

Using HIV Models to Inform the Response to Funding Shifts

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The future of the HIV response is uncertain

- The sudden shift in US government priorities risks reversing decades of progress towards ending AIDS as a public health threat
- PEPFAR's authorization expired in March. It is expected to continue in some form, but likely with narrower scope
- Other major donor countries have reduced their commitments to international development assistance
- In this moment, it is critical to invest the resources we have in ways that maximize health in our countries

Cost-effectiveness is a tool to help rationalize health investments

- To rationalize health investments, we must understand how much impact our programs have, and what they cost.
- Models provide a consistent framework to evaluate impact, cost, and cost-effectiveness
- What outcomes to optimize?
 - Minimize HIV infections?
 - Minimize AIDS deaths?
- Here, we focus on reducing disability-adjusted life years (DALYs):
 - DALYs incorporate morbidity and mortality following HIV infection
 - One DALY averted is a year of healthy life gained
 - DALYs can be used to compare investments across health areas, which may be more of a focus with HIV service integration

The Goals model has been applied worldwide for UNAIDS Global AIDS Strategy, national strategic plans, investment cases, and Global Fund applications

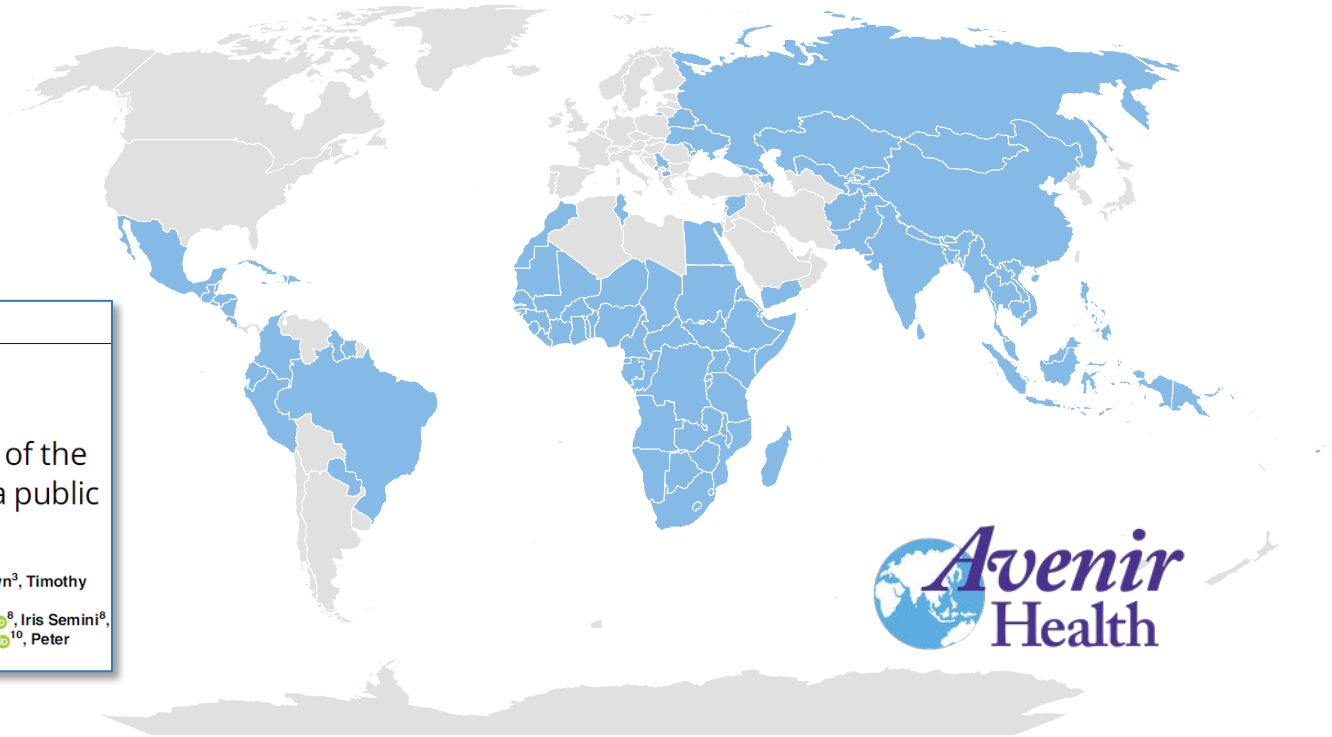
Goals is a transmission-dynamic HIV epidemic model that accounts for the effects of sexual behavior and HIV treatment and prevention programs on HIV incidence and mortality

