Summary of Methodologies
to Measure Prevention of HIV/AIDS among Young People

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Preface

Below is a summary of the major tools that have been commonly used to measure prevention of HIV/AIDS among youth. This table has been designed to help program planners, policy makers, and others interested in understanding the status of youth HIV risk and youth HIV prevention programs at the national, regional, or local level identify sources of relevant information. In many cases, data are available at the national level to inform national-level programming (e.g., see methodology 1 below). For projects focused at a lower level (e.g., state, district or city levels), there may be similar representative household-level surveys available to inform youth programming. Alternatively, data may be available from targeted surveys (e.g., surveys of high-risk populations such as sex workers or surveys of youth at the school-level) that will provide the relevant information on youth sexual behaviors. These targeted methods are less commonly available; but when new data need to be collected, these approaches may be more feasible and affordable depending on the target population of interest (e.g., in places with concentrated epidemics, it may be best to undertake a Behavioral Surveillance Survey to learn about youth sex workers and to determine how to target these young people with the appropriate prevention messages). Other methods described below include special surveys that may be most relevant for programs seeking to target youth at a lower level (e.g., district, city, or neighborhood level). Finally, there is a wealth of existing data at the facility level that may provide the relevant information for program and policy decisions. Examples of indicators available from facility-level data sources are discussed as well; however, users are cautioned that the quality of facility-level data should be determined as part of the process to ensure that there is not under-reporting of the outcomes of interest.

For each methodology this document lists the most commonly used data collection tools to evaluate youth programs. Information is provided on the significance of the tool, how it is administered, what it can measure, the strengths and weaknesses of the tool, applications and examples of data use, and resources for where to find more information on each of the tools. For some methodologies, the data collected are for all ages but can be disaggregated by both age and sex to permit examination of youth-specific indicators. Moreover, some methodologies may collect information on only certain age groups, sexes or special high-risk populations that include youth samples. With regards to the specific indicators that each tool can measure, examples are given from the Global AIDS Response Progress Reporting (GARPR) 2012 Indicators, the President’s Emergency Plan for AIDS Relief (PEPFAR) Next Generation Indicators, and the Millennium Development Goals (MDG) presented in the table below (under “Indicators or Measureable Concepts”). For more information on the specifics of each of the Global AIDS Response Progress Reporting 2012 Indicators see Appendix 1. PEPFAR Next Generation Indicators (accessed May 26, 2013) can be found at:


The Millennium Development Goals Indicators (accessed May 26, 2013) can be found at:

