



Age, Regional, and Urban/Rural Considerations in Refocusing the Voluntary Medical Male Circumcision for HIV Prevention Program in Malawi

BACKGROUND

In 2007, the World Health Organization (WHO) recommended that voluntary medical male circumcision (VMMC) be scaled up in priority countries with high HIV prevalence and low male circumcision (MC) prevalence. UNAIDS estimated that 3.2 million males had undergone VMMC by the end of 2012. Implementation experience has raised questions about the need to refocus VMMC programs on specific subpopulations for the greatest epidemiological impact and programmatic effectiveness. As Malawi prepared its National Operational Plan for VMMC, it sought to examine the impacts of targeting subpopulations by age and subnational region.

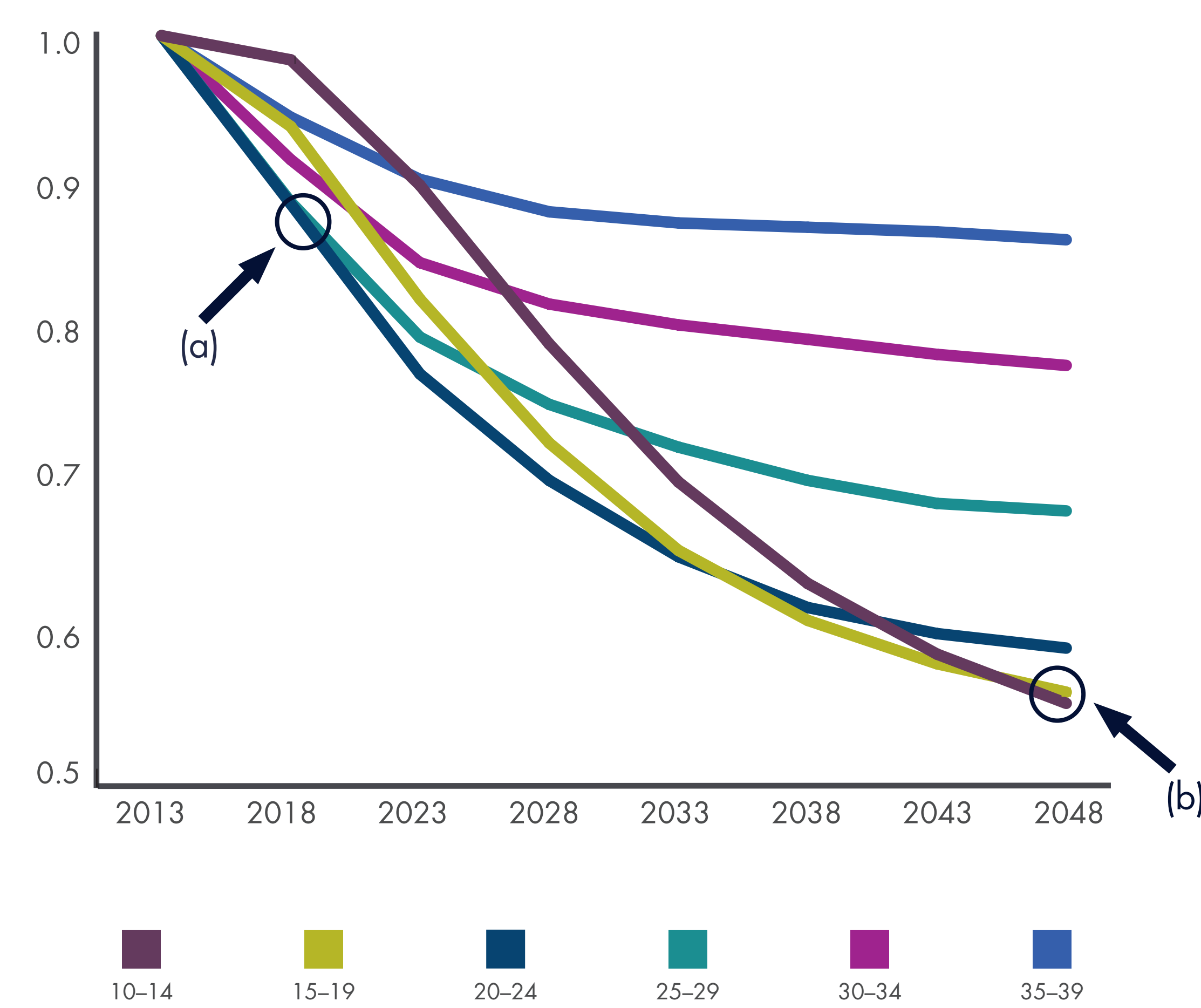
METHODS

The Health Policy Project, with funding from PEPFAR through USAID, applied the new DMPPT 2.0 model (see poster number THPE344 for model description) to study the impact of scaling up VMMC to different target populations disaggregated by age group and geographical subregions of Malawi. National MC prevalence by age group from the 2010 DHS¹ was scaled according to the MC prevalence for each district and then divided by 2 to adjust for overreporting of circumcision. The VMMC unit cost of US\$100 was advised by in-country stakeholders based on implementation experience. The antiretroviral therapy (ART) cost of US\$451 per patient-year was derived from cost analyses conducted as part of the UNAIDS Investment Case exercise.

RESULTS