PLOS MEDICINE

RESEARCH ARTICLE

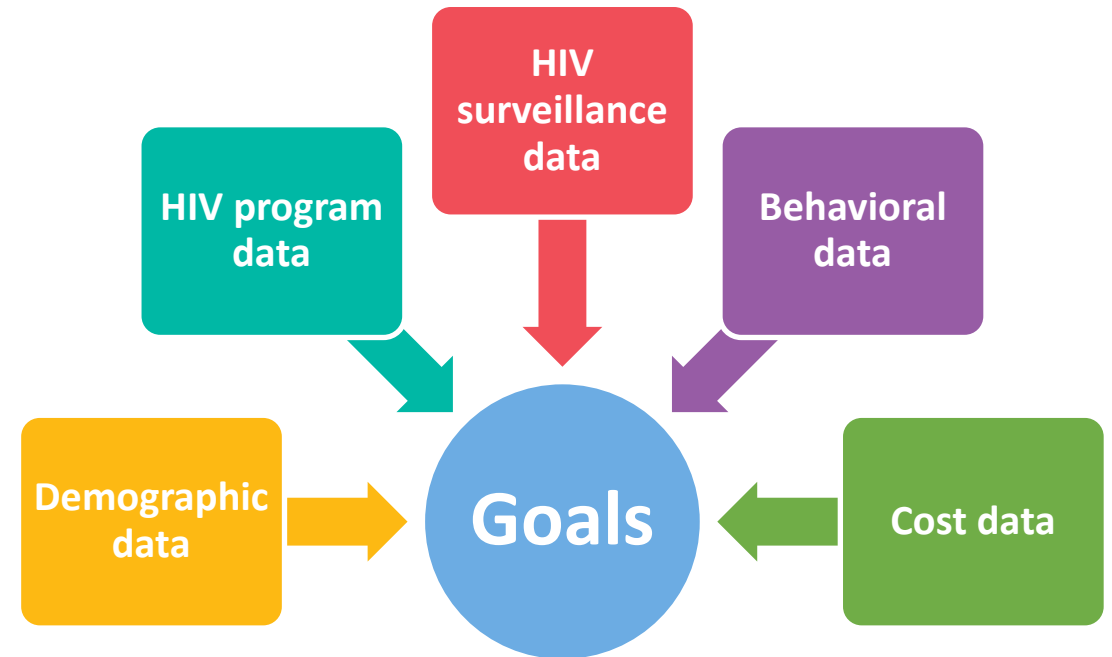
Modeling the epidemiological impact of the UNAIDS 2025 targets to end AIDS as a public health threat by 2030

