

HIV Epidemic Transition: Overview of Existing and Proposed Metrics

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Background

- Zero new infections, Zero AIDS-related deaths, Zero discrimination
- Ending the AIDS epidemic as a public health threat by 2030:
 - Sustainable Development Goals
 - 2016 High Level Meeting Political Declaration

Background

- October 2017 Glion meeting: “Making the end of AIDS real: consensus building around what we mean by “epidemic control”
- March 2018 MTAG meeting on measurement of policy, stigma and discrimination

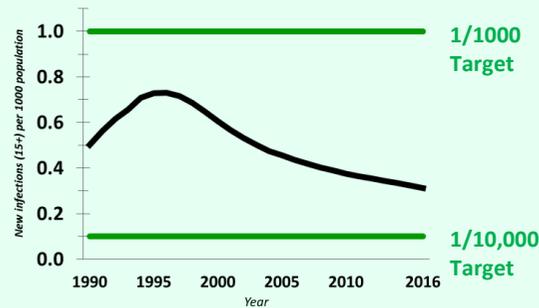
HIV epidemic transition markers

Metrics for epidemic transition

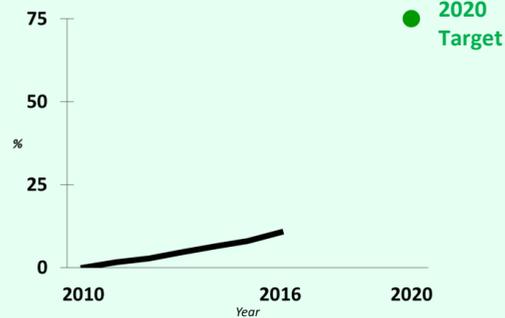
- *Existing: Incidence rate per 1,000 uninfected (SDG indicator)*
- *Existing: AIDS-related mortality rate per 1,000 population*
- % reduction in new infections from 2010 baseline (HLM target)
 - $(\text{new infections}_{2017} - \text{new infections}_{2010}) / \text{new infections}_{2010}$
- % reduction in AIDS deaths from 2010 baseline (HLM target)
 - $(\text{AIDS deaths}_{2017} - \text{AIDS deaths}_{2010}) / \text{AIDS deaths}_{2010}$
- Ratio of Incidence to Prevalence (IPR)
 - New infections / people living with HIV
- Ratio of Incidence to Mortality (IMR)
 - New infections / total deaths to HIV population

Epidemiological metrics for HIV transition, globally, 1990–2020

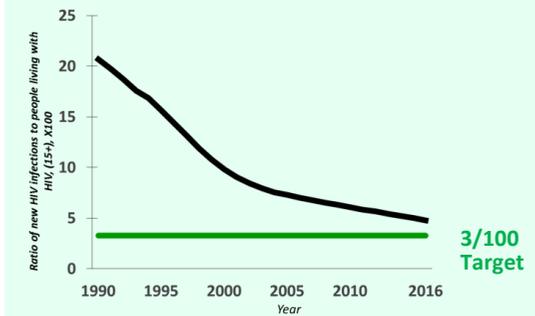
New HIV infections per 1000 population, 1990–2016



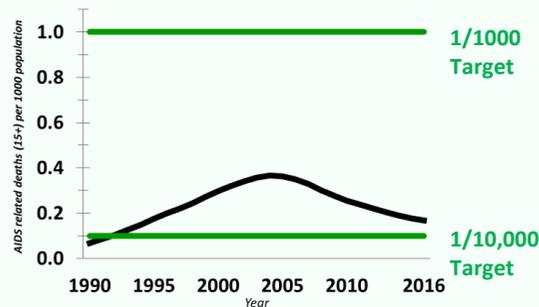
Percent reduction in new HIV infections, 2010–2016



