Recommendations on the delivery of health services for the prevention and care of sexually transmitted infections

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World Health Organization

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Methodologist and systematic reviewers

GRADE methodologist: Farid Foroutan (Ted Rogers Centre for Health Research, Canada).

Systematic reviewers: Nancy Santesso (Michael G. DeGroote Cochrane Centre, McMaster University, Canada).

Guideline Development Group

The members of the Guideline Development Group (Annex 1) provided invaluable guidance and comments through virtual meetings and by correspondence. Their meticulous attention to detail, expert comments and feedback ensured the consistency and relevance of these guidelines.

Members: Laith Abu Raddad (Weill Cornell Medical College, Qatar), Yaw Adu-Sarkodie (Kwame Nkrumah University of Science and Technology, Ghana), Jamila Al Abri (Ministry of Health, Oman), Zeyana Al Habsi (Ministry of Health, Oman), Mircea Betiu (Nicolae Testimitanu State University of Medicine and Pharmacy, Republic of Moldova), Catriona Bradshaw (Monash University, Australia), Xiang-Sheng Chen (National Center for AIDS/STD Control and Prevention, China), Irith De Baetselier (Institute of Tropical Medicine, Belgium), Chido Dziva Chikwari (Biomedical Research and Training Institute, Zimbabwe), Amina El Kettani (Ministry of Health, Morocco), Patricia Garcia (Universidad Peruana Cayetano Heredia, Peru), William M. Geisler (University of Alabama at Birmingham, United States of America), Kimberly Green (PATH, Viet Nam/Switzerland), Somesh Gupta (All India Institute of Medical Sciences, India), Edward W. Hook III (University of Alabama at Birmingham, USA), Rena Janamnuaysook (Institute of HIV Research and Innovation, Thailand), Nathalie Kapp (International Planned Parenthood Federation, United Kingdom of Great Britain and Northern Ireland), Hamida Khattabi (Ministry of Health, Morocco), Rossaphorn Kittyaowamarn (Ministry of Public Health, Thailand), Jeffrey D. Klausner (University of Southern California, USA), Ranmini Kularatne (Awanui Labs, New Zealand), Peter Kyambadde (Ministry of Health, Uganda), David Lewis (Western Sydney Sexual Health Centre and University of Sydney, Australia), Anna Machiha (Ministry of Health and Child Welfare, Zimbabwe), Regina Maithufi (National Department of Health, South Africa), Philippe Mayaud (London School of Hygiene and Tropical Medicine, United Kingdom), Angelica Espinosa Miranda (Federal University of Espirito Santo, Brazil), Saiqa Mullick (Wits RHI, University of the Witwatersrand, South Africa), Francis Ndowa (Skin and Genito-Urinary Medicine Clinic, Zimbabwe), Shobini Rajan (Ministry of Health and Family Welfare, India), Lilani Rajapaksa (Ministry of Health, Sri Lanka), Kees Rietmeijer (Denver Public Health Department, USA), Danvic Rosadiño (LoveYourself Inc., Philippines), Jonathan Ross (Birmingham University Hospitals NHS Trust, United Kingdom), Lon Sayheng (National Center for HIV/AIDS, Dermatology and STD, Cambodia), Anna Shapiro (Global Network of Sex Work Projects, United Kingdom), Jane Thiomi (LVCT Health, Kenya), Jane Tomnay (University of Melbourne, Australia), Magnus Unemo (Örebro University Hospital, Sweden) and Judith Wasserheit (University of Washington, USA).

External Review Group

Members: Henry J.C. de Vries (Amsterdam Sexual Health Clinic, Netherlands [Kingdom of the]), Kristina Grabbe (Jhpiego, USA), Hans Benjamin Hampel (University of Zurich, Switzerland), Kausar Jabeen (Aga Khan Foundation, Pakistan), Monica Lahra (Prince of Wales Hospital, Australia), Pham Thi Lan (National Hospital of Dermatology and Venerology, Viet Nam), Ahmed Latif (public health consultant, Australia), Ioannis Mameletzis (consultant, Ukraine), Koleka Mlisana (National Health Laboratory Service, South Africa), Lori Newman (Gates Foundation, USA), Catherine Ngugui (Ministry of Health, Kenya), Reshmie Ramautarsing (Institute of HIV Research and Innovation, Thailand), Pachara Sirivongrangson (Ministry of Public Health, Thailand) and Janet Wilson (International Union against Sexually Transmitted Infections, United Kingdom).

Observers

Francis Kakooza (Makerere University, Uganda), Otilia Mardh (European Centre for Disease Prevention and Control, Sweden) and Fernando Pascal Martinez (Global Antibiotic Research and Development Partnership, Spain).

WHO Secretariat and consultants

Overall coordination

Teodora Wi and Ismail Maatouk led the development of these guidelines with support from Daniel McCartney (Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes) under the leadership of Meg Doherty (Director, Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes).

WHO Steering Committee

Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes: Maeve Brito de Mello, Cheryl Johnson, Ismail Maatouk, Antons Mozalevskis, Morkor Newman, Remco Peters, Jane Rowley, Annette Verster, Marco Vitoria and Teodora Wi.

Other WHO headquarters staff members: Avni Amin, Sami Gottlieb, James Kiarie, Gitau Mburu, Igor Toskin and Ozge Tunçalp (Department of Sexual and Reproductive Health and Research), Arif Al-Hamad (Department of Surveillance, Prevention and Control), Silvia Bertagnolio and Benedikt Huttner (Department of Access to Medicines and Health Products) and Anne-Laure Page (Regulation and Prequalification).

WHO regional and country offices: Akudo Ezinne Ikpeazu and Agnes Chetty (Regional Office for Africa), Monica Alonso and Hortencia Peralta (Regional Office for the Americas), Muhammad Shahid Jamil (Regional Office for the Eastern Mediterranean), Stela Bivol (Regional Office for Europe), Po-lin Chan (Regional Office for South-East Asia), Kiyohiko Izumi and Tiara Nisa (Regional Office for the Western Pacific), Abhishek Royal (WHO Country Office in India) and Van Thi Thuy Nguyen (WHO Country Office in Viet Nam).

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Abbreviations

GRADE	Grading of Recommendations Assessment, Development and Evaluation
HCV	hepatitis C virus
HICs	high-income countries
HIV	human immunodeficiency virus
HPV	human papillomavirus
LMICs	low- and middle-income countries
PrEP	pre-exposure prophylaxis
SRH	sexual and reproductive health
STI	sexually transmitted infection
WHO	World Health Organization

Glossary

Community health workers: Health workers who live in the communities they serve and typically have lower levels of formal education and training than professional health workers, such as nurses and doctors. Community health workers provide health education and referrals for a wide range of services, and support individuals, families and communities in preventive health measures and accessing appropriate curative and social services. They act as a bridge between providers of health, social and community services and communities that may have difficulty in accessing these services. Related terms include lay health worker and peer health worker.

Decentralization: The delivery of services at peripheral health facilities, community-based venues and locations beyond hospital settings or conventional health care sites, bringing care closer to people's homes.

Digital health: The development and use of digital technologies to improve health. This broad term includes areas such as e-health (electronic health), m-health (mobile health), telemedicine, health information technology, wearable devices and artificial intelligence.

Health care specialists: Health workers who have obtained advanced degrees or formal qualifications following completion of further study beyond their initial health qualification.

Health practitioners: Health workers who have acquired health-related qualifications, including both health professionals and health associate professionals.

Health workers: All people primarily engaged in activities intended to improve health.

Integration: The management and delivery of health services in a way that ensures people receive a continuum of health promotion, disease prevention, diagnosis and treatment, according to their needs throughout the life course.

Self-care: The ability of individuals, families and communities to promote health, prevent disease, maintain health and cope with illness and disability, with or without the support of a health worker.

Task sharing: The rational redistribution of responsibilities among health workforce teams. Specific tasks or roles are shared, where appropriate, with less specialized health workers to make more efficient use of available personnel. Task sharing should be accompanied by appropriate education, supervision, management support, licensing, regulation and remuneration.

Executive summary

The global burden of sexually transmitted infections (STIs) is high, with over 30 pathogens, including bacteria, viruses and parasites, known to be transmitted through sexual contact. WHO estimates that in 2020, there were 374 million new cases of curable STIs among people 15–49 years old. This included 156 million new cases of trichomoniasis, 128.5 million new cases of chlamydia, 82.4 million new cases of gonorrhoea and 7.1 million new cases of syphilis, amounting to approximately 1 million new curable STI cases every day. In 2022, the number of new syphilis cases had increased to 8.0 million.[1]

WHO set ambitious targets in the global health sector strategy for HIV, viral hepatitis and STIs. By 2030, the strategy aims to reduce gonorrhoea and syphilis infections by 90% and eliminate congenital syphilis as a public health problem. To achieve these goals, the strategy emphasizes the need to improve access to STI prevention, screening, diagnostic and treatment services.

These guidelines promote the delivery of people-centred health services for STIs by providing evidence-based recommendations related to decentralization, integration, task sharing and digital health. These recommendations complement existing WHO guidelines for STI testing, treatment and management, and other service delivery interventions, such as self-care interventions. All the recommendations will be incorporated into the forthcoming WHO consolidated guidelines on STI prevention and care.

These guidelines aim to support countries and national programmes in developing national STI guidelines aligned with the 2030 global health sector strategy targets. They are intended for policy-makers, programme managers, health workers and other public health professionals involved in planning or implementing STI services, whether standalone or integrated with other health services. The guidelines also serve as a resource for donor and development agencies, international and nongovernmental organizations, civil society and community-based groups, especially those working with, or led by, key populations and the communities most affected by STIs, including HIV.

The development of these guidelines followed the methods outlined in the 2014 *WHO handbook for guideline development*. Overviews of reviews and WHO guidelines were conducted to address the guideline objectives. The Guideline Development Group reviewed the evidence and made recommendations, using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach to assess the evidence and formulate the recommendations. The External Review Group reviewed the guidelines before submission to the WHO Guidelines Review Committee.

Summary of recommendations

These guidelines provide evidence-informed recommendations for the delivery of STI services (Table 1). They support the implementation of other WHO recommendations on STI prevention and care, including the management of people presenting with STI symptoms, the screening of certain asymptomatic populations, and the treatment of individuals with confirmed STIs along with their sexual partners.

These recommendations are based on the following overarching guiding principle:

Health systems should be structured and strengthened to deliver quality-assured, accessible, equitable and people-centred services for the prevention, screening, diagnosis and management of sexually transmitted infections.

Decision-makers should consider local and regional health system capacity, resources and population needs when selecting interventions to deliver these services.

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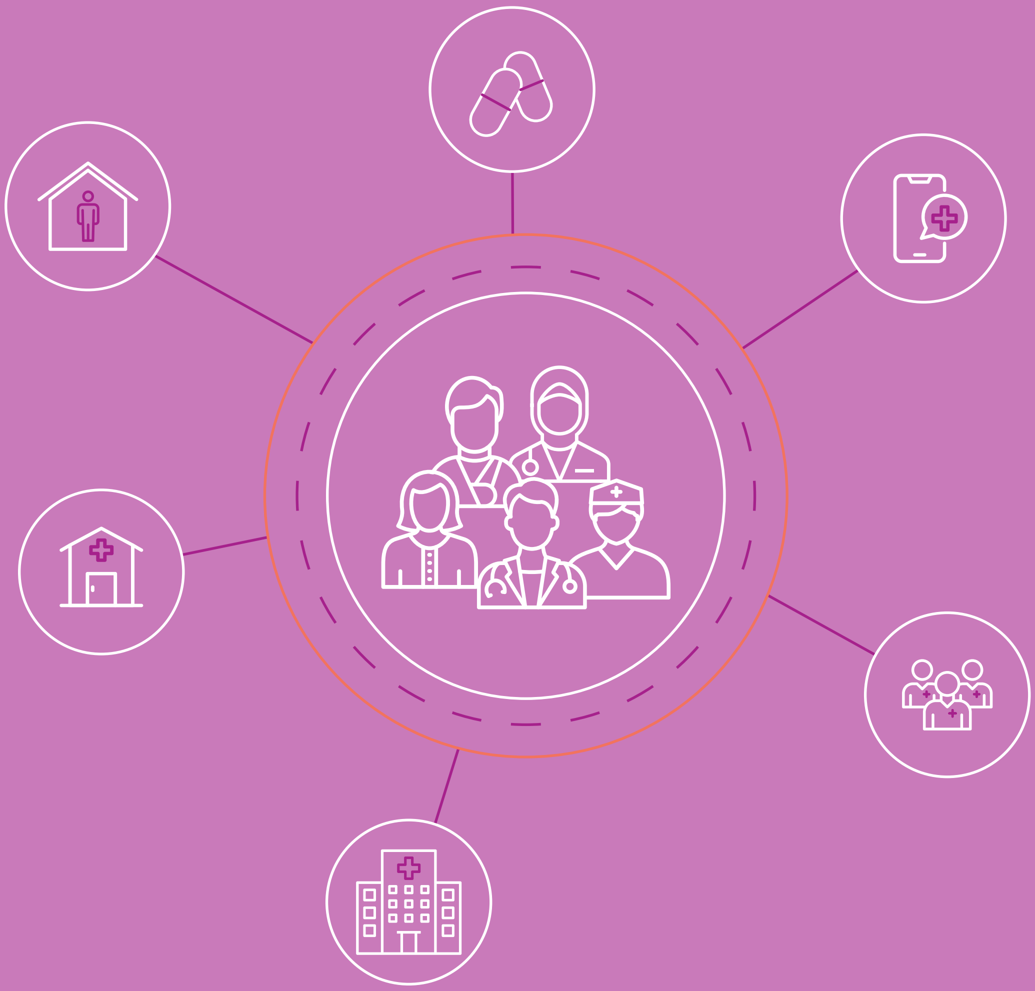
[1] The most up-to-date STI estimates are always available on the WHO Global Sexually Transmitted Infections Programme's website: https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/stis/strategic-information.

