

ECDC TECHNICAL GUIDANCE

HIV Pre-Exposure Prophylaxis in the EU/EEA and the UK: implementation, standards and monitoring

Operational guidance



This report was commissioned by the European Centre for Disease Prevention and Control (ECDC), coordinated by Teymur Noori, with technical input from Anastasia Pharris, Otilia Mårdh and Marieke J. van der Werf.

The first draft of the guidance was produced by a team led by Claudia Estcourt (Glasgow Caledonian University), Melvina Woode Owusu (Glasgow Caledonian University), Sheena McCormack (University College London), Jennifer MacDonald (Glasgow Caledonian University) and Laurence Meyer (University Paris-Sud Paris-Saclay).

ECDC would like to acknowledge the support and guidance provided by members of the ECDC ad hoc scientific panel established to support the development of this guidance: Marie Laga (Belgium), Josip Begovac, (Croatia), Anna Kubátová (Czechia), Jean-Michel Molina (France), Uwe Koppe (Germany), Caroline Hurley, Fiona Lyons (Ireland), Silke David, Elske Hoornenborg, Birgit Van Benthem (Netherlands), Arild Johan Myrberg (Norway), Justyna Kowalska (Poland), Isabel Aldir (Portugal), Janez Tomažič (Slovenia), Julia Del Amo (Spain), Finn Filén (Sweden), Raj Patel, Andrew Winter (IUSTI), Jürgen Rockstroh (EACS), Daniela Rojas Castro (Coalition PLUS), Gus Cairns (EATG) and Zoran Dominković (IZORAK).

In addition, ECDC would like to acknowledge the members of the advisory group that supported the development of this guidance: Jérémy Zeggagh (France), Binod Mahanty, Daniel Schmidt (Germany), Valeska Padovese (Malta), Miłosz Parczewski (Poland), Paula Meireles (Portugal), Carlos Iniesta, Pep Coll (Spain), Matthias Reinacher, Benjamin Hampel (Switzerland), Alex Garner (Hornet), Antons Mozalevskis (WHO Regional Office for Europe), Rosalind Coleman (UNAIDS). ECDC would also like to acknowledge Sarah North (Norway) who provided an overall review of the guidance.

Finally, ECDC would like to acknowledge all the experts that have taken time to submit the country case studies on PrEP implementation that can be [found on ECDC's website](#): Marie Laga, Jessika Deblonde, Eric Florence, Mark Sergeant (Belgium), Tatjana Nemeth Blažič, Josip Begovac, Šime Zekan, Zoran Dominković (Croatia), John Saunders, Ann Sullivan, Will Nutland (England), Kirsi Liitsola, Jussi Sutinen, Jukka Keronen (Finland), Zinna Bessa, Jean-Christophe Comboroure, Jérémy Zeggagh, Jean-Michel Molina, Stephane Morel (France), Daniel Schmidt, Knud Schewe, Helge Tietz, Emmanuel Danan (Germany), Vasilios Raftopoulos, Mina Psychogiou (Greece), Derval Igoe, Fiona Lyons, Caroline Hurley, Andrew Leavitt (Ireland), Vincenzo Puro, Massimo Cernuschi, Sandro Mattioli (Italy), Tanya Melillo, Valeska Padovese, Mark Josef Rapa (Malta), Silke David, Elske Hoornenborg, Sebastian Verboeket (the Netherlands), Justyna Kowalska, Miłosz Parczewski, Bartosz Szetela, Wiktor Lukasik (Poland), David Goldberg, Claudia Estcourt, Rak Nandwani, Nathan Sparling, Dave Bingham (Scotland), Julia del Amo, Pep Coll, Ramón Espacio (Spain), Charlotte Björkenstam, Finn Filén, Malin Falknert (Sweden), Axel J. Schmidt, Benjamin Hampel, Andreas Lehner (Switzerland)

Suggested citation: European Centre for Disease Prevention and Control. HIV Pre-Exposure Prophylaxis in the EU/EEA and the UK: implementation, standards and monitoring. Operational guidance. Stockholm: ECDC; 2021.

Stockholm, March 2021

ISBN 978-92-9498-533-0

doi: 10.2900/03588

Catalogue number TQ-04-21-086-EN-N

© European Centre for Disease Prevention and Control, 2021

Reproduction is authorised, provided the source is acknowledged.

Contents

Abbreviations.....	iv
Executive summary	1
Introduction	4
Scope and structure	4
Audience.....	5
Key considerations for PrEP implementation in the EU/EEA	5
Cost-effectiveness.....	8
Prioritisation in public health policy	8
Payments.....	8
Sustainability and scalability.....	8
Guidance development	10
Evidence base	10
Stakeholder consultations	10
Key principles for effective PrEP programme implementation	11
Principle 1. Early and ongoing stakeholder engagement	13
Principle 2. Implementation within a stigma-free environment	16
Principle 3. Population-wide access, based on need.....	18
Principle 4. PrEP embedded in combination STI and HIV prevention, and sexual health programmes.....	20
Principle 5. Proactive approach to raising PrEP awareness and demand creation	22
Principle 6. Compliance with clinical and public health guidelines.....	23
Principle 7. Use of standardised eligibility criteria to assess need	26
Principle 8. Linkage into care	27
Principle 9. Continuation of PrEP	28
Principle 10. Monitoring and evaluation	29
PrEP Programme: future guidance/next steps.....	32
References.....	33
Annex 1. The Case for PrEP: considerations for HIV PrEP programmes.....	36
Annex 2. Scientific panel members.....	39
Annex 3. Example from Scotland of consensus built, standardised minimum dataset for monitoring HIV PrEP programmes.....	40

Figures

Figure 1. Status of formal PrEP implementation in Europe (as of 20 October 2020).....	4
Figure 2. Key principles for effective PrEP programme implementation.....	11
Figure 3. HIV PrEP Cascade	29
Figure 4. PrEP Monitoring: preparatory resources.....	30
Figure A2. Key principles for effective PrEP programme implementation.....	38
Figure A3. HIV PrEP Cascade	40

Tables

Table 1. Core principles of effective PrEP programmes	2
Table 2. Intended audience for the operational guidance.....	5
Table 3. Global and regional targets for ending AIDS	6
Table 4. Overview of key principles for effective PrEP programme implementation.....	12
Table 5. Quality statement and minimum standards for Principle 1	15
Table 6. Quality statement and minimum standards for Principle 2	17
Table 7. Quality statement and minimum standards for Principle 3	19
Table 8. Quality statement and minimum standards for Principle 4	21
Table 9. Quality statement and minimum standards for Principle 5	23
Table 10. Quality statement and minimum standards for Principle 6	25
Table 11. Quality statement and minimum standards for Principle 7	26
Table 12. Quality statement and minimum standards for Principle 8	27
Table 13. Quality statement and minimum standards for Principle 9	28
Table 14. PrEP Monitoring: preparatory questions.....	31
Table 15. Global and regional targets for ending AIDS.....	36
Table 16. Example of monitoring tool from Scotland	43

