Framework for monitoring sexually transmitted infections and strengthening surveillance
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This document was prepared by Jane Rowley, Daniel Low-Beer and Teodora Wi (WHO Global HIV, Hepatitis and STIs Programmes) under the leadership of Meg Doherty (WHO Global HIV, Hepatitis and STIs Programmes).

The following staff at WHO headquarters contributed to the publication: Theresa Babovic, Shona Dalal, Maeve Brito de Mello, Boniface Dongmo Ngumifack, Diana Faini, Helen Kelly, Ismael Maatouk, Daniel McCartney, Yamuna Mundade, Remco Peters, and Erica Spielman.

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## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ANC</td>
<td>antenatal care</td>
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<td>GAM</td>
<td>Global AIDS Monitoring system</td>
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<td>GHSS</td>
<td>Global Health Sector Strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030</td>
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<td>HMIS</td>
<td>health management information system</td>
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<td>HPV</td>
<td>human papillomavirus</td>
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<tr>
<td>MSM</td>
<td>men who have sex with men</td>
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<tr>
<td>PrEP</td>
<td>pre-exposure prophylaxis</td>
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<td>STI</td>
<td>sexually transmitted infection</td>
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<td>WHO-GASP</td>
<td>WHO Gonococcal Antimicrobial Surveillance Programme</td>
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Executive summary

Sexually transmitted infections (STIs) and concerns about being or becoming infected with an STI impact on the sexual and reproductive health and well-being of people globally. Promptly identifying STIs, testing for STIs, and strengthening STI prevention efforts have a crucial role in preventing further transmission and in enhancing overall health.

The 2022 WHO global health sector strategies on, respectively, HIV, viral hepatitis and STIs for the period 2022–2030 (GHSS) call for ending STIs as a public health concern and include an ambitious set of global impact, coverage and milestone targets. Ending STIs as a public health concern will require scaling up access to STI prevention, testing and treatment services, and ensuring that these services are accessible to all. It will also require a comprehensive approach of working with communities, civil society and other stakeholders to address the social, cultural and economic factors that contribute to the spread of STIs. Ensuring access to these interventions provides an opportunity to reduce the STI burden and will contribute to achieving the Sustainable Development Goals.

Monitoring access to, provision and use of STI services provided by public providers, private providers and nongovernmental organizations is crucial for ensuring equitable access to services. Collecting and analysing STI data regularly will help to inform national planning and the targeting of STI resources to improve national and subnational STI programmes and to support STI advocacy.

This publication provides a framework for monitoring the health sector’s response to STIs and for informing global and regional progress towards the GHSS target of ending STIs as a public health concern by 2030. The framework is accompanied by a set of 11 policy, programmatic and impact indicators that provide an overview of the health sector’s response to STIs and that are aligned with the global targets and reporting requirements. The core indicators will in turn need to be supplemented by additional assessments and surveys carried out less regularly, including population-based prevalence surveys, population-based behavioural surveys and health facility assessments. Analysing and using these data will provide a comprehensive picture of the health burden of STIs and will inform how best to allocate resources to improve the effectiveness, efficiency and equity of STI services.
Monitoring the provision, coverage and impact of STI services requires a strong country health information system that collects nationally representative data in a standard manner. This publication outlines a stepwise approach to strengthen the monitoring of STI programmes. The first step is to strengthen and use public sector facility-based routine reporting of STIs. The second is to strengthen other public sector STI-related surveillance activities, including laboratory surveillance, person-centred surveillance or monitoring individuals over time, health facility assessments and conducting periodic surveys and studies addressing the need for and use of STI services. The third step is to strengthen data collection from the private sector (including pharmacies), nongovernmental organizations, laboratory services and communities. To achieve these efforts, countries will need to ensure that health workers have the necessary skills to collect, analyse, interpret, improve and use the data at the local, subnational, and national levels.
Stepwise approach for strengthening STI monitoring and surveillance to support the STI response

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Strengthen and use public sector facility-based reporting</th>
</tr>
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<tbody>
<tr>
<td>• Establish and disseminate standard procedures for collecting STI data across health service delivery points</td>
<td></td>
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<tr>
<td>• Establish systems for ensuring data collection procedures are being followed</td>
<td></td>
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<tr>
<td>• Develop and implement digital health tools</td>
<td></td>
</tr>
<tr>
<td>• Invest in human capacity to collect, analyse and use data</td>
<td></td>
</tr>
<tr>
<td>• Disseminate date to reporting sites and stakeholders</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>Expand surveillance activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Expand and strengthen laboratory surveillance</td>
<td></td>
</tr>
<tr>
<td>• Identify opportunities to expand person-centred surveillance</td>
<td></td>
</tr>
<tr>
<td>• Conduct health facility surveys or assessments</td>
<td></td>
</tr>
<tr>
<td>• Conduct population-based biological and behavioural studies</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Expand data collection beyond the public sector</th>
</tr>
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<tbody>
<tr>
<td>• Identify opportunities to collect data from other STI service providers including:</td>
<td></td>
</tr>
<tr>
<td>- Private practitioners</td>
<td></td>
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<tr>
<td>- Non-governmental organizations</td>
<td></td>
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<tr>
<td>- Pharmacies</td>
<td></td>
</tr>
<tr>
<td>- Laboratory services</td>
<td></td>
</tr>
<tr>
<td>• Support community based STI monitoring</td>
<td></td>
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</table>
1. Introduction

1.1 Background

Sexually transmitted infections (STIs) constitute a significant health burden. Each day more than 1 million people 15–49 years old acquire one of four curable STIs (Treponema pallidum (syphilis), Neisseria gonorrhoeae (gonorrhea), Chlamydia trachomatis (chlamydia) and Trichomonas vaginalis (trichomoniasis) \(1,2\)). Other important infections that can be transmitted sexually include HIV, human papillomavirus (HPV), herpes simplex, hepatitis B and C, human T-lymphotropic virus type 1 and mpox.

Once infected with an STI, an individual may develop symptoms including vaginal or urethral discharge, pain with urination, genital or anal ulcers and genital warts \(3,4\). These symptoms are often accompanied by feelings of shame and anxiety and can have a mental or emotional impact on the individual. Left untreated, and whether or not an individual develops symptoms, STIs can (depending on the infection) lead to long-term irreversible and potentially fatal outcomes including cancer, chronic pelvic pain, ectopic pregnancy and infertility \(4,5\). In addition, some STIs can be transmitted from pregnant women to their infants, resulting in an adverse birth outcome, including stillbirth, low birthweight, prematurity, neonatal death or congenital abnormalities \(3,5\). There are also bidirectional interactions between STIs and HIV. People living with HIV may experience enhanced clinical manifestations of STIs, and some STIs can facilitate the transmission and acquisition of HIV \(4\). As a result, increasing access to STI clinical services, partner services and STI prevention services and strengthening the integration of STI and HIV prevention and treatment services will also contribute to reducing the transmission of HIV.

Individuals who have an STI may be treated based on their symptoms or may be identified by testing within one of the many public, private and nongovernmental clinics that provide STI-related services \(3,9\). These include clinics providing specific clinical services including: STI, HIV, family planning, and antenatal care (ANC) as well as clinics providing primary health care or targeting specific populations including key populations, youth and persons receiving HIV pre-exposure prophylaxis (PrEP). In addition, many individuals seek care from traditional health practitioners or self-treat with medicines bought from pharmacies, informal drug sellers or over the internet \(2,5\).

Sexual health and well-being are important determinants of overall health. Increasing public awareness and recognition of the signs and symptoms of STIs, encouraging individuals to seek care promptly from a healthcare provider, providing appropriate diagnosis and treatment in a non-stigmatizing environment, and reducing concerns individuals may have about having or acquiring an STI all have a crucial role to play in enhancing sexual health and well-being and preventing community-level spread of STIs. Reducing the incidence and burden of STIs requires multisectoral engagement to assess contributing factors to the transmission of STIs. These include lack of access to health services and resources, stigma leading to social marginalization of the populations at highest risk, gender inequality and poverty \(5\).

1.1.1 Strategic information for STIs

Regularly collecting strategic information on STIs from all service delivery and administrative levels is crucial for informing programme and policy decisions. This includes data on policies, funding and access to services as well as surveillance data on clinical case reporting, infection prevalence, the causes of STI syndromes and monitoring antimicrobial resistance \(5\). These data can be used to track the epidemiology of STIs, monitor and improve prevention interventions and inform treatment guidance, with the ultimate goal of tracking and reducing STI morbidity and mortality. A review of STI control in South-East Asia \(6\) highlights the benefits of investing in data and data systems. This found that countries in which the STI response was data driven and who had maintained their investment in STI surveillance systems (including antibiotic resistance monitoring) and programme monitoring made much better progress in controlling STIs nationally than other countries.

Collecting and interpreting these data are challenging. STIs are often asymptomatic, and those individuals who are symptomatic seek care from a variety of public or private health-care providers or self-treat. Moreover, the lack of low-cost rapid point-of-care diagnostic tests for most STIs means that individuals are often treated for multiple STIs based on their symptoms and not for the specific STI they have \(3\).
A well-functioning strategic information system is essential for rallying political commitment and for building a strong case for investment in STI services. It enables countries to define and develop a budget for an effective package of interventions and services based on the country context, decide on the most appropriate allocation of resources across the levels of the health system, and identify potential and reliable sources of funding. Robust data on STIs also helps programmes to focus services more precisely and effectively to reach those in need. Civil society is an important partner for strengthening strategic information systems and for ensuring that data are collected and used in an ethical manner that benefits communities.

