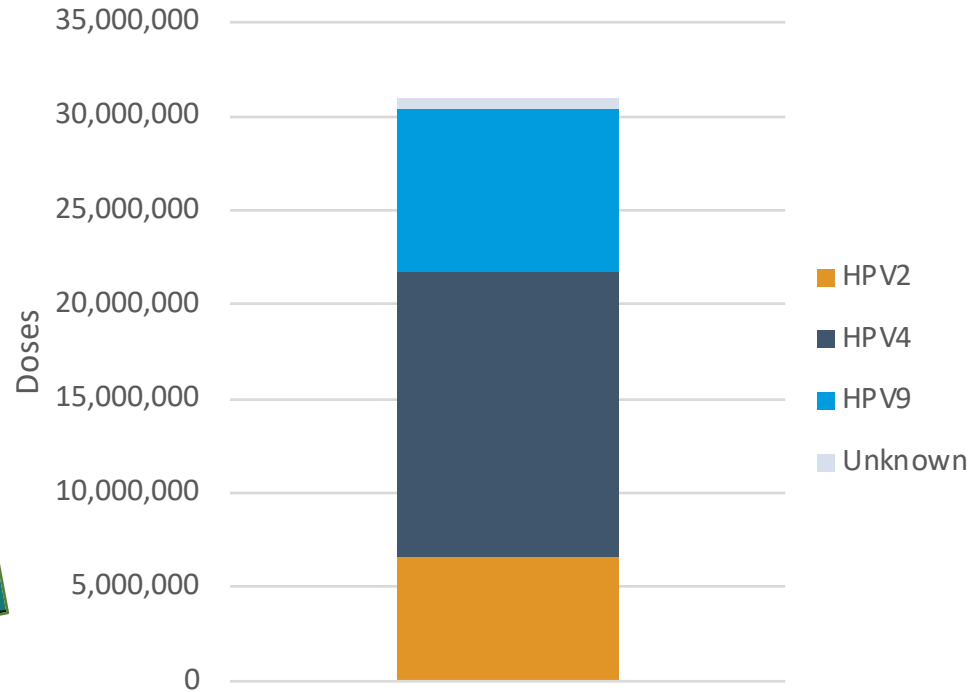
Several countries across regions and income groups have notified WHO of constraints to their access of HPV vaccines. The issue of affordability has also been raised, particularly by non-Gavi MICs. Following the announcement of a call for action towards global elimination of cervical cancer by the WHO Director General in May 2018, increasing introduction and coverage of HPV vaccine worldwide trends are drivers of and to understand current and future global trends and demand, this study aims to address the current and expected constraints and to serve as an important resource for the development of the cervical cancer elimination strategy.

Market Highlights

As of May 2018, 81 countries (42% of UN Member States, corresponding to 25% of target population) had introduced HPV into the national routine immunization schedule. Despite carrying the greatest share of disease burden, LICs and MICs are lagging in the introduction of HPV vaccine. To date, the majority of the countries have self-produced HPV vaccines (74% in 2017). Currently, three HPV vaccine sub-types are available on the market: GSK's Cervarix (HPV2), using the proprietary AS04 adjuvant, and Merck's Gardasil (HPV4) and Gardasil 9 (HPV9), both using aluminum adjuvant. Merck's two products are also commercialized by two licensees (Instituto Butantan in Brazil and Cingrum Biotech in Argentina). Distribution agreements exist

Working Document - September 2018

<http://www.who.int/immunization/MIA4>



- HPV4 (Gardasil) dominates market
- 2017 Est. Market Share:
 - HPV4: 50%
 - HPV9: 28%
 - HPV2: 20%
 - Unknown (HPV2/4): 2%
- 3 Products in advanced clinical development (bi- & quadri- valent)

Source: V3P/JRF, GVMM, UNICEF SD procurement volumes and Gavi shipments

2018 estimated vaccine dose distribution (in millions), by vaccination policy (n = 83 intro'd+11 projected)