Abbreviations

ART	Anti-Retroviral Therapy
CBO	Community-based organisation
COVID-19	Coronavirus disease (2019)
EACS	European AIDS Clinical Society
EATG	European AIDS Treatment Group
EEA	European Economic Area
EMA	European Medicines Agency
EU	European Union
FTC	Emtricitabine
GESIDA	AIDS Study Group (GESIDA) of the Spanish Society of Infectious Diseases
GP	General practitioner
IUSTI	International Union against Sexually Transmitted Infections
MSM	Men Who Have Sex with Men
NGOs	Non-Governmental Organisations
PEP	Post-Exposure Prophylaxis
PESTLE	Political, Economic, Social, Technological, Legal and Environmental
PrEP	Pre-Exposure Prophylaxis
PWID	People Who Inject Drugs
SDGs	Sustainable Development Goals
STI	Sexually Transmitted Infection
UK	United Kingdom
UNAIDS	Joint United Nations Programme on HIV/AIDS
WAVE	Women Against Viruses in Europe

Executive summary

Pre-exposure prophylaxis (PrEP) for HIV is the use of antiretroviral medication, taken to prevent the acquisition of HIV infection. In 2015, the European Centre for Disease Prevention and Control (ECDC) recommended that European Union (EU) and European Economic Area (EEA) countries should consider integrating PrEP into their existing HIV prevention package for those *most at risk* of HIV infection, starting with men who have sex with men (MSM). This was followed by the World Health Organization (WHO) recommendations that PrEP should be offered as an additional prevention option to all people at *substantial risk of HIV infection* as part of combination prevention approaches.

There has been a steady decline in HIV diagnoses in the EU/EEA since, but the 90-90-90 target (90% of people living with HIV [PLHIV] diagnosed, 90% of those diagnosed on anti-retroviral therapy [ART], 90% of those on treatment virally suppressed) set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) has not been met consistently across EU/EEA countries. A further and substantial reduction in HIV incidence is required if Europe is to meet the Sustainable Development Goals by 2030. Reaching these goals requires a sustained focus on HIV prevention, including new interventions and approaches. New approaches include the implementation of PrEP and clear minimum standards for standardised delivery and monitoring of PrEP across the EU/EEA.

This guidance was developed to support countries in their efforts and to harmonise the overall approach taken to PrEP implementation in the region. This operational guidance document has been developed through evidence synthesis, online stakeholder consultation with experts with community, clinical and/or public health or policy-making expertise and through ongoing engagement and involvement with an expert scientific panel, appointed by ECDC (see panel members, process of appointment and terms of reference in Annex 2). This operational guidance document provides practical recommendations and key considerations to inform the development and implementation of PrEP programmes at national and sub-national levels throughout the EU/EEA. The document begins with key considerations for PrEP implementation in the EU/EEA and provides an overview of key markers of readiness to deliver larger-scale PrEP programmes. It also provides guidance on how to establish support from senior and community stakeholders and prioritise PrEP within national health agendas.

The operational guidance is structured around 10 core principles of effective PrEP programmes (Table 1). Each principle is described with a supporting rationale for its inclusion. Alongside each principle, related quality statements and minimum standards for delivery are presented. These are categorised as being relevant for preparatory (before a programme exists), new (under 24 months) and established (24 months and above) phases of PrEP implementation.

Table 1. Core principles of effective PrEP programmes

<p>PRINCIPLE 1 Early and ongoing stakeholder engagement Representatives of all stakeholder groups involved in or affected by the initiation of a PrEP programme should be engaged at relevant points in programme planning, delivery and monitoring.</p>
<p>PRINCIPLE 2 Implementation within a stigma-free environment PrEP programmes should be centred on a positive and respectful approach to sexuality and sexual relationships, individuals' personal and cultural experiences and behavioural choices. This should help reduce PrEP stigma, encourage HIV testing and prevention, and reduce HIV infection.</p>
<p>PRINCIPLE 3 Population-wide access, based on need PrEP should be accessible and affordable to all people in need of HIV prevention, where clinically appropriate, as part of combination prevention services.</p>
<p>PRINCIPLE 4 PrEP embedded in combination STI and HIV prevention, and sexual health programmes PrEP should be provided, wherever possible, alongside and in combination with other STI and HIV prevention, and sexual health and well-being programmes, tailored to the individual's wants and needs. This frames PrEP as a positive health and well-being choice.</p>
<p>PRINCIPLE 5 Proactive approach to raising PrEP awareness and demand creation People from groups that have been carefully identified as being in greatest need of HIV prevention should be made aware of PrEP, how to access it and how to use it safely and effectively.</p>
<p>PRINCIPLE 6 Compliance with clinical and public health guidelines PrEP programmes should be delivered within a system that enables and supports provider awareness of, and compliance with, relevant clinical and public health guidelines (i.e. local, national, EACS, WHO guidelines).</p>
<p>PRINCIPLE 7 Use of standardised eligibility criteria to assess need PrEP programmes should offer clinical and behavioural/risk assessment against standardised eligibility criteria to determine whether PrEP is a suitable option for an individual.</p>
<p>PRINCIPLE 8 Linkage into care PrEP programmes should promptly refer individuals who are diagnosed with HIV (at any stage) to appropriate settings where they can receive HIV treatment and care, as needed. In addition, where needed, individuals should be referred to appropriate settings where they can receive sexual health and well-being information and support.</p>
<p>PRINCIPLE 9 Continuation of PrEP PrEP programmes should support PrEP users to use PrEP appropriately, as required for their individual needs. This is a critical component of safe and effective PrEP use. Support can be delivered through a combination of clinical and community-based interventions/services and should include support with adherence, risk compensation, follow-up appointments, and when/how to safely stop/restart PrEP.</p>
<p>PRINCIPLE 10 Monitoring and Evaluation PrEP programmes should strive to deliver services within a monitored system in which it is possible to measure basic data on e.g. people on PrEP, stopping PrEP, breakthrough infections, new STI infections and transmitted drug resistance, so that effectiveness of the programme can be measured.</p>

To support EU/EEA countries in developing and delivering PrEP programmes, the following documents are available as accompaniments to the guidance:

- **The Case for PrEP** – considerations for HIV PrEP programmes (Annex 1). ECDC has developed a Political, Economic, Social, Technological, Legal and Environmental (PESTLE) framework to support implementation of PrEP in EU/EEA countries. The framework is based on a business analysis framework to explore the PESTLE rationale and considerations when implementing national and subnational PrEP programmes in the EU/EEA.
- **Country case studies** (available on [ECDC's website](#)) from Belgium, Croatia, Czechia, England, Finland, France, Germany, Greece, Ireland, Italy, Malta, the Netherlands, Poland, Scotland, Spain, Sweden and Switzerland. These illustrations of PrEP implementation outline different service delivery models used, the advantages and limitations of these and reflections from the clinical, public health and community representatives responsible for the programme.
- **An example of a standardised monitoring tool** (Annex 3). This example monitoring tool provides key monitoring indicators developed through three rounds of consultation with public health, epidemiology, clinical academic and health planning experts from the four nations of the United Kingdom (UK) and the Republic of Ireland.

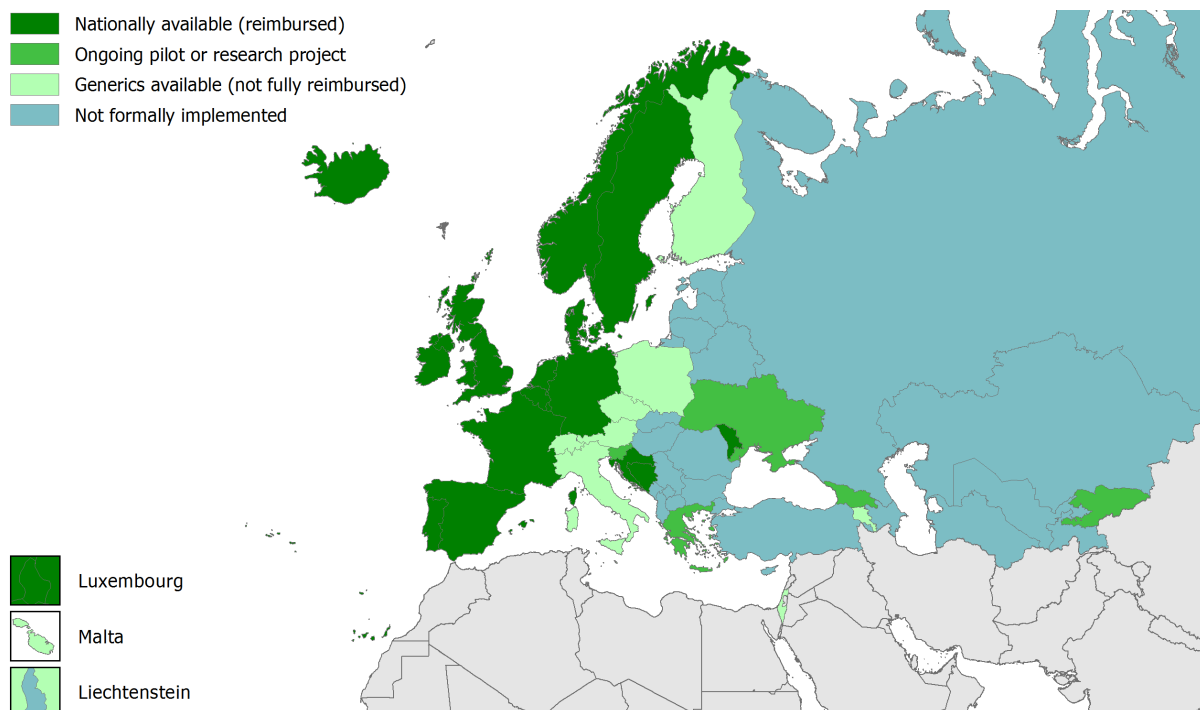
Introduction

Pre-exposure prophylaxis (PrEP) for HIV is the use of antiretroviral medication, taken to prevent the acquisition of HIV infection. The effectiveness of PrEP in reducing risk of HIV transmission has been demonstrated in several high-quality clinical trials [1-6]. In 2015, ECDC recommended that European Union (EU) and European Economic Area (EEA) countries should consider integrating PrEP into their existing HIV prevention package for those most at risk of HIV infection, starting with MSM [7]. This was followed by the World Health Organization (WHO) recommendations that PrEP should be offered as an additional prevention option to all people at substantial risk of HIV infection as part of combination prevention approaches [8].

In 2016, to translate evidence and experience into action supporting the implementation of PrEP, ECDC hosted an expert meeting to discuss practical considerations for PrEP implementation in the EU/EEA [9]. This was followed by a second meeting in 2018, co-convened by ECDC and UNAIDS, to discuss issues related to PrEP implementation, standards and monitoring. Key recommendations from these meetings included the need for practical guidance on PrEP implementation, minimum standards for service level delivery and monitoring of PrEP programmes. In response to the meetings' recommendations, in 2019 ECDC started to develop operational guidance on minimum standards and principles and quality statements for PrEP service delivery.

There is variation in current progress in PrEP implementation across the EU/EEA (Figure 1). This guidance was developed to support countries in their efforts and to harmonise the overall approach taken to PrEP implementation in the region.

Figure 1. Status of formal PrEP implementation in Europe (as of 20 October 2020)



Source: ECDC

Scope and structure

This operational guidance document provides practical recommendations and key considerations to inform the development and implementation of structurally supported and clinically safe¹ PrEP programmes at national and sub-national levels throughout the EU/EEA. The document begins with key considerations for PrEP implementation in the EU/EEA and provides an overview of key markers of readiness to deliver larger-scale PrEP programmes. It also provides guidance on how to establish support from senior and community stakeholders and prioritise PrEP within national health agendas. The remainder of the document is structured around 10 core principles. These core principles have been identified through a review of academic and public health literature, stakeholder consultation and received expert scientific advice. These principles are features of effective PrEP programmes, for consideration by all EU/EEA countries.

¹ Meaning that care and medication are provided in accordance with good practice, in a way that meets professional standards and regulatory approval.

To support all EU/EEA countries in the preparatory, new and established phases of PrEP implementation, an overview and rationale for each principle is stated. Each section also includes quality statements and minimum standards for effective delivery at each stage of PrEP implementation. These principles, quality statements and standards are regarded as the foundation for accessible, scalable and clinically safe PrEP programmes.

Once the minimum standards for an individual principle have been met, it is recommended that countries develop country-specific targets. This will support continued development, responsiveness and impact of the PrEP programmes.