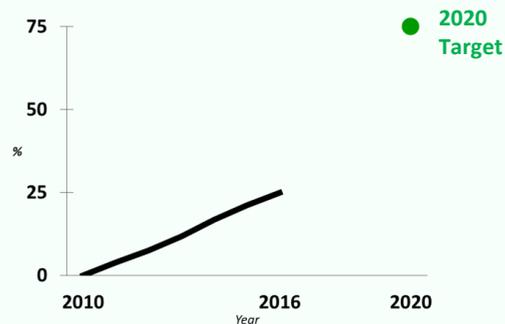
Incidence : Prevalence Ratio 1990–2016



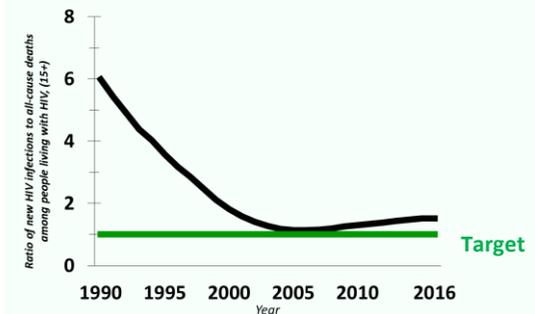
AIDS-related deaths per 1000 population, 1990–2016