The lowest numbers of circumcisions per infection averted are projected when targeting clients ages 20–34 (data not shown). The most rapid reductions in HIV incidence can be achieved by circumcising clients between ages 20 and 29 (Figure 1, see “a”), whereas circumcising clients between ages 10 and 19 provides the greatest magnitude of reduction in HIV incidence over the long term (Figure 1, see “b”).

Figure 1
Relative reduction in HIV incidence compared to a base case in which MC prevalence remains unchanged from the baseline. Each line represents a scenario in which VMMCs are provided to that age group only, and scaled up to 80 percent MC prevalence among that age group by 2018, then maintained at 80 percent MC prevalence going forward. HIV incidence reduction in the VMMC scale-up scenario is for the entire population (males and females of all ages), not just the age group receiving VMMC.



The greatest cost-effectiveness (lowest cost per HIV infection averted) among several scenarios examined would be achieved by circumcising clients ages 15 to 34, which would be 78 percent of the cost per infection averted compared with circumcising the entire 10- to 49-year-old age group (Figure 2). The increased cost-effectiveness of focusing on clients ages 15 to 34 does not greatly affect the total impact: this strategy would still avert 86 percent of the HIV infections compared with the 10- to 49-year-old age group (Figure 3).

Figure 2
Cost per infection averted for age-targeting scenarios compared with scaling up VMMC among 10- to 49-year-olds. For each scenario, VMMC is scaled up to 80 percent MC prevalence among the age group indicated by 2018 and maintained at 80 percent thereafter.