To support countries in developing and delivering PrEP programmes, the following documents are available as accompaniments to the guidance:

- **The Case for PrEP** – considerations for HIV PrEP programmes (Annex 1). On the request of the scientific panel (Annex 2) that supported the development of this guidance, ECDC has developed a PESTLE framework to support implementation of PrEP in EU/EEA countries. The framework is based on a business analysis framework to explore the PESTLE rationale and considerations when implementing national and subnational PrEP programmes in the EU/EEA/UK.
- **Country case studies** (separate document to be uploaded on [ECDC's website](#) when this guidance is launched) from *Belgium, Croatia, Czechia, England, Finland, France, Germany, Greece, Ireland, Italy, Malta, Netherlands, Poland, Scotland, Spain, Sweden and Switzerland*. These illustrations of PrEP implementation outline different service delivery models used, the advantages and limitations of these and reflections from the clinical, public health and community representatives responsible for the programme. Contact details are provided to facilitate knowledge exchange and networking.
- **An example of a standardised monitoring tool** (Annex 3). This example monitoring tool provides key monitoring indicators developed through three rounds of consultation with public health, epidemiology, clinical academic and health planning experts from the four nations of the UK and the Republic of Ireland. More information about the development of this tool can be found in Principle 10: Monitoring and evaluation of this guidance.

Audience

This operational guidance is intended to be useful for all those involved in the prioritisation, development, delivery and/or monitoring of HIV PrEP programmes. Likely primary users of this guidance are shown in Table 2.

Table 2. Intended audience for the operational guidance

Intended audience for operational guidance		
Public health professionals, including: <ul style="list-style-type: none"> • Policy-makers • Practitioners • Commissioners 	Clinicians working in the following specialist areas: <ul style="list-style-type: none"> • Sexually transmitted infection (STI) and HIV medicine • Infectious disease prevention • Gynaecology • Reproductive medicine • Sexual health • Primary care/family medicine 	Civil society and community representatives, including: <ul style="list-style-type: none"> • Non-governmental organisations (NGOs) and community-based organisations (CBOs) • Community-based advocates for PrEP • PrEP users

Key considerations for PrEP implementation in the EU/EEA

The following considerations are key for interpreting the 10 principles and working towards the quality statements and standards presented in this guidance:

Global importance of HIV prevention: There has been a steady decline in diagnoses of new HIV infections in the EU/EEA, however the 90-90-90 target (90% of PLHIV diagnosed, 90% of those diagnosed on ART, 90% of those on treatment virally suppressed) set by UNAIDS has not been met consistently across EU/EEA countries [10]. A further and substantial reduction in HIV incidence is required if Europe is to meet both the UNAIDS 2020 (75% reduction in HIV incidence) and 2030 (zero new infections) global targets [10]. The focus must now be on more precise European targets that address the specific goals of the 2020 Fast-Track HIV targets [11], as well as Target 3.3 of the Sustainable Development Goals (SDGs). The SDGs aim to end epidemics, including but not limited to AIDS by 2030 (Table 3).

There is now a global health requirement for a sustained focus on HIV prevention. Reaching these goals requires new methods and approaches. New approaches include the implementation of PrEP and clear minimum standards and for standardised delivery and monitoring of PrEP across the EU/EEA. Eliminating AIDS-related deaths and HIV stigma and discrimination also remain targets, although a European specific goal has not yet been defined.

Table 3. Global and regional targets for ending AIDS

SDG targets (by 2030)	Fast-Track targets (by 2020)	Specific targets for Europe (by 2020)
✓ Zero new infections (90% reduction)	✓ To reduce new HIV infections to fewer than 500 000 by 2020, globally ²	✓ Incidence reduction of 75% (2010 baseline) ✓ PrEP (no European target) ³
✓ Zero AIDS deaths (90% reduction)	✓ To reduce AIDS-related death to fewer than 500 000 by 2020, globally ⁴	✓ 90-90-90 ✓ Mortality (target not defined)
✓ Zero discrimination	✓ To eliminate HIV-related stigma and discrimination by 2020	✓ Eliminate stigma (currently not measured in the EU/EEA)

Human rights and person-centred approach: A human-rights-based approach is helpful when offering PrEP to those in greatest need of HIV prevention. This approach emphasises issues such as, universal health coverage, gender equality and equity and health-related rights, including accessibility, availability, acceptability and quality of PrEP services. This is in line with other forms of HIV prevention and promoted by the WHO [12].

Applicability to all population groups in need: This guidance refers to all population groups identified through epidemiological surveillance data as being in greatest need of PrEP. Inclusion of recommendations specific to MSM populations is necessary [13,14] as it is estimated that there are 500 000 MSM in the EU/EEA who are likely to take PrEP if it were offered them [15]. There is a positive correlation between MSM 'wanting' PrEP and MSM 'needing' PrEP (i.e. being at increased risk of acquiring HIV infection), therefore MSM are a key population to which PrEP should be offered [15].

In addition, the needs of individuals who belong to other population groups that may be more vulnerable to HIV infection should be recognised. This is because various legal and social factors, can increase exposure to risk and create barriers to accessing effective, quality and affordable HIV prevention, testing and treatment services [16]. These groups include migrants from countries with high HIV endemicity (Sub-Saharan Africa in particular), cis females, trans/transgender people, people who inject drugs, people in prisons and other closed settings, and sex workers and their clients, who also have other vulnerabilities which can heighten the risk of HIV infection [17]. Other vulnerabilities include:

- Having a sex partner who has HIV infection and who does not have an undetectable viral load;
- Having a sex partner who injects drugs;
- A lack of entitlement to healthcare; and
- Intimate partner violence.

There may be multiple barriers to PrEP uptake within certain groups. For example, in Scotland and England, some women of black African and black Caribbean ethnicity are at particular risk of HIV. A lack of awareness of PrEP and the stigma associated with sexual health matters per se in some communities, combined with a healthcare providers' perceived lack of skills in approaching HIV prevention discussions in a culturally sensitive way make extending the benefits of PrEP to these groups challenging.

Countries are encouraged to consider how to create a country- and population-specific evidence base to inform broader delivery of PrEP to key groups in need. This will help countries to explore and address communication gaps between the scientific community and the general public.

'A paucity of evidence from Europe concerning the efficacy of PrEP among non-MSM groups should not be a reason to restrict access for these populations. We can draw on qualitative evidence from Sub-Saharan Africa about the acceptability and use of PrEP among young heterosexuals in other parts of the world.'