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<table>
<thead>
<tr>
<th>Method Examples</th>
<th>Indicators or Measureable Concepts</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Applications/Data Use Examples</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic and Health Surveys (DHS)</strong></td>
<td>Prevalence of HIV among young people: (GARPR 1.6, PEPFAR P8.23N, &amp; MDG 6.1)</td>
<td>Household and individual questionnaires usually conducted every 3-5 years with female and male participants ages 15-49 years (for some surveys male age range may be 15-59)</td>
<td>Not suitable for district-level estimates unless survey is designed to obtain estimates at that level</td>
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<td>Moore et al.</td>
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<td><strong>AIDS Indicator Survey (AIS)</strong></td>
<td>Knowledge of HIV prevention (GARPR 1.1, PEPFAR P8.8.N, &amp; MDG 6.3)</td>
<td>Range of outcome level indicators can be disaggregated by age to identify the youth population; this sample is representative of general population of youth (living in households) that can be compared across many countries</td>
<td>Data not routinely collected; data generally available every 3-5 years</td>
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<td>MEASURE DHS: The Future is in Our Hands: Tanzanian Youth, Reproductive Health and HIV</td>
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<td><strong>Multiple Indicator Cluster Survey (MICS)</strong></td>
<td>Prevalence of condom use at high risk sex (GARPR 1.4, &amp; PEPFAR P8.12.N, MDG 6.2)</td>
<td>Wide range of outcome level indicators collected across many countries (comparability)</td>
<td>Data cannot detect small changes or changes over short periods of time without large sample sizes</td>
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<td>The Population Council. The Adolescent Experience In-Depth: Using Data to Identify and Reach the Most Vulnerable Young People: Benin 2006</td>
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<td></td>
<td>Prevalence of HIV testing and knowing results (GARPR 1.5 &amp; PEPFAR P11.2.N)</td>
<td>Can measure program coverage</td>
<td>Expensive to implement at national level</td>
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<td>Stone &amp; Vaughan-Smith. Understanding Adolescent Girls’ Protection Strategies against HIV: An Exploratory</td>
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<td></td>
<td>Prevalence of early sex (GARPR 1.2 &amp; PEPFAR P8.10.N)</td>
<td>Estimating HIV prevalence among youth is expensive to collect; also, where the HIV prevalence is low, a large sample size is</td>
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<td></td>
<td>Prevalence of multiple partnerships (GARPR 1.3 &amp; PEPFAR P8.11)</td>
<td>Other items often measured:</td>
<td>Cost varies based on which indicators are collected</td>
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<td>• Transactional sex/condom use during transactional sex</td>
<td>Instruments well tested (quality control)</td>
<td>Cost varies based on which indicators are collected</td>
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**Resources:**
- MEASURE DHS STATcompiler: [www.statcompiler.com](http://www.statcompiler.com)
- MEASURE DHS Youth Corner: [http://www.measuredhs.com/topics/Youth-Corner/index.cfm](http://www.measuredhs.com/topics/Youth-Corner/index.cfm)
- UNICEF. Progress for Children: A Report Card on Adolescents (Number 10, April)
### Method Examples

**How it is done/Why it matters**

- Youth-specific household surveys
  - Household and individual questionnaires specifically tailored to youth ages, usually 15-24 years of age

### Indicators or Measureable Concepts

**What it can measure**

- Cross-generational sex
- Condom use at first sex
- Attitudes toward sex education
- Access to condoms (knowledge of sources)
- Stigma toward people living with HIV/AIDS
- Youth violence experience (if domestic violence module included)
- Childbearing experience and timing
- STI symptoms and care
- Concurrent partnerships
- Sexual experience among never married
- Recent sex among never married

