Schedules and strategies for HPV immunization:
Introduction and questions to SAGE

Rakesh Aggarwal, SAGE Member
Chair, HPV vaccine Working Group

SAGE meeting, 8-10 October 2019

World Health Organization

Current SAGE recommendations
SAGE October 2018

Conclusions and recommendations

- Reiterated that recommendations on WHO position paper (2017) are appropriate
  - **Two doses for girls 9-14 years old**
    (0, 6 months, no maximum interval but not greater than 12-15 months)
  - **Three doses for HIV⁺ and girls ≥15 years**
    (0, 1-2, 6 months)
- **Multi-age cohort campaigns (MACs) for girls 9-14 years old** when vaccine is first introduced
- Insufficient evidence at this time to recommend a one-dose schedule

Concerned about the constrained supply of HPV vaccine, SAGE urged that:

SAGE October 2018

- **A globally more equitable distribution of the available doses** be encouraged to ensure optimal global public health access to the vaccine.
- Countries that implement extended vaccination strategies (include targeting boys, cohorts of different ages and older age group) may consider **rationalizing their vaccine use in order to make urgently needed vaccine available in countries with high burden of disease.**
- **Collaboration with all current and future vaccine manufacturers** to expedite increases in vaccine supply.
- **Comprehensive evaluation of the options for best use and allocation of limited vaccine supply** including extended interval between doses until additional data become available on use of a single dose and targeting of vaccine to high burden-of-disease countries.

Questions considered by the HPV vaccines SAGE Working Group

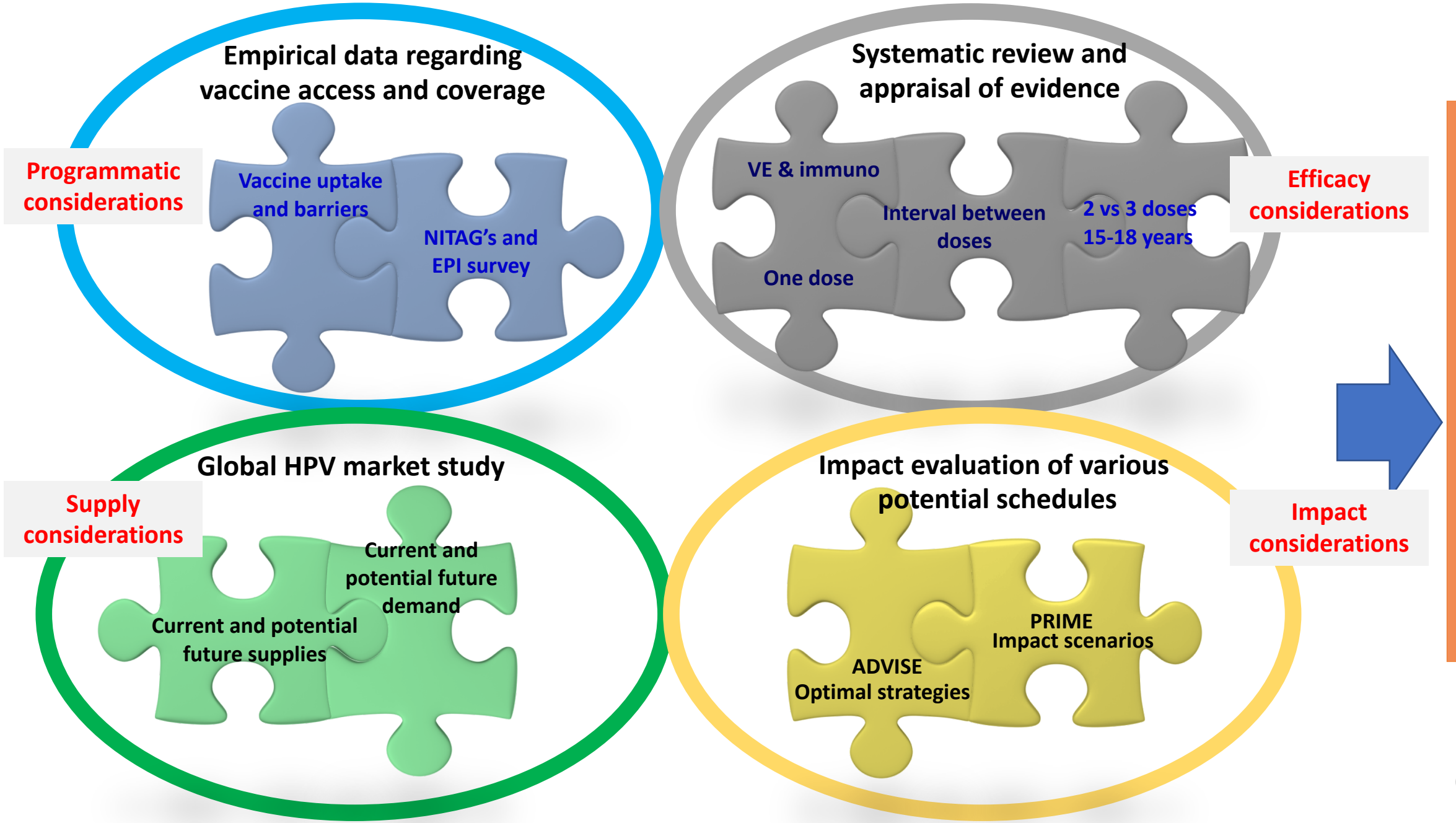
1. What is the current HPV vaccine uptake and what are the main barriers for access to HPV vaccines?
2. What does current evidence show on the immunogenicity and efficacy of a single dose of HPV vaccine and different intervals between the first and second doses of HPV vaccine? And what are the risks of bias of these studies?
3. What are the potential demand scenarios and the supply of HPV vaccines (short and mid-term outlook) and what could one enhance HPV vaccine supply allocation?