Gus Cairns, Scientific Panel Member

'Expansion in eligibility criteria should be met with efforts to raise awareness and understanding of PrEP among all communities.'

Andrew Winter, Scientific Panel Member

² The figure 500 000 stated is based on global goals reported in the Fast Track Commitments Report. While regional targets are defined, these are not specific to Europe. Regional targets combine goals for the *Eastern Europe and Central Asia region* (reduction to 44 000) and for *western and central Europe and North America* (53 000).

³ Further research, monitoring and surveillance are needed to estimate the percentage of PrEP coverage that facilitate countries in reaching the goal of zero transmissions. It is likely targets will be country / region specific.

⁴ The figure 500 000 stated is based on global goals reported in the Fast Track Commitments Report. While regional targets are defined, these are not specific to Europe. Regional targets combine goals for the *Eastern Europe and Central Asia region* (reduction to 1.4 million people) and for *western and central Europe and North America* (reduction to 2 million people).

HIV prevention as part of sexual health and well-being: In this guidance, PrEP is presented as a harm-reduction strategy which should be offered as part of a comprehensive sexual health and well-being care package. Comprehensive care packages are described in more detail on page 20, within Principle 4. Note that PrEP is not intended to replace more established methods of HIV prevention, but to be offered as an additional option for populations and individuals who may benefit.

'Prevention is hard: combination is key'
Claudia Estcourt, Steering Group Member

Public health: Clinical management of potential, current and former PrEP users is central to effective population level PrEP delivery; extensive operational guidance is available to support this [18-21]. This current operational guidance document on the implementation of PrEP in the EU/EEA and the UK can be used to provide a comprehensive understanding of PrEP implementation, standards and monitoring. The focus is on population level guidance. Fundamental and minimum requirements for delivering clinically safe and effective PrEP programmes are also included. References are provided to support further reading about clinical management of potential, current and former PrEP users.

Utility for all EU/EEA countries and the UK: Given the relative newness of PrEP as an HIV prevention method, all countries are 'learning while doing'. Reflective practice, evaluation, parallel research [14], and knowledge sharing are encouraged and can directly inform PrEP programmes. This is especially important in the areas where little scientific evidence exists e.g. PrEP delivered at harm reduction centres for injecting drug users and new delivery methods for PrEP, such as online dispensing via pharmacies.

'It is imperative to remember that each country is at a different starting place. For some, gaining financial support for PrEP programmes must be developed alongside an understanding that prevention can be more cost-effective than cure, while addressing homophobia.'

Justyna Kowalska, Scientific Panel Member

PrEP readiness

'Programmes need to develop delivery platforms that ensure these interventions reach those at highest risk, to shape the policy environment so that it facilitates implementation at scale with high quality and intensity, and to monitor the programme with indicators along the cascade.'

James Hargreaves et al, 2016 [22]

PrEP implementation often begins on a small scale, driven by motivated individuals and perhaps with a single clinician prescribing PrEP. However, for PrEP to have a measurable impact on HIV incidence, it must be offered and used on a much larger scale [22].

Scaling up PrEP programmes relies on both individuals and their healthcare providers, who are all influenced by socio-cultural factors and are embedded within larger healthcare systems [23]. PrEP implementation therefore requires acknowledgment of a range of related factors [24], including those which may present a barrier to PrEP service delivery. These include:

- Limited extent to which knowledge of the HIV epidemic in a country exists outside specialist centres;
- Whether there is policy-level discrimination against specific population groups;
- Societal and community stigma and discrimination against specific population groups;
- Internalised and anticipated stigma and discrimination among potential PrEP seekers;
- Conflicting political and public health priorities (at national and local level), including acute and unexpected issues, such as the COVID-19 pandemic;
- Cost of setting up and maintaining a PrEP service;
- Cost of PrEP to the end user;
- Current knowledge and attitudes of providers (including those outside of the infectious disease speciality);
- Current access to HIV and STI testing and treatment;
- Multiple marginalised identities of PrEP users (for example, migrant MSM and MSM engaging in chemsex); and
- Effects of economic instability (for example, as a result of the COVID-19 pandemic).

It is necessary to consider and commit to addressing these structural, capacity, and policy challenges in order to implement safe and effective PrEP programmes [25,26].

Cost-effectiveness

Governments and country programmes should determine the HIV incidence threshold and key populations for cost-effective delivery of PrEP programmes [27-29]. Epidemiological analyses can be used to determine HIV incidence thresholds. These can be calculated by identifying the regions and populations in greatest need of PrEP and their approximate population sizes. Where HIV surveillance data do not support this, countries should use proxy data to build their own national models for PrEP effectiveness, cost, and cost-effectiveness. HIV incidence thresholds for offering PrEP will vary by epidemiological context, trends in HIV transmission, available resources and the relative costs, feasibility, and demand for PrEP [30]. Estimating the cost of PrEP initiation for an individual client can be helpful. Where possible, the estimate could include the cost of STI and HIV testing, hepatitis B vaccination and treatment for hepatitis C, and for any other STIs diagnosed among PrEP users. Leadership is needed to ensure that medicines regulatory authorities and public health officials review the evidence to support the use of ARTs for HIV prevention among all populations who would benefit from PrEP [31].

The Scientific Panel convened for the production of this operational guidance recommends that national leaders work with medicines regulatory authorities to enable generic medications to be used and supports the prescription of PrEP for event-based rather than daily use, if needed.

Scientific Panel Recommendation [35]

Prioritisation in public health policy

Ministries of Health play a key role in the introduction of PrEP within existing national health programmes [31]. Leaders within Ministries of Health, and national and regional public health bodies, are usually already tackling multiple health and social problems and economic challenges, and thus may be reluctant to consider new major prevention methods without comprehensive information about the relative benefits. Leadership and buy-in from Ministries of Health is, however, necessary to commit the resources required for effective implementation of policy and scale-up of interventions. In addition, visible and committed leadership is needed to inspire regional public health authorities.

These authorities can prioritise localised and comprehensive strategic plans, aimed at reducing HIV transmission and HIV-related illness and death and which can enhance general sexual health and well-being [31].

Payments

Implementation and uptake of PrEP within programmes is facilitated when the PrEP user does not bear any costs of the medication or is only responsible for a minor contribution.

A crucial indicator of PrEP readiness is consensus at national level regarding:

- aspects of PrEP programmes that a country may legally fund;
- the procurement and funding of PrEP within existing ART and HIV treatment budgets; and
- whether the increased and integral costs of HIV and STI testing and counselling are to be financed through HIV or STI prevention budgets, which sometimes are held by different organisations [32].