Percent reduction in AIDS-related deaths, 2010–2016

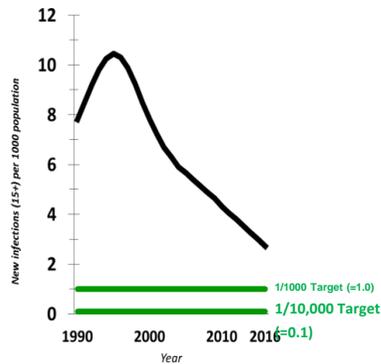


Incidence : Mortality Ratio 1990–2016

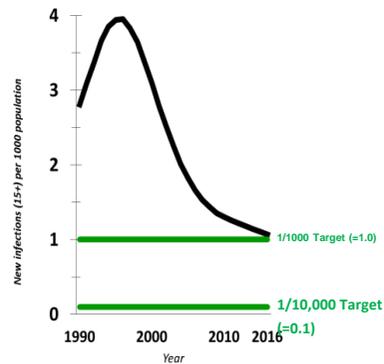


New HIV infections per 1000 uninfected population, by region, 2010–2016

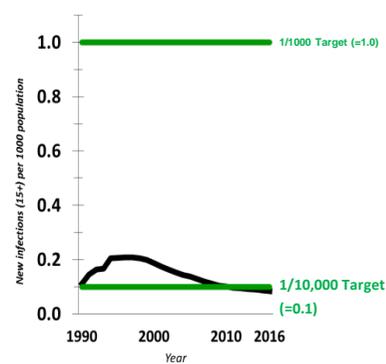
EASTERN AND SOUTHERN AFRICA



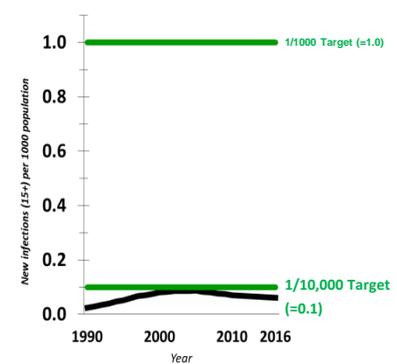
WESTERN AND CENTRAL AFRICA



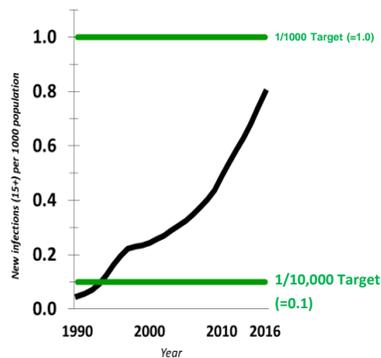
ASIA AND THE PACIFIC



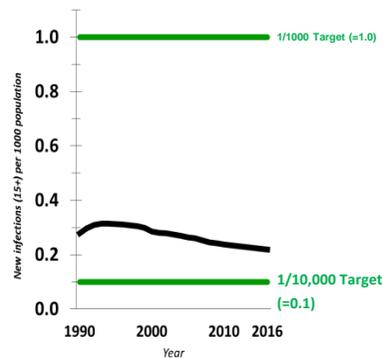
MIDDLE EAST AND NORTH AFRICA



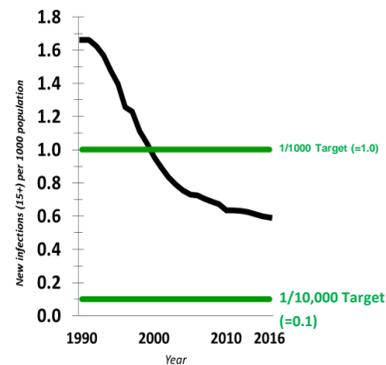
EASTERN EUROPE AND CENTRAL ASIA



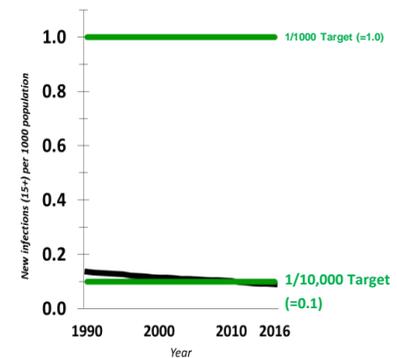
LATIN AMERICA



CARIBBEAN

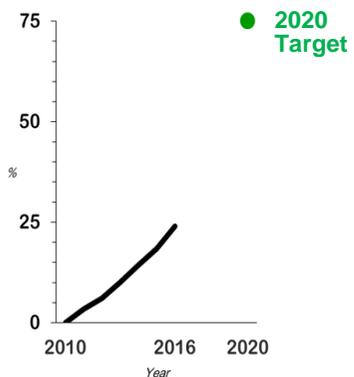


WESTERN AND CENTRAL EUROPE AND NORTH AMERICA

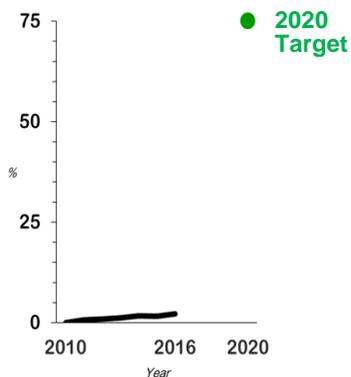


Percent reduction in new HIV infections, by region, 2010–2016

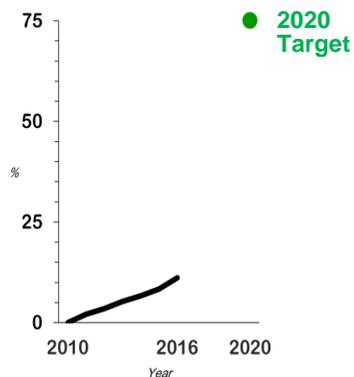
EASTERN AND SOUTHERN AFRICA



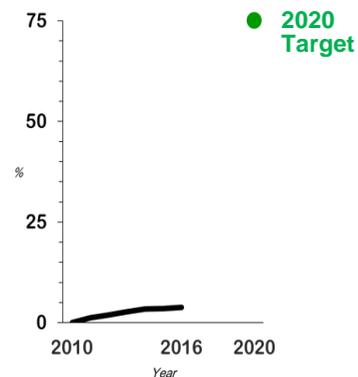
WESTERN AND CENTRAL AFRICA



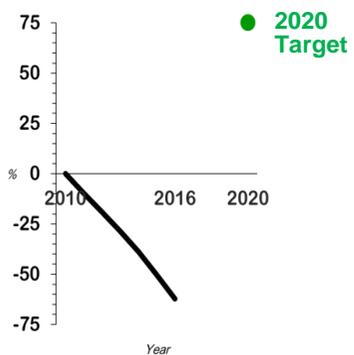
ASIA AND THE PACIFIC



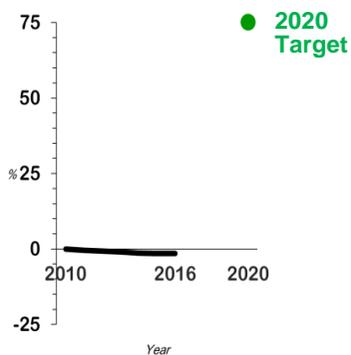
MIDDLE EAST AND NORTH AFRICA



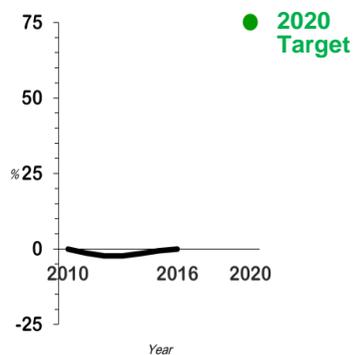
EASTERN EUROPE AND CENTRAL ASIA



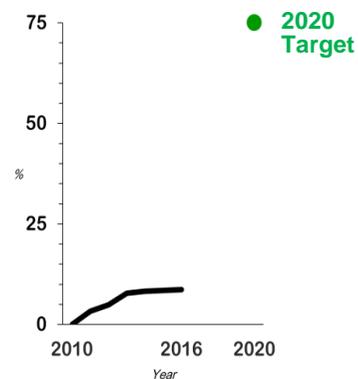
LATIN AMERICA



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WESTERN AND CENTRAL EUROPE AND NORTH AMERICA



Incidence Prevalence Ratio (IPR), by region, 2005–2016

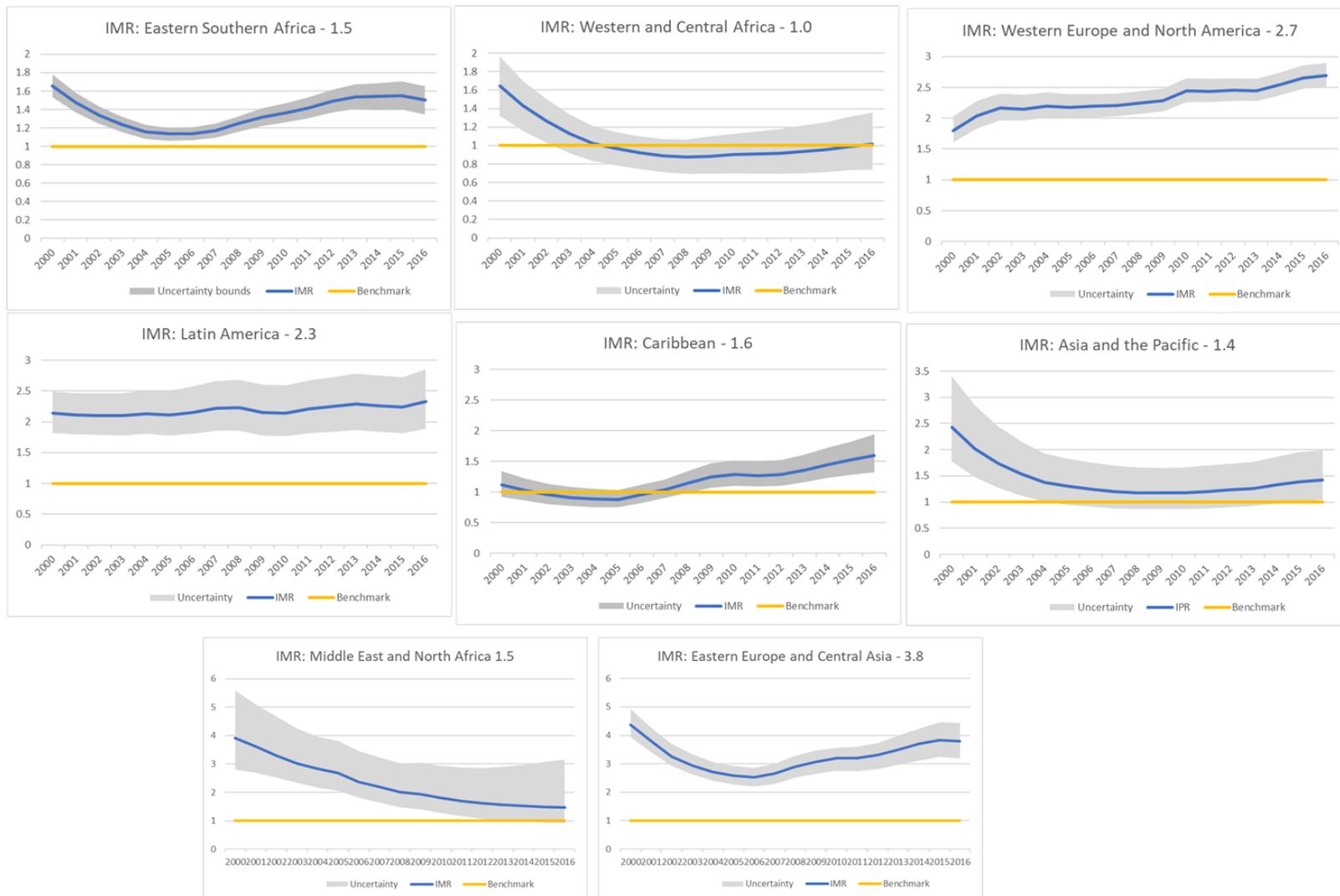


IPR interpretation

- Definition:** The ratio of new HIV infections to number of people living with HIV
- Benchmark:** 0.03
- Strengths:** Identifies an epidemiological relevant shift in the epidemic
- Limitations:** This metric cannot be disaggregated by sex, age or key population as the metric reflects an entire epidemic including transmission across population groups
- Interpretation:** The level of incidence that needs to be achieved to result in a shrinking epidemic over time. When this ratio is maintained below 0.03 the epidemic will decline.

