HPV Vaccination in adults

Robyn Stuart / EUROGIN / March 19, 2026

Gates Foundation

Context: Expanded HPV vaccine use is highly aligned with the Foundation's goals

THE FOUNDATION'S THREE GOALS, EXPLAINED

To illustrate how we're thinking about our final 20 years, I'll focus on our three goals: what we plan to do, how we plan to do it, and where we see others playing a role in saving and improving millions of lives.

1. NO MOTHER, BABY, OR CHILD DIES OF A PREVENTABLE CAUSE.

2. THE NEXT GENERATION GROWS UP IN A WORLD WITHOUT DEADLY INFECTIOUS DISEASES.

3. HUNDREDS OF MILLIONS OF PEOPLE BREAK FREE FROM POVERTY, PUTTING MORE COUNTRIES ON THE PATH TO PROSPERITY.

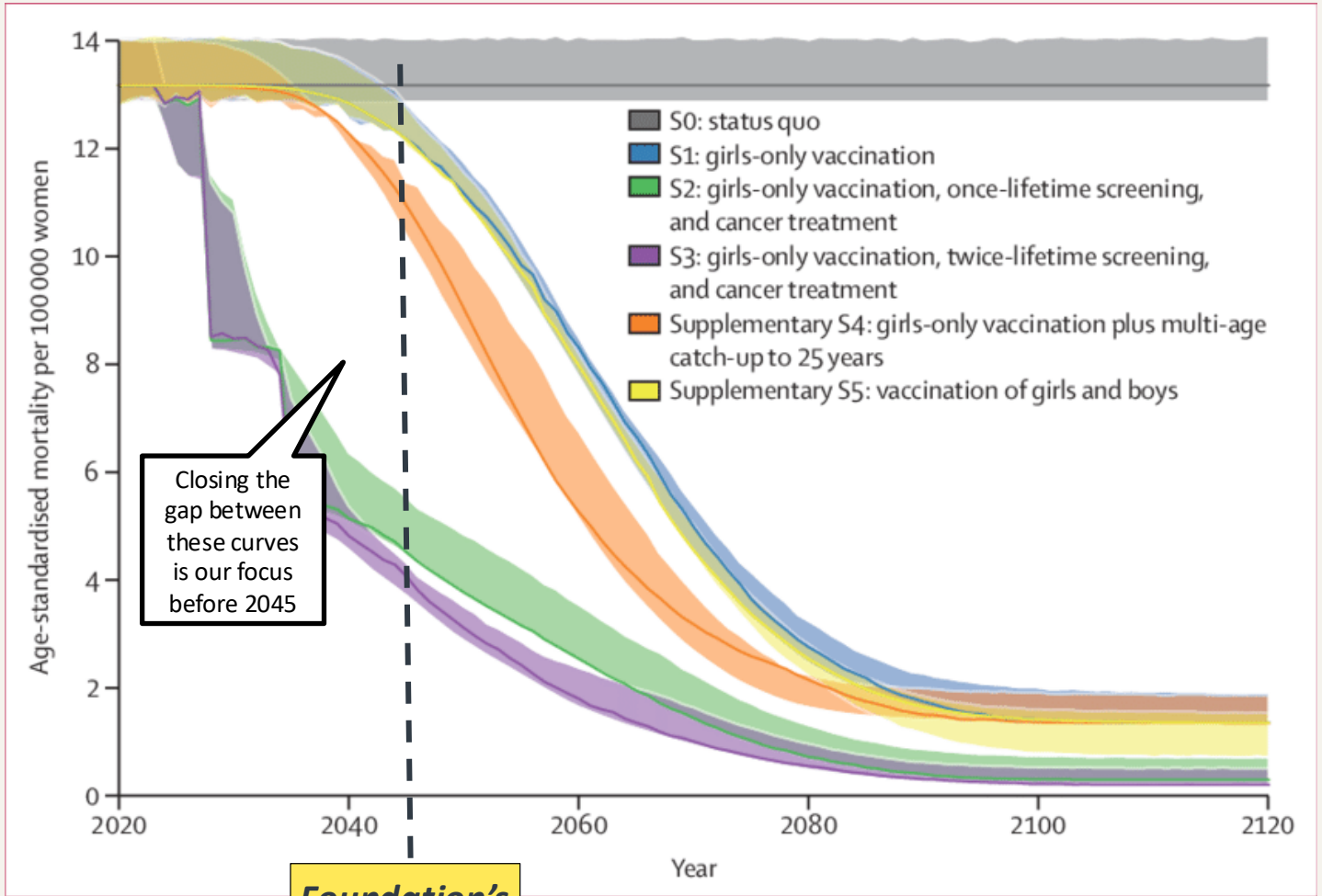
Prioritizing women's health innovation

With $2.5 billion, our investment will support new solutions that **improve women's health at every stage of life**:

- **Obstetric care and maternal immunization**: Making pregnancy and delivery safer
- **Maternal health and nutrition**: Supporting healthier pregnancies and newborns
- **Gynecological and menstrual health**: Advancing tools and research to better diagnose, treat, and improve gynecological health and reduce infection risk
- **Contraceptive innovation**: Offering more accessible, acceptable, and effective options
- **Sexually transmitted infections (STIs)**: Improving diagnosis and treatment to reduce disproportionate burdens on women

Source: GF 2026 annual letter

Why this matters now:
Preventing 350,000 women/year from dying before 2045



Canfell, K, July 2025

- Our current strategies **only focus on protecting pre-sexual adolescents**
- The long lag between HPV infection and cervical cancer death means that **it will take decades to see the dividends** from prophylactic vaccinations alone
- This strategy **does not help women already infected with HPV** who are on the terminal pathway to cervical cancer
- **Screening and treatment as recommended by WHO will be resource intense** and provides no clear endpoint, given that re-infection risk is not solved
- We need a **better strategy** to address this

Context: What is FASTER and why does it matter?