1.1.2 The global health sector strategies on, respectively, HIV, viral hepatitis and STIs for the period 2022–2030

In 2022, WHO published Global health sector strategies on, respectively, HIV, viral hepatitis and STIs for the period 2022–2030 (GHSS) (5). These strategies identify five strategic directions for country actions (Box 1) and call for ending STIs as a public health concern by 2030. They include an ambitious set of impact, coverage and milestone targets for STIs (Table 1) that support achieving the Sustainable Development Goals (7). Meeting the GHSS targets will require significantly scaling up resources for STI prevention and treatment, improving the integration of STI services into other health initiatives, improving data and investing in new prevention, diagnostic and treatment technologies (Box 2). They will also require strengthening national health information systems to ensure that countries have access to high-quality and timely information to inform programme planning and implementation. Member States are recommended to have robust information systems and capacity for: (1) collecting, managing, analysing and using data to guide STI programming, (2) monitoring the impact of STI programmes, and (3) expanding and improving data collection efforts from all sectors including private-sector and nongovernmental service providers (9).

Box 1. Five strategic directions highlighted in the GHSS

1. Deliver high-quality evidence-based people-centred services
2. Optimize systems, sectors and partnerships for impact
3. Generate and use data to drive decisions for action
4. Engage empowered communities and civil society
5. Foster innovations for impact

Source: Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030 (5).

Box 2. Key strategic and operational shifts required to end STIs as a public health concern by 2030

- Create an environment that enables individuals to comfortably talk about their sexual health, adopt safer sexual practices and seek treatment for STIs.
- Vastly scale up primary prevention and increase access to screening for STIs.
- Increase access to high-quality, people-centred case management of STIs delivered by public, private and nongovernmental service providers.
- Increase the integration of STI services with primary health care, sexual and reproductive health, family planning, adolescent health and HIV services.
- Ensure sufficient financing for STI services as part of national health financing mechanisms.
- Strengthen the capacity of national health information systems to ensure the timely collection and analysis of disaggregated data to inform health policies, treatment guidelines and resource allocation.
- Support accelerated research and development on prevention technologies, diagnostics, treatments and vaccines for STIs.

Source: Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030 (5).
Table 1. GHSS impact and programme coverage indicators, targets and milestones for STIs

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2020 baseline</th>
<th>2025 target</th>
<th>2030 target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact targets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New cases of syphilis, gonorrhoea, chlamydia and trichomoniasis among people 15–49 years old per year</td>
<td>374 million</td>
<td>&lt;300 million</td>
<td>&lt;150 million</td>
</tr>
<tr>
<td>New cases of syphilis among people 15–49 years old per year</td>
<td>7.1 million</td>
<td>5.7 million</td>
<td>0.71 million</td>
</tr>
<tr>
<td>New cases of gonorrhoea among people 15–49 years old per year</td>
<td>82.3 million</td>
<td>65.8 million</td>
<td>8.23 million</td>
</tr>
<tr>
<td>Congenital syphilis cases per 100 000 live births per year</td>
<td>425(^a)</td>
<td>&lt;200</td>
<td>&lt;50</td>
</tr>
<tr>
<td><strong>Programme coverage targets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls fully vaccinated with human papillomavirus vaccine by 15 years of age (%)</td>
<td>14%</td>
<td>50%</td>
<td>90%</td>
</tr>
<tr>
<td>Percentage of pregnant women attending ANC who were screened for syphilis and percentage treated if positive</td>
<td>66%/78%</td>
<td>&gt;85%/&gt;90%</td>
<td>&gt;95%/&gt;95%</td>
</tr>
<tr>
<td>Percentage of priority populations screened for syphilis and percentage treated if positive</td>
<td>No data/no data</td>
<td>&gt;80%/&gt;90%</td>
<td>&gt;90%/&gt;95%</td>
</tr>
<tr>
<td>Percentage of priority populations screened for gonorrhoea and percentage treated if positive</td>
<td>No data/no data</td>
<td>&gt;20%/&gt;90%</td>
<td>&gt;90%/&gt;95%</td>
</tr>
<tr>
<td>Percentage of women screened for cervical cancer using a high-performance test by age 35 years and again by age 45 years and percentage screened and identified as having pre-cancer treated or invasive cancer managed</td>
<td>No data/no data</td>
<td>&gt;40%/&gt;40%</td>
<td>&gt;70%/&gt;90%</td>
</tr>
<tr>
<td>Percentage of countries reporting antimicrobial resistance in \textit{N. gonorrhoeae} to the WHO Gonococcal Antimicrobial Surveillance Programme</td>
<td>36%</td>
<td>&gt;60%</td>
<td>&gt;70%</td>
</tr>
<tr>
<td><strong>Milestones</strong></td>
<td></td>
<td></td>
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<tr>
<td>Percentage of countries with national STI plans updated within the past five years</td>
<td>44%</td>
<td>&gt;70%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Percentage of countries with national STI case management guidelines updated within the past three years</td>
<td>62%</td>
<td>&gt;70%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Percentage of countries with strong STI surveillance systems(^a)</td>
<td>No data</td>
<td>&gt;50%</td>
<td>&gt;90%</td>
</tr>
</tbody>
</table>

Source: Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030 [5].

Notes: Priority populations are defined by a country and depend on country context. Countries are defined as Member States of WHO. The reporting is on the number or percentage of countries as set in the target.

\(^a\)A strong surveillance system for STIs incorporates four core competencies: case reporting, regular prevalence assessments in different populations, regular reviews of the etiology of STI syndromes and monitoring antimicrobial resistance for \textit{N. gonorrhoeae}.
1.2 Scope and purpose

This publication has been developed to provide a national framework for monitoring the health sector’s response to STIs and a set of core indicators to:

• support countries monitor how their STI programme is performing and to identify gaps and challenges; and
• facilitate regional and global tracking of the progress of WHO Member States in strengthening STI programming towards achieving the GHSS targets for 2030.

The publication proposes a core set of core indicators structured around currently available STI interventions that are routinely collected or can be monitored annually. The indicators are aligned with global reporting requirements, such as the Global AIDS Monitoring system (GAM), the programmatic indicators of the global initiative to eliminate the vertical transmission of HIV, syphilis and hepatitis B virus, and to the targets detailed in the GHSS. HPV vaccination coverage and cervical cancer screening and treatment, both of which have their own GHSS targets, are not included in this publication as they are covered by the WHO framework for monitoring the implementation of the WHO global strategy to accelerate the elimination of cervical cancer as a public health problem (Box 3).

The 11 core indicators are only a subset of the indicators that countries routinely collect. They should be complemented by data from other sources including population-based prevalence surveys, population-based behavioural surveys, assessments of the etiology of syndromes associated with STIs and health facility assessments. Together, these data provide a picture of who, when and where people seek care, and are critical in evaluating health facility-based reporting systems and identifying service gaps.

This publication focuses on three infections, syphilis, gonorrhoea and chlamydia, reflecting their contribution to the global burden of STIs and concerns about the development of antimicrobial resistance. Countries may expand the infections monitored to reflect their epidemiological context and public health priorities, including trichomoniasis, herpes simplex virus, human T-lymphotropic virus type 1 and mpox.

This publication also outlines a set of activities to strengthen data collection and use to improve STI programming. The publication is part of a set of materials WHO has developed to strengthen STI surveillance and the collection and the use of STI-related strategic information (Box 4).

Box 3. WHO global strategy for eliminating cervical cancer

The World Health Assembly endorsed the WHO global strategy to accelerate the elimination of cervical cancer as a public health problem in 2020. To eliminate cervical cancer, all countries must reach and maintain incidence of less than 4 per 100 000 women. Achieving this goal rests on three key pillars and their corresponding targets:

• vaccination: 90% of girls fully vaccinated with the HPV vaccine by the age of 15 years;
• screening: 70% of women screened using a high-performance test by the age of 35 years and again by the age of 45 years; and
• treatment: 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.

Each country should meet the 90–70–90 targets by 2030 to get on the path to eliminate cervical cancer within the next century.

Source: Global strategy to accelerate the elimination of cervical cancer as a public health problem.

Box 4. WHO publications on strengthening STI surveillance

General

• A tool for strengthening STI surveillance at the country level
• Strategies and laboratory methods for strengthening surveillance of sexually transmitted infections

Population-based surveys

• Standard protocol to assess the prevalence of gonorrhoea and chlamydia among pregnant women in antenatal care centres

Antimicrobial resistance

• Enhanced gonococcal antimicrobial surveillance programme (EGASP): general protocol
• Enhanced gonococcal antimicrobial surveillance programme (EGASP): surveillance report 2022
1.3 Methods

This document was developed in consultation with WHO staff in headquarters and regions and other external experts. Desk reviews were conducted to inform the development of the framework, and to identify potential indicators for inclusion in the report. The final document was externally peer reviewed.

1.4 Main audience

This publication is intended primarily to serve the needs of national health sector personnel involved in managing and implementing STI programmes or engaged in collecting, analysing and using STI-related strategic information.

The publication will also be of assistance to:

• health ministry decision-makers and health information system managers at the national and subnational levels;
• the staff of partner organizations supporting the strengthening of the STI programme or health systems; and
• consultants and staff at research or public health institutes involved in analysing STI data and/or efforts.
2. The monitoring framework for STIs

2.1 The monitoring framework

The STI monitoring framework is structured around a results chain (Fig. 1): inputs and processes, outputs and outcomes, and impact. It was informed by the new consolidated framework for monitoring viral hepatitis [16], the primary health care monitoring framework developed by WHO and the United Nations Children’s Fund [17], and recent documents on strategic information related to HIV [18], cervical cancer [18] and neglected tropical diseases [19]. Under the three pillars of the results chain nine domains or areas were highlighted based on discussions with STI experts.