In most countries, financial support is needed beyond addressing the cost of medication [33] and may include, for example, the costs of providing PrEP monitoring. In some settings, the cost of medical monitoring of PrEP users now exceeds the costs of the medication itself [34]. An analysis of models adopted in the EU suggest that country or regional level implementation is likely to be the most cost-effective model of delivery [35]. From a service provider perspective, joint negotiation and large-scale procurement of antiretrovirals (including generic formulations) could reduce costs and significantly increase the cost-effectiveness of PrEP [36]. In addition, cost estimate tools need to be developed to support adequate planning and implementation [36]. Where procurement costs cannot be negotiated, service providers should focus directly on strategies to reduce the cost of PrEP medication [37]. These include prescribing PrEP for people at the highest risk, as this has the potential to increase cost-effectiveness of preventing HIV infections in high-prevalence settings [38].

From a PrEP user perspective, the cost of PrEP consultations, testing and prescriptions can impact on their willingness to access PrEP in the first instance and to continue using it. Furthermore, costs associated with necessary, adequate and ongoing monitoring may present a barrier to continued use of PrEP [35]. In some cases, these costs are prohibitively high for individuals and can result in informal PrEP use (without medical supervision) and/or inappropriate use of PrEP [35].

Sustainability and scalability

The long-term feasibility of PrEP services varies by the country context, and the way in which the health system is organised and health services are delivered. It is critical to have a reliable reporting system to monitor the number of new HIV infections among the different population groups and to assess the potential impact of PrEP. Feasibility

is also dependent on the overall acceptability to service users. Relatively small elements of a service model can play an important role in supporting PrEP users and sustaining their engagement with the service.

Countries should consider the country context, where HIV and STI testing and treatment are currently delivered and, where the target population(s) for PrEP prefer to seek care. For example, women may prefer to access care through primary and gynaecological care providers [39]. Further considerations regarding sustainability and scalability include [35,40,41]:

- Which aspects of the PrEP programme can be automated?
- Which aspects of the PrEP programme are shared with other areas of HIV prevention, testing and care, to facilitate scale up and reduce costs?
- Is it possible to differentiate service delivery by context or using client-centred approaches? For example, can PrEP be offered within comprehensive sexual health packages in and within community settings?
- What needs to change to accommodate a new way of working/PrEP delivery?
- Could legislation be changed to allow prescribing by a wider group of healthcare professionals e.g. can nurses prescribe PrEP?
- Could legislation be changed to allow HIV self-testing?
- Could national programmes be adapted to enable 1) off-label PrEP use for intermittent/event-driven use, and 2) dispensing PrEP in non-medicalised or under-resourced settings.

A thorough understanding of the national and local context is essential to determine country level readiness to roll-out a PrEP programme. This should be accompanied by an estimate of the size of the population in need of PrEP, consideration of the countries existing system-level capacity to meet the need and a defined model of care. Successful PrEP implementation relies on robust planning at each stage of set up and delivery and real consideration of what is acceptable and feasible for all stakeholders identified by the individual country.

Ten key principles have been identified through a review of academic and public health literature, stakeholder consultation and received expert scientific advice. These principles support a country's ability to prioritise, develop and deliver PrEP programmes that are clinically safe and available on an equal basis to those at highest risk of HIV infection. Also, scalability of the delivery model is central to achieve optimal coverage among those in need and support effective PrEP service delivery.

The remaining sections of this Guidance are structured around 10 principles and provide suggestions for countries at all stages of a PrEP programme, including:

- **Pre-PrEP programme:** determining the readiness to set up a PrEP programme;
- **New PrEP programmes:** PrEP programme established for up to 24 months;
- **Established PrEP programmes:** PrEP programme established for 24 or more months.

Guidance development

Evidence base

A literature scoping review was conducted to identify barriers and facilitators and minimum standards for PrEP implementation [42].

An online stakeholder survey consultation was used to determine the relative importance of the barriers identified in the literature and to identify further challenges and facilitators of PrEP implementation and monitoring.

The online survey was distributed to clinicians, public health experts and civil society/community representatives via relevant networks, including EACS, WAVE, IUSTI, EATG, AIDS Action Europe, PrEP in Europe, Positiviset. ECDC focal points for HIV response monitoring also supported recruitment to the survey. Respondents to the survey covered all countries in the WHO European Region, with the exception of Bosnia and Herzegovina, Kazakhstan, and Slovakia (n=361).

Nearly half the respondents reported a patient-facing role ('provider'), one third were working in/with the community or were a member of the community themselves ('the community') and just under one quarter were public health or policy-making professionals ('public health professionals'). These groupings were used to compare the challenges and needs of different stakeholders in the prioritisation, delivery, use and monitoring of PrEP services.

Stakeholder consultations

ECDC appointed an expert scientific panel (see panel members, process of appointment and terms of reference in Annex 2) and expert observers in infectious disease, public health, and migration. ECDC convened a scientific panel meeting (held 12-13 February 2020) during which the panel reviewed and assessed the evidence base and discussed the key challenges and needs identified in the literature and the stakeholder survey. The Panel made recommendations for the scope, format and target audience for this operational guidance document. A first draft of this guidance was produced by a smaller expert Steering Group and this was reviewed by the Scientific Panel.

Key principles for effective PrEP programme implementation

This section of the guidance is structured around 10 core principles and features of effective PrEP programmes. The principles of effective PrEP programmes are illustrated in Figure 2 and defined in Table 3. In the sections to follow, each principle is described, with a supporting rationale for its inclusion. Alongside each principle, related quality statements and, where there was an evidence-base and clear consensus among the panel for a target applicable across the EU and UK, minimum standards for delivery are presented. These are categorised as being relevant for preparatory (before a programme exists), new (under 24 months) and established (24 months and above) phases of PrEP implementation. Once the minimum standards for a principle have been met, it is recommended that countries develop country-specific targets. This will support continued development, responsiveness and impact of the PrEP programmes.