HPV FASTER is the unification of two strategies

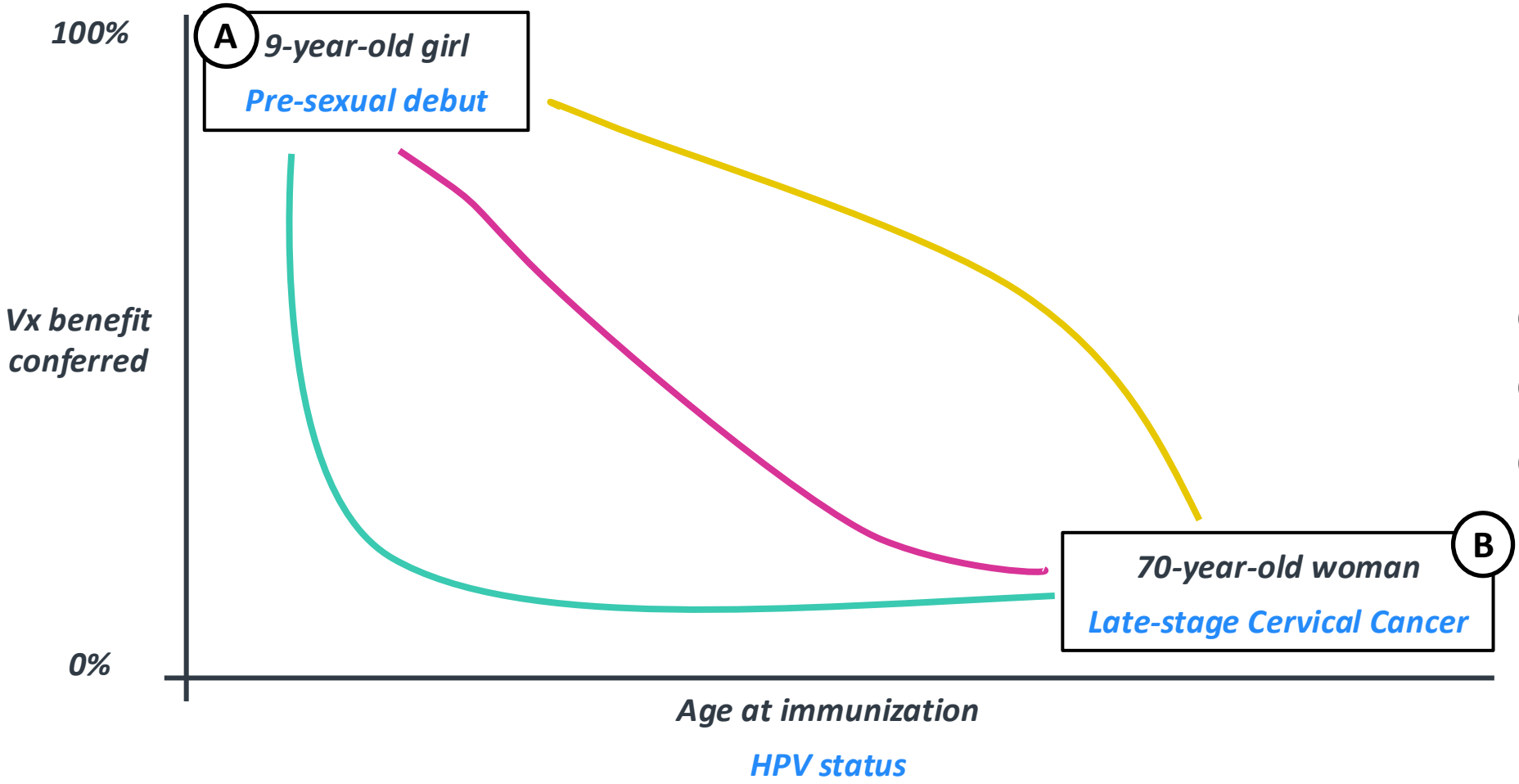
Strategy A		Strategy B
Prophylactic vaccine for pre-sexual girls	+	**Screen and treat** women over 15

HPV FASTER

Vaccinate women both in childhood and adulthood; screen and treat high-risk HPV in adults

Why adults: We do not understand how the impact of vaccination changes as women get older, either in HIC or LIC settings

ILLUSTRATIVE



Key questions:

Which of these curves is most representative of the real-world benefits of the vaccine over time?

1. *Green*
2. *Yellow*
3. *Pink*

Based on that answer, what upper age limit for vaccination delivers enough benefit to justify vaccinating the woman?