Fig. 1. National monitoring framework for STIs

Health system determinants
- Plans and policies
- Financing
- Surveillance
- Supply of medicines and other products

Service delivery
- Prevention
- Clinical services
- Testing services

Health system objectives
- Prevalence
- Incidence
2.2 Selection of indicators

One or more core indicators were identified for each of the domains to monitor using data from national health information systems and administrative and programme records.

The criteria used to select each indicator included the following.

- The indicator should be valid, reliable, relevant, actionable and comparable.
- The indicator can be used to improve STI programming.
- The indicator is feasible to collect, monitor and track annually.
- The data to inform the indicator can be collected using existing data collection systems.

Based on these criteria and the need to keep the number of core indicators manageable, 11 core indicators were identified that can be collected and analysed annually and that are linked to the WHO global targets and indicators. The selection of the core indicators drew on a desk review of existing STI related monitoring indicators. This review included global, regional and national documents on STI monitoring. The 11 core indicators represent only a subset of the indicators for monitoring access to and use of STI services. Countries should supplement the core indicators with other indicators that reflect their own specific health-care systems and epidemiological context.

2.3 Data disaggregation

Disaggregation separates data into component parts to identify and highlight any differences that may exist. Disaggregated data are critical to improving the monitoring and evaluation of STIs and are important in:

- understanding disparities in the access to and use of services;
- identifying population groups and geographical areas that have the greatest burden of disease;
- assessing whether services are reaching the intended beneficiaries; and
- focusing action to ensure that health resources are used to reach populations in need.

Disaggregating indicators is a powerful way to provide additional insights relevant to equitable service delivery and programming that might otherwise be hidden by averages. It is, however, important to select disaggregation dimensions carefully; each disaggregation dimension has implications in terms of time, effort and money for both generating and using the data. Moreover, certain disaggregation dimensions (such as ethnicity and migration status) may be socially or politically sensitive.

Key disaggregation for STI-related indicators include:

- Infection: syphilis, gonorrhoea, chlamydia and others reflecting local context;
- STI syndrome: urethral discharge, vaginal discharge, genital ulcer disease, lower abdominal pain among women, anorectal discharge;
- sex (biological): male, female;
- age: five-year age groups or younger than 15, 15–24, 25–49 and ≥50 years;
- populations: men who have sex with men (MSM), transgender people, sex workers (male, female or transgender), pregnant women, adolescent girls and young women, and others;
- geography: administrative levels of epidemiological importance;
- health service or clinic: ANC, primary health care, STI clinic, HIV treatment and care, PrEP, youth, family planning, general practitioner, hospital; and
- provider type: public, private and nongovernmental service providers.

For STI testing, data should also if possible be disaggregated by sample (genital, anal, oropharyngeal, ocular, urine and blood) and by type of diagnostic test.

Other disaggregation relevant to STIs includes:

- HIV status;
- STI history;
- pregnancy status;
- socioeconomic status or household wealth; and
- vulnerable population status, including disability, specific ethnic groups and migrants.
2.4 Data sources

STI-related data come from a variety of sources, including:
- facility based reporting systems;
- administrative: financial and health systems data;
- population-based surveys of the general population, key populations, and country-specific priority populations, such as adolescent girls and young women and migrants;
- health facility assessments: readiness and capability; and
- civil registration and vital statistics.

2.5 Overview of the core indicators

The 11 indicators provide an overview of the national response to STIs and provide essential information to identify key issues for improving the health sector response to STIs (Fig. 2). Table 2 summarizes the 11 indicators and their relationship to existing global data collection systems and WHO global targets. Seven of the core indicators match or overlap with data that countries report annually through global monitoring platforms (including GAM and the WHO Gonococcal Antimicrobial Surveillance Programme (WHO-GASP)), and six are directly related to GHSS targets. Annex 1 provides metadata for the core indicators.

The 11 indicators provide an overview of the health sector response and need to be supplemented by additional assessments and surveys carried out less frequently. These include health facility assessments to examine in more detail the availability and quality of STI services.

Fig. 2. National monitoring framework for STIs and the 11 core indicators
## Table 2. The 11 core indicators and global reporting systems and targets

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Definition</th>
<th>Global reporting platform</th>
<th>GHSS target</th>
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<tbody>
<tr>
<td><strong>Plans and policies</strong></td>
<td></td>
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</tr>
<tr>
<td>1. Up-to-date STI policies and guidelines</td>
<td>Dates of latest (1) STI national plan, (2) STI case management guidelines and (3) STI treatment guidelines (by infection)</td>
<td>GAM</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Annual budget for STIs</td>
<td>Annual national budget for STI activities by funding source</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Surveillance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Routine surveillance for STIs</td>
<td>Number and percentage of health-care facilities routinely reporting data on STIs (syndromic or etiological) in the last 12-month period</td>
<td>WHO-GASP</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Surveillance for gonococcal antimicrobial resistance</td>
<td>Surveillance for antimicrobial resistance in <em>N. gonorrhoeae</em> with data reported to WHO-GASP in the last 12-month period</td>
<td>GAM</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Supply of medicines and other products</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. National STI drug and diagnostic supplies</td>
<td>Number of days of reported stock-outs of key STI commodities(^a) in the last 12-month period</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Prevention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Condom distribution</td>
<td>Number of condoms distributed in the last 12-month period</td>
<td>GAM</td>
<td>–</td>
</tr>
<tr>
<td>7. Eliminating vertical transmission of syphilis</td>
<td>Percentage of pregnant women attending ANC in the last 12-month period who were (a) tested at least once for syphilis in the last 12-month period, and (b) who tested positive for syphilis and received at least one dose of 2.4 million units of benzathine penicillin G more than 30 days before delivery</td>
<td>GAM</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Clinical services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Reported STI cases by infection or STI-related syndrome</td>
<td>Number of reported cases of STIs in the last 12-month period by (a) infection(^b) confirmed using a quality-assured diagnostic test and (b) STI-related syndrome(^c)</td>
<td>GAM: urethral discharge for men; gonorrhoea for men</td>
<td>–</td>
</tr>
<tr>
<td><strong>Testing services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. STI testing coverage in key populations, priority populations or specific services</td>
<td>Percentage of individuals using a specific service(^d) who were tested at least once using a quality-assured test for a specific STI(^e) in the last 12-month period</td>
<td>GAM</td>
<td>Yes</td>
</tr>
</tbody>
</table>

\(^{a}\) Data on key commodities are not available.

\(^{b}\) Cases confirmed using a quality-assured diagnostic test.

\(^{c}\) STI-related syndromes include urethral discharge for men and gonorrhoea for men.

\(^{d}\) Specified service.

\(^{e}\) STI.
Table 2 (continued). The 11 core indicators and global reporting systems and targets

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Definition</th>
<th>Global reporting platform</th>
<th>GHSS target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. STI test positivity in services offering STI testing</td>
<td>Percentage of individuals attending a specific service&lt;sup&gt;a&lt;/sup&gt; who were tested for a particular STI&lt;sup&gt;b&lt;/sup&gt; and tested positive in the last 12-month period</td>
<td>GAM: Syphilis in pregnant women attending ANC, MSM and sex workers</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Incidence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Congenital syphilis case rate</td>
<td>Number of cases of congenital syphilis per 100 000 live births in the last 12-month period</td>
<td>GAM</td>
<td>Yes</td>
</tr>
</tbody>
</table>

STI: sexually transmitted infection, ANC: antenatal care
<sup>a</sup>Priority commodities: benzathine penicillin G and rapid diagnostic tests for syphilis.
<sup>b</sup>Priority infections: syphilis, gonorrhoea and chlamydia.
<sup>c</sup>Priority syndromes: urethral discharge for men and genital ulcer disease for men and women.
<sup>d</sup>Services include: ANC clinics, STI clinics, PrEP services, HIV treatment services, youth clinics, and family planning clinics.

### 2.5.1 Inputs and processes

The five input and process indicators cover four domains: plans and policies, financing, surveillance and the supply of medicines and other products (Table 3). The plans and policies indicator provides data on when various policies and guidelines were last updated, and the financing indicator provides data on the funds available for STI programming.

There are two surveillance indicators. The first focuses on the number of health-care facilities reporting STI-related data and provides information on the completeness of STI data collection, and is essential for interpreting geographical and temporal trends in all of the indicators that are based on data collected through the national health management information system.