The benchmark was chosen based on models that suggest that the average life expectancy for a person living with HIV is 33 years. This is closely linked to the basic epidemiological concept of $\text{incidence} = \text{prevalence} / \text{duration}$. The mean life expectancy of a PLHIV of 33 years is based on an average of all PLHIV

Incidence Mortality (IMR), by region, 2005–2016



IMR interpretation

- Definition:** The ratio of new HIV infections to the total number of deaths among the HIV population
- Benchmark:** 1
- Strengths:** Identifies a point at which HIV related health care costs will diminish
- Limitations:** Requires to be interpreted together with a measure of low mortality among people living with HIV or high ART coverage (otherwise $IMR < 1$ could be attained in the presence of high mortality)
- Interpretation:** When this value is less than one, the size of the population living with HIV decreases, lowering costs of antiretroviral therapy and services

Measures of HIV-related policy, stigma and discrimination

Measures of HIV-related stigma and discrimination

- Participants at the Glion meeting called for impact-level measures of epidemic transition to be packaged with:
 - improved measures of HIV-related stigma and discrimination; and,
 - a “policy cascade” that measures whether an enabling legal and policy environment is in place for efforts to eliminate of stigma and discrimination
- In follow up, the UNAIDS Monitoring Technical Advisory Group (MTAG) convened a task team on 5-6 March to make recommendations on summary measures on stigma, discrimination and an enabling policy environment for effective AIDS responses

March 2018 MTAG meeting

- Many measures already exist, and more data will be generated in the coming years
- There are also data gaps, which are important to show
- Summary measures can build on existing frameworks and summary measures developed for other areas