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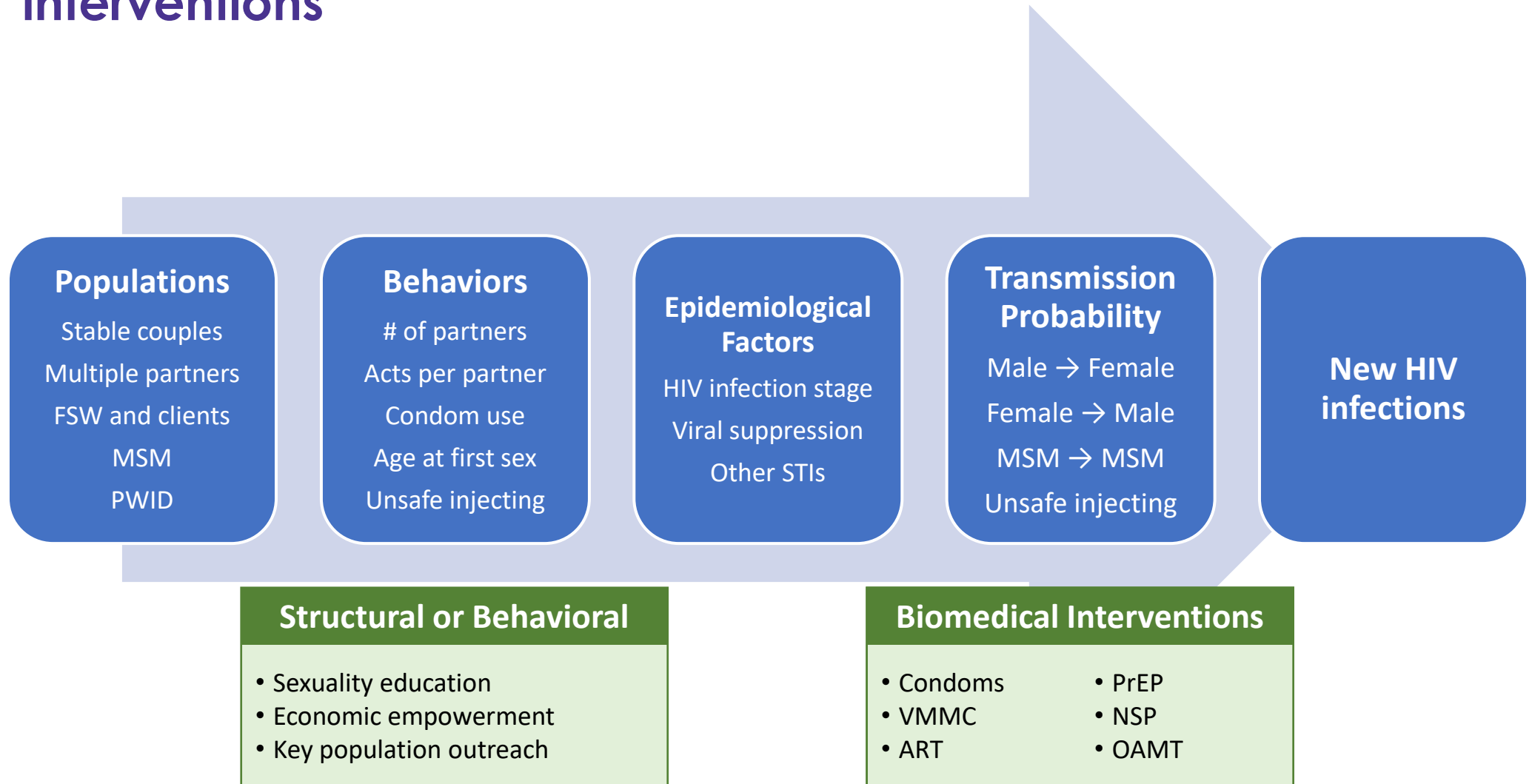


Goals builds on tools you are already using

- Goals is part of the Spectrum software suite, available free at <https://avenirhealth.org/>
- Goals uses the Spectrum AIM module used to prepare your annual HIV estimates
- Much of the data for Goals have already been collated via the annual HIV estimates process
- National HIV estimates teams were trained on Goals during that UNAIDS HIV estimates workshops in Dec. 2024-Feb. 2025



Goals models transmission by population group based on behaviors, epidemiological factors and the impact of interventions



How can we use models like Goals to respond to funding cuts?

- **Context:** An example country in sub-Saharan Africa
- We used a national Goals model to evaluate three scenarios
 - **2024 status quo:** Intervention coverages continued at 2024 levels
 - **Funding cuts:** Available funds reduced by 50% from 2025 onward
 - **Optimization:** Resources shifted to more cost-effective interventions
- To pick interventions for the optimized scenario, we evaluated the cost-effectiveness of each intervention relative to ART alone