The second surveillance indicator focuses on gonococcal antimicrobial resistance. Antimicrobial resistance to gonorrhoea has been increasing globally, rendering ineffective many classes of antibiotics. Resistance to many older antibiotics – the last-line-of-defence antibiotics – has made *N. gonorrhoeae* a multidrug-resistant pathogen. The supply of STI-related drugs and diagnostics is essential for testing and treating individuals. Data on national stock-outs are important to identify national and global issues related to the security of the supply of specific products, such as benzathine penicillin used for the treatment of adult and congenital syphilis. The particular commodities to be monitored is a country-specific choice. At minimum, countries should collect data on national stock-outs of benzathine penicillin G and rapid diagnostic tests for syphilis.
Table 3. The 11 core monitoring indicators

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Definition</th>
<th>Rationale</th>
<th>Disaggregation</th>
<th>Measurement methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plans and policies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Up-to-date STI policies and guidelines</td>
<td>Dates of latest (1) STI national plan, (2) STI case management guidelines and (3) STI treatment guidelines (by infection)</td>
<td>A national strategy or plan for preventing and controlling STIs (stand alone or in combination with HIV) is important for STI programming. Having up-to-date case management guidelines and treatment guidelines is crucial to ensure appropriate management of STIs and related syndromes.</td>
<td></td>
<td>Desk review</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Annual budget for STIs</td>
<td>Annual national budget for STI activities by funding source</td>
<td>Monitoring public health budgets provides information on the funding landscape for STIs. This data should be supplemented by data from external funders where applicable.</td>
<td></td>
<td>Desk review</td>
</tr>
<tr>
<td><strong>Surveillance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Routine surveillance for STIs</td>
<td>Number and percentage of healthcare facilities routinely reporting data on STIs (syndromic or etiological) in the last 12-month period</td>
<td>Data on the number of facilities reporting STI data provide a minimum estimate of the number of facilities providing services. Assessing the comprehensiveness of the routine STI surveillance system is essential to interpret whether indicators using data from national health information system are complete and representative.</td>
<td></td>
<td>Geography, facility type, provider type</td>
</tr>
<tr>
<td>4. Surveillance for gonococcal antimicrobial resistance</td>
<td>Surveillance for antimicrobial resistance in <em>N. gonorrhoeae</em> with data reported to WHO-GASP in the last 12-month period</td>
<td>Surveillance for antimicrobial resistance in <em>N. gonorrhoeae</em> is essential to ensure that national and global gonorrhoea treatment guidelines are up to date.</td>
<td></td>
<td>Desk review</td>
</tr>
<tr>
<td><strong>Supply of medicines and other products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. National STI drug and diagnostic supplies</td>
<td>Number of days of reported stock-outs of key STI commodities* in the last 12-month period</td>
<td>Securing the supply of STI-related commodities is essential for providing quality services. At minimum, countries should collect data on benzathine penicillin G and rapid diagnostic tests for syphilis (including dual HIV and syphilis tests).</td>
<td></td>
<td>Procurement, and supply management systems, central or regional medical stores</td>
</tr>
</tbody>
</table>
Table 3 (continued). The 11 core monitoring indicators

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Definition</th>
<th>Rationale</th>
<th>Disaggregation</th>
<th>Measurement methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention</td>
<td></td>
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</tr>
<tr>
<td>6. Condom distribution</td>
<td>Number of condoms distributed in the last 12-month period</td>
<td>Condoms are one of the most effective methods of preventing the sexual transmission of HIV, other STIs and unintended pregnancy, with effectiveness that increases with consistent and correct use. Condom distribution and promotion is an effective and critical component of HIV and STI prevention. This indicator is shared with HIV.</td>
<td>Geography, type of condom (male or female)</td>
<td>Central or regional medical stores</td>
</tr>
<tr>
<td>Outputs and outcomes</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Eliminating vertical transmission of syphilis</td>
<td>Percentage of pregnant women attending ANC in the last 12-month period who were (a) tested at least once for syphilis in the last 12-month period, and (b) who tested positive for syphilis and received at least one dose of 2.4 million units of benzathine penicillin G more than 30 days before delivery</td>
<td>Testing pregnant women for syphilis is important for their own health and is the first step in preventing vertical transmission of syphilis. Women who test positive should ideally be treated with benzathine penicillin G on the same day they were tested. Data on the coverage of syphilis testing and treatment in ANC are needed to measure progress towards eliminating the vertical transmission of syphilis; they are key inputs for estimating the congenital syphilis case rate. Syphilis testing and treatment are also a component of comprehensive ANC and data on their coverage are an indicator of whether national testing and treatment guidelines are being followed.</td>
<td>Age, geography, provider type, ANC visit for screening, trimester in pregnancy for treatment</td>
<td>HMIS or programme data (ANC and maternity registries) Alternative: sentinel surveillance or special studies</td>
</tr>
<tr>
<td>Clinical services</td>
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</tr>
<tr>
<td>8. Reported STI cases by infection or STI-related syndrome</td>
<td>Number of reported cases of STIs in the last 12-month period by (a) infection confirmed using a quality-assured diagnostic test and (b) STI-related syndrome</td>
<td>Data on STIs and their syndromes provide information on the burden of STIs and are markers of unprotected sex. These data also provide information on the use of health-care services for STIs and the infections and syndromes for which people are being treated.</td>
<td>Infection, STI syndrome, sex, age, population, geography</td>
<td>HMIS Alternative: sentinel surveillance</td>
</tr>
<tr>
<td>Indicator name</td>
<td>Definition</td>
<td>Rationale</td>
<td>Disaggregation</td>
<td>Measurement methods</td>
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<tr>
<td>Testing services</td>
<td></td>
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</tr>
<tr>
<td>9. STI testing coverage in key populations, priority populations or specific services</td>
<td>Percentage of individuals using a specific service who were tested at least once using a quality-assured test for a specific STI in the last 12-month period</td>
<td>Testing individuals for STIs is important for identifying those who would benefit from treatment and to target prevention efforts (including the provision of partner services). This indicator assesses progress in increasing STI testing coverage in specific populations (such as MSM, sex workers, people living with HIV and adolescent girls and young women) or services (such as ANC clinics, STI clinics, PrEP services, HIV treatment services, youth clinics, and family planning clinics).</td>
<td>Infection, sex, age, population, geography</td>
<td>HMIS or programme data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alternative: sentinel surveillance or special studies</td>
</tr>
<tr>
<td>Outputs and outcomes</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10. STI test positivity in services offering STI testing</td>
<td>Percentage of individuals attending a specific service who were tested for a particular STI and tested positive in the last 12-month period</td>
<td>The prevalence of STIs in various services can be used to highlight areas within a country that require additional support and may provide early warning of potential changes in STI and HIV transmission in the general population. Data on the prevalence of STIs in various populations are also used to inform national prevalence and incidence estimates.</td>
<td>Infection, sex, age, population, geography, provider type, HIV status</td>
<td>HMIS or programme data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alternative: sentinel surveillance</td>
</tr>
<tr>
<td>Impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Congenital syphilis case rate</td>
<td>Number of cases of congenital syphilis per 100 000 live births in the last 12-month period</td>
<td>Untreated syphilis infection in pregnancy can result in stillbirth, neonatal death and congenital disease. The rate of congenital syphilis measures the impact of interventions to eliminate the vertical transmission of syphilis.</td>
<td>Region if a large country</td>
<td>Modelled from programmatic data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alternative: case reports collected through HMIS</td>
</tr>
</tbody>
</table>

STI: sexually transmitted infection, ANC: antenatal care, HMIS: health management information system

*Priority commodities: benzathine penicillin G and rapid diagnostic tests for syphilis.

*Priority infections: syphilis, gonorrhoea and chlamydia.

*Priority syndromes: urethral discharge for men and genital ulcer disease for men and women.

*Services include: ANC clinics, STI clinics, PrEP services, HIV treatment services, youth clinics, and family planning clinics.
2.5.2 Outputs and outcomes

The four output and outcome indicators cover three domains: prevention, clinical services, and testing services (Table 3). Under prevention there are two indicators. The first is condom distribution, which is a shared indicator with HIV and is reported on by countries annually through the GAM. The second prevention indicator is linked to the global triple elimination initiative (9). For countries to be validated as having eliminated vertical transmission of syphilis or being on the path to elimination, they need to provide information on the number of cases of congenital syphilis as well as syphilis testing and treatment coverage in ANC services (Box 5).

Box 5. Summary of impact, process and programmatic targets for eliminating the vertical transmission of syphilis

Impact target
- a case rate of congenital syphilis of ≤50 per 100,000 live births

Process and programmatic targets
- ANC coverage (at least one visit of ≥95%)
- Coverage of syphilis testing of pregnant women of ≥95% among those who attended at least one ANC visit
- Adequate syphilis treatment of syphilis-seropositive pregnant women of ≥95%

Source: Global guidance on criteria and processes for validation: elimination of mother-to-child transmission of HIV, syphilis and hepatitis B virus (9).

The clinical services indicator focuses on reported cases of STIs. Changes over time in the number of reported cases need to be interpreted with care as they may reflect changes in the population-level incidence of a specific STI, numbers of clinics reporting, or the health-seeking behaviour of individuals (such as using private providers, pharmacies or self-treatment). Data on the number of the reported cases by infection should be restricted to cases confirmed using a recognized diagnostic test meeting pre-agreed performance standards carried out in a laboratory or in the clinic (Annex 2). All countries should collect data on reported cases of syphilis and, if possible, gonorrhoea and chlamydia. With gonorrhoea and chlamydia data it will be important to consider the anatomic sites sampled. For STI related syndromes, countries are recommended to prioritize the data collection of urethral discharge syndrome in men and genital ulcer disease syndrome in both men and women. These syndromes have been given priority since they are likely to be representative of recently acquired STIs. In contrast, many cases of vaginal discharge, anorectal discharge and lower abdominal pain among women are not related to infection with an STI. Countries may also consider collecting data on clearly defined STI-related complications for which individuals are likely to seek health care, such as ectopic pregnancies.

The testing services indicator examines STI testing coverage in key populations and other priority populations or in specific services. The choices of populations and infections to test varies by country depending on local context and the availability of resources. WHO guidance statements highlight that screening and diagnosing key populations are a crucial part of a comprehensive response to HIV and STIs (18, 21–24), and WHO has existing recommendations on screening for STIs among asymptomatic MSM and sex workers (Box 6). STI testing is also offered as an integral part of pre-exposure prophylaxis of HIV infection (PrEP) services (25) in many settings, and some countries have programmes that screen specific populations for one or more STIs (such as screening young women for chlamydia).