Note: HIC contexts do not use immunization as a tool because of strong safety net of routine screening; likely that these curves move differently in different countries

Modeling: joint modeling effort to analyze impact of vaccination at upper ages

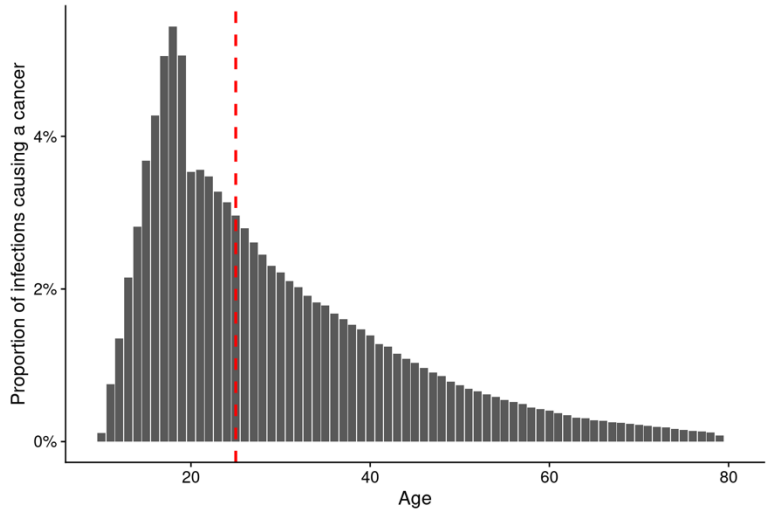
- **Three modeling groups** evaluated estimated outcomes if HPV vaccine was administered to progressively older cohorts (e.g., 9 only, 9-14, 15-20, 20-25, etc.) up to the age of 50
  - Division of Infectious Diseases @ Massachusetts General Hospital (MGH)
  - WHO IARC
  - Institute of Disease Modeling @ Gates Foundation
- Each group used the same input assumptions and all calibrated to the same country (Kenya)
- The modeling occurred in two steps:
  - First: Determine **vaccine impact** by 5-year increments starting from 9-years-old as base case
  - Second: Layer on top the additional **impact of Screening and Treatment**

Modeling: Input assumptions and key drivers

Disease impact assumptions	
Market introduction year:	2028 for Vx only; 2032 for Screen + Treat + Vx
Delivery Platform:	One-time campaign for women 10-50+ starting in 2028
Baseline	70% coverage; baselined on standard of care 9-14 year olds (i.e. single dose vaccine), starting in 2026
Efficacy	98% (status quo)
Target Population	Women/girls missed by HPV routine vaccine delivery
Coverage	Assumed 70% case
Age cohorts	5 year bands from 10-60
Country Scope	Kenya
Time horizon	Tracking cancers over the lifetime of all birth cohorts aged 10-60 in 2025

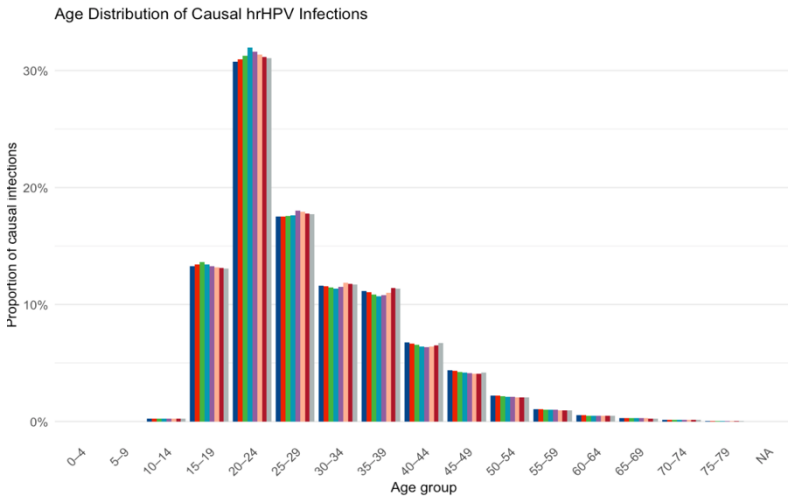
Disease impact: Age of causal infection curves show significant available benefit after age 25