The list of candidate interventions can be tailored to HIV programme priorities

ART

Condom provision

Key population programs

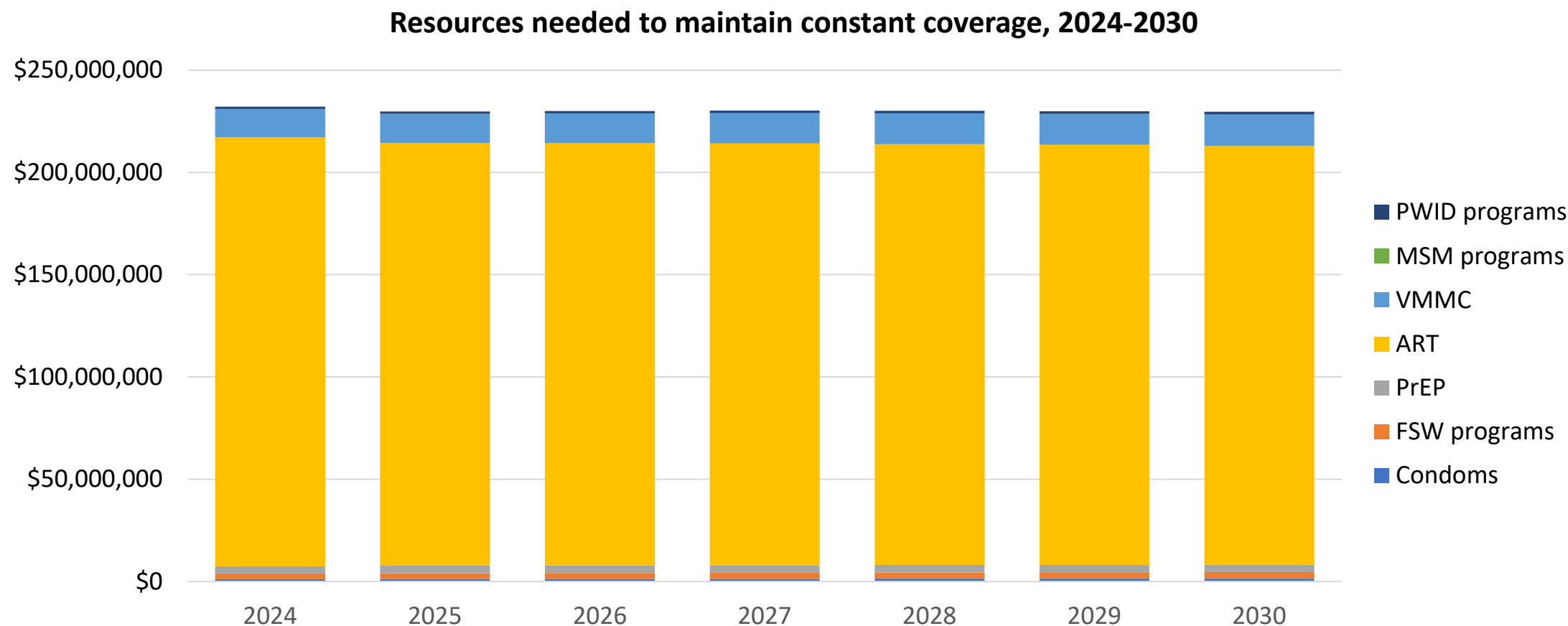
- Outreach to female sex workers (FSW) or men who have sex with men (MSM)
- Harm reduction programs for people who inject drugs (PWID)

PrEP

- **Methods:** Oral PrEP alone, oral + injectable PrEP method mix
- **Populations:** Key populations, AGYW with multiple partners

