INDICATOR ANALYSIS

HIV INCIDENCE RATE (NUMBER OF NEW CASES PER 1,000 UNINFECTED POPULATION)

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Overview	HIV has claimed an estimated 36 million lives so far (1) . The WHO found that "There were an estimated 37.7 million [30.2–45.1 million] people living with HIV at the end of 2020, over two thirds of whom (25.4 million) are in the WHO African Region" (1). Of these 37.7 million infected people, an estimated 27.5 million were receiving antiretroviral therapy (73% coverage) in 2020 (1). Every week 6000 adolescent girls and young women become infected with HIV (2).
How is the indicator calculated?	Number of new HIV infections / Uninfected population (which is the total population minus people living with HIV) (3).

GLOBAL TRENDS
What are the global patterns for this indicator? Trends, geographic patterns etc.	Since 2010, new global HIV infections have decreased by 31% (4). This change in incidence varies significantly by region with Eastern and Southern Africa seeing the largest decrease of 43% and Northern Africa and the Middle East seeing an increase of 7% (4). The WHO notes that certain factors should be considered in data on HIV such as key population characteristics: age groups (15−24 years, 25+ years), men who have sex with men, sex workers, people who inject drugs, transgender people, young adolescent girls, indigenous peoples, and prisoners (3). Some regions such as Western and Central Africa struggle with "extremely low coverage of antiretroviral therapy among children "at only 28%, whereas Eastern and Southern Africa has very low rates of coverage for men and boys" (2).

RELEVANCE TO UNDERSTANDING RELATIONSHIPS AMONG GENDER, HEALTH, FRAGILITY/PEACE
How could this indicator contribute to our understanding of how gender, health and fragility and peace influence one another?	HIV can be spread through "the exchange of a variety of body fluids from infected people, such as blood, breast milk, semen and vaginal secretions. HIV can also be transmitted from a mother to her child during pregnancy and delivery" (1). The prevention of HIV transmissions requires sexual health education as well as increased access to sexual and reproductive healthcare for all genders. This type of access is compromised in impoverished and fragile contexts, such as conflict zones. Further, there is significant stigma, discrimination, and even criminalization surrounding HIV, particularly for men who have sex with men, which demonstrates the relationship between gender and health. The power imbalances and gender-based violence that many young girls face contribute to higher rates of HIV in certain areas, which is further exacerbated by violent conflict. The discrimination that people with HIV face often prevents them from seeking care, in different ways for different genders. The stigma surrounding HIV also deters HIV-free individuals from learning about preventative care.

UTILITY	
What does the indicator measure?	The indicator measures the number of new HIV infections per 1,000 uninfected population.
What does it NOT measure - what does it miss?	This indicator does not count the number of HIV related deaths, or at what point in the infection the case was detected.

AVAILABILITY	
Sources for indicator (CRVS, DHS etc.);	This indicator can rely on special diagnostic tests in population-based surveys or from health facilities but is often obtained through modelling using Spectrum, a UNAIDS-supported software tool (3). These data are usually collected annually. WHO notes that additional sources of data can be found using "facility-based surveillance system with key population estimates" (3). Indicator data are available from the following source: 1. UNAIDS (country and subnational levels 1990-2020) https://aidsinfo.unaids.org/
Most recent date available;	Data can be found on HIV incidence per 1,000 as recently as 2019 from the UNAIDS Data 2019 Report (2). The most recent World Bank data are from 2018.
Availability across geographic areas;	Yes. However, the UNAIDS database does not cover some developed countries which produce their own estimates including the United States, Canada, the United Kingdom, Sweden and others. As of 2018, 90% of countries reported their data through Global AIDS Monitoring (5).
Availability in conflict affected settings;	Yes. Conflict and displacement are known to increase the risk of transmission due to increased economic vulnerability, increases in sexual violence and "disruption of preventive and curative health services", which has contributed to greater efforts to research HIV prevalence in conflict affected settings (6). Data is available for 1990-2020 in: Yemen, South Sudan, Libya, Somalia, DRC and Afghanistan.

GRANULARITY
Disaggregation at national level

Data disaggregated by sex;	Yes.
Data disaggregated by identity group (race, ethnicity);	Data available for key populations (sex workers, people who inject drugs, men who have sex with men and transgender people)
Data disaggregated by income	No.
Data disaggregated by citizenship	No.
Data disaggregated by migration background	No, however some reports have been produced to determine general trends between migrant status and HIV prevalence, such as the UNAIDS HIV and International Labour Migration brief (7). This information can be found in academic literature on specific countries or populations. The WHO has noted that situations of forced displacement due to violence and instability often have higher rates of HIV, but this information is not disaggregated for many countries.
Disaggregation at sub-national level	
Data disaggregated by geographic region;	Yes.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income.	No.
Data disaggregated by age.	No.

SOURCES OF BIAS	
What bias can exist with these data?	Those who are discriminated against and do not seek out care can be excluded from the data, leading to underestimates of HIV incidence among vulnerable groups and the general population.

VALIDITY	
Clear and accepted international standards for indicator;	Yes. The definition of HIV follows the WHO's International Classification of diseases (WHO 2021).

Validity of measurement of indicator generally accepted;	Yes. However, the accurate collection of these data can be difficult, "given the lack of adequate strategic information systems in many countries, they are often not formally validated. Data aggregation across countries may also be methodologically challenging, as definitions may not be standardized. Data on service availability and uptake may not cover all public, private and nongovernmental health facilities in a country or may not include all service delivery points where HIV testing and counselling services are provided." (8).

RELIABILITY	
Reliability of indicator generally accepted;	Yes.

COMPLEXITY	
Enables analysis across time and location.	Yes, this indicator does enable for analysis across time and location as there is no geographic or time-related limitation explicitly identified within its definition.

OTHER REFLECTIONS	
Are indicator values imputed/modelled?	UNAIDS models HIV incidence using a software called Spectrum that primarily relies on HIV prevalence as an input. UNAIDS notes that the confidence intervals presented along with output values are based on the quantity and source of the data, the number of years of data, the magnitude of reported cases and the number of assumptions required to arrive at the estimate (9). *Uncertainty bounds are included with estimates and should be considered during analysis.*
Other reflections and debates	Greater progress needs to be made in providing preventative services and care to the "underserved and overlooked" populations that remain the most difficult to reach. A "one-size-fits-all" approach will not close these gaps, and additional research on HIV incidence and areas such as migration status and income quintile must be conducted in order to reach our SDG goals (5).

References

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