Box 6. WHO recommendations related to testing or screening asymptomatic key populations (as of 1 June 2024)

1. Offering periodic testing for asymptomatic urethral and rectal *N. gonorrhoeae* and *C. trachomatis* infections using nucleic acid amplification tests is suggested over not offering such testing for MSM and trans and gender-diverse people (conditional recommendation, low-certainty evidence) (26).
2. WHO suggests offering periodic screening for asymptomatic STIs (chlamydia, gonorrhoea and syphilis) to sex workers (conditional recommendation, low-certainty evidence) (27).
2.5.3 **Impact**

The two impact indicators cover two domains: prevalence and incidence (Table 3). The test positivity indicator provides information on the number of individuals in a particular service who test positive. When interpreting time trends in clinic or service-based test positivity it is important to remember that these are service-based data, and are not necessarily indicative of what is happening in the broader population. Ideally, these data should be supplemented by data from periodic population-based prevalence surveys. For syphilis, data should also be collected from blood transfusion services, focusing if possible on first-time blood donors (28).

The ultimate measure of STI programming is its impact on the incidence of STIs and STI-related complications or sequelae. Estimates of the incidence of STIs among adults are difficult to generate from routinely collected data, since many individuals are asymptomatic or seek care from providers who do not report data. As a result, the incidence of STIs among adults is usually modelled based on survey-based prevalence data and population size estimates, adjusted to reflect the estimated average duration of infection. These estimates are then triangulated with case reports. Very few countries collect prevalence data frequently enough to generate annual incidence estimates for adults, and it is not proposed that countries should aim to do this annually. The proposed impact indicator is congenital syphilis case rate per 100 000 live births. In most countries, congenital syphilis diagnosis relies on clinical history of maternal testing and treatment and clinical examination of the infant, and both under- and over-reporting can be a problem. As part of the global programme to eliminate mother-to-child transmission of syphilis, WHO developed a global case definition for surveillance purposes that is estimated using programmatic data and maternal syphilis prevalence (Box 7) (9). To support the use of this definition WHO has developed a tool that countries can use to generate estimates (29).

### Box 7. Congenital syphilis surveillance case definition

Depending on the clinical context, either of the two following clinical scenarios fulfil the WHO case definition of congenital syphilis:

1. a live birth or fetal death at >20 weeks of gestation or >500 g (including stillbirth) born to a woman with positive syphilis serology and without adequate syphilis treatment;

OR

2. a live birth, stillbirth or child younger than two years born to a woman with positive syphilis serology or with unknown serostatus and with laboratory and/or radiographic and/or clinical evidence of syphilis infection (regardless of the timing or adequacy of maternal treatment).

Source: Global guidance on criteria and processes for validation: elimination of mother-to-child transmission of HIV, syphilis and hepatitis B virus (9).

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2.6 **Using the indicators**

**Context and need to know your STI epidemics**

Data collected on the 11 core indicators together with data from population-based surveys and special studies can be used to assess which populations are most affected by a particular STI and the size and location of these populations. Disaggregation of data by location, age, sex and population is crucial for this.

Geographical and population mapping of disaggregated data is important in monitoring epidemic trends and access to services. Identifying locations and populations in which transmission is occurring can guide prioritization of prevention, treatment and care programmes.
Informing programming

The indicators provide data that can be used to generate evidence-informed recommendations for adjusting and improving STI services and assessing their impact (Fig. 3). In particular, the indicators can be used to:

- identify gaps and bottlenecks in the provision of key supplies and the delivery of services;
- assess whether programme coverage targets are being met;
- identify the users of services;
- allocate resources to the populations most in need and to achieve the greatest public health;
- identify the emergence of antimicrobial resistance and outbreaks;
- improve treatment and case management guidelines;
- ensure that policies and guideline are current;
- track progress towards national, regional and global targets; and
- track progress towards reducing inequalities in access to services.

Fig. 3. Evaluation for impact and accountability

Service cascade

Cascades are frameworks for monitoring gaps in programme services and to track service users from one service to the next. Monitoring the cascade of care requires a consolidated set of indicators from infection to treatment. Fig. 4 gives an example of how these data can be used to look at trends over time for the ANC service coverage cascade for eliminating vertical transmission of syphilis, gaps in service provision, and the impact on the congenital syphilis case rate.

Links to other programmes

Surveillance data on STIs can also be used to understand the effects of introducing new technologies and to identify potential unanticipated consequences. For example, STI surveillance data have been used to explore how introducing PrEP for HIV infection in various communities affects sexual behaviour (30).

Monitoring progress towards regional and global targets

Country-level monitoring is critical for assessing regional and global progress towards the STI related GHSS targets. Standardized indicators are also important for global advocacy and prioritizing investments in new health prevention technologies, diagnostics and treatments. Seven of the core indicators match or overlap with data reported annually by countries to GAM and to WHO-GASP, and six core indicators are related directly to GHSS targets.
Programmatic indicators for eliminating vertical transmission of syphilis:

- ANC coverage
- Testing coverage
- Treatment coverage

The number of congenital syphilis cases* by use of ANC services:

Congenital syphilis cases (WHO surveillance definition) assuming a prevalence of syphilis in pregnant women of 0.2% and 100,000 live births.

* The three programmatic indicators are ANC coverage, testing coverage and treatment coverage.

Congenital syphilis cases (WHO surveillance definition) assuming a prevalence of syphilis in pregnant women of 0.2% and 100,000 live births.
3. Strengthening programme monitoring and surveillance for STIs

3.1 Background

Data on STIs collected through a country’s health surveillance system are critical for making well-informed clinical and programmatic decisions. They provide information that can be used to: assess the need for public health action, identify populations at higher risk of infection, identify gaps in services, inform planning and resource allocation, and evaluate interventions. These data are also used to update case management and treatment guidelines and to explore different options for implementing and scaling up access to new prevention, diagnostic and treatment products. Data from surveillance systems, however, are insufficient on their own. Data from prevalence surveys, behavioural surveys, health facility assessments, and other studies are essential to understand how representative the surveillance data are.

WHO has identified four core components of STI surveillance. These are:
1. clinical case reporting,
2. infection prevalence surveys,
3. assessments of the etiology of syndromes associated with STIs and
4. monitoring antimicrobial resistance \( (11, 12) \). The importance of reinforcing these four components was highlighted in the GHSS which also discussed the need to strengthen health management information systems and to expand STI data collection beyond the public sector (Box 8) \( (5) \).

Efforts to strengthen STI data collection will need to build on the existing data collection systems and should follow best practices in health data processes (Box 9) to ensure that the data are of quality, reliable and representative. In addition, STI data collection systems must meet ethical standards, and not pose risks for communities or the health care workers involved. This includes ensuring the security and confidentiality of all health data and protecting the identities of individuals and study participants. Disaggregated data by key population should only be captured provided individuals’ personal identifiers can be safeguarded in accordance with applicable data laws.

Box 8. GHSS highlighted two STI data-related actions for countries

1. Health information systems for STIs. Invest in strengthening health information systems for STIs and linking them more effectively with broader health information systems.

2. STI data from the private sector and nongovernmental service providers. Establish monitoring systems for collecting data on STI services provided and commodities distributed by the private sector and nongovernmental service providers.

Source: Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030 (5).

This section outlines a three-step approach to strengthen STI programme monitoring and surveillance to support the health sector response to STIs and ensure that countries have high-quality data that is nationally representative for analysis and use (Fig. 5). The three steps and their content are based on the approach developed for strengthening hepatitis surveillance \( (16) \) and tailored for STIs drawing on discussions with WHO staff in headquarters and regions and other experts.
<table>
<thead>
<tr>
<th>Box 9. Best practices in health data processes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data collection</strong></td>
</tr>
<tr>
<td>• Integrate and standardize disease-specific and cross-cutting indicators and data collection tools</td>
</tr>
<tr>
<td>• Disaggregate by age, gender and location and other variables as appropriate</td>
</tr>
<tr>
<td>• Record and review on the day of data collection</td>
</tr>
<tr>
<td>• Report data to the next level in a timely manner</td>
</tr>
<tr>
<td>• Supervise collection of data</td>
</tr>
<tr>
<td>• Use digital health platform for data collection if available</td>
</tr>
<tr>
<td><strong>Data storage and aggregation</strong></td>
</tr>
<tr>
<td>• Secure with defined users and access</td>
</tr>
<tr>
<td>• Update regularly</td>
</tr>
<tr>
<td><strong>Data validation</strong></td>
</tr>
<tr>
<td>• Validate at multiple levels, with feedback on data quality</td>
</tr>
<tr>
<td>• Triangulate data across independent sources and data collection mechanisms</td>
</tr>
<tr>
<td>• Check for internal and external consistency</td>
</tr>
<tr>
<td>• Conduct routine supervision and data quality audits</td>
</tr>
<tr>
<td><strong>Data analysis</strong></td>
</tr>
<tr>
<td>• Analyse at multiple levels (community, health facility, district, national, regional and global)</td>
</tr>
<tr>
<td>• Conduct advanced analysis to fill public health data gaps</td>
</tr>
<tr>
<td><strong>Data use</strong></td>
</tr>
<tr>
<td>• Use data to inform programming and to identify gaps in service coverage and areas to prioritize</td>
</tr>
<tr>
<td>• Triangulate and combine data across different sources, such as population-based surveys and academic studies</td>
</tr>
<tr>
<td>• Triangulate and combine data with data from other health-related topics, such as HIV, maternal, reproductive, adolescent and newborn health</td>
</tr>
<tr>
<td>• Provide feedback to service delivery sites</td>
</tr>
<tr>
<td>• Disseminate data to reach different target groups including national policy-makers, communities, health professionals, donors and implementing partners</td>
</tr>
</tbody>
</table>

3.2 Step 1: Strengthen and use public sector facility-based reporting

This step focuses on integrating STIs into routine public sector facility-based reporting, and ensuring that the procedures, tools and trained personnel are in place to report STI data consistently across health care delivery points providing STI-related services. Individuals with an STI may seek care or be tested in different types of clinics or services, including STI clinics, ANC clinics, primary health care clinics, youth clinics, key population services and PrEP services or they may visit a general practitioner. In many countries, health information systems are fragmented and linked to vertical programmes which poses challenges for the collection of STI data. In the absence of a unified national structure, data collection efforts need to be aligned across the various health care services that provide comparable STI prevention, testing and treatment data. Data based on tallying and aggregate numbers (such as number of new ANC clients booked, number of clients tested for syphilis during the reporting period and number of positive tests) should be treated with particular care as tallying processes are prone to errors and double counting, and are unable to track individuals over time.