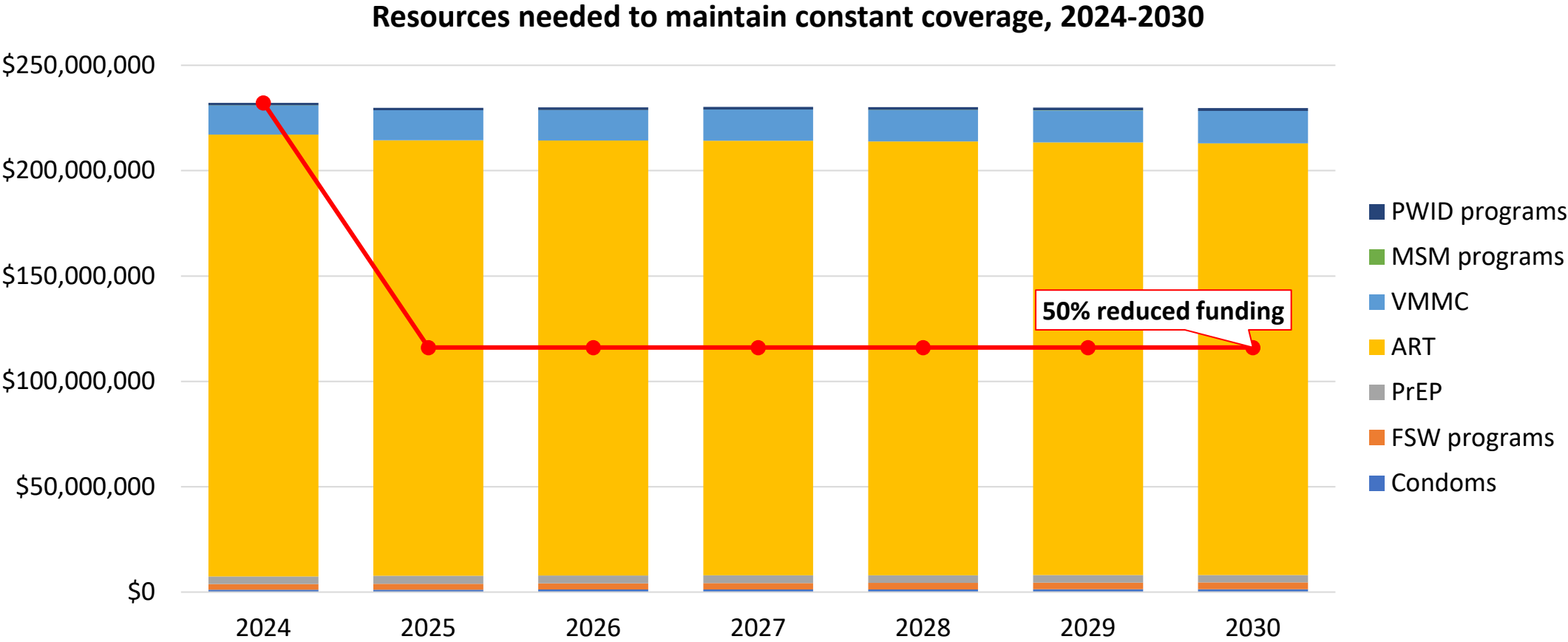
VMMC

Substantial financial resources would be needed to maintain the status quo



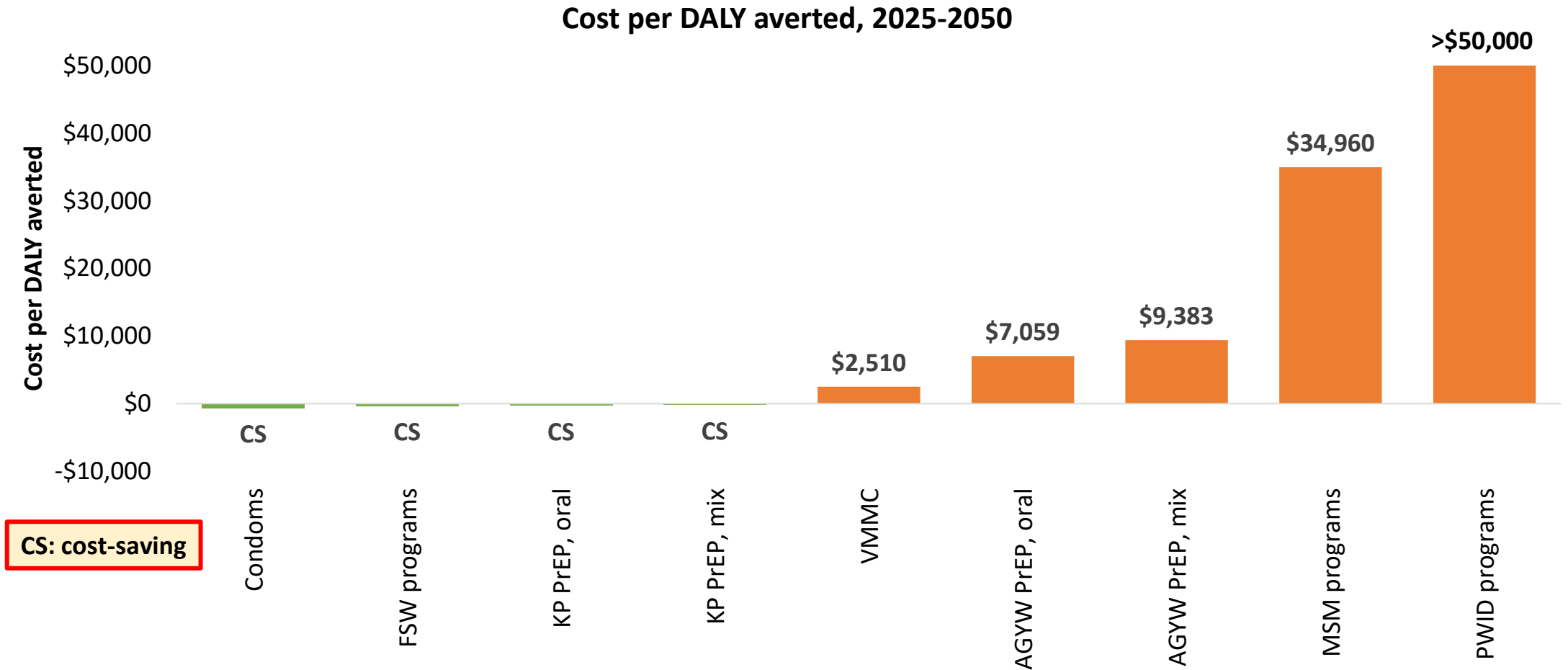
Results are illustrative and will vary by country