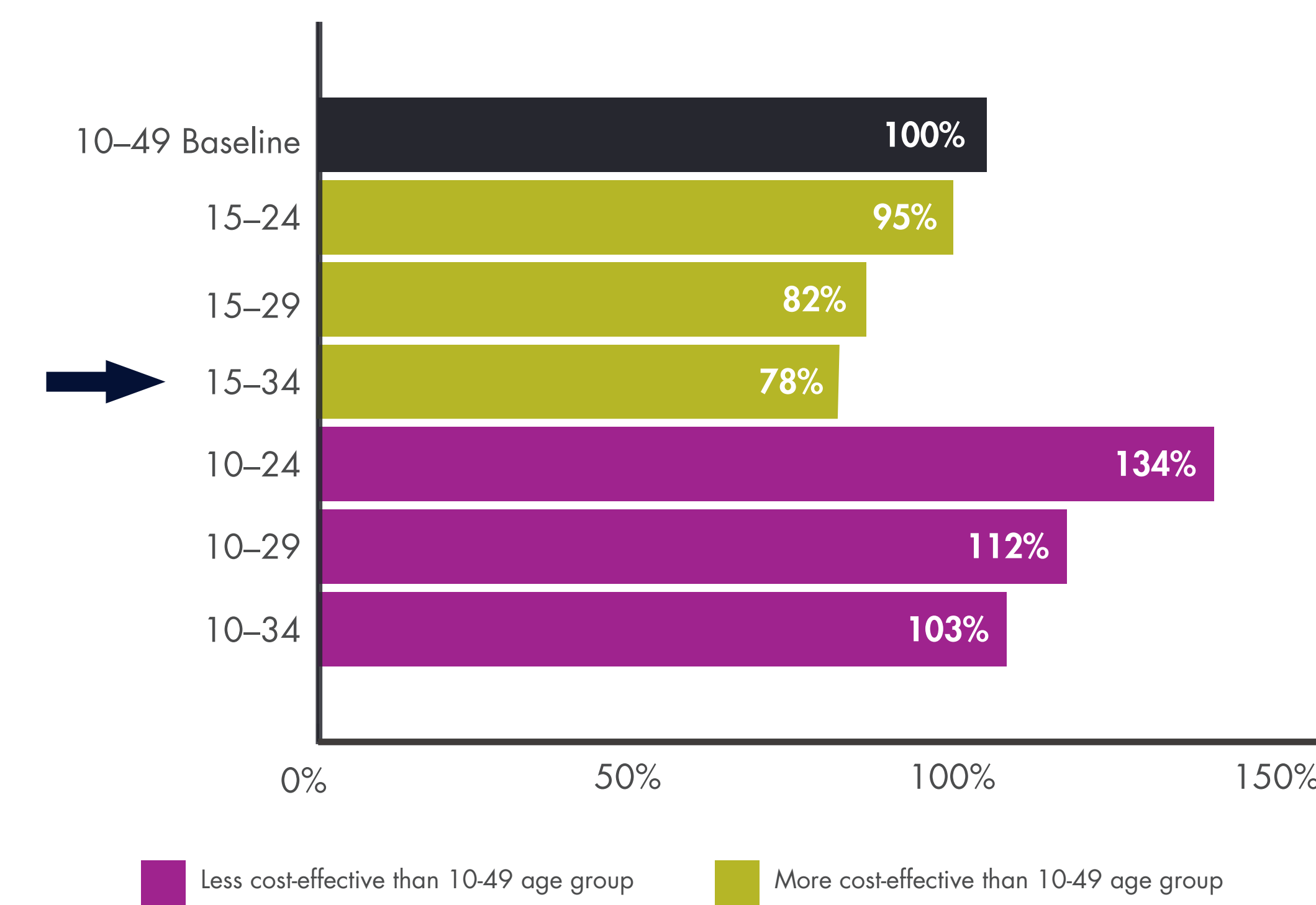