### Strengths

- Needed to permit having reliable estimates; this also increases the costs

### Weaknesses

- Study in Urban Lusaka

### Applications/Data Use Examples


### Resources

<table>
<thead>
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<td></td>
<td>Prevalence of early sex (GARPR 1.2 &amp; PEPFAR P8.10.N)</td>
<td>Collects highly sensitive information on target groups vulnerable to stigmatization, must have sophisticated system to protect subjects and data collected</td>
<td></td>
<td>Amon et al. Behavioral Surveillance Surveys, BSS. Guidelines for Repeated Behavioral Surveys in Populations at Risk <a href="http://www.popline.org/node/176517">http://www.popline.org/node/176517</a></td>
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<td>Prevalence of multiple partnerships (GARPR 1.3 &amp; PEPFAR P8.11.N)</td>
<td>Highly adaptable to meet specific needs regarding the state of a country’s epidemic and program activities – Behavior data may provide early warning signs for increases in HIV transmission</td>
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<td>Prevalence of condom use among female/male sex workers with most recent client (GARPR 1.8; PEPFAR P9.17.N)</td>
<td>Generally less expensive than nationally representative household surveys. Cost varies based on number of respondents, geographic coverage, sampling design, and frequency and</td>
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<td>Percentage of most-at-risk (IDU, MSM, SW) who received an HIV test and results in the last 12 months (GARPR 1.9; GARPR 1.13; PEPFAR P9.10.N)</td>
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<td>Percentage of MSM use condom at last anal sex (GARPR 1.12; PEPFAR P9.4.N)</td>
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<td>Percent of the targeted population reached with individual and/or small group level preventive interventions (GARPR 1.7; GARPR 1.11; PEPFAR P8.1.D; PEPFAR P8.3.D)</td>
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</table>
| How it is done/Why it matters | Other items often measured:  
- Condom use among IDU  
- Transactional sex/condom use during transactional sex  
- Cross-generational sex  
- Condom use at first sex  
- Know of HIV among most at risk  
- Prevalence of anal sex  
- Percentage of IDU sharing needles  
- Percentage of IDU using sterile equipment  
- Percentage of IDU using condoms  
- Concurrency of high risk behaviors  
- Condom use consistency  
- Age at first sex and number of partners | methods of data collection.  
Cost will drop as BSS becomes routine part of monitoring and evaluating HIV response, and experience is gained on data collection. | | | Global School-Based Student Health Survey (GSHS)  
- Collaborative surveillance project between the WHO and CDC to help countries measure and assess the behavioral risk factors | Drug and alcohol use  
Sexual behaviors:  
- Core Module: Age of first intercourse, number of partners, condom use, knowledge of HIV and prevention, education  
- Expanded Module: Frequency of intercourse, consistency of condom use, gender norms | Relatively low-cost  
Allows for comparability of school-based HIV prevention programs and youth risk behaviors within and across countries  
May provide a representative sample of youth depending on age and gender norms | Selection bias – only captures information from youth in school  
Limited age range – limited to youth under 15  
Opportunity costs of administering the survey – may take away from precious resources | Twa-Twa & Oketcho. Global School Based Student Health Survey 2003 – Uganda Country Report  
http://www.who.int/entity/chp/gshs/Uganda%20Final_Report.pdf  
For complete list of countries that have conducted GSHS:  
http://www.who.int/chp/gshs/country/en/index.html | GSHS Core Questionnaire Module:  
http://www.who.int/entity/chp/gshs/GSHS_Core_Modules_2009_English.pdf  
GSHS Expanded Questionnaire Module:  
http://www.who.int/entity/chp/gshs/GSHS_Expanded_Modules_2009_English.pdf |
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<td>and protective factors in 10 key areas among young people: alcohol use, dietary behavior, drug use, hygiene, mental health, physical activity, protective factors, sexual behaviors that contribute to HIV infection, STIs and unintended pregnancy, tobacco use, violence and unintentional injury.</td>
<td>source/能力 to procure condoms, knowledge of condom use/能力 to navigate condom use, HIV testing, accuracy of HIV knowledge and knowledge of treatment options, HIV stigmatization</td>
<td>county and region specific enrollment</td>
<td>education hours</td>
<td>education hours</td>
<td><a href="http://www.who.int/chp/gshs/GSHS_Questionnaire_Core_Expanded_2009_English.pdf">http://www.who.int/chp/gshs/GSHS_Questionnaire_Core_Expanded_2009_English.pdf</a></td>
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<td>Primarily conducted among young people aged 13 to 15 years.</td>
<td>Violence</td>
<td>Standard scientific sample selection process generalizable to school-based populations</td>
<td>Sustainability varies with country as well as region based on strength of and stability of education systems</td>
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<td>Data collected by CDC’s Division of Adolescent and School Health on youth and school policies and practices</td>
<td>Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection</td>
<td>Comprehensive data collected on a variety of indicators on youth from a range of ages</td>
<td>Does not capture high risk behaviors of youth not in public or private school, particularly older youth who leave high school early; numbers of youth leaving high school</td>
<td>CDC. Sexual identity, sex of sexual contacts, and health-risk behaviors among students in grades 9-12 in selected sites – youth risk</td>
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| concurrencies of high risk behaviors among nationally representative biennially collected sample of middle and high school students in public and private schools | national levels  
Data has been routinely collected since 1991 allowing detailed analysis of trends in high risk behaviors among youth | early may vary by state, region and school district and thus create selection bias among that age range  
Less on sexual behavior in the younger youth sample  
May not be representative if the minimum number of schools to randomize is not attained | behavior surveillance, United States. 2001-2009. MMWR. 2011;60:1-133.  
http://www.cdc.gov/mmwr/pdf/ss/ss6006.pdf | |
### 3. Special surveys