Large reductions in HIV funding would limit activities substantially



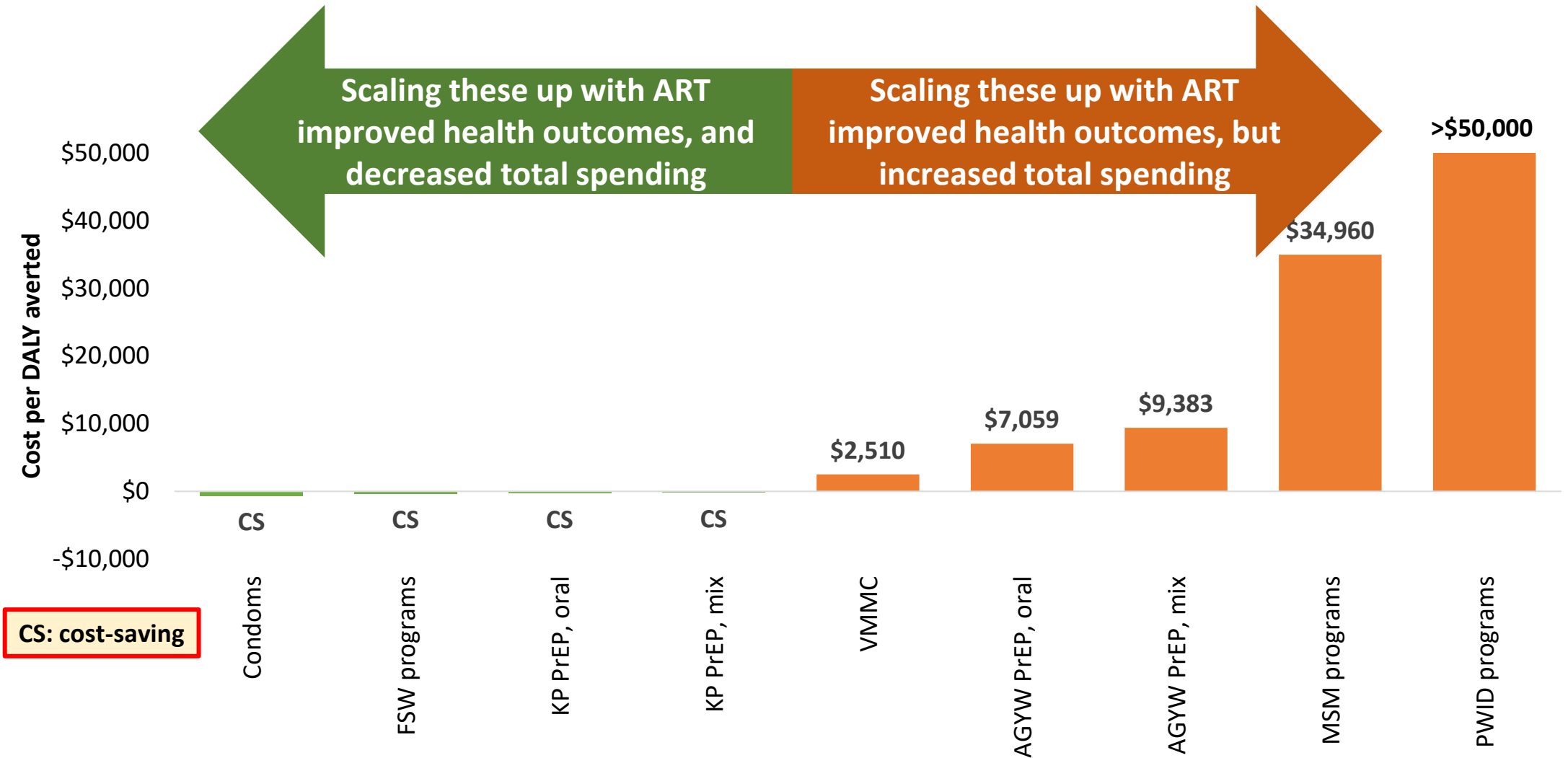
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Which programs are most cost-effective?