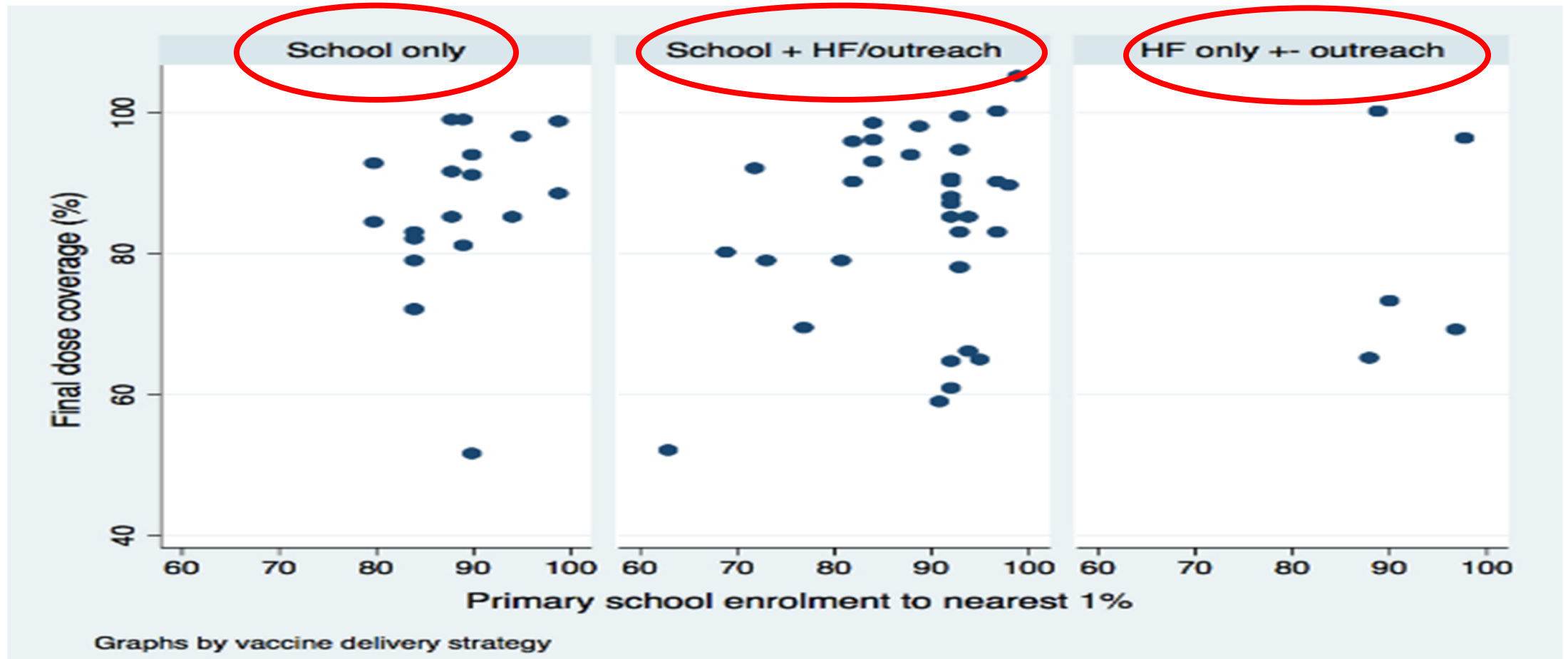
+Boys	+MAC	# doses (%)	Countries
Yes	Yes	12.6m (40%)	10 countries: Australia, Barbados, Brazil, Canada, Germany, Ireland, New Zealand, Switzerland, UK, USA
Yes	No	2.2m (7%)	9 countries: Argentina, Austria*, Croatia, Czech Republic, Grenada, Italy, Israel, Norway, Panama
No	Yes	2.7m (8%)	14 countries: Bahamas, Belize, Bhutan, Bolivia, Brunei Darussalam, Colombia, Cook Islands, Denmark, Iceland, Marshall Islands, Peru, Rwanda, Sweden, Zimbabwe
No	No	13.9m (44%)	61 countries: Mix of Gavi (16), MICs (non-Gavi PAHO/UNICEF Procure)(15), MICs (self) (8), HICs* (22)