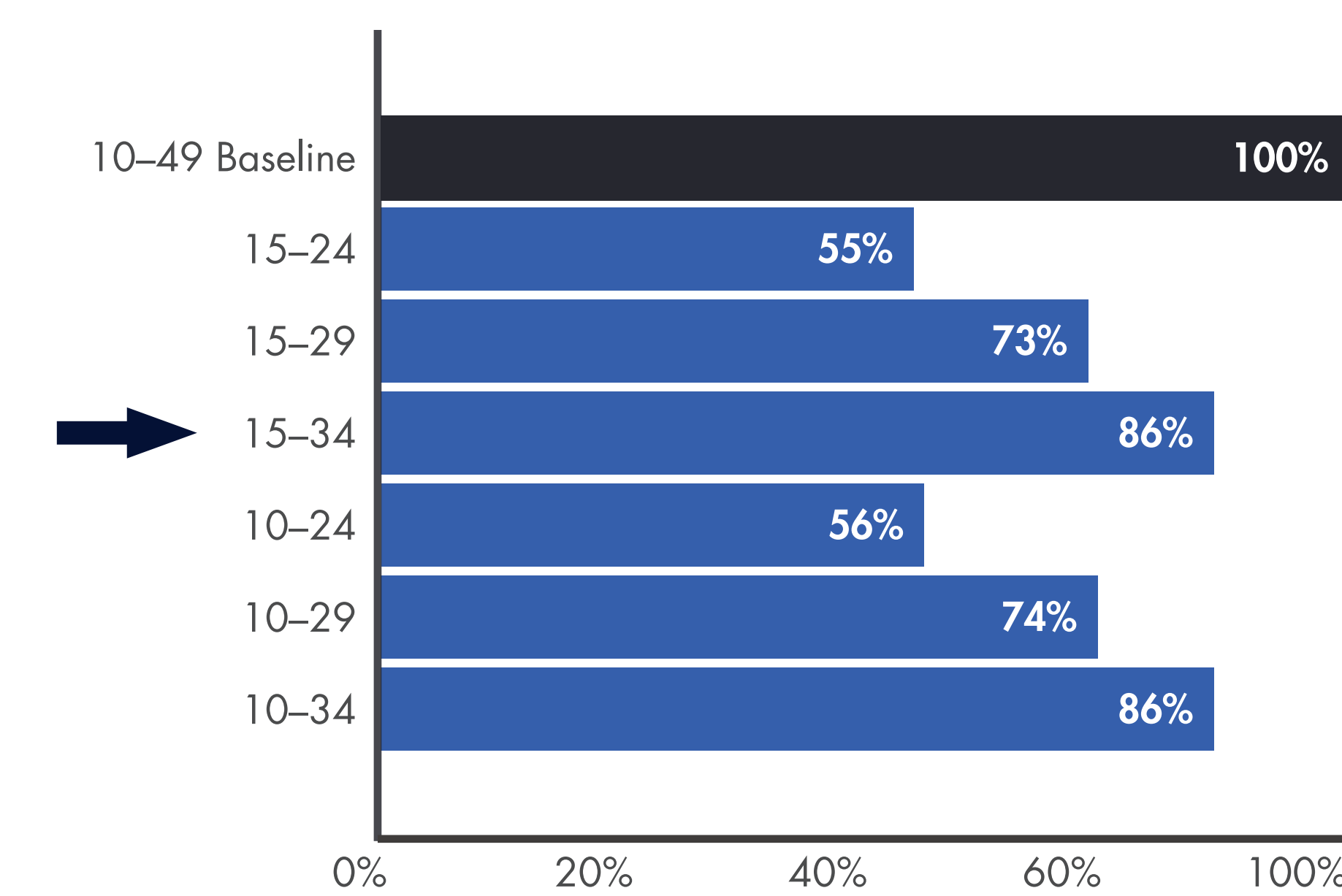