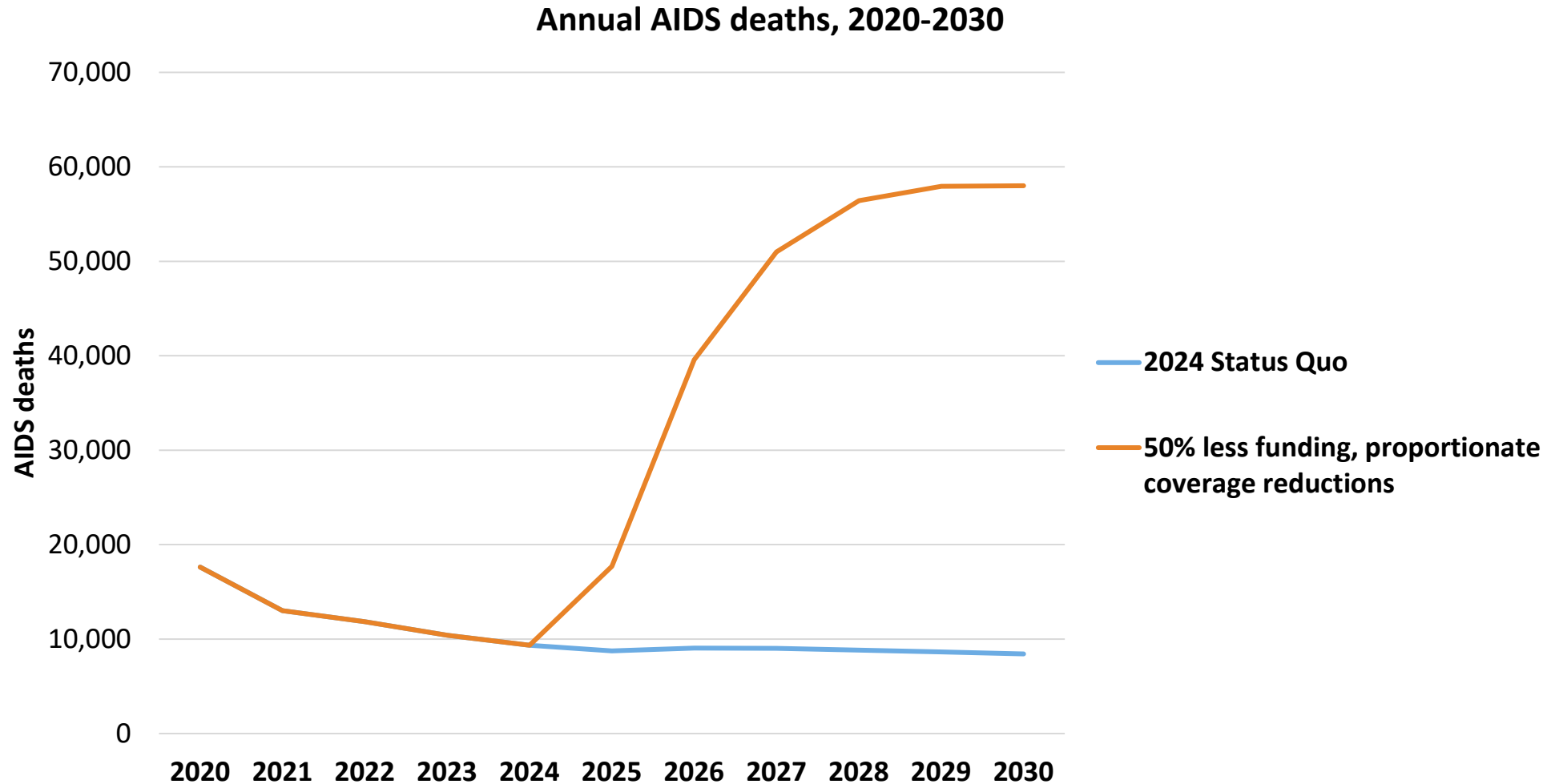
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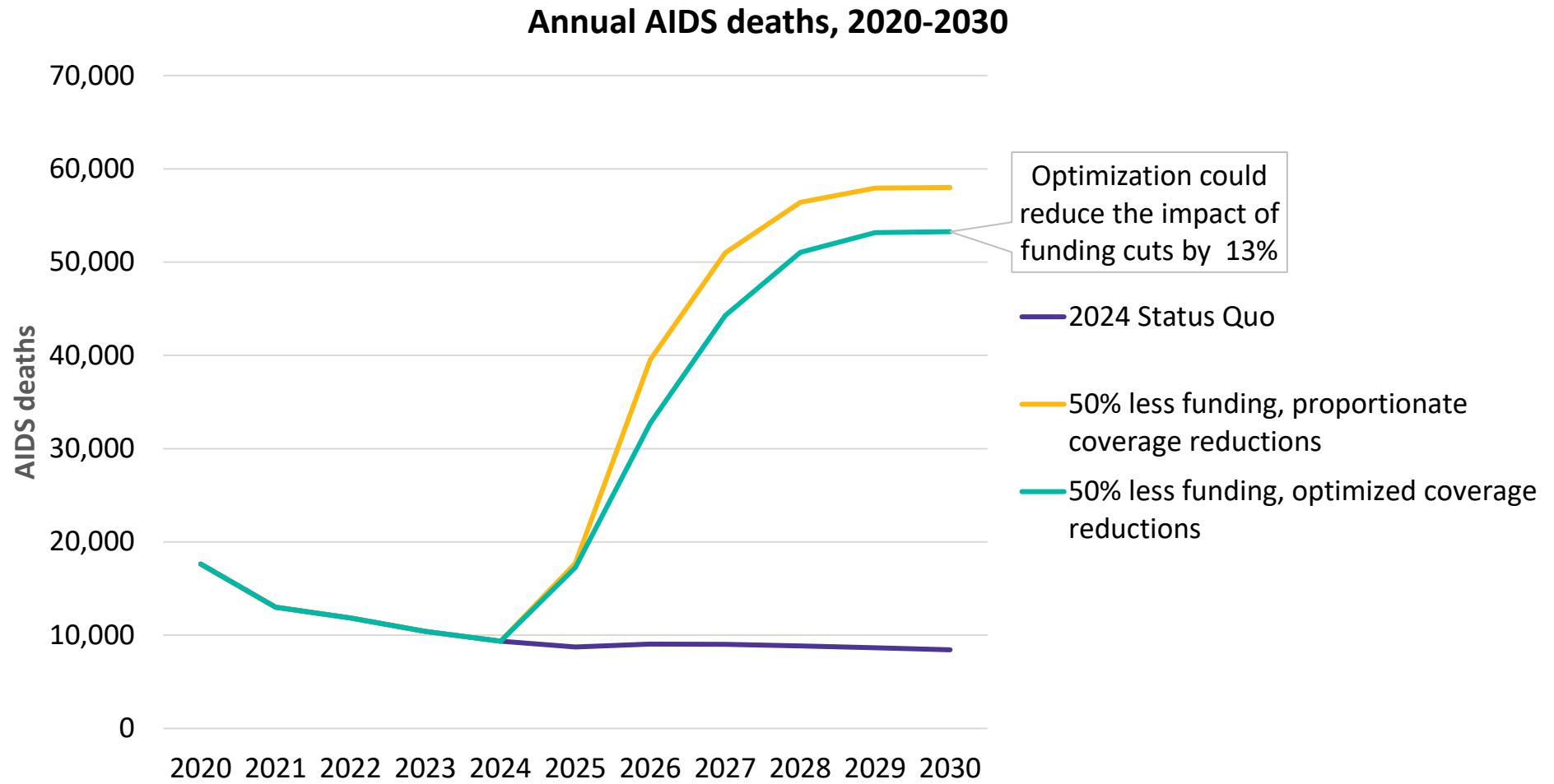
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Optimizing the HIV response can help mitigate some consequences of funding cuts