Key actions include:
- establish and disseminate standard procedures for collecting and reporting STI-related data including uniform case definitions (see Annex 2), reporting forms and reporting flow;
• ensure standard data collection procedures are being followed across programmatic areas, and identify opportunities, if appropriate, to link records and care provided across programmatic areas;
• establish a data quality review assurance system to assess the timeliness, completeness, internal consistency, external consistency and representativeness of STI data (31);
• develop and implement digital health tools (such as dashboards) to facilitate data analysis and use;
• identify facilities requiring additional support or training to improve the timeliness, completeness and quality of STI reporting;
• invest in human capacity to ensure that personnel have the skills to perform their functions, including data collection, data entry, data management and data analysis;
• ensure that data and feedback are disseminated to reporting sites and to local stakeholders to inform the planning and modification of services and programmes; and
• identify other programme areas, such as blood transfusion services, that screen for STIs including syphilis and human T-lymphotropic virus type 1 (28).
Countries may also want to audit their STI surveillance system if this has not been done recently (11).

3.3 Step 2: Expand surveillance activities

This step focuses on strengthening and expanding STI-related surveillance activities and includes investing in: person-centred surveillance, laboratory surveillance, health facility assessments, and population-based prevalence studies. Data collected from these sources are important for providing a comprehensive picture of the health burden of STIs.

Key actions include the following.

**Laboratory surveillance**

• Strengthen laboratory systems for monitoring antimicrobial resistance in *N. gonorrhoea*.
• Strengthen laboratory systems to support active surveillance and reporting to identify outbreaks of new STIs such as mpox (14,15).
• Establish or strengthen the laboratory quality assurance system.
• Establish a system for conducting periodic assessment (every 3–5 years) of the causes of STI syndromes to understand changes over time in the relative importance of various infections and to support the updating of national case management and treatment guidelines.

**Person-centred surveillance or monitoring individuals over time**

• Identify opportunities to expand the collection of individual-level longitudinal data monitoring the use of STI services. This includes incorporating STI data collection into case surveillance and prevention trackers for HIV (Box 10).
• Strengthen clinical follow-up of infants exposed to syphilis. This includes those infants born to inadequately treated mothers and those born to adequately treated mothers.

**Health facility surveys or assessments**

• Conduct periodic health facility assessments collecting data on such issues as: the availability and affordability of drug and diagnostics, quality of case management and users’ perceptions of service provision (20).

**Population-based studies**

**Prevalence data**

• Identify opportunities for incorporating STIs into population-based surveys or surveys of specific populations being planned by others, such as Population-based HIV Impact Assessments, Demographic and Health Surveys and integrated biological and behavioural surveillance.
• Conduct prevalence surveys of STIs in the general population or in specific populations at higher risk of infection for which few or no data are available.

**Behavioural data**

• Collate and analyse data from surveys on topics such as: condom use, timing of last sexual intercourse, self-reported STIs and health-seeking behaviour for STI-related symptoms.
• Explore opportunities to include monitoring of primary prevention, health-seeking behaviour for STIs and STI-related symptoms in planned population-based surveys.

**Access to services**

• Monitor and measure, through special studies or other means, different components of access, including affordability and acceptability of services.
Box 10. HIV case surveillance and prevention trackers

The WHO 2022 consolidated guidelines on person-centred HIV strategic information (4) focus on the collection and use of person-centred data across the HIV cascade – from prevention, testing and treatment to longer-term health care – and links to services for STIs, viral hepatitis, tuberculosis and cervical cancer.

Two new toolkits have been developed in DHIS2 to support the gathering of person-centred HIV data, and both include the collection of data on STI symptoms, test positivity and treatment (32, 33).

- The HIV case surveillance toolkit supports routine data collection for programmes that support people living with HIV to enrol in an HIV programme and receive HIV testing, care and treatment services.
- The HIV prevention toolkit supports routine data collection for programmes that support people identified as being at higher risk for HIV infection to enrol in a prevention programme and receive HIV prevention services.

The 2022 HIV guidelines include a set of data elements to collect for monitoring STIs.

<table>
<thead>
<tr>
<th>Testing and diagnosis</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of clinic visit</td>
<td>Date STI treatment prescribed</td>
</tr>
<tr>
<td>Syndrome or STI diagnosed (if symptomatic)</td>
<td>STI treatment prescribed</td>
</tr>
<tr>
<td>Date of STI test (if done)</td>
<td>Date STI treatment dispensed (if available)</td>
</tr>
<tr>
<td>Sample tested</td>
<td>STI treatment dispensed (if available)</td>
</tr>
<tr>
<td>STI tests used</td>
<td></td>
</tr>
<tr>
<td>STI test result</td>
<td></td>
</tr>
<tr>
<td>Date of STI confirmatory test (if done)</td>
<td></td>
</tr>
<tr>
<td>○ Confirmatory tests used</td>
<td></td>
</tr>
<tr>
<td>○ STI confirmatory test result</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Step 3: Expand data collection beyond the public sector

The private and nongovernmental sectors are important providers of STI prevention and care services, and private laboratory services also often play a role in providing diagnostic services to public and private providers. Collecting routine data from these service providers is challenging and requires establishing:

- a functional and sustainable data collection system that meets the information requirements of the national health-care system while being acceptable to private providers; and
- a clear legal framework for private-sector reporting to ensure that private entities comply with applicable data protection regulations and guidelines.

Most data collection from private-sector providers has been ad hoc and unsustainable. The key to establishing a sustainable system will be working with the various STI service providers to identify simple, practical and sustainable mechanisms for reporting data on the services provided and commodities distributed, and to ensure that providers receive regular feedback to improve their service provision.


## Annex 1. STI metadata

### A1.1: Input and process indicators

**Table A1.1. Up-to-date STI policies and guidelines**

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Up-to-date STI policies and guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Dates of latest (1) national plan, (2) case management guidelines, (3) treatment guidelines (by infection)</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Plans and policies</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Dates of latest (1) national plan, (2) case management guidelines, (3) treatment guidelines (by infection)</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

### Rationale

A national strategy or plan for preventing and controlling STIs (either stand alone or in combination with HIV) is important for STI programming. Having up-to-date case management guidelines and treatment guidelines is crucial to ensure appropriate management of STIs and related syndromes.

### Measurement

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Measurement methods</th>
<th>Desk review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement frequency</strong></td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td><strong>Disaggregation</strong></td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

### Reporting

<table>
<thead>
<tr>
<th>Reporting</th>
<th>Global reporting</th>
<th>GAM: National Commitments and Policy Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Related WHO indicators</strong></td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

### Comments

These data should be supplemented by periodic health facility assessments to assess whether facilities have the necessary guidance protocols and standards for managing STIs and whether they are being followed.
### Table A1.2. Annual budget for STIs

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Definition</th>
<th>Domain</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual budget for STIs</td>
<td>Annual national budget for STI activities by funding source</td>
<td>Financing</td>
<td>Annual national budget for STI activities by funding source in local currency or US dollars</td>
<td>–</td>
</tr>
</tbody>
</table>

**Rationale**
Monitoring public health budgets provides information on the funding landscape for STIs. This data should be supplemented by data from external funders where applicable.

**Measurement**
- **Measurement methods**: Desk review
- **Measurement frequency**: Annual
- **Disaggregation**: –

**Reporting**
- **Global reporting**: –
- **Related WHO indicators**: –

**Comments**: –

### Table A1.3. Routine surveillance for STIs

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Definition</th>
<th>Domain</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Routine surveillance for STIs</td>
<td>Number and percentage of health-care facilities routinely reporting data on STIs (syndromic or etiological) in the last 12-month period</td>
<td>Surveillance</td>
<td>Number of health-care facilities reporting data on STI cases (syndromic or etiological) in the last 12-month period</td>
<td>Number of health-care facilities</td>
</tr>
</tbody>
</table>

**Rationale**
Data on the number of facilities reporting STI data provide a minimum estimate of the number of facilities providing services. Assessing the comprehensiveness of the routine STI surveillance system is essential to interpret whether indicators using data from national health information systems are complete and representative.