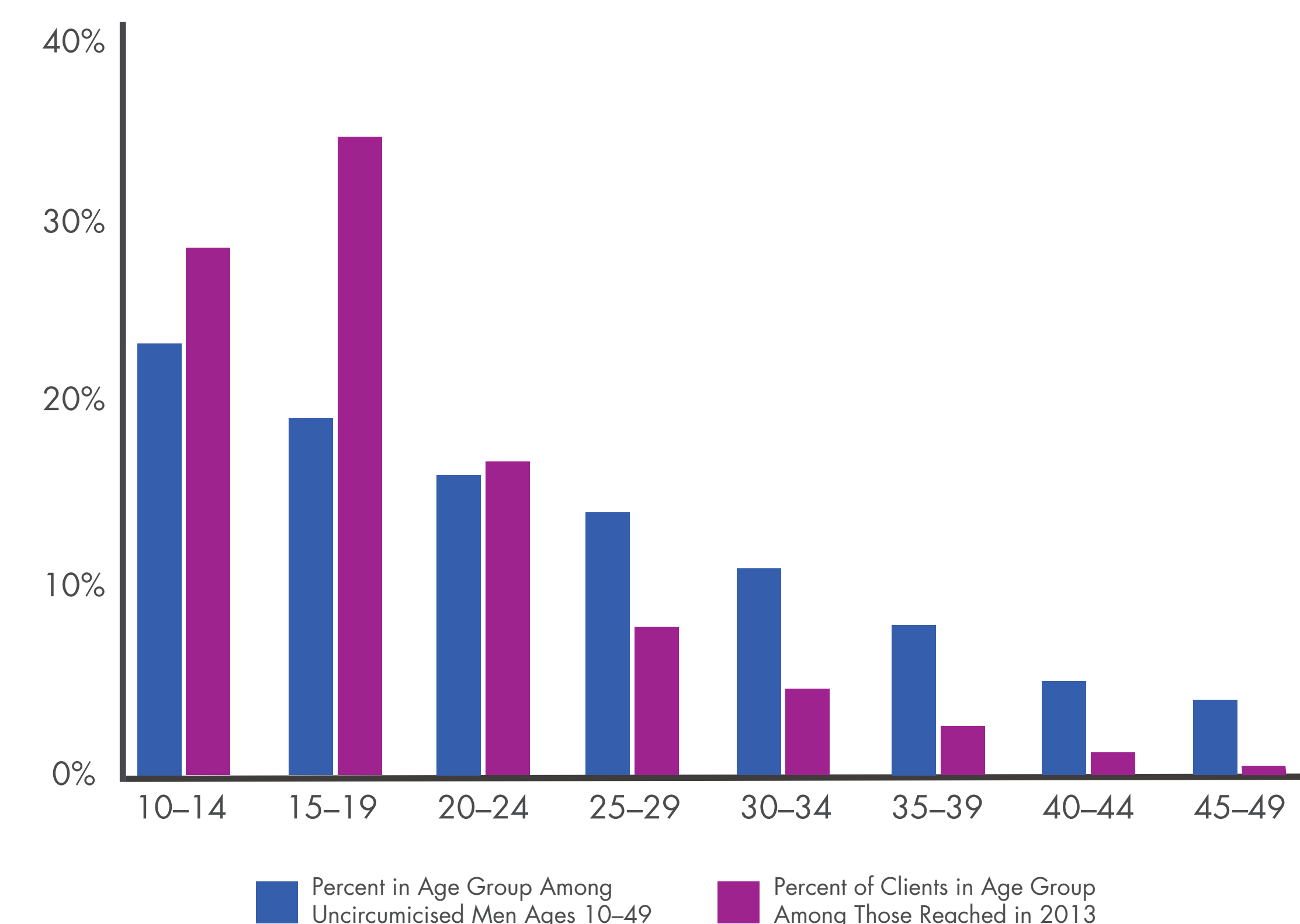