Table 1. Summary of the new recommendations on STI service delivery (see details in Chapter 3)

Recommendations	Strength of recommendation and certainty of evidence
Decentralization	
WHO suggests the decentralization of services to improve access to prevention, screening, diagnosis and management of sexually transmitted infections. *Remarks:* Decentralization means that quality-assured sexually transmitted infection services are provided beyond centralized health care facilities to meet the needs of people (for example, in primary care, peripheral or community-based health facilities, through outreach services or self-care interventions) and may involve referral to other sexually transmitted infection services. The addition of services should complement rather than replace centralized services.	**Conditional recommendation,** low certainty in evidence of effects *(new 2024)*
Integration	
WHO suggests the integration of services for prevention, screening, diagnosis and management of sexually transmitted infections into other health services, where relevant and feasible. *Remarks:* Integration of sexually transmitted infection services should be prioritized in primary health care, HIV services, maternal health care, adolescent health, contraceptive/family planning services and other sexual and reproductive health services.	**Conditional recommendation,** low certainty in evidence of effects *(new 2024)*
Task sharing	
WHO suggests that trained health practitioners can provide sexually transmitted infection services, and that community health workers can assist with service provision. *Remarks:* Quality assurance mechanisms, regular standardized training, supportive supervision and mentoring systems should be in place to ensure the provision of quality-assured services.	**Conditional recommendation,** low certainty in evidence of effects *(new 2024)*
Digital health	
WHO suggests using digital health interventions to complement in-person health care services for sexually transmitted infections. *Remarks:* Ensuring data security and confidentiality is essential when providing digital health interventions.	**Conditional recommendation,** low certainty in evidence of effects *(new 2024)*

1. Introduction



1. Introduction

1.1 Epidemiology and global targets

Sexually transmitted infections (STIs) are a major public health problem worldwide, reducing quality of life and causing serious morbidity and mortality. STIs directly impact reproductive and child health by causing infertility, cancers and pregnancy complications, including fetal and newborn infections, and facilitate sexual transmission of HIV.

In addition, STIs affect national economies and individual finances, as they primarily affect people of working age, who may be unable to work due to infection.

The global burden of STIs remains high. In 2020, WHO estimated that there were approximately 374 million new infections of four curable STIs among people aged 15–49 years, including *Chlamydia trachomatis* (129 million), *Neisseria gonorrhoeae* (82 million), *Treponema pallidum* or syphilis (7.1 million) and *Trichomonas vaginalis* (156 million) *(1)*. In 2022, WHO estimated 8 million new cases of syphilis and 700 000 new cases of congenital syphilis *(2, 3)*. Viral STIs such as genital herpes simplex virus (HSV) and human papillomavirus (HPV) infection also remain widespread. A concerning trend is the emerging antimicrobial resistance of *N. gonorrhoeae*, which is challenging the control of gonorrhoea.

Population groups that are at higher risk of acquiring STIs include sex workers and their clients, gay and bisexual men and other men who have sex with men, trans and gender diverse people, people who inject drugs, people in prisons, adolescents and young people, mobile populations and people affected by conflict and civil unrest *(1)*.

WHO set ambitious targets in the 2022 publication *Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030*, including a 90% reduction in both gonorrhoea and syphilis infections, and the elimination of congenital syphilis as a public health problem (defined as fewer than 50 cases per 100 000 live births) by 2030 *(4)*. To achieve these targets, the strategy on STIs (Chapter 6 of the publication) highlights the importance of making it easier for people with STIs or at risk of STIs to access prevention, diagnostic, treatment and care services.

These targets will not be reached unless services become more accessible to the populations most in need. Service delivery approaches should endeavour to make quality-assured, non-stigmatizing, STI services accessible and acceptable; and to empower individuals to become active participants in promoting their own health.

Global targets will not be reached unless services become more accessible to the populations most in need

1.2 Rationale for new recommendations

To reduce STIs and prevent complications, delivering quality-assured STI services, including prevention, screening, diagnosis and treatment, is essential. Timely and effective treatment of STIs, ideally provided on the same day as the patient's first contact with health care providers, is a crucial public health intervention that helps break the chain of infection transmission. Ensuring high-quality care, defined as being safe, effective, timely, equitable, and people-centred, is key to addressing the global burden of STIs.

However, significant barriers hinder the delivery of such care. Many health care systems rely on specialized, often stand-alone services that limit access due to people's distance from clinics, restricted operating hours, and long wait times. These obstacles are particularly acute in areas with high STI prevalence and limited health care resources. As a result, many people cannot receive comprehensive, people-centred services, leading to inefficiencies, duplication of efforts, loss to follow-up and missed opportunities to reduce STI transmission and complications.

To address these challenges, health care systems should adopt a more people-centred approach to STI care, ensuring that services are respectful of and responsive to the preferences, needs and values of individuals and communities. These guidelines aim to provide evidence-based service delivery recommendations to enhance access to care, improve service quality and provide equitable, people-centred STI services. These recommendations complement existing service delivery recommendations, including self-care interventions, and support the implementation of other recommendations related to STI prevention and care.

1.3 Objectives

The objectives of these guidelines are:

- to provide evidence-informed recommendations for the delivery of STI services; and
- to support countries and national programmes in developing national STI guidelines in line with the 2030 global sector strategy targets.

1.4 Target audience

These guidelines are intended for STI prevention and control programme managers at the national level, as well as health workers in primary, secondary and tertiary health care facilities involved in the treatment and management of people with STIs. The recommendations and guidance are also important for other health workers, including community and lay health workers, responsible for offering and providing STI services.

These guidelines are relevant to implementers of STI services, including those in HIV, sexual and reproductive health (SRH) services and maternal and child health services. They are also applicable to non-governmental and community-based organizations, including those working with or led by key populations affected by HIV, as well as service providers and users of HIV prevention services, including pre-exposure prophylaxis (PrEP) for HIV. The guidelines support the planning, implementation, monitoring, and evaluation of these services, and can also serve as an advocacy tool to secure the financial and human resources needed to deliver acceptable, adequate, affordable and equitable STI care for all who need it.

The recommendations are particularly important for people with, or at increased risk of acquiring, STIs including HIV. This includes people from key populations, those who use HIV PrEP, and other vulnerable groups such as pregnant women, adolescents, indigenous populations and migrants.

1.5 Guiding principles

The following principles have informed the development of these guidelines and should guide the implementation of the recommendations:

- These guidelines will contribute to the achievement of key global goals, including the Sustainable Development Goals, and relevant national-level goals and targets.
- The guidelines are based on a public health approach to scaling up the provision of recommended services and care for people with STIs, with the aim of reaching everyone, including vulnerable populations and key populations, with recommended interventions (in accordance with WHO guidelines).
- The adaptation and implementation of the guidelines should be accompanied by efforts to promote and protect the human rights of people receiving STI services, including preventing stigma and discrimination, promoting gender equity, and ensuring that the use of services is always voluntary and never mandatory or coerced.
- The implementation of the recommendations in these guidelines should be informed by the local context, including the epidemiology of STIs, the availability of resources and commodities for diagnosis and treatment of STIs, the capacity of the health system and the anticipated cost-effectiveness of the various interventions.
- The adaptability built into these guidelines is intended to promote accessibility, acceptability, equity and effectiveness of STI services through public and private health care systems, including at community health centres and other primary care facilities providing services for STIs, such as clinics for maternal and child health, antenatal care, family planning and other SRH services. As such, these guidelines should form part of a broader package of service delivery approaches, including linkage to prevention, testing, treatment and care services.
- The guidelines provide direction for acceptable and effective STI services for populations that are especially vulnerable to or at higher risk of STIs, including those living with HIV infection, and aim to improve health outcomes at the population level.
- The guidelines follow the guiding principles of the WHO Essential Medicines List: preventing the emergence and spread of antibiotic resistance, parsimony, feasibility and alignment with the WHO List of Critically Important Antimicrobials for Human Medicine, including the WHO AWaRe (access, watch, reserve) antibiotic categorization *(5, 6)*.

1.6 Structure of the guidelines

These guidelines provide evidence-informed service delivery recommendations and are intended to become subsections of the forthcoming consolidated guidelines for the prevention, diagnosis, treatment and care of STIs. They also offer direction for countries developing national recommendations; however, national guidelines should take into account local prevalence, as well as health service capacity and resources.

The new recommendations for STI service delivery are presented in Chapter 3. Other existing recommendations related to STI service delivery are presented in Chapter 4, and implementation considerations for the delivery of STI services in Chapter 5. Web Annexes A–D present the evidence-to-decision framework for each of the four recommendations. Web Annex E summarizes the evidence and methods used to inform these recommendations.

2. Methods

2. Methods

2.1 Overview

These guidelines were developed in accordance with procedures in the *WHO handbook for guideline development (7)*.

The Guideline Development Group, convened in 2020 and 2023, identified key questions about the delivery of services for STIs. An overview of systematic reviews and WHO recommendations for service delivery for STIs and other conditions was conducted. Evidence summaries were developed, and the evidence was assessed according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

The Guideline Development Group developed the recommendations by considering the certainty of evidence for the effects, the balance of desirable and undesirable effects, values and preferences, acceptability, feasibility and resource needs across a variety of settings. Information on each of these aspects was included in evidence-to-decision tables, which were shared in advance electronically via the GRADEpro application with the Guideline Development Group for their feedback and used in meetings to support the judgements of the Guideline Development Group to make recommendations. Consistent with previous WHO guidelines, these recommendations are based on a public health approach.

The following sections provide further details on each aspect of the guideline development process.

2.2 Roles of groups involved in developing the guidelines

Five main groups were formed to guide and implement the guideline development process, coordinated by the WHO Secretariat. Each group played a specific role, as described below. Annex 1 lists the members of these groups and other contributors and their affiliations.

1. **WHO Steering Committee.** This group, which is responsible for the overall coordination of the guideline development process, was led by the Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes. Participants included staff from this department, as well as from the Department of Sexual and Reproductive Health and Research, the Department of Surveillance, Prevention and Control and the Department of Access to Medicines and Health Products. The Steering Committee also included WHO technical staff members from all WHO regions.

2. **Guideline Development Group.** This group comprised non-United Nations/non-WHO experts, health professionals and representatives of groups most affected by the recommendations in the guidelines. The 40 members formulated the WHO recommendations, including any implementation considerations. They also reviewed and approved the final content of these guidelines. The composition of the represented all six WHO regions and was balanced across gender and backgrounds, including academia and research, programme implementation and policy and community organizations and networks. The group members were selected in coordination with the WHO Steering Committee and WHO country and regional offices. The Steering Committee reviewed curricula vitae, declarations of interests and confidentiality agreements. The proposed membership list was posted for public review and comment, and then finalized.

3. **External Review Group.** This group was responsible for peer reviewing these guidelines, including the recommendations. The members were selected in consultation with the WHO Steering Committee to ensure geographical and gender balance. It comprised 14 peer reviewers from academia, policy and research institutions, programme implementation and community organizations and representatives of networks of key populations.

4. **External evidence reviewers led by a methodologist.** This team conducted the overview of the systematic reviews of the effects of interventions based on the selected key questions and of the WHO recommendations (and evidence in those recommendations). In addition, evidence on values and preferences, feasibility and cost-effectiveness was compiled and summarized for each question.
5. **External observers.** Representatives of the European Centre for Disease Prevention and Control (ECDC) and the Global Antibiotic Research and Development Partnership (GARDP) attended the Guideline Development Group meeting as observers. Both organizations have a long-standing history of collaboration with WHO's Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes.

2.3 Managing conflicts of interest

Managing conflicts of interest was a priority. WHO's procedures for the declaration of interests by experts were followed. Declarations of interest were obtained from all members of the Guideline Development Group, the External Review Group and other non-WHO participants involved in meetings and other guideline development processes, prior to assuming their roles. At the beginning of the Guideline Development Group meetings, including subgroup meetings, members disclosed any previously declared interests as well as any new ones.

Ten members of the Guideline Development Group declared interests. All declarations were reviewed by WHO, and no conflicts of interest were identified that would preclude any member from participating fully in the guideline development process. A full compilation and summary of declarations of interest in provided in Annex 2.

2.4 Scope and questions

In December 2013, the first Guideline Development Group meeting was held to agree on the scope of the STI guidelines and to identify the different phases for developing the various components of the guidelines. In December 2020, the Guideline Development Group met to define the framework for questions related to the delivery of STI services, using a general PICO question[2] to guide the formulation of recommendations: "Should we recommend [strategy] to improve coverage, access and uptake of screening, diagnosis and management strategies for STIs?". The populations and interventions were initially broad and were further refined with the results of a literature review and discussed with a smaller working group of the Guideline Development Group in December 2023. Finally, the Guideline Development Group agreed to address the four interventions outlined in Table 2.1.

Table 2.1 Population, intervention, comparator and outcome (PICO) components prioritized for these guidelines

Population	Intervention and comparator	Comparison	Outcomes
Health facilities, health programme managers, health workers providing STI services to: • adults and adolescents with STIs • adults and adolescents seeking primary health care, HIV and SRH services.	Decentralized STI services Integration of STI services Task sharing/shifting Digital health interventions	Current practice	STI prevalence/incidence STI transmission/ acquisition Uptake/provision of screening/testing Uptake/provision of treatment/management Satisfaction with care Return for follow-up/ treatment Long-term consequences of untreated infections Antimicrobial resistance

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[2] PICO (population, intervention, comparator, outcome) – a framework used to formulate structured questions in guideline development.

2.5 Evidence to inform the guidelines

Discussions with the smaller working group of the Guideline Development Group determined that there are large systematic reviews of service delivery interventions in other WHO guidelines for other conditions (for example, hepatitis B and C and HIV). The Guideline Development Group agreed that these reviews could be used to inform the recommendation questions as direct or indirect evidence for benefits and harms, as well as for values and preferences, acceptability, equity, resources and feasibility. The Guideline Development Group agreed that in some cases, the evidence from those reviews could be rated down for serious concern or very serious concern with indirectness because the reviews were not in populations with STIs (but were in populations with infections where sexual transmission occurs and/or in similar key populations). It was also agreed that it may be possible not to rate that evidence down for indirectness. In discussions, it was pointed out that there are numerous systematic reviews for service delivery interventions in STI services. Although these reviews would not be as extensive as those for other conditions, they could still be used to inform decisions about the applicability of the effects from other reviews. For example, if the STI reviews found similar results to those for other conditions, the latter could be considered direct evidence (and not rated down for indirectness). In addition, the smaller working group discussed whether conducting systematic reviews of primary studies would be valuable. However, the group agreed that these reviews would likely not add to or provide a higher level of certainty of the evidence from the larger reviews of other conditions. The WHO Steering Group reviewed this approach to using evidence from other conditions and agreed.