IARC



Median	25
25% percentile	18
75% percentile	37

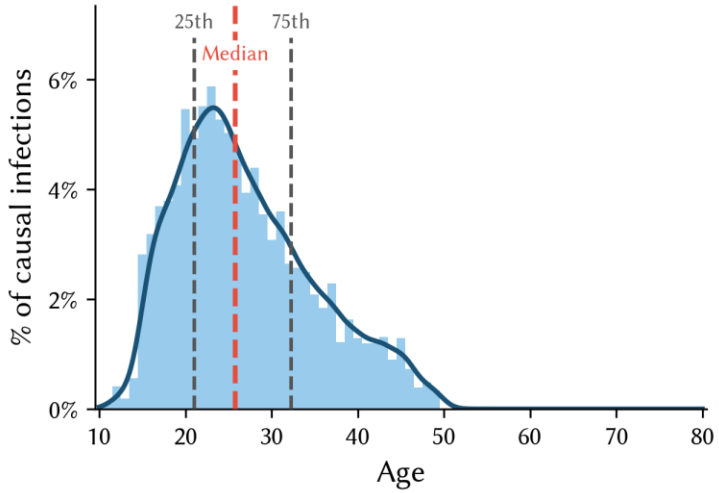
MGH



Median age
(causal infection)
from Real-world Data

- 23.9
- 24.7
- 25.5
- 25.6

HPVSIM



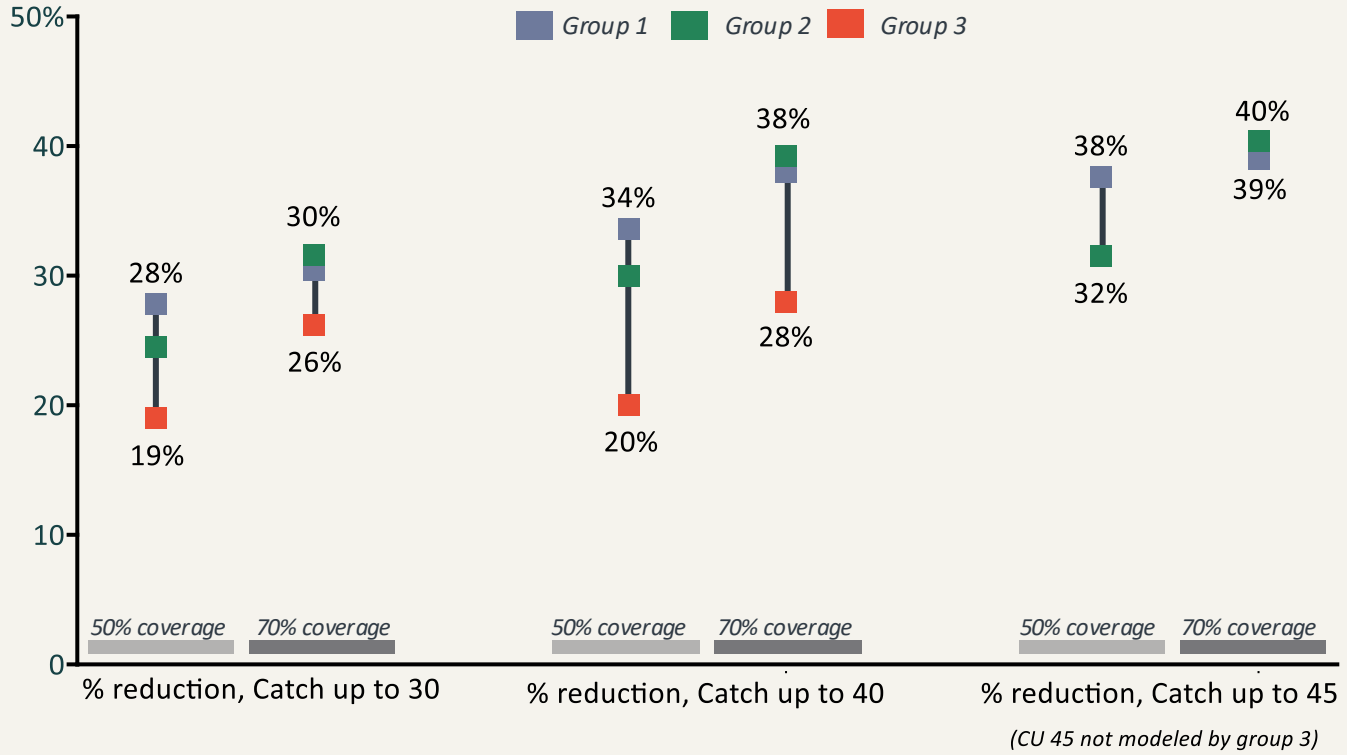
Median	25
25% percentile	19
75% percentile	32

Source: IARC Kenya model; MGH modeling

Disease impact: Three modeling groups showed that vaccination up until age 40 would reduce cancer cases by up to ~40%

/ VACCINATION ONLY

Lifetime cervical cancer cases averted across cohorts vaccinated at program start, relative to routine vaccination, % reduction vs. baseline of ages 9–14, without screening, Vx only, Kenya only



Commentary

- Each modeling group demonstrated **significant benefits from vaccination until age ~30**
- There are potential (but diminishing) benefits **until age 45**
- Modeling supports the conclusion that a **progressively higher upper age limit would have a positive impact** in reducing all HPV associated cancers

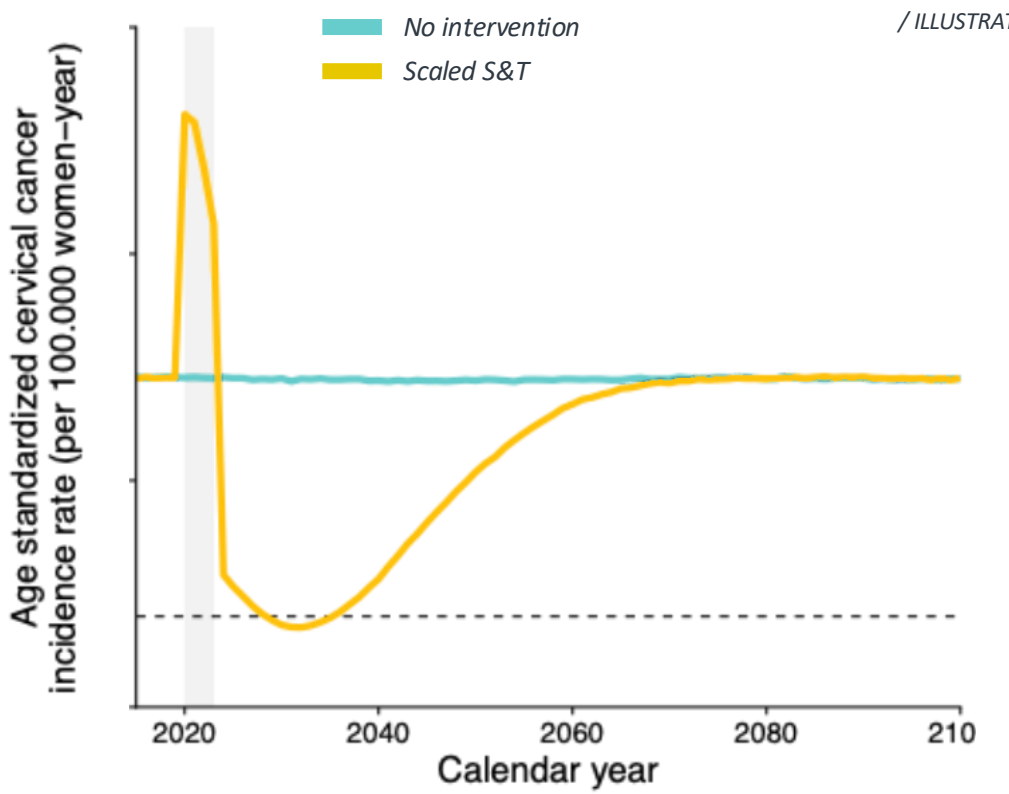
Note; 70% and 50% coverage case shown; Countries with high existing coverage will see less impact. these results are sensitive to assumed natural immunity after infection and relatedly, the age at which people acquire HPV infection leading to cancer. Source: MGH, WHO IARC, HPV SIM.