Figure 3
HIV infections averted across the entire population (males and females of all ages) for age-targeting scenarios compared with scaling up VMMC among 10- to 49-year-olds. For each scenario, VMMC is scaled up to 80 percent MC prevalence among the age group indicated by 2018 and maintained at 80 percent thereafter.



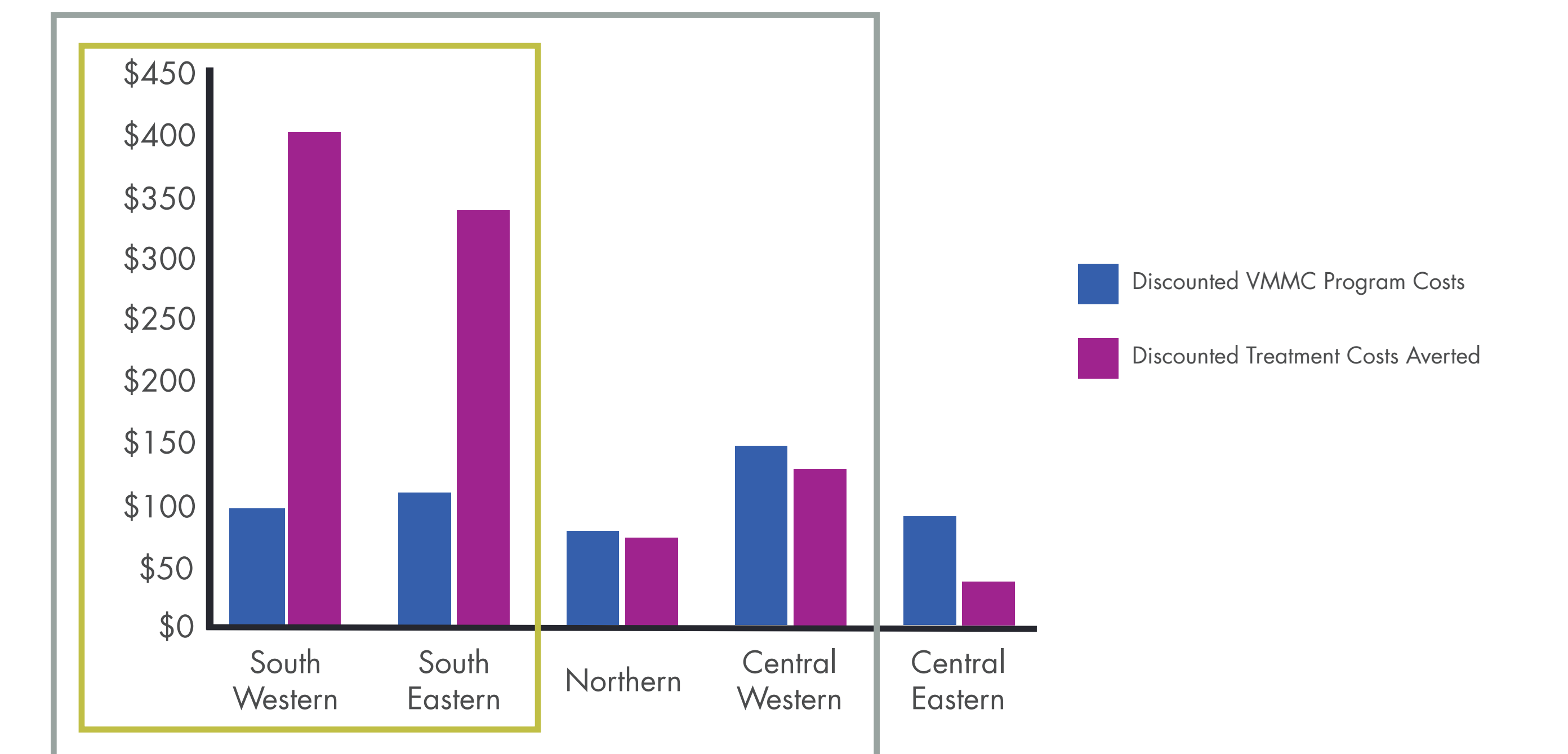
Including clients ages 10–14 does not increase cost-effectiveness, but large numbers of clients in this age group are seeking VMMC services, so policymakers do not want to turn them away (Figure 4). Targeting the 10–29 and 10–34 age groups would avert 75 percent and 87 percent of infections, respectively, compared with the current strategy targeting ages 15–49.