*Austria and Japan = 3 dose schedule

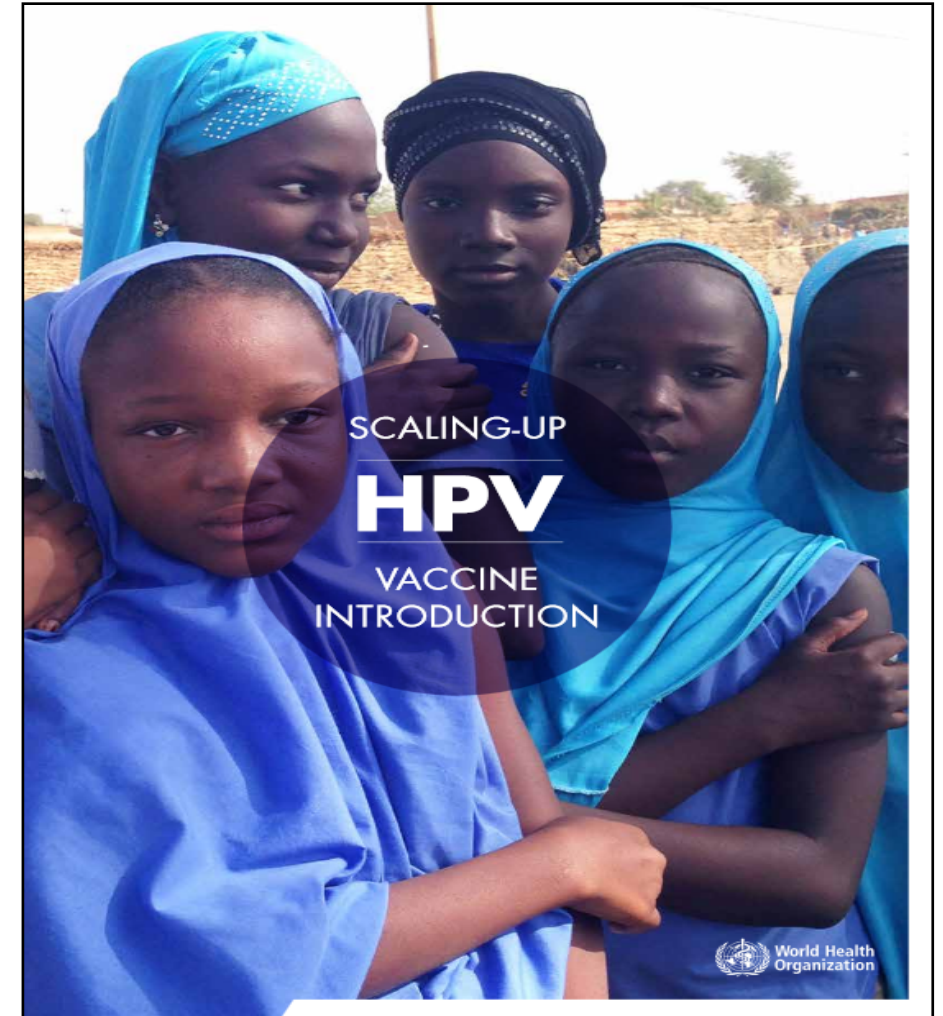
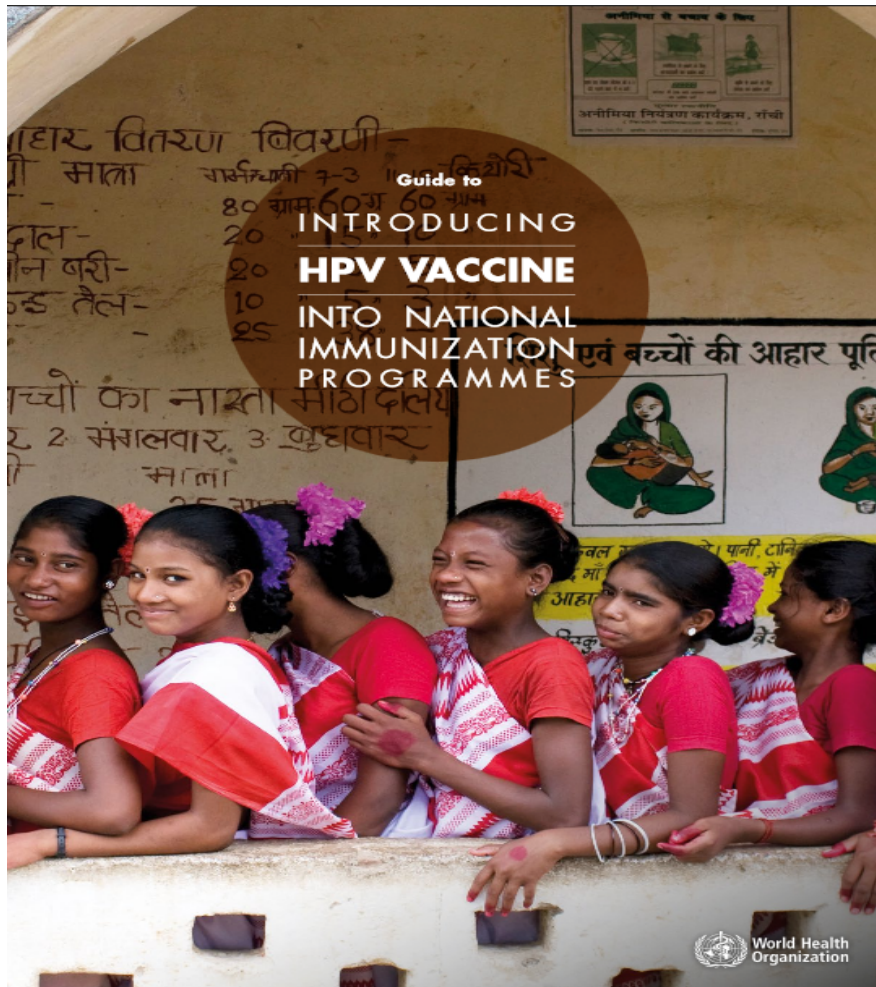
HPV Supply & Demand