Figure 2. Key principles for effective PrEP programme implementation

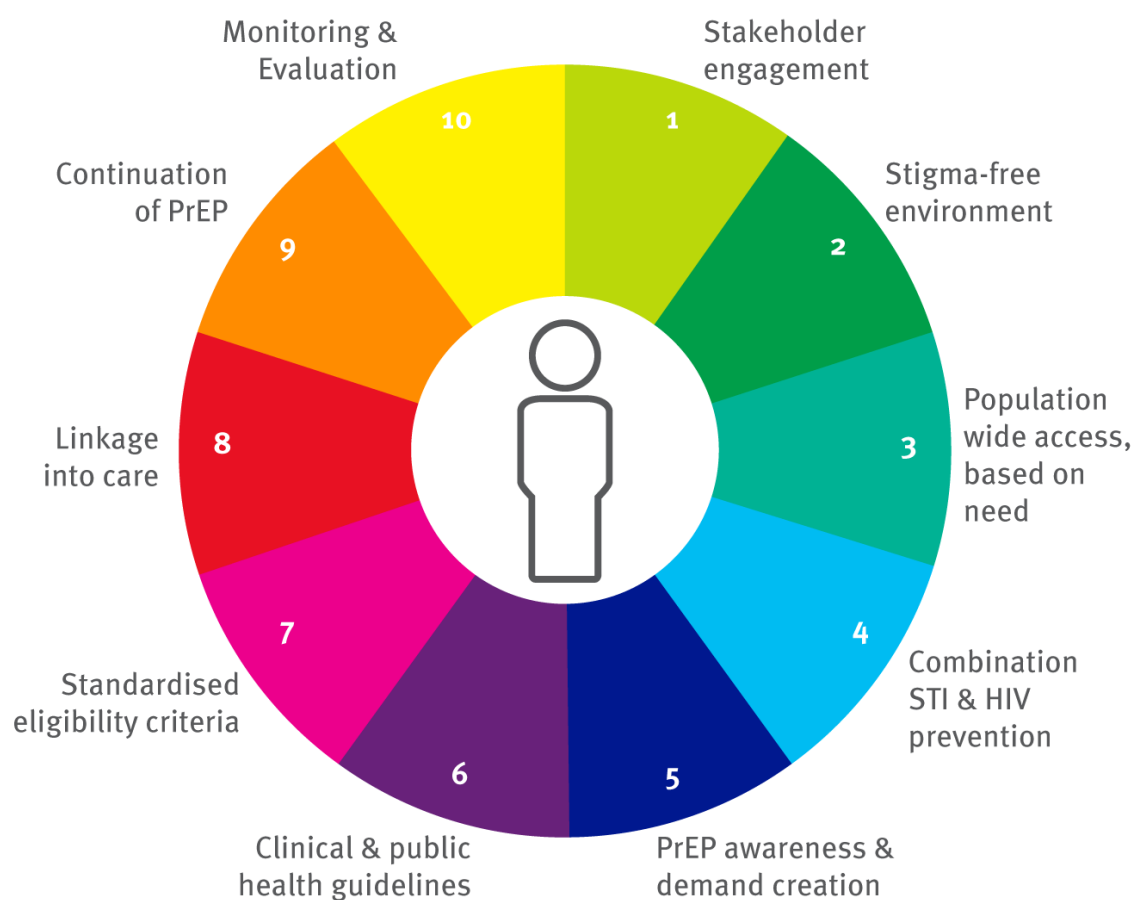


Table 4. Overview of key principles for effective PrEP programme implementation

<p>PRINCIPLE 1 Early and ongoing stakeholder engagement Representatives of all stakeholder groups involved in or affected by the initiation of a PrEP programme should be engaged at relevant points in programme planning, delivery and monitoring.</p>
<p>PRINCIPLE 2 Implementation within a stigma-free environment PrEP programmes should be centred on a positive and respectful approach to sexuality and sexual relationships, individuals' personal and cultural experiences and behavioural choices. This should help reduce PrEP stigma, encourage HIV testing and prevention, and reduce HIV infection.</p>
<p>PRINCIPLE 3 Population-wide access, based on need PrEP should be accessible and affordable to all people in need of HIV prevention, where clinically appropriate, as part of combination prevention services.</p>
<p>PRINCIPLE 4 PrEP embedded in combination STI and HIV prevention, and sexual health programmes PrEP should be provided, wherever possible, alongside and in combination with other STI and HIV prevention, and sexual health and well-being programmes, tailored to the individual's wants and needs. This frames PrEP as a positive health and well-being choice.</p>
<p>PRINCIPLE 5 Proactive approach to raising PrEP awareness and demand creation People from groups that have been carefully identified as being in greatest need of HIV prevention, should be made aware of PrEP, how to access it and how to use it safely and effectively.</p>
<p>PRINCIPLE 6 Compliance with clinical and public health guidelines PrEP programmes should be delivered within a system that enables and supports provider awareness of, and compliance with relevant clinical and public health guidelines (i.e. local, national, EACS, WHO guidelines).</p>
<p>PRINCIPLE 7 Use of standardised eligibility criteria to assess need PrEP programmes should offer clinical and behavioural/risk assessment against standardised eligibility criteria to determine whether PrEP is a suitable option for an individual.</p>
<p>PRINCIPLE 8 Linkage into care PrEP programmes should promptly refer individuals who are diagnosed with HIV (at any stage) to appropriate settings where they can receive HIV treatment and care, as needed. In addition, where needed, individuals should be referred to appropriate settings where they can receive sexual health and well-being information and support.</p>
<p>PRINCIPLE 9 Continuation of PrEP PrEP programmes should support PrEP users to use PrEP appropriately, as required for their individual needs. This is a critical component of safe and effective PrEP use. Support can be delivered through a combination of clinical and community-based interventions/services and should include support with adherence, risk compensation, follow-up appointments, and when/how to safely stop/restart PrEP.</p>
<p>PRINCIPLE 10 Monitoring and evaluation PrEP programmes should strive to deliver services within a monitored system in which it is possible to measure basic data on e.g. people on PrEP, stopping PrEP, breakthrough infections, new STI infections and transmitted drug resistance, so that effectiveness of the programme can be measured.</p>

Principle 1. Early and ongoing stakeholder engagement

Definition

Representatives of all stakeholder groups involved in or affected by the initiation of a PrEP programme should be engaged at relevant points in programme planning, delivery and monitoring.

Rationale

A multi-sector approach to delivering PrEP programmes is needed [25]. Alliance among policy-makers, civil society and representatives from key populations, healthcare providers and researchers will be critical for the design and successful implementation of PrEP [36]. In Scotland, for example, multidisciplinary and multi-agency partnerships to deliver PrEP and ongoing research element have characterised the early stages of PrEP implementation [14].

'Each Member State should consider and develop its own list of relevant stakeholders based on the circumstances and infrastructure in the country... PrEP delivery can be supported by multisectoral engagement, task shifting and thinking outside the box'

Fiona Lyons, Scientific Panel Member

Representatives of identified stakeholder groups should be involved at key stages of programme design, implementation and monitoring. This may include PrEP users, potential PrEP users and medical and community service providers [13,43]. This can facilitate the creation of acceptable PrEP programmes [44], increase sustainability and foster comprehensive care [38].