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Context is key: Cost-effectiveness varies between countries

Intervention rank ordering in 11 sub-Saharan African countries, from most cost-effective (rank 1) to least (rank 10)

	Country										
Intervention	A	B	C	D	E	F	G	H	I	J	K
Condoms	1	1	1	1	1	1	1	1	1	1	1
ART	2	2	2	2	4	2	2	2	2	5	2
KP PrEP, oral	3	3	3	4	2	4	3	3	3	3	3
KP PrEP, mix	4	4	4	6	3	5	4	4	4	4	4
FSW programs	5	5	8	3	6	3	5	5	5	2	5
VMMC	-	6	5	5	5	-	8	-	6	6	6
AGYW PrEP, oral	6	7	6								
AGYW PrEP, mix	7	8	7								
MSM programs	8	9	9								
PWID programs	9	10	10								



HIV prevention cost-effectiveness is driven by:

- HIV incidence in the beneficiary population
- Intervention effectiveness
- Intervention cost per person reached

Closing thoughts

What should we do with these kinds of analyses?

- **Help decide which programs are the most important to implement**
- **Focus efforts to improve existing programs**
- **Advocate for additional resources**

Cost-effectiveness is just one component of decision-making

- **Capacity to move human or financial resources between programs**
- **Equity of the HIV response**

Country engagement is critical – must agree on the key questions, inputs, and constraints

Support is available

Avenir Health has funding from the Gates Foundation to support countries interested in using Goals to help plan the response to shifts in funding

If you are interested in this support, please contact us

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