Why "FASTER": In adults, screen and treat cannot reach elimination without vaccination; scaled S&T accelerates elimination significantly

/ Vx + S&T

Scaled Screen and Treat only

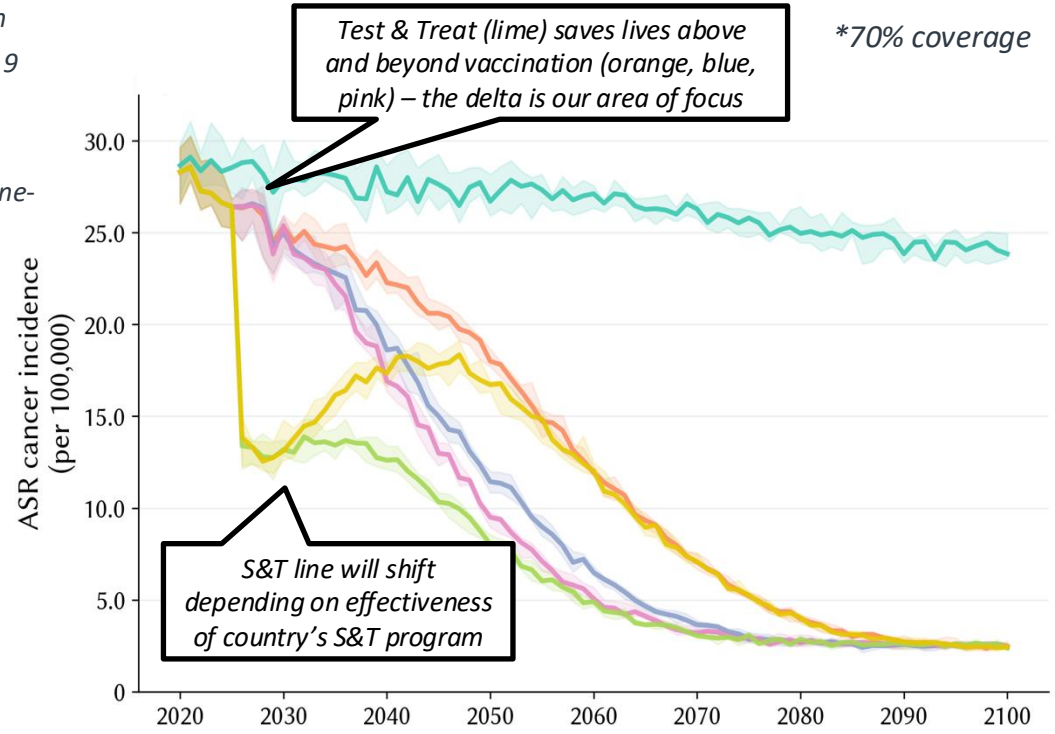
/ ILLUSTRATIVE



Scaled S&T = single-round test-and-treat among all eligible women (e.g., 30-65 yrs) with 90% uptake (illustrative)