An iterative and detailed process to review the evidence

Teleconference	Teleconference	Teleconference	Face-to-face meeting	Teleconference
11 Feb 2019	15 Apr 2019	28 May 2019	6-7 Jun 2019	13 Aug 2019

R Aggarwal, (Chair and SAGE member), A Pollard (SAGE member), N Bhatla, S Bhutta, S Franceschi, E Franco, D Gamage, S Garland, L Markowitz, Y Qiao, H Rees, J Schiller, M Stanley

Evidence reviewed by the Working Group



8 HPV vaccination scenarios evaluated

Scenario	Doses	Age routine (years)	Interval (months)	MACs (9-14 yo)	Additional cohorts (@14 yo)	Strength of evidence for schedule
1	2	9	0, 6 (max 12-15)	YES	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕

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2	2	9	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕

8 HPV vaccination scenarios evaluated

Strategy	Doses	Age routine (years)	Interval (months)	MACs (9-14 yo)	Catch-up (@14 yo)	Strength of evidence for schedule
1	2	9	0, 6 (max 12-15)	YES	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
2	2	9	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
3	1	9		YES	NO	Doses: ⊕OOO for most outcomes
4	1	9		NO	NO	Doses: ⊕OOO for most outcomes

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1	2	9	0, 6 (max 12-15)	YES	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
2	2	9	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
3	1	9		YES	NO	Doses: ⊕OOO for most outcomes
4	1	9		NO	NO	Doses: ⊕OOO for most outcomes
5	1+1	9	0, 36-60	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: No evidence
6	1+1	9	0, 36-60	NO	YES	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: No evidence

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Strategy	Doses	Age routine (years)	Interval (months)	MACs (9-14 yo)	Catch-up (@14 yo)	Strength of evidence for schedule
1	2	9	0, 6 (max 12-15)	YES	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
2	2	9	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
3	1	9		YES	NO	Doses: ⊕OOO for most outcomes
4	1	9		NO	NO	Doses: ⊕OOO for most outcomes
5	1+1	9	0, 36-60	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: No evidence
6	1+1	9	0, 36-60	NO	YES	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: No evidence
7	2	13 or 14 Switch to 9 or 10 year old when possible	0, 6 (max 12-15)	NO	SWITCH to 9 or 10 year old when possible	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕
8	2	13 or 14	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕

8 HPV vaccination scenarios evaluated

Strategy	Doses	Age routine (years)	Interval (months)	MACs (9-14 yo)	Catch-up (@14 yo)	Strength of evidence for schedule	Accelerate health benefits	Programmatic feasibility	Alleviates supply constraints in the SHORT TERM
1	2	9	0, 6 (max 12-15)	YES	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval:⊕⊕⊕O to ⊕⊕⊕⊕	+++	+++	-
2	2	9	0, 6 (max 12-15)	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕	+	+++	++
3	1	9		YES	NO	Doses: ⊕OOO for most outcomes	UNKNOWN	+++	-
4	1	9		NO	NO	Doses: ⊕OOO for most outcomes	UNKNOWN	+++	++
5	1+1	9	0, 36 - 60	NO	NO	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: no evidence	+	+	+++
6	1+1	9	0, 36 - 60	NO	YES	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: no evidence	+++	UNKNOWN	+
7	2	13 or 14 Switch to 9 or 10 yo when possible	0, 6 (max 12-15)	NO	SWITCH to 9 or 10 yo when possible	Doses:⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕	+++	+++	+
8	2	13 or 14	0, 6 (max 12-15)	NO	NO	Doses:⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕	++	+++	NA

ADVANCED PREVIEW

WG Conclusions & Recommendations

- **Current recommendations** on WHO position paper (2017) remain appropriate
- **All licensed vaccines are comparable** in terms of the public health goal of cervical cancer prevention
- **Vaccine supply is not the only reason** why HPV vaccine has not been introduced widely
- **There is need for a more equitable allocation** of available vaccine doses and a need for expansion of production
- **Some strategies should be temporarily postponed**: Gender-neutral and older age groups, and MACs.
- To retain the same impact as MACs **countries should consider alternative options**

Two scenarios identified as options to address access in the interim while optimizing cervical cancer prevention

Strategy	Doses	Age routine (years)	Interval (months)	MACs (9-14 yo)	Catch-up (@14 yo)	Strength of evidence for schedule	Accelerate health benefits	Programmatic feasibility	Alleviates supply constraints
6	1+1	9	0, 36-60	NO	YES	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: No evidence	+++	UNKNOWN	**+**
7	2	13 or 14 with future switch to 9 or 10 yo when possible	0, 6 (max 12-15)	NO	SWITCH to 9 or 10 yo when possible	Doses: ⊕⊕⊕O to ⊕⊕⊕⊕ Interval: ⊕⊕⊕O to ⊕⊕⊕⊕	+++	+++	**+**

Thank you

World Health Organization