- Civil society participation is critical. As many were unable to attend the task team meeting, it was agreed to proceed on two tracks:
 - Short-term: develop an interim indicator set to be used by UNAIDS for 2018 reporting
 - Longer-term: Further develop a framework to monitor progress, linked to the development of the Global Compact to End All forms of HIV related Stigma and Discrimination

Interim indicator framework

Drivers and facilitators of HIV-related discrimination	Manifestations and outcomes of HIV-related discrimination
Discriminatory attitudes	Violence
Discriminatory laws and policies	Stigma and discrimination experienced in healthcare
Services	Avoidance of healthcare because of stigma and discrimination
	Employment
	Law and policy enforcement
	Service coverage

Interim indicator set to track policy, stigma and discrimination

- Discriminatory laws and policies:
 - Criminalization
 - Parental consent to access SRH services
 - Spousal consent to access SRH services
 - Mandatory testing
- Discriminatory attitudes towards people living with HIV
- Discrimination experienced by people living with HIV in healthcare settings
- Prevalence of recent intimate partner violence
- Avoidance of healthcare by key populations due to stigma and discrimination

Conclusion

Summary

- New metrics can give additional impetus, by showing progress towards ending the AIDS epidemic
- Important to show both progress in epidemiology (reducing new infections and deaths) and in reducing stigma and discrimination

Next steps

- Reflect metrics in narrative, statements and reports (including 2018 Global report)
- Use metrics in next cycle of target-setting, resource needs and impact estimation
- Improve measurement of incidence and mortality, including for key populations: better and more data are needed to inform estimates of new infections and mortality
- Improve and roll out measurement of policy, stigma and discrimination: instruments for several indicators have only recently been developed/updated; develop trends over time