Therefore, we conducted a search of the Epistemonikos database and Cochrane Library for reviews published from 2015 to August 2024 in English. We also searched for published WHO guidelines that addressed service delivery interventions for other conditions (see Web Annex E). The results from the relevant published systematic reviews and reviews from the WHO guidelines were summarized and presented in evidence-to-decision frameworks. Evidence was also summarized for the effects of the interventions (based on the prioritized outcomes) and acceptability, feasibility, resources and equity indicators.

As service delivery interventions can be context-specific, we abstracted data from the reviews of STI interventions about context and implementation. However, there was little contextual information in the reviews or in the primary studies included in those reviews. Therefore, the smaller working group determined that additional critical information was needed about the applicability of the reviews to STI service delivery and about the context when implementing service delivery interventions. The group agreed that this information should be obtained from the Guideline Development Group. We therefore circulated the draft evidence-to-decision tables to the Guideline Development Group via the GRADEpro application to obtain feedback in August 2024. We asked for the Guideline Development Group's agreement or disagreement about preliminary judgements regarding the size of effects of the service delivery intervention, the probability of other criteria (such as feasibility), and for contextual considerations and how interventions are applied specifically in STIs.

2.6 Assessment and presentation of the evidence

The certainty of the evidence for each outcome was assessed using the GRADE approach and based on the domains for risk of bias, inconsistency, indirectness, imprecision, publication bias, effect size, dose response and opposing confounding *(7, 8)*. When using evidence from published systematic reviews or reviews in WHO guidelines, the GRADE assessment from the source systematic reviews was abstracted. In some reviews, the GRADE assessment was provided for each outcome with details. However, in some source guidelines, the results of the GRADE assessment were provided narratively. When reviews were from WHO guidelines and conducted following WHO methodology, we did not reassess the GRADE assessment (with the exception of the domain of indirectness).

Certainty of the evidence for effects was assigned to one of the four grades of evidence defined by the GRADE Working Group:

- High certainty: We are very confident that the true effect lies close to that of the estimate of the effect.
- Moderate certainty: We are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

- Low certainty: Our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
- Very low certainty: We have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

Confidence in the evidence for outcomes based on qualitative research was assessed using the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative Research) approach, with four levels: high, moderate, low and very low confidence *(7)*.

When a summary-of-findings table (also called an evidence profile) was available, it was used, and if not, a table was created. In most systematic reviews of the literature a meta-analysis could not be performed, but a synthesis of the evidence without meta-analysis was conducted. We provide the results quantitatively in the summary-of-findings table when meta-analysis was possible, but narratively when meta-analysis was not possible. Evidence-to-decision frameworks (that is, tables to facilitate decision-making for the updated recommendations) were drafted in advance of the Guideline Development Group meeting using the GRADEpro software *(9)* (see Web Annexes A–D for the evidence-to-decision framework for each recommendation).

2.7 Making recommendations

In September 2024, the Guideline Development Group met to make recommendations. It had reviewed the feedback obtained via GRADEpro in August 2024 and the updated evidence-to-decision tables to make judgements about the effects of the interventions and the strength of the recommendation for or against the intervention. The Guideline Development Group agreed by consensus and there were no disagreements requiring voting.

According to the GRADE approach, the strength of the recommendations reflects the degree of confidence of the Guideline Development Group that the desirable consequences of the recommendations (for example, beneficial health outcomes) outweigh the undesirable consequences (for example, adverse effects) and takes into account other criteria, such as resources, acceptability, equity and feasibility. The recommendations are graded into two categories:

1. A strong recommendation means the Guideline Development Group is confident that the desirable consequences of the recommendation outweigh the undesirable consequences.
2. A conditional recommendation means the Guideline Development Group concluded that the desirable consequences of the recommendation probably outweigh the undesirable consequences but is not confident about these trade-offs *(7)*.

According to the implications of differing strengths of GRADE recommendations for patients, clinicians and policy-makers, a strong recommendation can be adopted as policy in most situations, while a conditional recommendation will require debate and the involvement of various stakeholders *(7)*.

Remarks were added to explain the recommendation and/or describe any relevant conditions. Implementation considerations were added to provide further information for the possible application of the recommendation.

WHO then drafted the full guidelines and circulated them electronically to the WHO Steering Committee, the Guideline Development Group and the External Review Group for comments and feedback. All input was considered and the guidelines were revised. External peer review was completed in November 2024, followed by editing prior to publication, but neither of these processes affected the formulated recommendations.

3. Recommendations for STI service delivery

3. Recommendations for STI service delivery

This section provides recommendations for delivering people-centred STI services, including the decentralization of services, the integration of STI care into other health services, task sharing the provision of certain STI services, and using digital health interventions to support the delivery of STI services.

3.1 Important considerations

These guidelines provide evidence-informed recommendations for the delivery of STI services (Table 1). They support the implementation of other WHO recommendations on STI prevention and care, including:

- managing people with symptoms of STIs
- screening certain populations without symptoms
- treating people with confirmed STIs and their sexual partners.

In addition, timely and effective treatment of STIs, ideally provided on the same day as the first contact with health care providers, is a crucial public health intervention that helps break the chain of infection transmission.

A people-centred approach is essential – one that is respectful of and responsive to the preferences, needs and values of individuals and communities. This approach to STI services not only addresses the immediate health needs of individuals but also contributes to broader public health goals by reducing the spread of infections. People-centred health services place individuals and communities, not diseases, at the centre of health systems.

Timely and effective STI treatment is essential to interrupt transmission and protect public health

These recommendations are based on the following overarching guiding principle:

Health systems should be structured and strengthened to deliver quality-assured, accessible, equitable and people-centred services for the prevention, screening, diagnosis and management of sexually transmitted infections.

Decision-makers should consider local and regional health system capacity, resources and population needs when selecting interventions to deliver these services.

3.1 Decentralization

In many settings, STI services are delivered through specialized clinics in urban centres or major hospitals, often coordinated by a central unit within the Ministry of Health. This centralized, vertical model of care has been favoured for its perceived efficiency and ability to link expenditures to measurable outcomes.

Decentralized STI services bring care closer to the community

Decentralizing STI services involves bringing care closer to the community by shifting care from centralized, often specialized services to more accessible locations, such as peripheral health facilities, community-based venues and locations outside conventional hospital settings.

This approach aims to reduce barriers to access, shorten waiting times, improve patient satisfaction and reduce the burden on centralized facilities. For example, syphilis testing may be available at decentralized locations, but reactive tests typically require referral to centralized facilities for confirmation and treatment. Expanding decentralized services to include these follow-up steps could, in principle, promote timely care and help reduce transmission..

Decentralization may require addressing policies that restrict decentralized service provision, as well as simplifying clinical protocols, task sharing with less specialized health workers, and engaging multidisciplinary teams to provide care in community-based or home-based settings. Decentralization can also involve collaborating with the private sector and the community to improve service delivery. Other recommendations related to decentralization have been developed by WHO, including services for HIV, hepatitis B and C, and tuberculosis *(10-12)*.

Recommendation (new 2024)

WHO suggests the decentralization of services to improve access to prevention, screening, diagnosis and management of sexually transmitted infections.

Conditional recommendation, low certainty in evidence of effects

Remarks: Decentralization means that quality-assured sexually transmitted infection services are provided beyond centralized health care facilities to meet the needs of people (for example, in primary care, peripheral or community-based health facilities, through outreach services or self-care interventions) and may involve referral to other sexually transmitted infection services. The addition of services should complement rather than replace centralized services.

Implementation tips

- Enable local health care facilities to:
  - promote prevention and health care-seeking behaviour;
  - assess and manage people with symptoms such as vaginal, urethral or anorectal discharge, lower abdominal pain or anogenital ulcers;
  - screen certain populations who do not have symptoms, including men who have sex with men, sex workers, pregnant women and sexually active adolescents; and
  - treat STIs confirmed by a molecular assay or rapid point-of-care test on the same day, and/or based on syndromic management.
- Set up services to provide care that is confidential, private, non-judgemental and non-stigmatizing.
- Provide people with a choice of locations to access services.
- Add other health care facilities to complement specialized services and ensure linkage by establishing formal referral systems.

- Maintain specialized STI services for managing more complex cases and for training and research purposes.
- Prioritize the addition of health care facilities and/or outreach services in areas with the highest STI prevalence, and to reach key and priority populations.
- Use existing facilities to reduce the cost and resource demands.
- Train health workers who provide care in newly established services.
- Use service delivery opportunities in other facilities to increase awareness of STIs and sexual health.

Summary of the evidence

Several reviews of decentralization in STI care have been conducted; however, few identified studies that assessed the effects of these interventions on health outcomes, and one review included only studies from high-income countries (HICs) *(13-17)*. One review included 64 studies that assessed screening in correctional facilities, community settings and patients' homes in the United States of America. Gonorrhoea, chlamydia and syphilis were screened. The review reported "significant numbers of undiagnosed infections" were found in correctional facilities, but few infections were identified in sex venues and bathhouses. Some community-based settings (college campuses, people on probation) reported a "significant burden of infections", while others did not (such as homeless shelters, mobile vans and bars). Internet-based screening and home specimen collection found a high incidence of chlamydia but not of gonorrhoea *(13)*. Another review also reported mixed results regarding the provision and uptake of STI testing (for example, test kits) among young people *(16)*. Effects on other outcomes such as STI prevalence or incidence were not measured or reported.

Low- and moderate-certainty evidence from a systematic review and meta-analysis of 142 studies from 34 countries, including 20 studies (14%) from low- and middle-income countries (LMICs), examined the effects of full and partial decentralization (as well as other interventions) in hepatitis C virus (HCV) care *(18)*. This review found that in key populations, HCV testing and treatment uptake, as well as linkage to care, were greater with full and partial decentralization. However, in general populations, the effects were less clear. The review noted that treatment for HCV had changed over time to a more simplified regimen that did not require specialist-led care. A systematic review of 16 studies (15 in LMICs) on the decentralization of antiretroviral therapy found low- and moderate-certainty evidence for similar effects on viral suppression compared with no decentralization, and increased uptake of testing and treatment in peripheral health facilities (primary care/community sites). Greater retention in care was also reported *(19)*. A review of eight studies on HIV and STI testing in pharmacies found small or no differences in uptake among underserved or hard-to-reach populations *(15)*.

Harms were not reported in the reviews, but the Guideline Development Group noted that with decentralization there is a risk of poor quality in peripheral services, which could lead to overprescribing and increased antimicrobial resistance. There was also concern that decentralization could lead to the loss of specialized services. To avoid this risk, it would be important to ensure that decentralized services are provided alongside specialized services. Overall, the Guideline Development Group agreed that the evidence from HCV and HIV care may be applicable to STI care. For example, the success of decentralizing HCV services, enabled by simplified testing and treatment algorithms, may parallel the use of the syndromic approach in STI management, which similarly does not require advanced laboratory diagnostics. This simplification could support the successful decentralization of STI services. The Guideline Development Group also agreed that local and outreach services have the potential to increase uptake of STI care (in particular for screening) and in settings with high prevalence, but the certainty of evidence is low.

Two systematic reviews addressed acceptability and values among people with STIs *(16, 20)*. One review found that young people appreciated the convenience and accessibility of receiving care through pharmacies, though there were mixed feelings about privacy *(16)*. The other review of implementation considerations for pharmacy-based STI services found that patients had positive experiences due to the accessibility and convenience of services, though privacy, stigma and fear of judgement remained barriers *(20)*. Potential barriers at a systems level were identified in another review of decentralization in HIV care, which included training and education of staff and providers, supporting structures and referral systems *(19)*. The Guideline Development Group agreed that people with STIs value confidentiality, privacy and the convenience of decentralized services, but barriers to implementation exist.

Costs and resources were addressed in a systematic review of STI services outside clinics in the USA *(13)*. It found that in correctional facilities, screening costs vary significantly by state, ranging from US$ 200 to US$ 3000 per case: in community-based settings, costs exceeded US$ 2400 per case. For internet-based home screening, high costs were associated with web development, marketing and logistics for at-home sample collection. The costs of training health workers or shifts in resources from different policy levels were not assessed. The Guideline Development Group agreed that costs could be reduced when prevalence in a setting is higher, and costs do not take into account the potential increase in awareness of and sensitization to STIs provided by peripheral facilities. Overall, the Guideline Development Group agreed that there is still uncertainty about whether decentralization may save costs.

In summary, the Guideline Development Group agreed that there is low certainty in the evidence from studies involving people with HCV, HIV or STIs that decentralization improves the uptake of screening and treatment services. Decentralized services may be more accessible for hard-to-reach populations; however, there is potential for harms, such as a reduction in specialized clinics and an increased risk of antimicrobial resistance if high-quality care is not ensured. There may also be barriers to the feasibility and acceptability of decentralization. For example, individuals may not find community health centres private or confidential, and some may experience stigma related to STIs. These barriers are likely to be surmountable in many settings, and most individuals are likely to prefer services delivered in facilities located conveniently near their homes. Whether decentralization leads to cost savings remains uncertain.

Web Annex A presents the evidence-to-decision framework for decentralization.

Research needs

A key research gap for decentralized STI care is the lack of data on health outcomes, as few studies assess whether decentralization reduces STI incidence or prevalence, despite its role in increasing access to screening. Additionally, because decentralization shows mixed effects across settings, research is needed to identify the settings and conditions where decentralization is most effective, the key components of successful strategies to decentralize services, and the populations for whom services may have different effects.

Most studies focus on HICs; there are limited data from LMICs, where more research is required to assess the feasibility and effectiveness of decentralized care. Concerns about inconsistent or low-quality care in decentralized health care services, such as limited counselling, lack of contact tracing and inappropriate management, also need to be addressed. Research should explore maintaining care quality in decentralized settings, including through adequate provider training.