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<tr>
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<td></td>
<td>Prevalence of early sex (GARPR 1.2 &amp; PEPFAR P8.10.N)</td>
<td>Decreases social desirability bias – tendency for truthfulness for behaviors that tend to be misrepresented due to social desirability bias</td>
<td>Lengthier interviews: human resource burden, and interview fatigue on the part of the respondent</td>
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<td>Prevalence of multiple partnerships (GARPR 1.3 &amp; PEPFAR P8.11.N)</td>
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<td>Collection may vary in precision based on variations among interviewers – more extensive training necessary for quality control</td>
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<td>Other items often measured:</td>
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<td>Persons with a large number of partnerships in the last 10 years may have less reliable reporting than persons with only a small number of partnerships</td>
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<td></td>
<td>• Transactional sex/condom use during transactional sex</td>
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<td></td>
<td>• Cross-generational sex</td>
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<td>• Condom use at first/last sex</td>
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<td>• Concurrent partnerships last 6 or 12 months</td>
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<td></td>
<td>• Sexual experience/activity among never married</td>
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<td>• Recent sex among never married</td>
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<td></td>
<td>• Use of contraception at first/last sex</td>
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<td>[NOTE: The Relationship Calendaring History Method can be adapted to collect a variety of relevant information on HIV prevention. The above list includes standard indicators collected in studies that applied this method with youth.]</td>
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<td><strong>Priorities for Local AIDS Control Efforts (PLACE)</strong></td>
<td>Prevalence of condom use among female/male sex workers with most recent client (GARPR 1.8; PEPFAR 9.2.N)</td>
<td>Able to focus data collection on areas most in need of HIV prevention efforts</td>
<td>Collects data on potentially stigmatized populations which could put them at risk</td>
<td>Ndubani et al. PLACE in Zambia: Identifying Gaps in HIV Prevention in Mongu, Western Province, 2005</td>
<td>PLACE tools: <a href="http://www.cpc.unc.edu/measure/tools/hiv-aids/place">http://www.cpc.unc.edu/measure/tools/hiv-aids/place</a></td>
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<td>• Particularly relevant for youth who often experience multiple and rapid sexual transitions</td>
<td>Percentage of most-at-risk (IDU, MSM, SW) who received an HIV test and results in the last 12 months (GARPR 1.9; GARPR 1.13; PEPFAR 9.10.N)</td>
<td>Affordable option for countries where resources are limited</td>
<td>Data not generalizable and more difficult to compare across locations</td>
<td>Singh et al. PLACE in Zimbabwe: Identifying Gaps in HIV Prevention among Orphans and Young People in Hwange District, 2006</td>
<td><a href="http://www.cpc.unc.edu/measure/publications/tr-08-66">http://www.cpc.unc.edu/measure/publications/tr-08-66</a></td>
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<tr>
<td>• Data collection tailored to variations in local transmission networks</td>
<td>Percentage of MSM use condom at last anal sex (GARPR 1.12; PEPFAR 9.4.N)</td>
<td>Suitable when resources are limited due to the fact that data collection is focused on geographic target areas based on the type and location of the epidemic</td>
<td></td>
<td>Speizer et al. Risk-Taking Behaviors among Youth Socializing in Target Venues of Carrefour, Haiti: Adaptation of the Priorities for Local AIDS Control Efforts (PLACE) Methodology</td>
<td><a href="http://www.cpc.unc.edu/measure/publications/tr-07-59">http://www.cpc.unc.edu/measure/publications/tr-07-59</a></td>
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<td>• Provides strategic information to prevention programs based on the unique features of local HIV transmission networks</td>
<td>Percent of the targeted population reached with individual and/or small group level preventive interventions (GARPR 1.7; GARPR 1.11; PEPFAR P8.1; PEPFAR P.8.3.D)</td>
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<td>• Identifies geographic areas where key HIV transmission networks are most prevalent</td>
<td>(NOTE: The indicators above are specific to high-risk youth and are thus not generalizable to all youth in a country; the indicators available with this method depend on the approach taken and the target group studied.)</td>
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<td>• Cross-generational sex</td>
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<td>• Prevalence of anal sex</td>
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<td>• Concurrency of high risk behaviors</td>
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<td>• Condom use consistency</td>
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<td><strong>Facility and community-based data sources</strong></td>
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<td>Include information on age of client/participant; these data can be used to measure the number of youth served by a facility or community-based program</td>
<td>Number of the targeted population reached with individual and/or small group level preventive interventions (PEPFAR P8.1.D)</td>
<td>Monitoring data for each individual are routinely available through client intake forms and outreach registries</td>
<td>Facility-level and community-level monitoring data often are of poor quality; if these data are to be used for youth program monitoring, some investment may be needed to ensure accuracy and completeness of data</td>
<td>Facility-based data at the national level often do not include private sector facilities; these data sources are likely to under-report youth service use</td>
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<td>HIV/AIDS Testing and Counseling (HTC), Prevention of Mother to Child Transmission (PMTCT), and Youth Outreach programs all collect service data of individual clients that can be used to measure reach among youth</td>
<td>Number of the targeted MARP population reached with individual and/or small group level preventive interventions (GARPR 1.7; GARPR 1.11; PEPFAR P8.3.D)</td>
<td>Data recorded by age of participant/client permitting calculation of indicators specific to youth</td>
<td>Data are often aggregated for higher level reporting which limits the possibility to examine youth-specific indicators (more effort required to obtain youth-specific measurements)</td>
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<td>Number of most-at-risk (IDU, MSM, SW) who received an HIV test and results in the last 12 months (GARPR 1.9; GARPR 1.13; PEPFAR 9.10.N) (note Number and not percent available from this source)</td>
<td>Other items often measured:</td>
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<td>Number of individuals who received an HIV test and results in last 12 months</td>
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<td>Number of pregnant women who received HIV test and results</td>
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</tbody>
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### 5. HIV Modeling