**Measurement**
- **Measurement methods**: HMIS
- **Measurement frequency**: Annual
- **Disaggregation**: Geography, facility type, provider type

**Reporting**
- **Global reporting**: –
- **Related WHO indicators**: –

**Comments**: –
<table>
<thead>
<tr>
<th><strong>Description</strong></th>
<th><strong>Indicator name</strong></th>
<th>Surveillance for gonococcal antimicrobial resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Surveillance for antimicrobial resistance in <em>N. gonorrhoeae</em> with data reported to WHO-GASP in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Surveillance</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Annual surveillance ongoing; year of data last reported to WHO-GASP</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

**Rationale**

Surveillance for antimicrobial resistance in *N. gonorrhoea* is essential to ensure that national and global gonorrhoea treatment guidelines are up to date.

**Measurement**

<table>
<thead>
<tr>
<th><strong>Measurement methods</strong></th>
<th>Desk review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement frequency</strong></td>
<td>Annual</td>
</tr>
<tr>
<td><strong>Disaggregation</strong></td>
<td>–</td>
</tr>
</tbody>
</table>

**Reporting**

<table>
<thead>
<tr>
<th><strong>Global reporting</strong></th>
<th>WHO-GASP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GAM: National Commitments and Policy Instrument</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Related WHO indicators**

| – |

**Comments**

Conducting quality-assured antimicrobial susceptibility surveillance activities and developing alternative gonococcal regimens are essential to ensure that gonorrhoea remains treatable. Susceptibility testing should be performed on all isolates (minimum inhibitory concentration gradient strip test or agar dilution) for relevant antimicrobial agents including: ceftriaxone, cefixime, azithromycin and ciprofloxacin.
### Table A1.5. National STI drug and diagnostic supplies

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>National STI drug and diagnostic supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Number of days of reported stock-outs of key STI commodities in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td>Domain</td>
<td>Supply of medicines and other products</td>
<td></td>
</tr>
<tr>
<td>Numerator</td>
<td>Number of days of national stock-outs of a specific commodity in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td>Denominator</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

#### Rationale
Securing the supply of STI-related commodities is essential for providing quality services. At minimum, countries should collect data on benzathine penicillin G and rapid diagnostic tests for syphilis (including dual HIV and syphilis tests).

#### Measurement
<table>
<thead>
<tr>
<th>Measurement methods</th>
<th>Procurement and supply management systems, central or regional medical stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement frequency</td>
<td>Annual</td>
</tr>
</tbody>
</table>

#### Reporting
| Global reporting | – |

#### Related WHO indicators
| – |

#### Comments
National data should be supplemented with more granular data drawing on subnational, district or facility stock-out rates.

*Priority commodities: benzathine penicillin G and rapid diagnostic tests for syphilis.*
A1.2: Output and outcome indicators

Table A1.6. Condom distribution

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Condom distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Number of condoms distributed in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Prevention</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Number of condoms distributed in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

**Rationale**

Condoms are one of the most effective methods of preventing the sexual transmission of HIV, other STIs and unintended pregnancy, with effectiveness that increases with consistent and correct use. Condom distribution and promotion is an effective and critical component of HIV and STI prevention. This indicator is shared with HIV.

**Measurement**

- **Measurement methods**: Central or regional medical stores
- **Measurement frequency**: Annual
- **Disaggregation**: Geography, type of condom (male or female)

**Reporting**

- **Global reporting**: GAM: annual number of condoms distributed (male and female condoms)

**Related WHO indicators**

- Consolidated guidelines on person-centred HIV strategic information (1): PRV.1: Condoms distributed
- Tool to set and monitor targets for HIV prevention, diagnosis, treatment and care for key populations (2): CCP-4: Quantity of condoms and condom-compatible lubricant distributed

**Comments**

Count of the number of male and female condoms that left the central or regional warehouses for onward distribution in the previous calendar year. Data should include condoms distributed for free (public providers), condoms sold at subsidized rates through social marketing (nongovernmental organizations as providers) and condoms sold through the commercial sector (private-sector providers). There should be no double-counting of condoms in case of overlap. Any condoms from public-sector warehouses given to nongovernmental organizations or community workers for distribution should be accounted for in the public sector.
### Table A1.7. Eliminating vertical transmission of syphilis

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Eliminating vertical transmission of syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Percentage of pregnant women attending ANC in the last 12-month period who were (a) tested at least once for syphilis, and (b) who tested positive for syphilis and received at least one dose of 2.4 million units of benzathine penicillin G more than 30 days before delivery.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain</th>
<th>Prevention</th>
</tr>
</thead>
</table>

| Numerator | (a) Number of pregnant women (unique) attending ANC tested at least once for syphilis in the last 12-month period  
(b) Number of pregnant women (unique) attending ANC who tested positive for syphilis and received at least one dose of benzathine penicillin 2.4 million units more than 30 days before delivery in the last 12-month period |
|----------|------------------|

| Denominator | (a) Number of pregnant women (unique) attending ANC in the last 12-month period  
(b) Number of pregnant women (unique) attending ANC who tested positive for syphilis in the last 12-month period |
|-------------|------------------------------------------------|

**Rationale**  
Testing pregnant women for syphilis is important for their own health and is the first step in preventing vertical transmission of syphilis. Women who test positive should ideally be treated with benzathine penicillin G on the same day they were tested. Data on the coverage of syphilis testing and treatment in ANC are needed to measure progress towards eliminating the vertical transmission of syphilis; they are key inputs for estimating the congenital syphilis case rate. Syphilis testing and treatment are also a component of comprehensive ANC and data on their coverage are an indicator of whether national testing and treatment guidelines are being followed.

**Measurement**  
**Measurement methods**  
HMIS or programme data (ANC and maternity registries)  
Alternative: sentinel surveillance or special studies

**Measurement frequency**  
Recorded daily and reported quarterly to the national or subnational level; also consolidated annually

**Disaggregation**  
Age, geography, provider type, ANC visit for screening, trimester in pregnancy for treatment

**Reporting**  
**Global reporting**  
GAM: syphilis among pregnant women

**Related WHO indicators**  
*Consolidated guidelines on person-centred HIV strategic information (1):* STI.1: Syphilis testing coverage; STI.3: Syphilis treatment coverage

*Analysis and use of health facility data: guidance for maternal, newborn, child and adolescent health programme managers (3):*  
Percentage of pregnant women screened for syphilis during ANC: number of ANC clients screened for syphilis/total number of antenatal clients with a first contact

*Global guidance on criteria and processes for validation: elimination of mother-to-child transmission of HIV, syphilis and hepatitis B virus (4):*  
Coverage of syphilis testing of pregnant women, adequate syphilis treatment of syphilis-positive pregnant women
Table A1.7. (continued). Eliminating vertical transmission of syphilis

<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual-level data obtained from programme records. When individual-level data are not available, the indicator can be reported using aggregate programme data or data from sentinel surveillance or special studies. Data should be deduplicated to ensure that women tested two or more times within a given pregnancy are only counted once. Collecting data from private and nongovernmental ANC services is important in countries where they are significant providers of ANC. Testing can be done using either a nontreponemal test (such as venereal disease research laboratory or rapid plasma reagin) and/or a treponemal test (such as Treponema pallidum haemagglutination assay, Treponema pallidum particle agglutination assay, enzyme immunoassay or rapid treponemal test).</td>
</tr>
</tbody>
</table>

Table A1.8. Reported STI cases by infection or STI-related syndrome

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Reported STI cases by infection or STI-related syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Number of reported cases of STIs in the last 12-month period by (a) infection confirmed using a quality-assured diagnostic test and (b) STI-related syndrome.</td>
<td></td>
</tr>
<tr>
<td>Domain</td>
<td>Clinical services</td>
<td></td>
</tr>
<tr>
<td>Numerator</td>
<td>(a) Number of reported cases of STIs by infection that were confirmed by a quality-assured diagnostic test in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Number of reported cases by STI-related syndrome in the last 12-month period</td>
<td></td>
</tr>
</tbody>
</table>

Denominator: –

Rationale: Data on STIs and their syndromes provide information on the burden of STIs and are markers of unprotected sex or sex without a condom. These data also provide information on the use of health-care services for STIs and the infections and/or syndromes for which people are being treated.

Measurement methods: HMIS

Measurement frequency: Recorded daily and reported quarterly to the national or subnational level; also consolidated annually

Disaggregation: Infection, STI syndrome, sex, age, population, geography
### Table A1.8. (continued). Reported STI cases by infection\(^a\) or STI-related syndrome\(^b\)

<table>
<thead>
<tr>
<th>Reporting</th>
<th>Global reporting</th>
<th>Related WHO indicators</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GAM: urethral discharge syndrome, gonorrhoea in men</td>
<td><strong>HIV consolidated guidelines on person-centred HIV strategic information</strong> (1): STI.7: Presence of STI syndrome; STI.2: Syphilis test positivity; STI.5 Gonorrhoea test positivity</td>
<td>Standard national case definitions should be used. For etiological diagnosis, data should be collected, if possible, on the anatomic sites sampled and diagnostic test performed. Data should be deduplicated to ensure that each person received a diagnostic code only once for each episode. Collecting data from private and nongovernmental organizations is important in countries where they are significant providers of STI services.</td>
</tr>
<tr>
<td></td>
<td><strong>2018 Global reference list of 100 core health indicators (plus health-related SDGs)</strong> (5): STIs incidence rate: number of new cases of reported STIs (syndromic or etiological reporting) in a specified time period (year) <strong>The adolescent health indicators recommended by the Global Action for Measurement of Adolescent Health: guidance for monitoring adolescent health at country, regional, and global levels</strong> (6): Sexually transmitted infection incidence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)Priority infections: syphilis, gonorrhoea and chlamydia.