Barriers such as privacy concerns and stigma in decentralized settings must be addressed to improve patient acceptability, particularly among marginalized populations. The cost-effectiveness of decentralization remains uncertain, with wide variations in costs reported across settings, necessitating further research on the long-term financial impacts. System-level barriers, such as staff training and referral systems, also need investigation to ensure decentralized care models are scalable and sustainable, especially in resource-limited settings. Issues of case reporting for national surveillance and partner services in decentralized care settings should also be addressed.

3.3 Integration

Integrated service delivery involves combining and co-locating health services and resources across various health areas to provide comprehensive, people-centred care. Integration of STI services involves coordinating services across health areas, such as primary health care, maternal health care, SRH services (including contraception/family planning) and HIV services.

Integrated health services deliver a continuum of care to meet multiple health needs in a single contact

Integrated health services aim to manage and deliver a continuum of care that spans health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care. By addressing multiple health needs in a single visit, integration could improve both the efficiency of health systems and the patient experience.

Integration can be both horizontal, linking services at the same level of care, and vertical, connecting services across different levels, such as between hospitals and community-based care. The scope of integration is context-specific, depending on the health system and population needs, and should focus on populations and health service delivery platforms that offer opportunities for synergy and efficiency. Integration of services involves balancing efficiency with the effective use of health system resources, but it may also risk compromising progress made by disease-specific responses, particularly for key and affected populations. Careful planning is therefore essential to ensure that integration enhances, rather than undermines, existing health achievements and sustains gains in specific areas of care.

WHO has developed other recommendations and action statements related to integration of services. The Global Health Sector Strategy for 2022 to 2030 describes *Action 92* to link STI services with other health services *(4)*. In addition, a conditional recommendation was first published in 2016 stating that STI and family planning services can be integrated within HIV care settings *(21)*.

Recommendation (new 2024)

WHO suggests the integration of services for prevention, screening, diagnosis and management of sexually transmitted infections into other health services, where relevant and feasible.

Conditional recommendation, low certainty in evidence of effects

Remarks: Integration of sexually transmitted infection services should be prioritized in primary health care, HIV services, maternal health care, contraceptive/family planning services and other sexual and reproductive health services.

Implementation tips

- Integrate STI services within the same health care setting or during the same consultation.
- Integrate STI services into other relevant services (for example, HIV care, HIV PrEP, contraceptive/family planning services, antenatal care, and screening of pregnant women for chlamydia, gonorrhoea and syphilis).
- Integrate STI services (such as asymptomatic screening) within HIV services and services for key and priority populations, including men who have sex with men, sex workers, pregnant women and sexually active adolescents.
- Prioritize integration in venues, communities and populations where STI prevalence is highest.
- Integrate testing and/or evaluation of people with symptoms of STIs (such as vaginal or urethral discharge, lower abdominal pain or anogenital ulcers) into primary health care services.
- Offer same-day treatment of STIs confirmed by a molecular assay, rapid point-of-care test or based on syndromic management.

- Integrate services to provide quality-assured care that is confidential, private, non-judgemental and non-stigmatizing.
- Ensure that policies, resources and operational mechanisms (including data, supply chains and logistics support) are in place to support service integration.
- Train health workers who provide newly integrated services.
- Establish formal referral systems to ensure linkage with specialized STI services.

Summary of the evidence

Four systematic reviews were available that assessed the effects of integration of STI services in other services *(22-25)*. One review found three studies integrating STI services into HIV care for women living with HIV and reported that two studies increased screening by 10–20% in the United Kingdom, but a study in Eswatini did not show more screening or greater provision of advice *(23)*. A systematic review, updated in 2009, found 44 studies, most from sub-Saharan Africa, assessing the integration of STI and HIV services into family planning services *(22, 24)*. It found that integration may not improve continuity of care (for example, referrals or same-day treatment), but may increase the uptake of family planning services (more recent studies found it may increase STI care), and client satisfaction was greater. There were mixed results for reaching "non-traditional clients" (such as males and young people), but client satisfaction was greater. Another review of interventions that integrated STI care into other clinics and primary care included 11 studies *(25)*. Most studies found that STI screening increased by more than 20%. In addition, various reviews have found that the provision of screening tests for STIs in antenatal care may increase the provision of treatment and reduce adverse pregnancy and infant outcomes, although the reviews did not always verify that testing was provided in family planning services *(26, 27)*. Other outcomes, such as STI prevalence or incidence and harms, were not measured or reported.

A systematic review of 142 studies from 34 countries (mostly HICs) assessed the effects of integrating HCV care into other existing care services at peripheral health facilities *(18)*. It found greater HCV testing and treatment with integration in services such as primary care, harm reduction (needle and syringe programme/opioid agonist maintenance therapy sites), prisons and HIV services. These results were found in key populations, but results were unclear in the general population.

Overall, the Guideline Development Group agreed that integration of STI services in other health services may improve screening, particularly in contraception/family planning services and for key populations. However, the benefits of integrating screening and testing into other health services, or treatment into services, or the effects in the general population, are unclear. It is also likely that the effects will be dependent on training, supervision and resource capacity.

One review included three studies that addressed costs *(24)*. The studies found cost savings, likely due to the high number of clients and sufficient health worker resources, which would apply to settings with high prevalence or key populations. The Guideline Development Group also noted that integration may initially require additional funding and may not reduce resources but will increase accessibility of STI services. The same review found that there may be barriers to integration due to heavy workloads, lack of incentives, long wait times, inadequate training and supervision or limited access to laboratories.

In summary, low-certainty evidence from studies involving people with STIs, including HCV or HIV, suggests that integration may improve the uptake of screening and testing (in particular among key populations and within contraception/family planning services). However, there is greater uncertainty about its effects on treatment services, potential harms and outcomes in the general population. Effects on other outcomes, such as STI incidence or prevalence, as well as the quality and continuity of care, remain unknown. There may be some barriers to offering STI services within other health care services, and initial costs and resource needs may be higher.

Web Annex B presents the evidence-to-decision framework for integration.

Research needs

Research is needed to assess whether integration can reduce STI prevalence and improve health outcomes, particularly in non-key populations. While studies have shown increased client satisfaction and service uptake, the effects of integration on continuity of care, such as referrals and same-day treatment, and on disease prevalence remain unclear. Mixed results in reaching non-traditional clients, such as men and young people, suggest that more research is necessary to understand how to improve access for these groups through integration.

The effects of integration in broader health care services, such as primary care, and its potential to reach a wider audience need further evaluation. While there is some evidence of cost savings, particularly in high-volume settings, the financial implications of integration in lower-prevalence settings are uncertain. Research should also examine the long-term costs and resource requirements, as integration may initially demand increased funding and staff capacity.

As noted, there are also potential barriers to successful integration, such as heavy workloads, inadequate training and supervision, long wait times and limited laboratory access. Research is needed to explore strategies to address these barriers and ensure that integration can be sustainably scaled across different health care settings.

3.4 Task sharing

Task sharing is an approach to expand service delivery, addressing the shortage of trained health workers by redistributing certain responsibilities from highly trained health practitioners to those with less training or fewer qualifications.

Task sharing expands access by enabling more health workers to provide essential STI services

This approach involves training less specialized health workers (including doctors, nurses, midwives, medical technologists, pharmacists and counsellors) and community health workers (including lay and peer health workers) to perform specific tasks conventionally provided by health care specialists. For STI service delivery, this could include the use of point-of-care tests or training to administer medications, such as benzathine penicillin injections for syphilis treatment.

WHO suggests the use of peer navigators to support people from key populations *(10)*, whether provided through one-on-one interactions, informal groups or digital platforms. This can also include health promotion and education, counselling, condom provision, outreach services and supporting partner notification.

WHO has developed other, related recommendations for task sharing to improve access to family planning/contraception, maternal and newborn health, and HIV and hepatitis C testing and treatment *(11, 21, 28, 29)*.

Recommendation (new 2024)

WHO suggests that trained health practitioners can provide sexually transmitted infection services, and that community health workers can assist with service provision.

Conditional recommendation, low certainty in evidence of effects

Remarks: Quality assurance mechanisms, regular standardized training, supportive supervision and mentoring systems should be in place to ensure the provision of quality-assured services.

Implementation tips

- Task sharing can support STI service provision, including screening and testing, health promotion and education, condom provision, outreach services and partner notification.
- Provide training, mentorship and ongoing supervision to less specialized health workers, including community health workers, in clinical skills, particularly taking a sexual history and delivering care that is private, confidential, non-judgemental and non-stigmatizing.
- Develop standards of care that define roles based on skills and capacities; regulations and policies may need to be updated.
- Involve providers in determining appropriate roles.
- Provide adequate remuneration for health workers, including community health workers.
- Establish a quality assurance system, which may include monitoring services and collecting feedback from patients/clients.

Summary of the evidence

Three systematic reviews, with minimal overlap of studies, provided information about the effects of pharmacy-based STI services *(15, 20, 30)*. One review included one randomized controlled trial and 11 non-comparative studies (including qualitative studies): 12 addressed chlamydia services, and two addressed gonorrhoea, trichomoniasis or syphilis. Eleven investigated screening (distribution of tests to home or blood tests/swabs/urine samples in pharmacies); and four also addressed treatment and partner treatment *(20)*. Chlamydia positivity rates ranged from 0% to 12.8%; uptake of services varied from 18% to 28% when people were asked by the pharmacist, but was 87% when people were self-referred. Another review found nine studies related to chlamydia: four for screening, and five also addressing treatment. Three of these studies were not covered in the review by d'Entremont-Harris 2024 *(20)*. These studies used treatment vouchers for free treatment at pharmacies, and about 40% to 87% of people redeemed the vouchers *(30)*. A review of eight studies in underserved or hard-to-reach populations showed little difference in uptake of services provided by pharmacists *(15)*.

A review of literature and interviews in the USA identified potential roles for lay health workers in community outreach and referral, community or school-based education, liaison between public health departments and the community, navigation and peer support for patients, outreach to people who drop out, and developing education materials *(31)*. Additionally, an online survey of community health workers in Europe found that 89% were involved in primary prevention, with about half involved in each of consultation and counselling, testing provision, linkage to care, and treatment and support *(32)*. Cross-cutting activities included strategic and administrative tasks such as developing activities, monitoring and reporting, advocacy, advertising and needs assessment. The reviews did not report on harms.

For other conditions, a systematic review and meta-analysis of 142 studies from 34 countries (20 studies were from LMICs) examined the effects of task sharing with non-specialists, alongside other simplified service delivery interventions such as decentralization and integration, on outcomes across the HCV cascade of care *(18)*. There were 46 studies of care delivered by non-specialists, 24 studies of care delivered by non-specialists supported through telehealth, and 51 studies of care delivered by health care specialists. The review found moderate-certainty evidence that cure rates were similar (a difference of 0% to 6%) among patients treated by health care specialists or other health workers (including primary health care workers, other health care specialists and nurses), even when more complex treatment regimens were used. Multiple systematic reviews in HIV care found good health outcomes when care was provided by nurses or lay and community health workers with appropriate training and supervision *(33, 34)*. Lay health workers could provide HIV counselling and testing with rapid tests, and nurses could provide testing during pregnancy and initiate antiretroviral therapy. Another review in HIV care found 17 studies and reported that roles for community health workers included: 1) education and health promotion; 2) HIV care (such as testing, screening, medication delivery and follow-up); and 3) support (such as treatment, referral, home care and psychosocial support) *(35)*.

There is evidence for costs and resources from the review for HCV care from four cost-effectiveness studies. The studies reported that task sharing with nurses or less specialized health workers reduced costs and had similar or better outcomes, concluding that task sharing is highly cost-effective. The Guideline Development Group noted that although the cost of other health workers may be lower, the health workforce required may be greater. Services provided by pharmacists were trusted and highly accepted by clients, but privacy concerns were unclear *(16, 20, 30)*. It was also found that pharmacists were comfortable and satisfied with providing STI services but had questions about remuneration, policy regulations and recruitment *(20, 30)*. In reviews of HIV and HCV care, training and expertise, resources and funding were concerns *(11, 35)*.

Overall, there was low certainty in the evidence for HCV, HIV and STI services, which indicated that task sharing may result in similar health outcomes and service uptake, particularly when pharmacists or community/lay health workers provide care. These reviews did not report harms, but there may be some barriers to the feasibility and acceptability of task sharing. Individuals may not find pharmacy services private or confidential and may feel stigma related to STIs, making training for pharmacists essential. These barriers would likely be surmountable in many settings. The effect on costs and resources remains unclear. A list of potential roles that could be shared, found in the literature for provision of STI services, includes education and health promotion; testing, screening, medication delivery and follow-up; and support (peer, treatment, referral, home care and psychosocial support).

Web Annex C presents the evidence-to-decision framework for task sharing.

Research needs

There are limited data on health outcomes when less specialized health workers, including community health workers, take on STI-related tasks such as screening, testing and treatment. While there is evidence from other conditions, such as HIV and HCV, showing that less specialized health workers can achieve similar outcomes to health care specialists, more research is needed to confirm that similar results can be achieved for STIs in general. Although task sharing has been shown to increase service uptake, there is uncertainty about its effectiveness in underserved populations and broader STI prevention efforts.

Another area requiring further research is the privacy concerns associated with task sharing, including questions about these services ensuring confidentiality and whether stigma related to STIs affects service uptake. Similarly, while less specialized health workers are comfortable providing STI services, issues around remuneration, regulatory frameworks and recruitment need further investigation.

Training and supervision are critical factors in task sharing, especially for less specialized health workers providing STI care. Evidence from HIV and HCV care emphasizes the importance of adequate training and support to maintain service quality, yet this has not been extensively studied for STI services. Additionally, while some studies suggest that task sharing can reduce costs, especially when care is shifted to less specialized health workers, the overall impact on health care resources and long-term cost-effectiveness remains unclear. Further research is also needed to explore implementing and sustaining various roles in STI care.

3.5 Digital health interventions

Digital tools enhance STI care by improving access, supporting communication and protecting privacy

Digital platforms have been developed to support a variety of health care activities and communication. Examples include contact tracing and other network-based testing approaches, as well as education and ongoing support to improve STI detection, treatment and prevention.

Digital tools can also link people with STIs and their partners to testing and treatment services by offering features that support communication, such as online consultations (telemedicine), automated test scheduling and secure result portals. These services often include symptom checkers, access to home testing kits and digital reminders to support treatment adherence, enhancing accessibility and privacy.