Scaled Test and Treat and Vaccinate

**70% coverage*

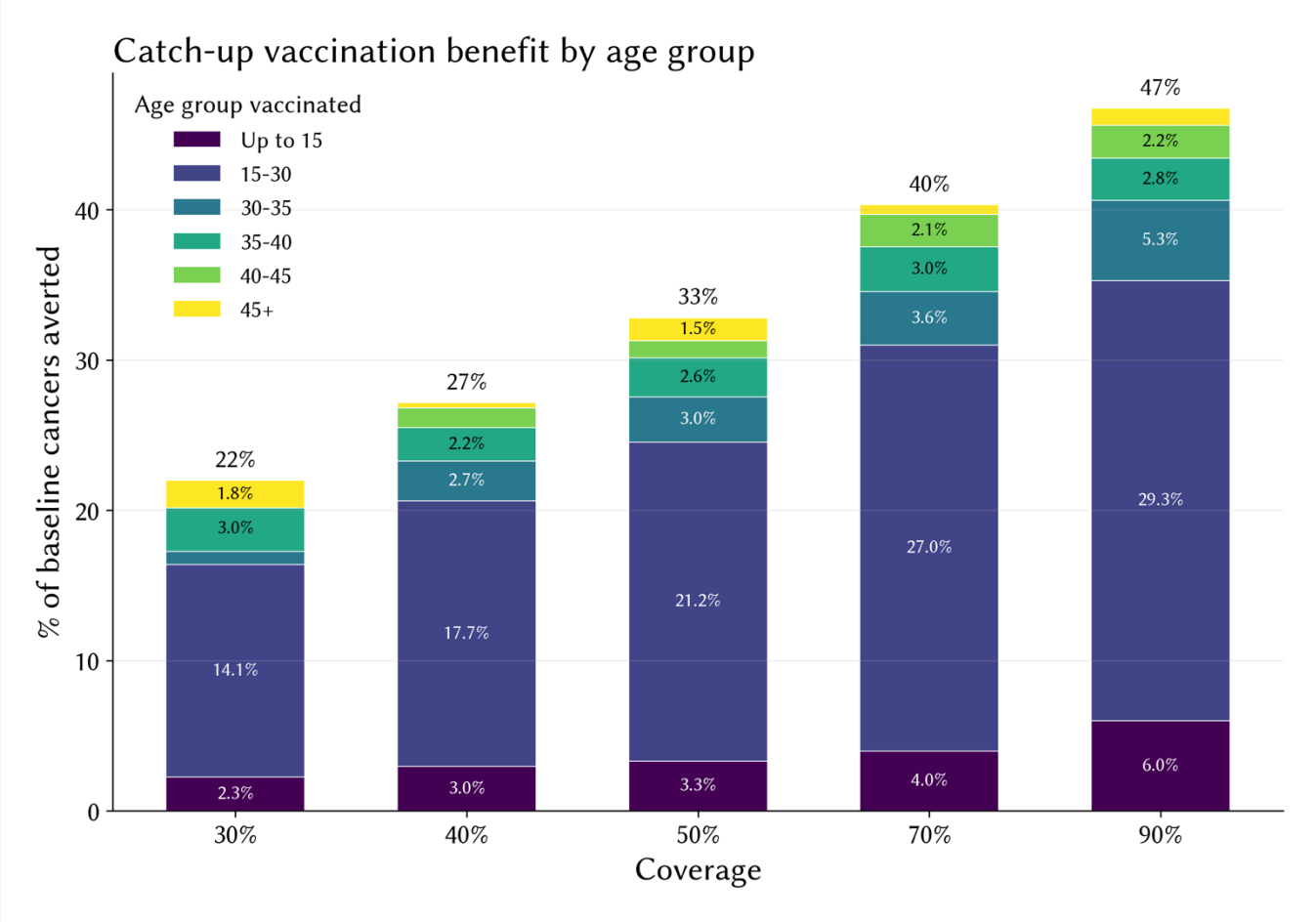


Vaccination assumptions: Targeted HR vaccine types: HPV 16/18; 70% coverage with 95% efficacy (actual data)

Disease impact: continued benefit to vaccination in older age cohorts

Vaccination only

- Coverage scales linearly, meaning that even in less successful coverage scenarios, **impact is still felt**
- Countries can therefore **moderate their ambition** according to their own resource availability
- At most probable global average of coverage (~50% target), **around 30% of cancers would be averted** relative to baseline