Use models to estimate the impact, cost, and cost-effectiveness of different HIV prevention strategies in different settings based on context specific inputs (i.e. prevalence, risk behaviors, and demographics).

Models can be modified to generate estimates among young people or other sub-populations.

<table>
<thead>
<tr>
<th>Method Examples</th>
<th>Indicators or Measureable Concepts</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Applications/Data Use Examples</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How it is done/Why it matters</strong></td>
<td><strong>What it can measure</strong></td>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Resources</strong></td>
</tr>
</tbody>
</table>
Appendix 1: Global AIDS Response Progress Reporting 2012 (GARPR)

TARGETS AND INDICATORS

Progress towards the targets in the UN General Assembly 2011 Political Declaration on HIV/AIDS will be monitored using the following indicators. Some indicators may track multiple targets.

Target 1.
Reduce sexual transmission of HIV by 50 per cent by 2015

Indicators for the general population
1.1 Percentage of young women and men aged 15-24 who correctly identify ways of preventing the sexual transmission of HIV who reject major misconceptions about HIV transmission*.
1.2 Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15.
1.3 Percentage of adults aged 15-49 who have had sexual intercourse with more than one partner in the past 12 months.
1.4 Percentage of adults aged 15-49 who had more than one sexual partner in the past 12 months and who report the use of a condom during their last intercourse*.
1.5 Percentage of women and men aged 15-49 who received an HIV test in the past 12 months and know their results.
1.6 Percentage of young people aged 15-24 who are living with HIV.

Indicators for sex workers
1.7 Percentage of sex workers reached with HIV prevention programmes.
1.8 Percentage of sex workers reporting the use of a condom with their most recent client.
1.9 Percentage of sex workers who have received an HIV test in the past 12 months and know their results.
1.10 Percentage of sex workers who are living with HIV.