Other WHO guidelines have addressed the use of digital health interventions with different target audiences *(36)*. In addition, online delivery of HIV, viral hepatitis and STI services may be another option for key populations *(10)*.

Recommendation (new 2024)

WHO suggests using digital health interventions to complement in-person health care services for sexually transmitted infections.

Conditional recommendation, low certainty in evidence of effects

Remarks: Ensuring data security and confidentiality is essential when providing digital health interventions.

Implementation tips

- Digital health interventions should complement, not replace, in-person STI services.
- Ensure data security and confidentiality when implementing digital health interventions.
- Provide opt-out options and follow applicable legislation and policies.
- Use content formats that are appropriate for users to improve communication (for example, mobile apps, web platforms, SMS, audio messages or files).
- Consider equity and sociocultural factors, ensuring that digital interventions do not exclude people without access to technology.
- Ensure that infrastructure is in place to support the effective use of technology, including reliable internet connectivity and access to mobile devices.

Summary of the evidence

Two reviews were conducted on the use of digital interventions in SRH *(37, 38)*. Digital interventions included videos, audio files, text messages, voice mail, email or online websites and modules. One review found that targeted digital health communication may reduce STI rates in adolescents compared with non-targeted communication *(38)*. Another review, which included 28 studies, found little to no effect on the incidence of STIs or on sexual risk behaviour *(37)*.

Low and very low certainty evidence of the use of digital health interventions in multiple conditions found mixed results for outcomes such as awareness and knowledge, adherence to treatment, communication of test results, follow-up and retention *(36)*. The digital health interventions included text messaging, voice response, games and other applications, social media and websites. Few harms were reported, but one review found very low certainty evidence of an increase in physical violence against women related to the use of digital health interventions (which occurred in one woman in one of the studies). Another review of 45 studies found that the results services were used by nearly 70% of people who used testing services. Most viewed their results on the same day they were posted; patient satisfaction was high; time to see results was shortened; there was a preference for phone calls when internet access was limited, comprehension was high; and there was little or no anxiety *(39)*.

One review found that costs increased slightly with digital interventions versus no intervention, but these interventions may be less expensive than phone calls or letters *(38)*. Across three reviews, digital health interventions were generally found to be acceptable, supportive, convenient, empowering and reassuring, but there may be concerns about privacy and confidentiality *(36-38)*. There may also be concerns about the need for reliable internet, access to electricity, ownership of mobile devices, informed consent and stable phone numbers *(36, 38)*.

Overall, there is low certainty in the evidence for small benefits of digital health interventions; harms were not measured or reported. Individuals generally found digital health interventions acceptable, although some may have concerns about privacy and confidentiality, and some may not have access, or reliable access, to the technology. Digital health interventions are likely feasible to provide, although there will be costs associated with creating and maintaining these services.

Research needs

Further research should focus on identifying the most effective digital strategies for promoting sexual health and preventing and managing STIs in diverse populations and on establishing best practices for integrating digital health tools into STI services. Evidence is also needed on how digital health interventions impact broader sexual health outcomes, such as STI incidence and sexual risk behaviour, and their effects on STI care, including patient satisfaction, patient retention and continuity of care.

Safeguarding privacy and ensuring informed consent on digital health platforms is another key area for further research. While digital health interventions are generally accepted by users, concerns about privacy, technology access and cost need to be addressed to ensure their broader use and effectiveness.

The cost-effectiveness of digital health interventions also requires more investigation. Although digital interventions may lower costs, the initial investment in creating and maintaining these services can be high. Research should assess the long-term financial sustainability of digital health tools for STI care.

Web Annex D presents the evidence-to-decision framework for digital health interventions.

4. Other recommendations related to STI service delivery

4. Other recommendations related to STI service delivery

4.1 Self-care interventions

Self-care interventions have the potential to increase choice when they are accessible and affordable, and to provide more opportunities for individuals to make informed decisions about their health and health care. Self-care builds on existing approaches, such as task sharing, by entrusting individuals with certain aspects of their own care.

Self-care options help overcome barriers to accessing STI services from a health worker or facility

WHO's current working definition of self-care is the ability of individuals, families and communities to promote health, prevent disease, maintain health and cope with illness and disability with or without the support of a health worker *(40)*. The scope of self-care in this definition includes health promotion, disease prevention and control, self-testing and self-medication, providing care to dependent persons, seeking hospital or specialist care if necessary and rehabilitation, including palliative care.

For STIs, greater efforts are needed globally to expand STI testing services, and self-care interventions are one way to facilitate this, including self-collection, self-sampling or self-testing for diagnosis. These approaches might also address some barriers that often prevent people from seeking STI testing from a health worker or health care facility, such as concerns about autonomy, inconvenience, stigma and lack of privacy.

WHO recommends a number of self-care interventions for STIs, as summarized in Box 4.1.

Box 4.1. Existing WHO recommendations on self-care interventions for STIs

Self-collection of samples for STI testing *(41)*

- Self-collection of samples for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* should be made available as an additional approach to deliver STI testing services *(strong recommendation, moderate-certainty evidence)*.
- Self-collection of samples for *Treponema pallidum* (syphilis) and *Trichomonas vaginalis* may be considered as an additional approach to deliver STI testing services *(conditional recommendation, low-certainty evidence)*.

HPV self-sampling *(41)*

- HPV self-sampling should be made available as an additional approach to sampling in cervical cancer screening services for individuals aged 30–60 years *(strong recommendation, moderate-certainty evidence)*.

Syphilis self-testing *(42)*

- Syphilis self-testing may be offered as an additional approach to syphilis testing services *(conditional recommendation, low certainty in evidence of effects)*.

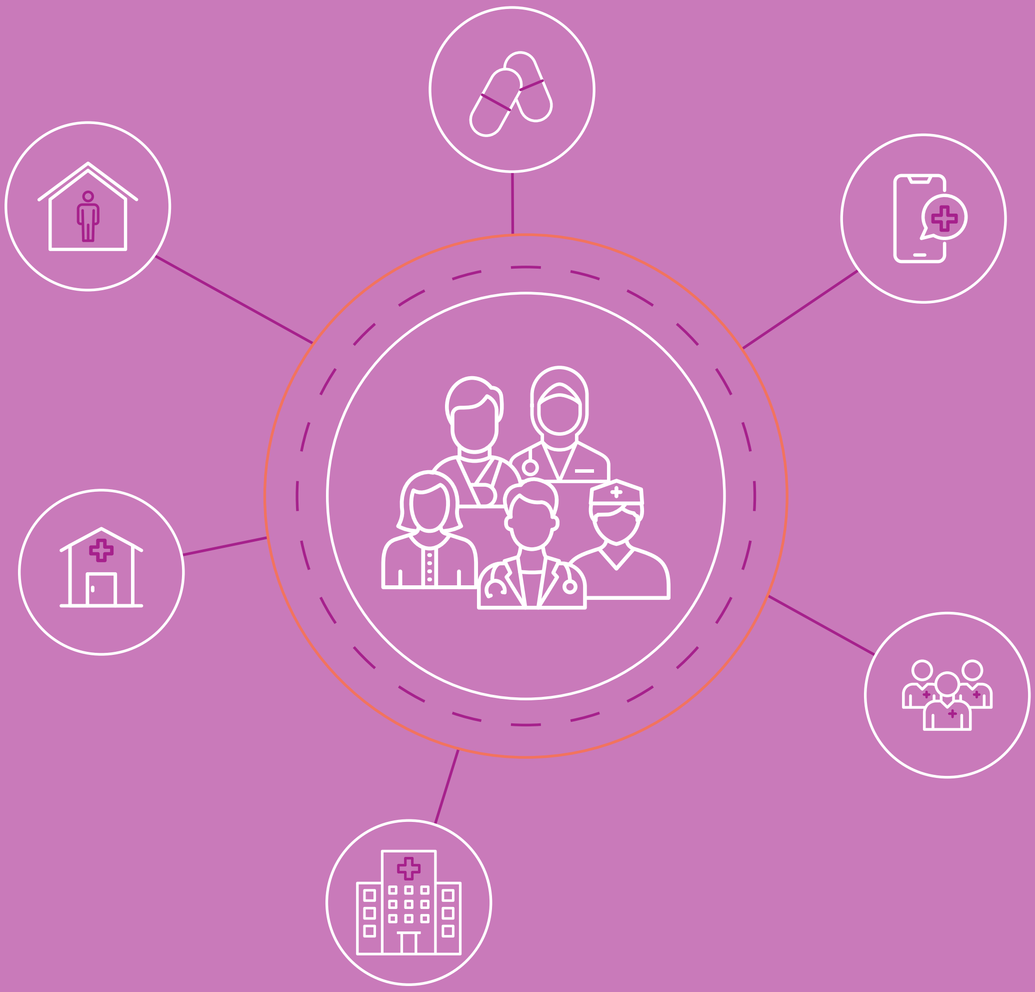
Self-collection or self-sampling allows individuals to collect their own specimens, such as urine, blood or swabs from anatomical sites, either at a health care facility or elsewhere. These specimens can then be sent to a laboratory for testing. Research shows that self-collected samples are as accurate as those collected by health workers, and self-collection is both feasible and acceptable for various populations.

Self-testing takes self-care a step further, allowing individuals to perform a simple rapid test on their own and interpret the results at their convenience. Similar to HIV self-testing, syphilis self-testing is gaining momentum as a private and convenient option for individuals who might not otherwise seek testing. If a test result is reactive, individuals are then encouraged to seek confirmatory testing and treatment within the formal health care system. They could also be encouraged to distribute a self-test kit to partners. It is important to ensure the use of quality-assured, WHO prequalified tests or those approved by internationally recognized regulatory authorities. Self-testing for other STIs is likely to become available in the future.

WHO has developed guidance that offers further implementation considerations for delivering self-care interventions for health, including:

- *WHO guideline on self-care interventions for health and well-being (40)*.

5. Implementation considerations for STI service delivery



5. Implementation considerations for STI service delivery

Health systems should adopt appropriate people-centred service delivery approaches that further enhance equity through the principles of availability, accessibility, acceptability and quality. As noted above, recommended approaches include decentralizing services, integrating STI care with other health services, sharing tasks among health workers, utilizing digital health interventions and promoting self-care. Each of these approaches plays a role in ensuring that STI services are responsive to the needs of the population while maintaining privacy and confidentiality, reducing the burden on the health care system and improving public health outcomes. However, health systems may need to develop new policies or legislation to implement these recommended approaches. Additional implementation considerations are outlined in other WHO guidelines related to STI prevention and care.

5.1 Key principles of STI service delivery

Effective service delivery is central to organizing health systems to achieve the desired public health outcomes. For STI services, this means defining the essential service packages, selecting appropriate models for delivering care and ensuring that the health system functions efficiently to meet the needs of the population. A people-centred approach to STI service delivery respects and responds to the preferences, needs and values of individuals and communities, making services more accessible and acceptable.

Grounded in the human right to health, STI services for all populations should adhere to the following principles to ensure equity:

- **Availability**: STI services should be available within sufficiently functioning health care facilities, resources and coordinated services to provide a comprehensive package of interventions, including testing, treatment, counselling and prevention services.
- **Accessibility**: These services must be accessible to all individuals, regardless of their background or circumstances. Accessibility entails that services are physically reachable, affordable and provided without discrimination. Efforts should be made to ensure privacy and confidentiality and to remove barriers such as stigma, geographical distance or financial constraints that may prevent people from seeking care.
- **Acceptability**: STI services must be acceptable to those they serve. This means that they should respect medical ethics and be culturally sensitive, appropriate for different developmental stages, gender-sensitive, non-judgemental and non-stigmatizing. Services should be people-centred, involving shared decision-making, catering to the specific needs of various population groups and upholding international standards of confidentiality and informed consent.
- **Quality**: High-quality STI services are essential for effective care. They should be evidence-based, safe and effective, focusing on adequately trained individuals to provide timely and equitable care. Services should be integrated and efficient, ensuring that all aspects of care work together seamlessly to achieve the best health outcomes.

5.2 Key considerations for developing models of service delivery

When designing effective models of service delivery for STI services, it is essential to apply a comprehensive and flexible framework that addresses the "who," "what," "where," "when" and "how" of service delivery. This ensures that services are high-quality, people-centred and responsive to the local context and population needs. A critical aspect of this process is identifying priority populations for service delivery, including pregnant women, adolescents and young people, and key populations (see section 5.5 on STI service delivery for key and priority populations).

Models should align with the principles of availability, accessibility, acceptability and quality while considering local epidemiology, resource availability and the acceptability of services to both users and health workers. Health systems should also evaluate local infrastructure and resources to determine the most feasible approaches, including both digital health and self-care interventions. Cost-effectiveness is a key factor: health systems should use existing facilities and resources where possible while gradually expanding services based on need and capacity.

- **Who should deliver STI services?** Effective STI service delivery requires a diverse range of health workers beyond health care specialists. In addition to doctors, services may be delivered by trained nurses, midwives, community and lay health workers. Delegating specific tasks, such as prevention services, testing or counselling, to less specialized health workers may increase service efficiency and reach while maintaining quality. Engaging community or lay health workers, particularly from marginalized populations, may build trust and encourage service uptake. Self-care interventions, where individuals manage certain aspects of their care, may further extend the reach of services and empower individuals to manage their own health. (See section 3.4 for more on task sharing.)
- **What STI services should be delivered?** The package of STI services should be tailored to local needs and resources. A comprehensive package typically includes prevention (education, condoms, vaccines and other evidence-based interventions), diagnosis (diagnostic tests or syndromic approach), treatment (timely administration of effective antibiotics or antivirals), partner services (notification and treatment) and referral systems to link with specialized services. The goal is to prevent, treat and cure infections when possible, minimize complications and reduce future infections. (See section 5.3 for more on packages of STI services.)
- **Where should STI services be delivered?** STI services should be provided in a variety of settings to ensure broad accessibility. Service delivery locations should reflect local infrastructure and epidemiological needs. Options include decentralizing services to primary health care facilities (often the first point of contact for patients), community-based settings (including mobile clinics, outreach programmes or community-led initiatives), digital platforms (such as online consultations and telehealth), self-care approaches (home-based self-collection or self-testing kits) and integration with other health programmes (for example, integrating STI services into existing antenatal health, SRH, adolescent health or HIV services) (see section 3.2 on decentralization, and section 3.3 on integration). Service delivery models need to be tailored to the needs of special settings, including prisons and other closed settings, as well as settings of humanitarian concern (see section 5.6 on special settings).
- **When should STI services be provided?** STI services should be available when and where they are most needed, ensuring timely access for all populations. Services can be delivered continuously through integrated health systems that offer STI services as part of routine care, on-demand via community outreach or mobile units that serve key and priority populations or underserved regions, or proactively through periodic screening campaigns targeting high-prevalence areas or priority populations. Flexibility in service hours, including evening or weekend availability, may also improve access, particularly for working people or those with limited access to transportation.
- **How should STI services be delivered?** STI service delivery should be flexible and responsive to the needs of the population and prioritize populations disproportionately affected by STIs (see section 5.5 on STI service delivery for key and priority populations). All STI testing services should adhere to WHO’s five Cs (consent, confidentiality, counselling, correct test results and connection or linkage to prevention, care and treatment) *(21)*. Decentralizing care to primary health care facilities and integrating STI services into other health programmes may make services more accessible to underserved populations. Digital health and self-care approaches can also be employed and may reduce stigma, increase privacy and extend care to hard-to-reach populations (see section 3.5 on digital health and 4.1 on self-care).