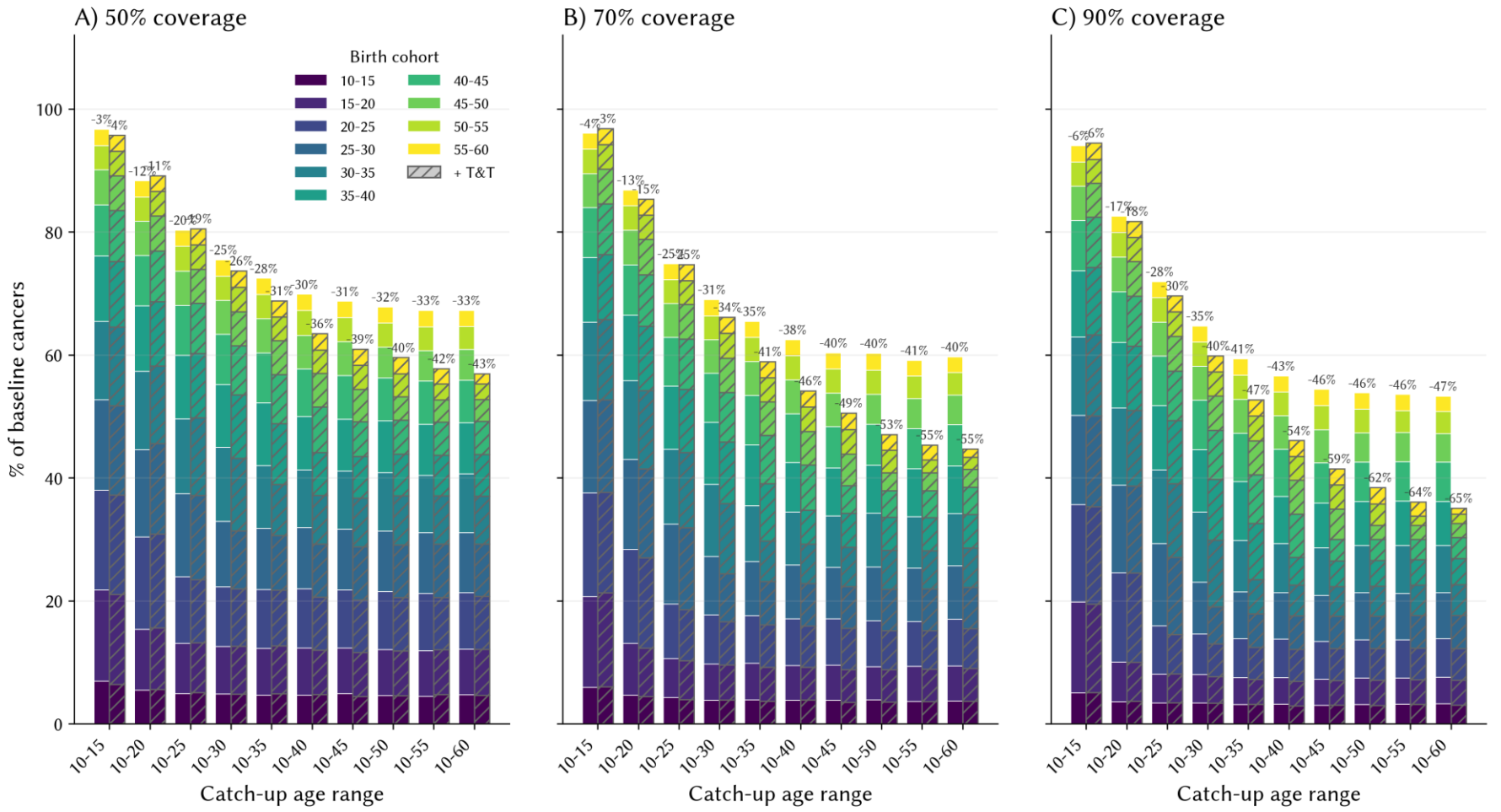


Source: modeling outputs from HPVsim

Disease impact: continued benefit to vaccination in older age cohorts

Vaccination and screening

- Benefit to vaccination tapers with age, but benefits to screening continue

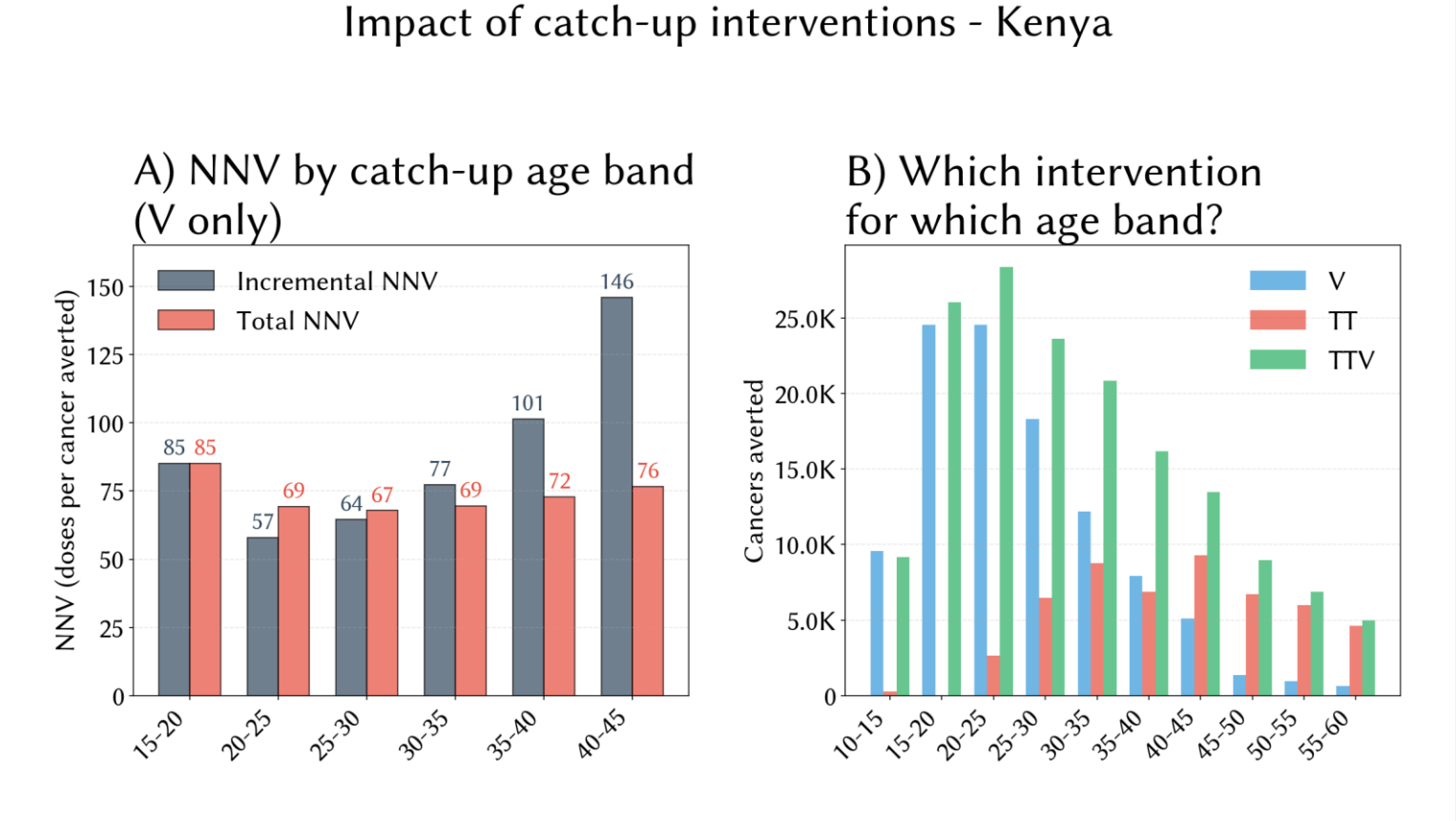


Source: modeling outputs from HPVsim

Disease impact and resource use: which intervention for which ages?