Indicators for men who have sex with men
1.11 Percentage of men who have sex with men reached with HIV prevention programmes.
1.12 Percentage of men reporting the use of a condom the last time they had anal sex with a male partner.
1.13 Percentage of men who have sex with men that have received an HIV test in the past 12 months and know their results.
1.14 Percentage of men who have sex with men who are living with HIV.

Target 2.
Reduce transmission of HIV among people who inject drugs by 50 per cent by 2015

Indicators
2.1 Number of syringes distributed per person who injects drugs per year by needle and syringe programmes.
2.2 Percentage of people who inject drugs who report the use of a condom at last sexual intercourse.
2.3 Percentage of people who inject drugs who reported using sterile injecting equipment the last time they injected.
2.4 Percentage of people who inject drugs that have received an HIV test in the past 12 months and know their results.
2.5 Percentage of people who inject drugs who are living with HIV.

Target 3.
Eliminate mother-to-child transmission of HIV by 2015 and substantially reduce AIDS-related maternal deaths

Indicators
3.1 Percentage of HIV-positive pregnant women who receive antiretroviral treatment to reduce the risk of mother-to-child transmission.
3.2 Percentage of infants born to HIV-positive women receiving a virological test for HIV within 2 months of birth.
3.3 Mother-to-child transmission of HIV (modelled).

Target 4.
Have 15 million people living with HIV on antiretroviral treatment by 2015

Indicators
4.1 Percentage of people living with HIV who are on antiretroviral therapy.
4.2 Percentage of people living with HIV who are under 12 months of age and on antiretroviral therapy.

Target 5.
Reduce tuberculosis deaths in people living with HIV by 50 per cent by 2015

Indicators
5.1 Percentage of estimated HIV-positive incident TB cases that received treatment for both TB and HIV.

Target 6.
Reach a significant level of annual global expenditure (US$22-24 billion) in low- and middle-income countries

Indicators
6.1 Domestic and international AIDS spending by categories and financing sources.

Target 7.
Critical enablers and synergies with development sectors

Indicators
7.1 National Commitments and Policy Instruments (NCPI) (prevention, treatment, care and support, human rights, civil society involvement, gender, workplace programmes, stigma and discrimination and monitoring and evaluation).
7.2 Proportion of ever-married or partnered women aged 15-49 who experienced physical or sexual violence from a male intimate partner in the past 12 months.
7.3 Current school attendance among orphans and non-orphans aged 10-14.
7.4 Proportion of the poorest households who received external economic support in the past 3 months.

* Millennium Development Goals indicator

* The Global Plan towards the Elimination of New HIV Infections Among Children by 2015 and Repurpose their Mothers also tracks this target as:
1. Reduce the number of new HIV infections among children by 50%.
2. Reduce the number of AIDS-related maternal deaths by 50%.

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Twa-Twa JM, Oketcho S. *Global School Based Student Health Survey 2003 – Uganda Country Report*. Kampala, Uganda: The Republic of Uganda, School Health Services; ND.


Resources

CDC Youth Risk Behavior Surveillance Web site
http://www.cdc.gov/healthyyouth/yrbs/index.htm

Global school-based student health survey (GSHS) purpose and methodology, World Health Organization

GSHS Core Questionnaire Module
http://www.who.int/entity/chp/gshs/GSHS_Core_Modules_2009_English.pdf

GSHS Expanded Questionnaire Module
http://www.who.int/chp/gshs/GSHS_Questionnaire_Core_Expanded_2009_English.pdf

Guidelines for Conducting HIV/AIDS Risk Behavioural Surveillance Surveys, WHO Regional Office for South-East Asia, New Delhi, June 2004

HIV/AIDS Survey Indicators Database. Measure DHS Online Tools

HIVTools. London School of Hygiene and Tropical Medicine

MEASURE DHS STATcompiler
www.statcompiler.com

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http://hivdata.measuredhs.com/

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http://www.measuredhs.com/topics/Youth-Corner/index.cfm

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MICS4 Indicators: Numerators and Denominators. Childinfo

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Spectrum
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