5.3 Developing a comprehensive package of STI services

A comprehensive package of STI services aims to prevent infection, provide accurate diagnosis and effective treatment, achieve cures, reduce infectivity, minimize complications, prevent future infections and ensure that sexual partners are appropriately treated. To achieve these goals, the following should be done for anyone attending an STI service (whether they show symptoms or not):

- A complete medical and sexual history is taken and documented.
- Symptomatic individuals receive an accurate diagnosis (either syndromic or based on diagnostic tests).
- Asymptomatic individuals are offered screening with diagnostic tests (based on population-specific guidance).
- Effective treatment is provided to manage the infection.
- Health education and counselling are offered to help the individual understand the infection and reduce future risk and transmission risk to partners.
- Guidance on adhering to treatment is provided to ensure the best outcomes.
- Condoms (male/external or female/internal) and condom-compatible lubricants are promoted and/or provided.
- HIV PrEP and post-exposure prophylaxis (PEP) are promoted and/or provided when applicable.
- Additional preventive interventions are offered, such as hepatitis A/B and HPV vaccines, voluntary medical male circumcision (where appropriate) or suppressive therapy for genital herpes.
- Individuals are encouraged or supported to notify sexual partners to prevent further infection (as part of broader network-based testing strategies).
- Clinical follow-up is arranged when needed to monitor treatment success.
- Referral to specialized services is provided when necessary.

A comprehensive package of STI services should include prevention and promotion of appropriate health-seeking behaviour and address both symptomatic and prioritized asymptomatic individuals. Everyone should receive the care they need in a non-judgemental and non-stigmatizing environment, regardless of their condition or their likelihood of seeking treatment.

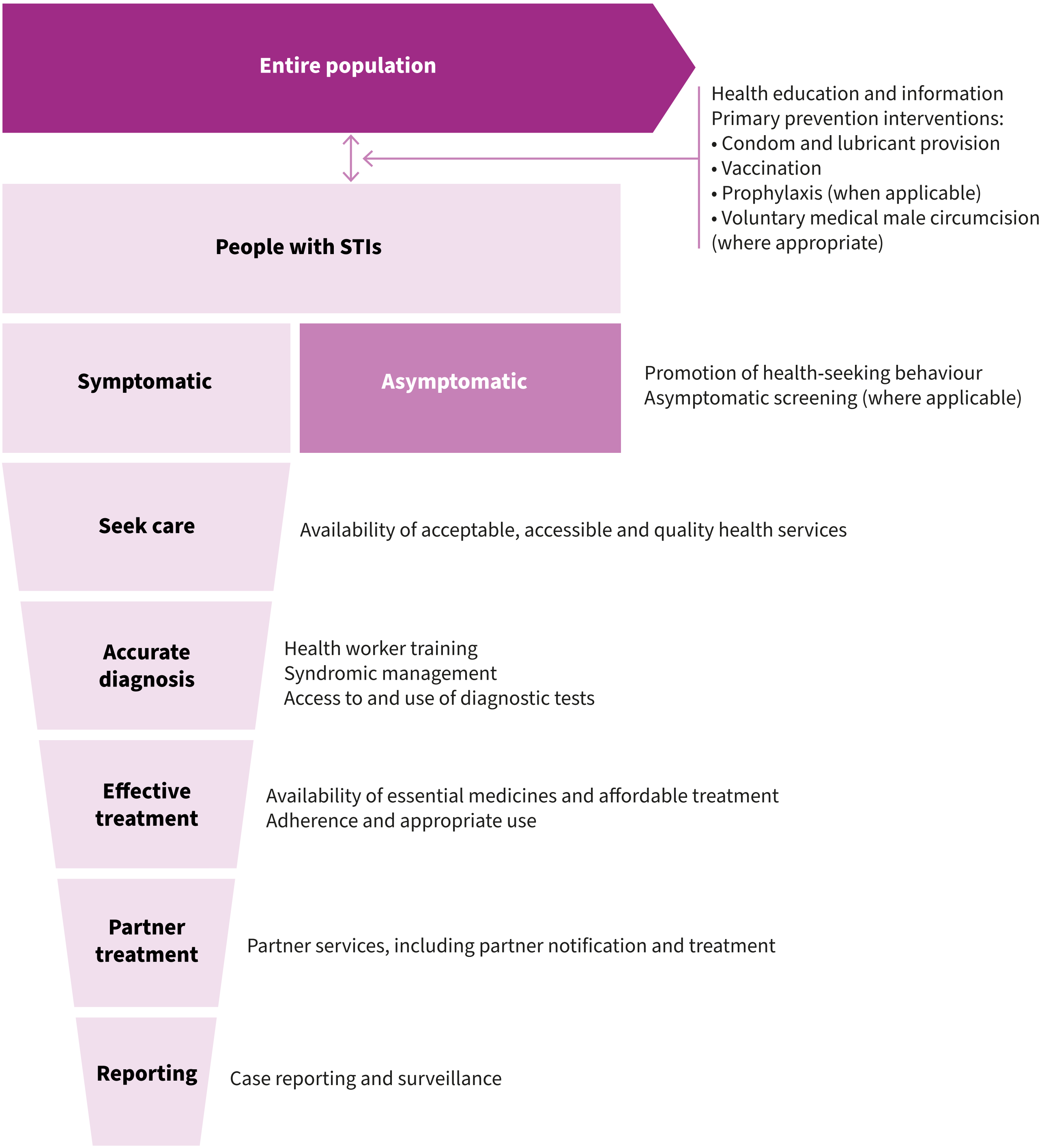
A comprehensive package should be flexible, offering different entry points based on local needs and resources. It often requires integration with other health services. Tailoring services to meet the needs of specific populations, such as adolescents and people from key populations, is crucial for ensuring that they receive the additional services and support they require. A needs-based approach to developing the package is suggested rather than trying to provide overly comprehensive services from the start.

5.4 Addressing gaps in the care cascade

At any given time, only a fraction of individuals with STIs seek treatment, and even fewer are successfully cured. Understanding the cascade from infection to cure helps to identify gaps in care and improve outcomes. This care cascade tracks the steps from STI infection, through seeking care, receiving appropriate treatment and ultimately achieving a cure. Attrition occurs at each stage, and these losses must be addressed to improve overall treatment rates.

Fig. 5.1 illustrates this care cascade, highlighting the common points where individuals are lost to care and outlining key interventions that can reduce these losses. On the left side, common barriers to achieving a cure are shown, while the right side highlights examples of interventions to reduce attrition at each stage of care.

Fig. 5.1. Comprehensive STI services within the care cascade



Factors influencing the rate of attrition from the care cascade include poor quality of care, limited access to health care services, insufficient health worker training, unavailability of essential medicines and stigma and negative attitudes toward individuals with STIs. Programme managers should identify where these losses are occurring along the care pathway and focus on areas that need improvement. The goal is to increase retention in the care cascade through to cure for all individuals with STIs, advancing progress toward universal health coverage.

5.5 STI service delivery for key and priority populations

STI service delivery should prioritize the unique needs of populations disproportionately affected by STIs, many of whom also face heightened risk for HIV and viral hepatitis. These priority populations often experience vulnerabilities related to social and structural determinants of health, such as discrimination, marginalization and exclusion. Addressing their needs requires a comprehensive approach that integrates human rights protections, reduces stigma and ensures equitable access to services. Priority populations may include *(4)*:

- key populations, including men who have sex with men, sex workers and their clients, trans and gender-diverse people, people who inject and use drugs, and people in prisons and other closed settings;
- adolescents and young people, including young key populations;
- people exposed through unsafe blood supplies and medical procedures;
- children exposed through vertical transmission or early childhood infection;
- pregnant and breastfeeding women;
- women and girls, including adolescent girls and young women, who face gender inequalities, violence and heightened biological risks related to sex;
- migrants, mobile populations and those affected by conflict and civil unrest;
- indigenous people; and
- people with disabilities.

STI services should be designed to meet the diverse needs of these populations, ensuring that they are accessible, confidential and non-discriminatory. Priority populations should be defined based on local epidemiology and health system contexts, using an intersectional lens that considers overlapping social and structural vulnerabilities and health risks.

In the adaptation and implementation of guidelines for STI service delivery, it is essential to ensure the protection and promotion of the human rights of people seeking care. This includes actively preventing stigma and discrimination in health care settings, promoting gender equity and ensuring that the use of services is voluntary. In particular, adolescents, young people and people living with HIV often face barriers to obtaining care. Increasing access to STI services for these groups is critical to reducing the burden of STIs globally.

Key populations

Key populations, including men who have sex with men, sex workers, trans and gender diverse people, and people who inject drugs, are disproportionately affected by STIs and may face significant barriers to accessing care due to stigma, criminalization and fear of legal or social consequences. In many settings people from key populations may not disclose their identities or behaviours, especially where sex work, same-sex relationships, non-conforming gender expression or drug use are criminalized. Therefore, services must be designed to be accessible, confidential and non-discriminatory, ensuring that individuals feel safe and protected when seeking care.

The WHO *Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care for key populations* offer comprehensive guidance on increasing access to and delivering STI services for these groups *(10)*. Additional WHO guidance provides practical strategies for implementing comprehensive HIV and STI programmes for specific key populations:

- *Implementing comprehensive HIV and STI programmes with sex workers: practical approaches from collaborative interventions (43)*;
- *Implementing comprehensive HIV and STI programmes with men who have sex with men: practical guidance for collaborative interventions (44)*;
- *Implementing comprehensive HIV and STI programmes with transgender people: practical guidance for collaborative interventions (45)*; and
- *Implementing comprehensive HIV and HCV programmes with people who inject drugs: practical guidance for collaborative interventions (46)*.

Adolescents and young people

Adolescents and young people are also a priority population for STI service delivery. They often face distinct barriers, such as limited knowledge about sexual health, fear of judgement and concerns about confidentiality. It is essential to provide adolescent-friendly health services that are accessible, confidential and tailored to their specific needs. Health workers should be trained to offer non-judgemental, youth-centred care, creating a supportive environment where young people feel comfortable seeking services.

WHO provides key guidance to improve adolescent health care, including:

- *Global standards for quality health-care services for adolescents: a guide to implement a standards-driven approach to improve the quality of health care services for adolescents (47)*.
- *Adolescent friendly health services for adolescents living with HIV: from theory to practice (48)*.

Pregnant and breastfeeding women

Pregnant and breastfeeding women are priority populations for STI service delivery, as untreated STIs during pregnancy and, in some cases, during breastfeeding can lead to serious health outcomes for both the mother and newborn. WHO's recommendations on antenatal care emphasize the importance of syphilis screening and treatment, integrated as part of the triple elimination efforts alongside HIV and hepatitis B screening, to prevent adverse outcomes, including stillbirth, neonatal death and congenital infection.

In settings with a high prevalence of infections, screening for *N. gonorrhoeae* and *C. trachomatis* should also be integrated into maternal health care to prevent additional adverse outcomes such as preterm birth, low birth weight and neonatal infections. High-prevalence settings may be defined by local epidemiological data and population-specific risk.

WHO provides key guidance to improve maternal and child health care, including:

- *WHO recommendations on antenatal care for a positive pregnancy experience (49)*.

5.6 STI service delivery in special settings

Service delivery models for STIs must be adapted to the unique needs of special settings, including prisons and other closed settings and areas of humanitarian concern. In these environments, providing equitable, continuous and accessible health care is critical to prevent and manage STIs effectively.

Health services in prisons and other closed settings should be equivalent to those available to the broader community. It is essential to ensure that individuals in these settings have access to STI services of equal quality, and continuity of care should be maintained when people move within these settings or return to the broader community.

Mobile and displaced populations, such as refugees or migrants, often face significant barriers to accessing local health care services. Displacement often separates individuals from their usual support networks and health care providers. These populations may lack adequate access to STI services due to a lack of infrastructure, unfamiliarity with local health care systems, or legal and cultural barriers. In humanitarian settings these vulnerabilities can be exacerbated by disrupted health service delivery, further limiting access to essential services.