- Supply not sufficient to meet demand forecast until 2024 (then only with tight management and careful planning)
- Factors that could affect future supply/demand balance:
 - **Increase in capacity** does not materialise timely and in the expected size
 - **Pipeline products** do not reach market (or PQ) as forecasted
 - **Demand for 9 valent** increases substantially
 - Additional countries **extend immunization to boys**
 - Countries fail coordinating **Multi-Age Cohorts (MACs)** timelines
 - **Country introductions** and **coverage increases** do not occur as planned

Achievable: High HPV coverage with different strategies*



Introduction guide for HPV vaccines & lessons learned from countries



Challenges: Decision-Making



Complex, time-consuming

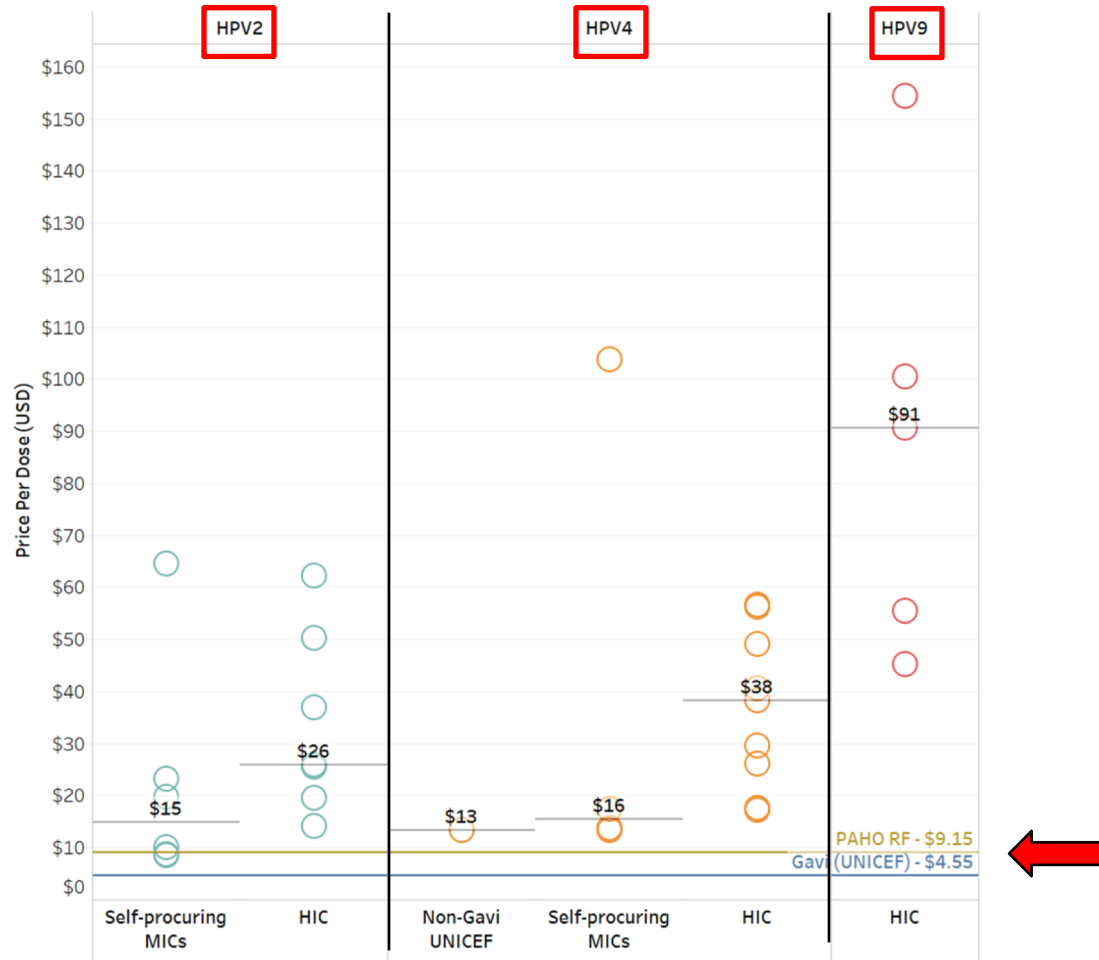
Coordination between EPI & Cancer Programmes