\(^b\)Priority syndromes: urethral discharge in men, genital ulcer disease in men and women.
### Table A1.9. STI testing coverage in key populations, priority populations or specific services

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>STI testing coverage in key populations, priority populations or specific services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Percentage of individuals using a specific service who were tested at least once using a quality-assured test for a specific STI in the last 12-month period.</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Testing services</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Number of individuals (unique) using a specific service who were tested at least once using a quality-assured test for a specific STI in the last 12-month period.</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>Number of individuals (unique) attending a specific service in the last 12-month period.</td>
<td></td>
</tr>
</tbody>
</table>

**Rationale**

Testing individuals for STIs is important for identifying those who would benefit from treatment. This indicator assesses progress in increasing STI testing coverage in specific populations (such as MSM, sex workers, people living with HIV and adolescent girls and young women) or services (such as ANC clinics, STI clinics, PrEP services, HIV treatment services, youth clinics, and family planning clinics).

**Measurement**

- **Measurement methods**: HMIS or programme data. Alternative: sentinel surveillance or special studies.
- **Measurement frequency**: Recorded daily and reported quarterly to national or sub-national level; also consolidated annually.
- **Disaggregation**: Infection, sex, age, population, geography.

**Reporting**

- **Global reporting**: --
- **Related WHO indicators**: *HIV consolidated guidelines on person-centred HIV strategic information* (1): STI.1: Syphilis testing coverage; STI.4 Gonorrhoea testing coverage, STI.3: Syphilis treatment coverage; STI.6: Gonorrhoea treatment coverage. *Tool to set and monitor targets for HIV prevention, diagnosis, treatment, and care for key populations* (2): SRH-4: Key populations reporting they have been tested for STIs.

**Comments**

Data should be collected, if possible, on anatomic sites sampled and diagnostic test performed. Collecting data from private and nongovernmental organizations is important in countries where they are significant providers of STI services.

---

1. **Priority infections**: syphilis, gonorrhoea and chlamydia.
2. **Services include**: ANC clinics, STI clinics, PrEP services, HIV treatment services, youth clinics, and family planning clinics.
## A1.3: Impact indicators

### Table A1.10. STI test positivity in services offering STI testing

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>STI test positivity in services offering STI testing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Percentage of individuals attending a specific service(^{a}) who were tested for a particular STI(^{b}) and tested positive in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Prevalence</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Number of individuals attending a specific service who tested positive for a specific STI in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>Number of individuals attending a specific service who were tested for a specific STI in the last 12-month period</td>
<td></td>
</tr>
</tbody>
</table>

### Rationale

The prevalence of STIs in various services can be used to highlight areas within a country that require additional support and may provide early warning of potential changes in STI and HIV transmission in the general population. Data on the prevalence of STIs in various populations are used to inform national, prevalence and incidence estimates.

### Measurement

<table>
<thead>
<tr>
<th>Measurement methods</th>
<th>Measurement frequency</th>
<th>Disaggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS or programme data</td>
<td>Recorded daily and reported quarterly to the national or subnational level; also consolidated annually</td>
<td>Infection, sex, age, population, geography, provider type, HIV status</td>
</tr>
<tr>
<td>Alternative: sentinel surveillance or special studies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Reporting

<table>
<thead>
<tr>
<th>Global reporting</th>
<th>GAM: syphilis prevalence in pregnant women attending ANC, syphilis prevalence in key populations</th>
</tr>
</thead>
</table>

### Related WHO indicators

*HIV consolidated guidelines on person-centred HIV strategic information (1): STI.2: Syphilis test positivity; STI.5: Gonorrhoea test positivity*

### Comments

Data sources include national programme records aggregated from health-care facility data, sentinel surveillance or special surveys. Countries are encouraged to use unique identifiers or registries that separate first and subsequent tests to avoid double counting. Data on test type should be collected to adjust for test performance when analysing the data. For syphilis, positivity can be a positive treponemal test, a reactive nontreponemal test or a combination of both. If both treponemal and nontreponemal test results on an individual person are available, then syphilis positivity should be defined as having positive results in both tests. Programmatic data should be triangulated against survey data.

\(^{a}\)Priority infections: syphilis, gonorrhoea and chlamydia.
### Table A1.11. Congenital syphilis case rate

<table>
<thead>
<tr>
<th>Description</th>
<th>Indicator name</th>
<th>Congenital syphilis case rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Number of cases of congenital syphilis per 100,000 live births in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Incidence</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Number of cases of congenital syphilis (live births and stillbirths) in the last 12-month period</td>
<td></td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>Number of live births in the last 12-month period</td>
<td></td>
</tr>
</tbody>
</table>

**Rationale**

Untreated syphilis infection in pregnancy can result in stillbirth, neonatal death and congenital disease. The rate of congenital syphilis measures the impact of interventions to eliminate the vertical transmission of syphilis.

**Measurement**

- **Measurement methods**
  - Modelled (WHO sentinel case definition)
  - Alternative: HMIS
- **Measurement frequency**
  - Annual
- **Disaggregation**
  - Region if a large country

**Reporting**

- **Global reporting**
  - GAM

**Related WHO indicators**

- *2018 Global reference list of 100 core health indicators (plus health-related SDGs)*: Congenital syphilis rate: percentage of reported congenital syphilis cases (live births and stillbirths)
- *Global guidance on criteria and processes for validation: elimination of mother-to-child transmission of HIV, syphilis and hepatitis B virus*:

**Comments**

Diagnosing congenital syphilis is most reliable when specific diagnostic tests are used, but these are specialized tests and not widely available. As a result, in most countries, congenital syphilis diagnosis relies on clinical history of maternal testing and treatment and clinical examination of the infant and both underreporting and overreporting can be a problem. WHO has developed a global case definition for surveillance purposes that is estimated using programmatic data.
References
Annex 2. STI surveillance case definitions

<table>
<thead>
<tr>
<th>Case definitions for syndromic reporting*</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethral discharge syndrome</td>
<td>An abnormal discharge in men (with or without dysuria) seen at the urethral meatus, with or without milking or expressing the urethra</td>
</tr>
<tr>
<td>Genital ulcer disease syndrome</td>
<td>An ulcer (a visible break or open sore in the skin) on the penis, scrotum, anus, perineal, perianal area in men and on the labia, vagina, cervix or anus, perineal or perianal area in women</td>
</tr>
<tr>
<td>Vaginal discharge syndrome</td>
<td>An abnormal vaginal discharge with change in the quantity, consistency, colour or odour (with or without vulval itching or burning)</td>
</tr>
<tr>
<td>Anorectal discharge</td>
<td>An abnormal discharge of fluid or mucus that comes from the anus with a clinical evaluation ruling out other inflammatory conditions and/or anorectal disorders</td>
</tr>
</tbody>
</table>

*The aim is to collect data on new cases; follow-up appointments for the same episode should not be included.
**Case definitions for etiological reporting**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Microbiologically confirmed case, which includes one or more of the following:</th>
</tr>
</thead>
</table>
| Gonorrhoea         | - detecting *Neisseria gonorrhoeae* by nucleic acid amplification (such as polymerase chain reaction) in an appropriate clinical specimen;\(^b\)
|                    | - detecting *N. gonorrhoeae* by hybridization with a nucleic acid probe in an appropriate clinical specimen;\(^a\)
|                    | - isolating *N. gonorrhoeae* by culture of a clinical specimen, minimally with isolation of typical gram-negative, oxidase-positive diplococci; and
|                    | - microscopically detecting intracellular gram-negative diplococci in a male urethral specimen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Chlamydia          | Microbiologically confirmed case, which includes one or more of the following:
|                    | - detecting *Chlamydia trachomatis* by nucleic acid amplification (such as polymerase chain reaction) in an appropriate clinical specimen;\(^a\) and
|                    | - detecting *C. trachomatis* by hybridization with a nucleic acid probe in an appropriate clinical specimen.\(^b\)
| Syphilis – confirmed | One or more of the following:
|                    | - a person with a reactive nontreponemal test (such as venereal disease research laboratory or rapid plasma reagin or equivalent serological methods) and a reactive (positive) treponemal test (such as Treponema pallidum particle agglutination assay, enzyme immunoassay, chemiluminescence immunoassay or equivalent serological methods);
|                    | - a person with a reactive (positive) treponemal test (such as *T. pallidum* particle agglutination assay, enzyme immunoassay, chemiluminescence immunoassay or equivalent serological methods) and a second reactive (positive) treponemal test using a different test;
|                    | - detecting *T. pallidum* by nucleic acid amplification (such as polymerase chain reaction) in an ulcer swab or scraping;
|                    | - detecting *T. pallidum* by hybridization with a nucleic acid probe in an ulcer swab or scraping;
|                    | - demonstrating *T. pallidum* in lesion exudates or tissues by dark-field microscopic examination; and
|                    | - demonstrating *T. pallidum* in lesion exudates or tissues by direct fluorescent antibody test.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Syphilis (probable)| A person with a reactive (positive) treponemal test (such as *T. pallidum* particle agglutination assay, enzyme immunoassay, chemiluminescence immunoassay or equivalent serological methods).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

\(^a\)Individuals who test positive twice for the same episode should only be included once.

\(^b\)Urine, or swabs from anorectum, endocervix, oropharynx, urethra or vagina. Cornea swabs in infants suspected of ophthalmia neonatorum.