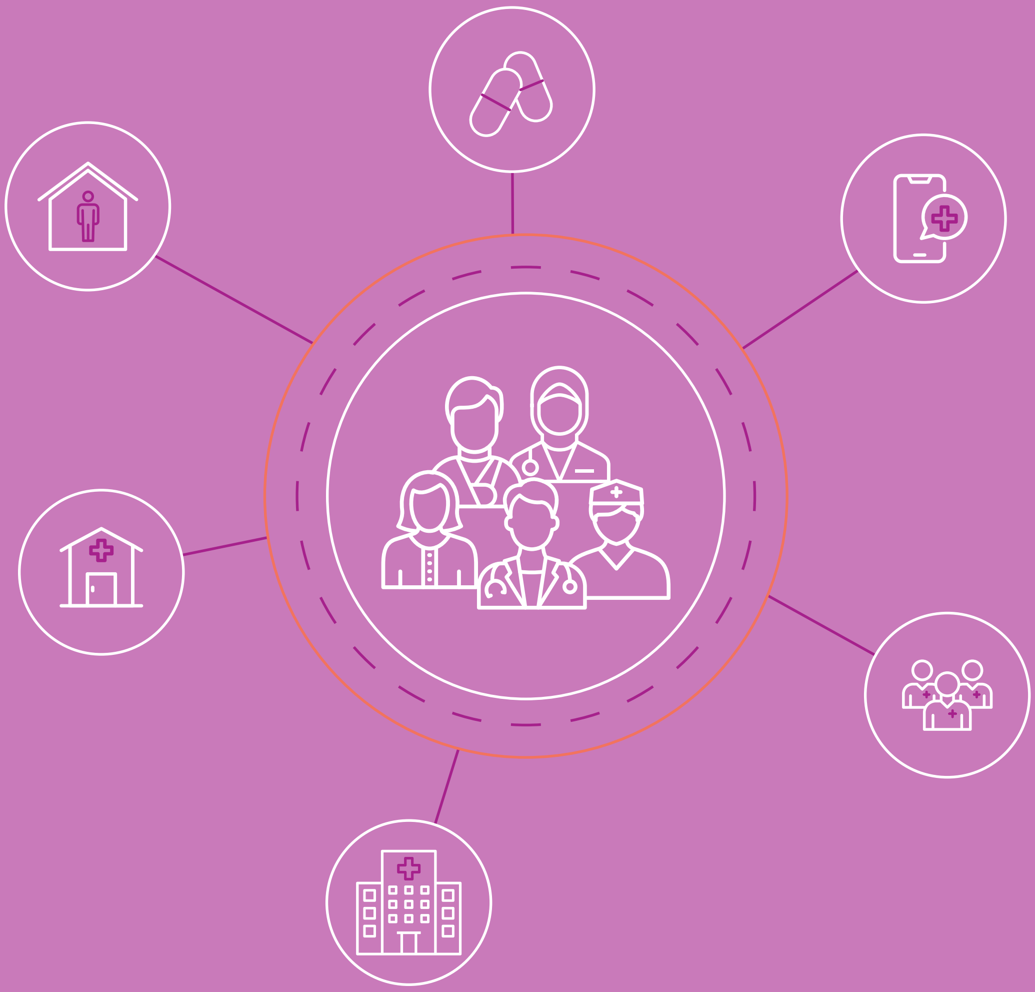
During conflicts, crises and emergencies, health systems often become overstretched, creating unprecedented demands on both health care providers and affected communities. The disruptions of local or national health systems or supply chains, combined with the stigma surrounding STIs and other SRH services, present significant challenges to delivering care in these settings.

To address these challenges, strategic adaptations in service delivery are necessary. These adaptations must align with ethical principles, such as equity in the allocation of and access to resources, respect for self-determination and the protection of dignity and human rights *(50)*. These principles ensure that even in the most fragile environments, individuals can access lifesaving STI services without discrimination or compromise to their rights.

The Minimum Initial Service Package (MISP) for SRH in crisis situations outlines essential, lifesaving activities to address the SRH needs of populations at the onset of a humanitarian crisis *(51)*. STI services are a critical component of the MISP, with the objective of preventing the transmission of HIV and other STIs, and reducing morbidity and mortality due to them.

More detailed guidance on providing STI services in humanitarian settings can be obtained from the Inter-Agency Working Group on Reproductive Health in Crises (IAWG) at https://iawg.net/.

6. Disseminating and updating the guidelines



6. Disseminating and updating the guidelines

6.1 Dissemination

These guidelines will be made available on the WHO website at https://www.who.int/health-topics/sexually-transmitted-infections – click on “Guidelines”. There are also links to other supporting documents.

WHO headquarters will work with WHO regional offices and country offices to ensure that countries receive support in adapting, implementing and monitoring the utility of these guidelines.

Every level of WHO (headquarters, regional offices and country offices) will work with regional and national partners – including the United Nations Population Fund (UNFPA), the United Nations Children’s Fund (UNICEF), the Joint United Nations Programme on HIV/AIDS (UNAIDS), non-governmental organizations and other agencies implementing HIV, STI and SRH services to ensure an integrated approach to preventing and controlling STIs. WHO will advocate that these external partners support the dissemination and implementation of these guidelines.

These guidelines will be disseminated at conferences related to HIV, STIs and SRH and through electronic media, and they will be included in WHO’s forthcoming consolidated guidelines for the prevention, diagnosis, treatment and care of STIs.

6.2 Updating the STI guidelines and user feedback

A system of monitoring relevant new evidence and updating the recommendations in these guidelines will be established. These STI recommendations are based on systematic reviews of the literature, including reviews found in other WHO guidelines, such as reviews conducted on HIV and hepatitis C. When updating these STI recommendations, we will search other source guidelines to determine if that literature has been updated. Mechanisms for disseminating new information will be put into operation. Some of these mechanisms will involve electronic communication.

An electronic follow-up survey of key end-users of these guidelines will be conducted one year after they have been disseminated. The results of the survey will be used to identify challenges and barriers to the uptake of the guidelines, evaluate their usefulness for improving service delivery for STIs and identify topics or gaps that need to be addressed in future editions.

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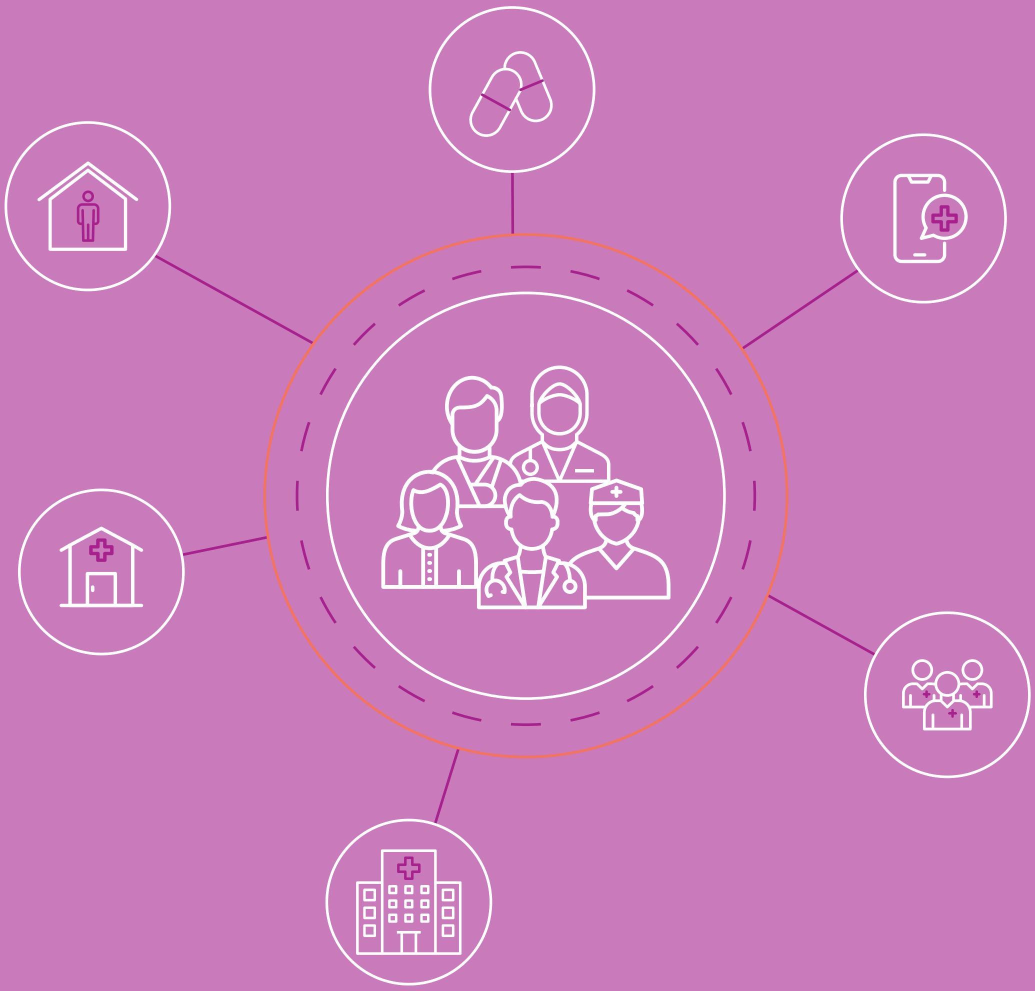
Annex 1.
Contributors to the guidelines



Annex 1.
Contributors to the guidelines

Guideline Development Group

Laith Abu Raddad
Director, WHO Collaborating Centre for Disease Epidemiology Analytics on HIV/AIDS, STIs, and Viral Hepatitis
Weill Cornell Medical College
Doha, Qatar

Yaw Adu-Sarkodie
Professor of Clinical Microbiology
Kwame Nkrumah University of Science and Technology
Kumasi, Ghana

Jamila Al Abri
Director of Woman and Child Health Department
Ministry of Health
Muscat, Oman

Zeyana Al Habsi
Head of HIV/STIs & Hepatitis Section
Ministry of Health
Muscat, Oman

Mircea Betiu
Associate Professor
Nicolae Testimitanu State University of Medicine and Pharmacy
Chisinau, Republic of Moldova

Catriona Bradshaw
Professor of Sexual Health
Melbourne Sexual Health Centre
School of Translational Medicine
Monash University and Alfred Hospital
Melbourne, Australia

Xiang-Sheng Chen
Deputy Director
National Center for AIDS/STD Control and Prevention
Nanjing, China

Irith De Baetselier
Clinical Coordinator
National Reference Centre for STIs
Institute of Tropical Medicine
Antwerp, Belgium

Chido Dziva Chikwari
Assistant Professor of Epidemiology
London School of Hygiene & Tropical Medicine and The Health Research Unit Zimbabwe
Biomedical Research and Training Institute
Harare, Zimbabwe

Amina El Kettani
Medical Officer
Direction de l'Epidémiologie et de Lutte Contre les Maladies
Ministry of Health
Rabat, Morocco

Patricia Garcia
Professor
Universidad Peruana Cayetano Heredia
Lima, Peru

William M. Geisler
Professor and Assistant Dean for Physician Scientist Development
University of Alabama at Birmingham
Birmingham, USA

Kimberly Green
Global Program Director, Primary Health Care
PATH
Hanoi, Viet Nam

Somesh Gupta
Dermatologist
All India Institute of Medical Science
New Delhi, India

Edward W. Hook III
Director, Division of Infectious Diseases
University of Alabama at Birmingham
Birmingham, USA

Rena Janamnuaysook
Program Manager, Implementation Science
Institute of HIV Research and Innovation
Bangkok, Thailand

Nathalie Kapp
Chief Medical Adviser
International Planned Parenthood Federation
London, United Kingdom

Hamida Khattabi
Medical Officer
Service des MST-Sida
Direction de l'Epidémiologie et de Lutte Contre les Maladies
Ministry of Health
Rabat, Morocco

Rossaphorn Kittyaowamarn
Chief of Bangrak STIs Center
Bureau of AIDS, TB and STIs
Department of Diseases Control
Ministry of Public Health
Nonthaburi, Thailand

Jeffrey D. Klausner
Professor of Medicine and Public Health
University of Southern California
Los Angeles, USA

Ranmini Kularatne
Clinical Head, Microbiology & Infectious Serology
Awanui Labs
Auckland, New Zealand

Peter Kyambadde
Executive Director
Most at Risk Populations Initiative (MARPI)
National Coordinator, Key Populations/STI Program
Ministry of Health
Kampala, Uganda

David Lewis
Director
Western Sydney Sexual Health Centre
Sydney, Australia

Anna Machiha
National STI Prevention Coordinator
Ministry of Health and Child Welfare
Harare, Zimbabwe

Regina Maithufi
Technical Advisor
National Department of Health
Johannesburg, South Africa

Philippe Mayaud
Professor of Infectious Diseases and Reproductive Health
London School of Hygiene and Tropical Medicine
London, United Kingdom

Angelica Espinosa Miranda
Professor
Federal University of Espirito Santo
Vitoria, Brazil

Saiqa Mullick
Director, Implementation Science
Wits RHI, University of the Witwatersrand
Johannesburg, South Africa

Francis Ndowa
Physician
Skin and Genito-Urinary Medicine Clinic
Harare, Zimbabwe

Shobini Rajan
Deputy Director General
Ministry of Health and Family Welfare
Delhi, India

Lilani Rajapaksa
Consultant Venereologist
Ministry of Health
Colombo, Sri Lanka

Kees Rietmeijer
Medical Director
Denver STD Prevention Training Center
Denver Public Health Department
Denver, USA

Danvic Rosadiño
Program and Innovations Director
LoveYourself Inc.
Manila, Philippines

Jonathan Ross
Consultant Physician
University Hospitals Birmingham NHS Foundation Trust
Birmingham, United Kingdom

Lon Sayheng
Head of STD Unit
National Center for HIV/AIDS, Dermatology and STD
Phnom Penh, Cambodia

Anna Shapiro
Policy Manager
Global Network of Sex Work Projects
Edinburgh, United Kingdom

Jane Thiomi
GBV and HIV Prevention Manager
LVCT Health
Nairobi, Kenya

Jane Tomnay
Director
Centre for Excellence in Rural Sexual Health
University of Melbourne
Melbourne, Australia

Magnus Unemo
Associate Professor in Medical Microbiology and Molecular Biology
Örebro University Hospital
Örebro, Sweden

Judith Wasserheit
Professor of Global Health and Medicine
University of Washington
Seattle, USA

Observers

Francis Kakooza
Head, Global Health Security Department
Infectious Diseases Institute
Makerere University
Kampala, Uganda

Otilia Mardh
Medical Epidemiologist
European Centre for Disease Prevention and Control
Stockholm, Sweden

Fernando Pascal Martinez
Research and Development Access Development Lead
Global Antibiotic Research and Development Partnership
Barcelona, Spain

External Review Group

Christopher Akolo
Technical Director
FHI 360
Washington, DC, USA

Henry J.C. de Vries
Amsterdam Sexual Health Clinic
Amsterdam, Netherlands (Kingdom of the)