Figure 4
A comparison of the age distribution of the VMMC client population with the age distribution of the eligible male population in Malawi shows that the program is reaching proportionately more adolescents. Client age data were based on PEPFAR reporting data from 2012. Age distribution of uncircumcised men is derived from Spectrum/AIM² projections combined with 2010 DHS¹ surveillance data indicating prevalence of male circumcision by age group.



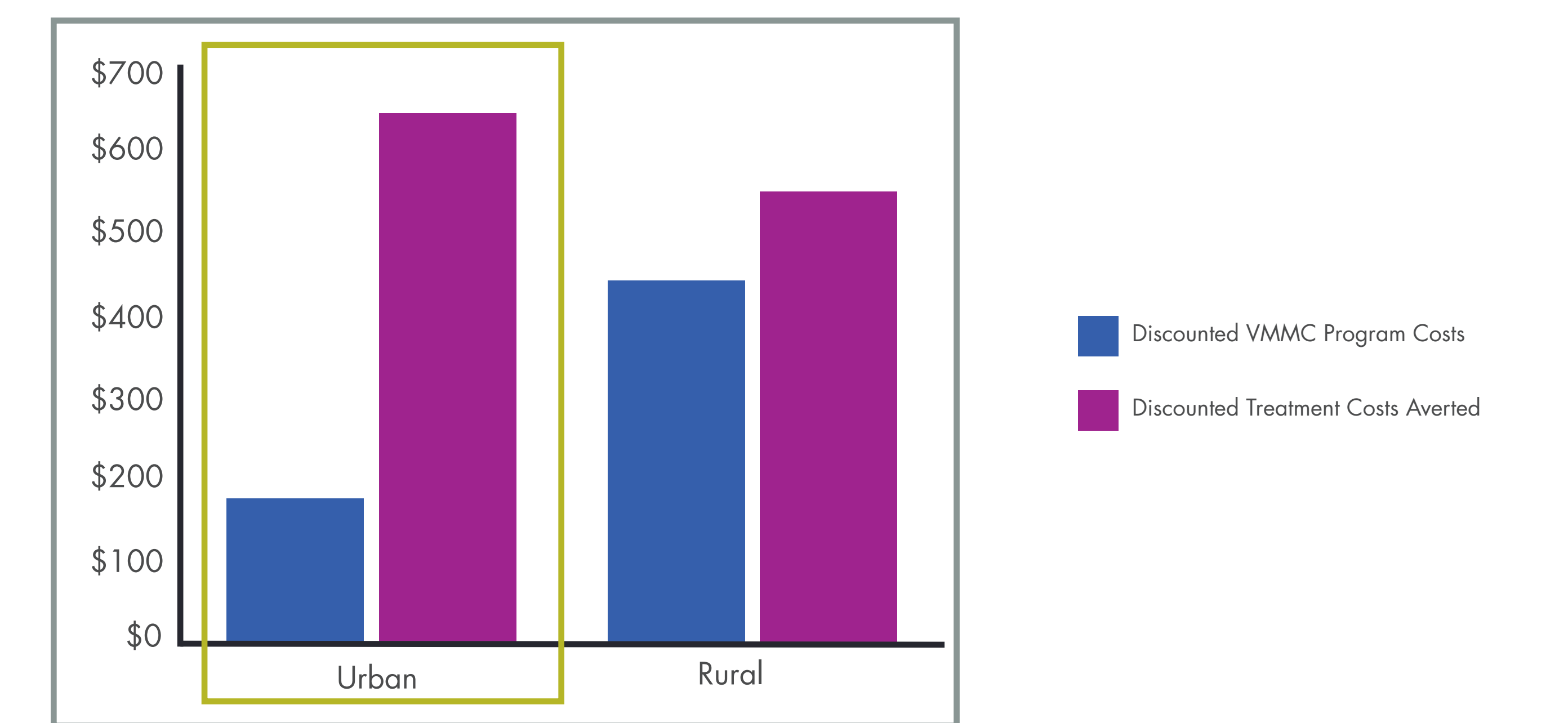
Scaling up VMMC to 80 percent prevalence among the 10–34 age group would be cost-saving compared with treatment costs averted in the South Western and South Eastern Zones, and highly cost-effective according to WHO criteria. In the Northern and Central Western Zones, the program would be cost-effective but not cost-saving (Figure 5).

Figure 5
Scale-up of VMMC in the zones in the gray box is cost-effective (cost per Disability Adjusted Life Year [DALY] saved < 3 times GDP per capita), and scale-up of VMMC in the zones in the green box is both cost-saving and highly cost-effective (cost per DALY saved < GDP per capita). Costs and infections averted were discounted by 3 percent per year.



When comparing urban versus rural areas in the country, targeting urban areas would be both highly cost-effective and cost-saving.

Figure 6
Scale-up of VMMC in both urban and rural areas is both cost-saving and cost-effective (gray box, cost per DALY saved < 3 times GDP per capita), and scale-up of VMMC in urban areas is highly cost-effective (green box, cost per DALY saved < GDP per capita). Costs and infections averted were discounted by 3 percent per year.



CONCLUSIONS

Based on the age-targeting analyses and programmatic experience, Malawi has decided to focus its next VMMC Operational Plan on individuals ages 10–34. The program will continue to focus on urban centers such as Lilongwe and Blantyre, and likely focus future scale-up in priority districts in the Southern Health Zones. The strategic focus of the VMMC program is particularly important because of competing needs for the understaffed health workforce in Malawi.

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