Number needed to vaccinate

- The incremental NNV is lowest for the 20-25 band (~53 doses per cancer averted) and rises with age, but the total NNV remains relatively stable because the efficient younger cohorts pull the average down.
- Vaccination dominates for younger age groups (10-30), while test-and-treat becomes increasingly important for older women (35+)
- At around age 30-40, there are benefits to both vaccination AND screening and treatment.

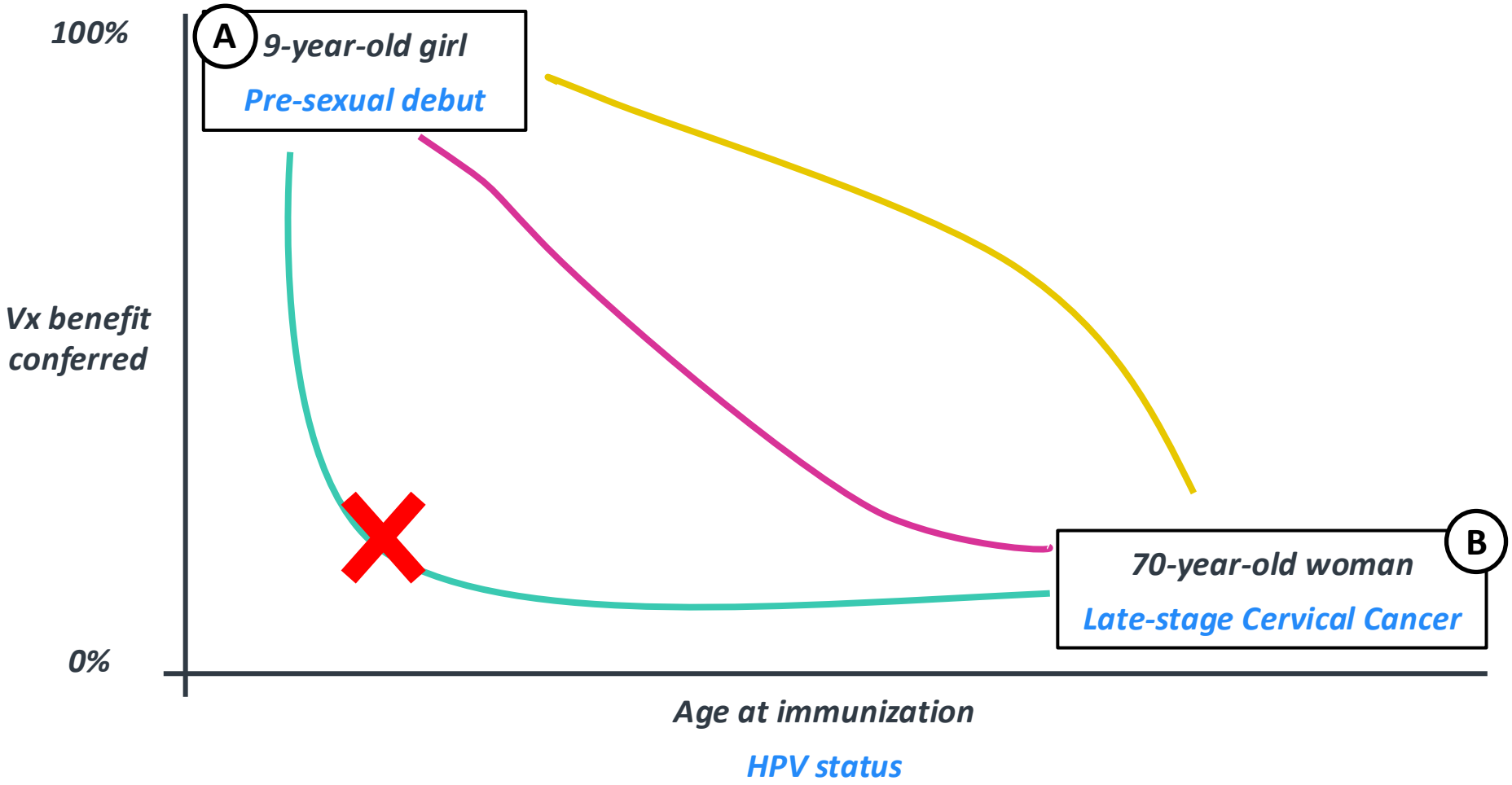


Comparing vaccination only (V), test-and-treat only (TT), and combined test-treat-and-vaccinate (TTV)
NNV = number needed to vaccinate. Baseline routine vaccination began in 2019, so ~13% of the 15-20yos are vaccinated

Source: modeling outputs from HPVsim

Disease impact: While our understanding of this dynamic is incomplete, we know the benefit of vaccination does not follow the green line

ILLUSTRATIVE



Key questions:

*Where is the true line, knowing it is not the **green** line?*

How does the benefit curve move by country and context?

What is the true point of diminishing return and how do we determine it

Conclusions

1. The **lower age boundary of 15 is wrong:** we don't know where the upper age boundary is for diminished vaccine effectiveness, but it is at least to 30 and possibly as high as 45.

2. By implication, the burden of all preventable cancers is **underestimated by at least a quarter;** vaccination **can have a significant impact** on adult women.

3. Screen & Treat reduces absolute burden overall somewhat, but **accelerates our ability to catch cancer;** the implication is that countries have a flexible range of options for treating adult women

4. The stepwise gains in upper age limit provides **flexibility in how this vaccine is delivered**, making it much easier to reach women while reducing urgency and **many of the delivery challenges**

5. A higher upper age limit of vaccine benefit, coupled with one-time screening, **changes the calculus for countries treating adult women;** it provides a far better tool to use to fight cervical cancer