Capacity of NITAGs

Lack of awareness of disease burden

Competing vaccine priorities
Gavi co-financing commitments

Challenges – Price/Affordability



High price per dose and price variability -- \$4.55 - \$154.28 (2017)

Average non-Gavi UNICEF and self-procuring MICs prices 3X Gavi and ~1.5X PAHO

HIC prices highly varied; some paying less than the average MIC prices

PLUS delivery operations costs ranging \$2-\$8/dose (C4P Costing Tool)

Challenges: Acceptance/Hesitancy



Country	Issue	Coverage
Japan	CRPS	<1% (2017)
France	MS	19% (2016)
Colombia	Anxiety-related reactions	13% (2017)
Denmark	POTS	36% (2017)
Ireland	POTS/CRPS	50% (2016/17)

Call to Action: Towards Elimination of Cervical Cancer (WHA May 2018)

Vision: A world without cervical cancer

Goal: Eliminate cervical cancer as a public health problem by reducing the incidence of cervical cancer to below **4 cases per 100,000 woman-years**

2030
TARGETS

90%

of girls fully vaccinated with HPV vaccine by 15 years of age

70%

of women screened with an HPV test at 35 and 45 years of age and all managed appropriately

30%

reduction in mortality from cervical cancer

The 2030 targets and elimination threshold are subject to revision depending on the outcomes of the modeling exercise (SAGE Oct 2018)

In summary....

- HPV vaccine in 44% countries but access in highest burden countries is lagging
- Good understanding/sharing of global lessons learned to achieve high coverage (although still working on how to calculate!)
- Supply shortage at least to 2024 – further exacerbated if MACs; boys; 9-valent; Will need to work in close collaboration with industry.
- Barriers/Challenges to introduction: Decision-making, Price/Affordability, and Acceptance/ Hesitancy
- New initiative Cervical Cancer Elimination – visibility, engagement of broad stakeholders, comprehensive approach, commitments, etc

Thank you



WHO HPV Vaccine introduction Clearing house

Visit each area for related resources:



POLICY & DECISION-MAKING

Informing national decision-making for HPV vaccine introduction



PLANNING

Planning for HPV vaccine introduction



FINANCING

Budgeting and financing for HPV vaccine introduction



VACCINES & SAFETY

Characteristics, presentations and safety profiles of HPV vaccines



COMMUNICATION

Communicating effectively using research-based approaches



IMPLEMENTATION

Delivering HPV vaccination programmes



MONITORING & SURVEILLANCE

Monitoring the coverage and impact of HPV vaccine programmes



HPV PARTNERS

Links to HPV partners and resources

<http://www.who.int/immunization/hpv/en/>

Resources for HPV vaccine implementation:

- What do health worker and teachers need to know?
- Is school ready for vaccination?
- Are *informed consent* procedures adapted for adolescents?
- Message and target of HPV communication plan?
Crisis event planning?
- How to monitor HPV vaccination?
- Special vaccination cards for HPV?
- How to strengthen *cancer registries*?