Kristina Grabbe
Principal Technical Advisor
Jhpiego
Washington, DC, USA

Hans Benjamin Hampel
University of Zurich
Zurich, Switzerland

Kausar Jabeen
Professor and Consultant Microbiologist Pathology and Laboratory Medicine
The Aga Khan University
Karachi, Pakistan

Monica Lahra
WHO Collaborating Centre for STIs and Antimicrobial Resistance
Prince of Wales Hospital
Sydney, Australia

Pham Thi Lan
National Hospital of Dermatology and Venereology
Hanoi Medical University
Hanoi, Viet Nam

Ahmed Latif
Public health consultant
Brisbane, Australia

Ioannis Mameletzis
Consultant
Kyiv, Ukraine

Koleka Mlisana
Executive Manager, Academic Affairs, Research and Quality Assurance
National Health Laboratory Service
Johannesburg, South Africa

Lori Newman
Deputy Director of STI and Gynecology
Gates Foundation
Washington, DC, USA

Catherine Ngugui
Head, National AIDS and STI Control
Ministry of Health
Nairobi, Kenya

Reshmie Ramautarsing
Physician
Institute of HIV Research and Innovation
Bangkok, Thailand

Pachara Sirivongrangson
Ministry of Public Health
Bangkok, Thailand

Janet Wilson
Consultant, Genito-Urinary Medicine
Leeds Teaching Hospitals NHS Trust
Leeds, United Kingdom

WHO Steering Committee

Headquarters

Arif Al-Hamad
Technical Officer
Department of Surveillance, Prevention and Control
AMR Division

Avni Amin
Technical Officer
Department of Sexual and Reproductive Health and Research

Silvia Bertagnolio
Unit Head
Department of Surveillance, Prevention and Control

Maeve Brito de Mello
Technical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Sami Gottlieb
Medical Officer
Department of Sexual and Reproductive Health and Research

Benedikt Huttner
Team Lead
Department of Access to Medicines and Health Products

Cheryl Johnson
Technical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

James Kiarie
Unit Head
Department of Sexual and Reproductive Health and Research

Ismail Maatouk[a]
Medical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Gitau Mburu
Scientist
Department of Sexual and Reproductive Health and Research

Daniel McCartney
Consultant
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Antons Mozalevskis
Technical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Morkor Newman Owiredu
Medical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Anne-Laure Page
Scientist
Regulation and Prequalification

Remco Peters
Medical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Jane Rowley
Technical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Igor Toskin
Scientist
Department of Sexual and Reproductive Health and Research

Özge Tuncalp
Medical Officer
Department of Sexual and Reproductive Health and Research

Annette Verster
Technical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Marco Vitoria
Medical Officer
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

Teodora Wi[a]
Lead, Sexually Transmitted Infections
Department of Global HIV, Hepatitis and Sexually Transmitted Infections Programmes

---

[a] Overall coordinators of the STI guidelines.

Regional and country offices

Monica Alonso
Unit Chief, HIV, Hepatitis, Tuberculosis and STIs
WHO Regional Office for the Americas

Stela Bivol
Unit Lead, Joint Infectious Diseases
WHO Regional Office for Europe

Po-lin Chan
Regional Advisor (Hepatitis, HIV and STIs)
WHO Regional Office for South-East Asia

Agnes P. Adilakshmi Chetty
Medical Officer, STI
WHO Regional Office for Africa

Viatcheslava Grankov
Medical Officer, HIV and STIs
WHO Regional Office for Europe

Akudo Ezinne Ikpeazu
Team Lead, HIV, Hepatitis, STIs & TB
WHO Regional Office for Africa

Kiyohiko Izumi
Medical Officer
WHO Regional Office for the Western Pacific

Muhammad Shahid Jamil
Regional Adviser
WHO Regional Office for the Eastern Mediterranean

Tiara Mahatim Nisa
Technical Officer
WHO Regional Office for the Western Pacific

Hortencia E. Peralta Lara
HIV STI Prevention Advisor
WHO Regional Office for the Americas

Abhishek Royal
Technical Expert – STIs
WHO Country Office in India

Van Thi Thuy Nguyen
Technical Officer (HIV/AIDS)
WHO Country Office in Viet Nam

Methodologist and evidence review team

Methodologist

Farid Foroutan
Ted Rogers Centre for Health Research
Canada

Evidence review team

Nancy Santesso
Michael G. DeGroote Cochrane Centre
Canada

Annex 2.

Declarations of conflicts of interest

STI Guideline Development Group members

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Laith Abu Raddad (Weill Cornell Medical College, Qatar)	-	-	-	-	-	-	Full participation
Yaw Adu-Sarkodie (Kwame Nkrumah University of Science and Technology, Ghana)	-	-	-	-	-	-	Full participation
Jamila Al Abri (Woman and Child Health Department, Ministry of Health, Oman)	-	-	-	-	-	-	Full participation
Zeyana Al Habsi (HIV/STIs & Hepatitis Section, Ministry of Health, Oman)	-	-	-	-	-	-	Full participation
Mircea Betiu (Nicolae Testimitanu State University of Medicine and Pharmacy, Republic of Moldova)	-	-	-	-	-	-	Full participation
Catriona Bradshaw (Monash University and Alfred Hospital, Australia)	Funding from Abbott to support development of STI testing recommendations in countries across the Asia-Pacific region (3 800 Australian dollars, A$)	Australian Research Council Grant to Monash University that contains contributions from the government, two diagnostic companies (Speedx and Cepheid) and NGOs including GARDP to support work on the development of resistance diagnostics and AMR (A$ 1.5 million). Diagnostic kits and GeneXpert platform donated for use in specific investigator-initiated research.	-	-	-	-	Declare. Direct finance not significant. Full participation – not directly related to guideline.

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Xiang-Sheng Chen (National Center for AIDS/STD Control and Prevention, China)	-	-	-	-	-	-	Full participation
Irith De Baetselier (Institute of Tropical Medicine, Belgium)	-	-	-	-	-	-	Full participation
Chido Dziva Chikwari (Biomedical Research and Training Institute, Zimbabwe)	-	-	-	-	-	-	Full participation
Amina El Kettani (Ministry of Health, Morocco)	-	-	-	-	-	-	Full participation
Patricia Garcia (Universidad Peruana Cayetano Heredia, Peru)	-	-	-	-	-	-	Full participation
William M. Geisler (University of Alabama at Birmingham, USA)	Consulting on *C. trachomatis* vaccine for Sanofi (ceased 2023), consulting on STI POC tests for Visby (ceased 2023).	Research support from Hologic for study of *Mycoplasma genitalium* (MG) prevalence and resistance in US (ceased 2023), speaking honoraria related to MG from Hologic, Roche Molecular Systems, and Abbott (ceased 2023).	-	-	-	-	Declare. None are active. Full participation – not directly related to guideline.
Kimberly Green (PATH, Viet Nam)	-	Funding from The Hepatitis Fund for triple elimination including syphilis screening (US$ 50 000).	-	-	-	-	Declare. Finance not significant. Full participation – not directly related to guideline.

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Somesh Gupta (All India Institute of Medical Sciences, India)	-	-	-	-	-	-	Full participation
Edward W. Hook III (University of Alabama at Birmingham, USA)	.	Member of advisory board for Visby Diagnostics (US$ 10 000) and Talsis Diagnostics.	-	-	-	-	Declare. Finance not significant. Full participation – not directly related to guideline.
Rena Janamnuaysook (Institute of HIV Research and Innovation, Thailand)	-	-	-	-	-	-	Full participation
Nathalie Kapp (International Planned Parenthood Federation, United Kingdom)	-	-	-	-	-	-	Full participation
Hamida Khattabi (Ministry of Health, Morocco)	-	-	-	-	-	-	Full participation
Rossaphorn Kittyaowamarn (Ministry of Public Health, Thailand)	-	Funding from GARDP for a multi-centre randomized, open-label, non-inferiority trial to evaluate the efficacy and safety of single oral dose of zoliflodacin for treatment of patients with uncomplicated gonorrhoea (ceased 2023)	-	-	-	-	Declare. None are active. Full participation – not directly related to guideline.
Jeffrey D. Klausner (University of Southern California, USA)	Consulting as technical advisor with Visby Medical (ceased 2023), Biofire (ceased 2023), Cepheid (ceased 2022) and Roche (ceased 2021).	-	-	-	-	-	Declare. None are active. Full participation – not directly related to guideline.

Name (affiliation)	**1. Employment and consulting**	**2. Research support**	**3. Investment interests**	**4. Intellectual property**	**5. Public statements and positions**	**6. Tobacco products**	**Conflicts and management plan**
Ranmini Kularatne (Awanui Labs, New Zealand)	-	-	-	-	-	-	Full participation
Peter Kyambadde (Ministry of Health, Uganda)	-	-	-	-	-	-	Full participation
David Lewis (Western Sydney Sexual Health Centre, Australia)	Consultancy to GSK relating to gepotidacin treatment for gonorrhoea (review of Phase 3 results, Advisory Board meetings).	-	-	-	-	-	Full participation – not directly related to guideline.
Anna Machiha (Ministry of Health and Child Welfare, Zimbabwe)	-	-	-	-	-	-	Full participation
Regina Maithufi (National Department of Health, South Africa)	-	-	-	-	-	-	Full participation
Philippe Mayaud (London School of Hygiene and Tropical Medicine, United Kingdom)	-	Research support from Abbott Diagnostics for sample collection for development of NG/CT diagnostic tests (ceased 2023).	-	-	-	-	Declare. None are active. Full participation – not directly related to guideline.
Angelica Espinosa Miranda (Federal University of Espirito Santo, Brazil)	-	-	-	-	-	-	Full participation
Saiqa Mullick (Wits Reproductive Health and HIV Institute, South Africa)	-	-	-	-	-	-	Full participation

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Francis Ndowa (Skin and Genito-Urinary Medicine Clinic, Zimbabwe)	-	-	-	-	-	-	Full participation
Shobini Rajan (Ministry of Health and Family Welfare, India)	-	-	-	-	-	-	Full participation
Lilani Rajapaksa (Ministry of Health, Sri Lanka)	-	-	-	-	-	-	Full participation
Kees Rietmeijer (Denver Public Health Department, USA)	Past consulting with Sentient (ceased 2023), and WHO (ceased 2022).	-	-	-	-	-	Declare. None are active. Full participation – not directly related to guideline.
Danvic Rosadiño (LoveYourself Inc., Philippines)	-	-	-	-	-	-	Full participation
Jonathan Ross (Birmingham University Hospitals NHS Trust, United Kingdom)	Consultancy advice in relation to clinical trials (GSK Pharma).	Research payments to my employer in my role as principal investigator for clinical trial (PPD).	Investments (self and wife) in GSK Pharma and AstraZeneca.	-	-	-	Declare. Finance not significant. Full participation – not directly related to guideline.
Lon Sayheng (National Center for HIV/AIDS, Dermatology and STD, Cambodia)	-	-	-	-	-	-	Full participation
Anna Shapiro (Global Network of Sex Work Projects, United Kingdom)	-	-	-	-	-	-	Full participation
Jane Thiomi (LVCT Health, Kenya)	-	-	-	-	-	-	Full participation

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Jane Tomnay (University of Melbourne, Australia)	-	-	-	-	-	-	Full participation
Magnus Unemo (Örebro University Hospital, Sweden)	-	-	-	-	-	-	Full participation
Judith Wasserheit (University of Washington, USA)	-	-	-	-	-	-	Full participation

Observers

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Francis Kakooza (Makerere University, Uganda)	-	-	-	-	-	-	Nil
Otilia Mardh (European Centre for Disease Prevention and Control, Sweden)	-	-	-	-	-	-	Nil
Fernando Pascal Martinez (Global Antibiotic Research and Development Partnership, Spain)	-	-	-	-	-	-	Nil

External Review Group members

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Christopher Akolo (FHI 360, USA)	-	-	-	-	-	-	Full participation
Henry J.C. de Vries (Amsterdam Sexual Health Clinic, Netherlands [Kingdom of the])	-	-	-	-	-	-	Full participation
Kristina Grabbe (Jhpiego, USA)	-	-	-	-	-	-	Full participation
Hans Benjamin Hampel (University of Zurich, Switzerland)	-	-	-	-	-	-	Full participation
Kausar Jabeen (Aga Khan Foundation, Pakistan)	-	-	-	-	-	-	Full participation
Monica Lahra (Prince of Wales Hospital, Australia)	-	-	-	-	-	-	Full participation
Pham Thi Lan (Institute of Dermatology and Venerology, Viet Nam)	-	-	-	-	-	-	Full participation
Ahmed Latif (public health consultant, Australia)	-	-	-	-	-	-	Full participation
Ioannis Mameletzis (consultant, Ukraine)	-	-	-	-	-	-	Full participation
Koleka Mlisana (National Health Laboratory Service, South Africa)	-	-	-	-	-	-	Full participation
Lori Newman (Gates Foundation, USA)	-	-	-	-	-	-	Full participation

Name (affiliation)	1. Employment and consulting	2. Research support	3. Investment interests	4. Intellectual property	5. Public statements and positions	6. Tobacco products	Conflicts and management plan
Catherine Ngugui (Ministry of Health, Kenya)	-	Research support from GARDP, DNDI and the Ministry of Health for study on prevalence of *C. trachomatis* and *N. gonorrhoeae* infections among pregnant women and key populations in Kenya (US$ 40 000; ceased 2022).	-	-	Former Director of National AIDS and STI Control in Kenya	-	None are active. Full participation – not directly related to guideline.
Reshmie Ramautarsing (Institute of HIV Research and Innovation, Thailand)	-	-	-	-	-	-	Full participation
Pachara Sirivongrangson (Ministry of Public Health, Thailand)	Consulting work for GARDP (US$ 10 000)	-	-	-	-	-	Full participation
Janet Wilson (Leeds Teaching Hospitals NHS Trust, United Kingdom)	-	-	-	-	-	-	Full participation

For more information, please contact:

World Health Organization

Global HIV, Hepatitis and Sexually Transmitted Infections Programmes
20 Avenue Appia
1211 Geneva 27
Switzerland

Email: hiv-aids@who.int
Website: www.who.int/teams/global-hiv-hepatitis-and-stis-programmes
www.who.int