The needs of clients and potential should be considered within the context of their social environments. This is to ensure interventions target individuals appropriately. Similarly, the demands asked of care providers should consider the institutional environments in which they work. Where multiple stakeholders are involved in the delivery of PrEP, a way to optimise the involvement of available staff, advocates and community members is to use 'task shifting'. This involves assigning a task or role to a new group wherever it is effective, feasible and acceptable [35,41].

The role of governmental organisations and ministries of health

Working with Ministries of Health and other governmental organisations is a central requirement for prioritising and funding large-scale PrEP programmes [35]. Lack of political motivation and engagement was a recurring barrier to implementation emerging from the stakeholder consultation exercise.

'Strengthening political will, must run alongside the implementation of PrEP programmes.'

Julia del Amo, Scientific Panel Member

In France, PrEP users were required to attend a hospital appointment annually. However, from spring 2020 GPs were permitted to initiate PrEP by prescription of the first dose. This was achieved through iterative discussions with the Ministry of Health, and the National Health Service, in which the case was made that large-scale expansion of the existing PrEP programme would rely on GP involvement.

Spain's free national PrEP programme is the direct result of a collaborative decision to reimburse PrEP. Public health and healthcare are decentralised to 17 autonomous regions coordinated by the Ministry of Health. The early engagement of all the relevant actors (at technical and political levels) from all 17 regions, in public discussions was key and facilitated the Ministry of Health's efforts to harmonise regional interventions, which are based on different service delivery models, including STI centres, HIV units, and check-points. Over time, support and enthusiasm at central and regional level has enabled a sustainable and scalable PrEP implementation.

The Scientific Panel suggested that governmental stakeholders and policy-makers who do not specialise in infectious disease, HIV and/or STIs, may benefit from alternative ways of being presented with key information. For example, using an established business analysis framework, such as the PESTLE model, to communicate to non-specialist audiences may be effective. The PESTLE model can be used to outline the Political, Economic, Social, Technological, Legal and Environmental impact, barriers, and facilitators of PrEP. This is the type of information needed by governmental decision-makers. In addition, providing governmental and Ministries of Health with established health indicators, may assist policy-makers in assessing the relative merits of investing in a PrEP programme – for example, disability-adjusted or quality-adjusted life year measures.

The role of non-governmental organisations, community-based organisations, and civil society members

'Strong partnership between HIV/STI clinicians and community advocates seems the first step to foster PrEP implementation'

Jean-Michel Molina, Scientific Panel Member

PrEP advocates remain critical partners in the HIV response and can support the broader dissemination of accurate information about PrEP to a range of stakeholders [43]. Community-based and lay-provider-administered HIV testing services can reduce barriers to accessing support [31,45,46] and provide support along the whole PrEP pathway [47]. Similarly, organisations that provide primary care services may be ideal PrEP providers; given their long-term relationships with patients, and integrating PrEP into routine care [48]. Community-based organisations are also well placed to support daily PrEP use and adherence to prescribed regimes. They may also be able to support behaviour change among PrEP users through motivational interviewing and peer counselling [43,44].

The role of peer and community educators

Community educators can provide information on PrEP directly to communities that may benefit from taking it. They can help people who are in greatest need of HIV prevention in their communities to make informed decisions about whether to consider PrEP. Although settings will differ, community educators are often also peers who may have an enhanced understanding of the context and circumstances of the person [31]. Peer educators can provide reliable information on how to recognise risk, basic information about HIV prevention options, as well as strategies for adherence and signpost potential PrEP users to relevant services.

The role of pharmacists

Pharmacists and pharmacy workers can play a key role in the provision and monitoring of PrEP [49]. This group was identified through stakeholder consultation as being able to support the implementation of PrEP programmes. There are emerging models of PrEP services, which include a key role for pharmacists and community pharmacy settings. Pharmacists and their staff may have multiple roles in providing PrEP, including [49]:

- managing the supply chain and drug procurement;
- ensuring PrEP medicines are dispensed in accordance with local regulations;
- providing information about PrEP, including counselling to support adherence;
- offering advice on possible side-effects and their management;
- providing information on the potential for drug–drug interactions; and
- monitoring adherence of PrEP users when returning for prescription refills.

Implementation, standards and monitoring

Table 5. Quality statement and minimum standards for Principle 1

Quality statement (Pre-, New and Established PrEP programmes)	Minimum standard ⁵
Identify and monitor the involvement of key stakeholders who can influence/have a role/are affected by PrEP delivery <ul style="list-style-type: none"> • Communities in greatest need of PrEP • PrEP users • Policy-makers • Community based organisations/Pharmacists • Dating apps/online platforms used by target audiences 	At least one stakeholder from each group has been identified for involvement in PrEP programme design. Contact has been established with at least one stakeholder from each group
Engage key stakeholders by: <ul style="list-style-type: none"> • Establishing collaborations with key stakeholders • Consulting key stakeholders before key decisions are made • Informing key stakeholders of key developments 	At least one stakeholder from each group has been invited to a meeting at the programme development stage At least one stakeholder from each group has been invited to a meeting at the start of programme implementation At least one stakeholder from each group has been invited to a meeting to discuss monitoring of the PrEP programme
Involve key stakeholders by: <ul style="list-style-type: none"> • Seeking and considering service user feedback survey 	Create a mechanism for service users to provide feedback on the services they receive (e.g. survey, complaints/compliments box)

⁵ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 2. Implementation within a stigma-free environment

Definition

PrEP programmes should be centred on a positive and respectful approach to sexuality and sexual relationships, individuals' personal and cultural experiences and behavioural choices. This should help reduce PrEP stigma, encourage HIV testing and prevention, and reduce HIV infection.

Rationale

PrEP is stigmatised by association with its origins as a medication used to treat people with HIV [50]. PrEP stigma is often experienced at the community-level by both current and prospective PrEP users [51]. PrEP stigma can be reinforced by research, policy and public health programmes [50]. PrEP stigma disproportionately impacts marginalised groups, and its impact on client and provider behaviour can hinder the scale up of PrEP programmes [50]. Individuals who experience multiple stigmas may need more tailored interventions to enable them to access PrEP without fear of stigma [52]. Care must be taken that PrEP roll-out does not reinforce HIV stigma or PrEP stigma. This can be achieved through whole society PrEP education [31].

Policy-makers are strategic gatekeepers to PrEP implementation. Increasing and strengthening their collective knowledge of PrEP would enhance the timely delivery of national and local PrEP programmes [36]. HIV specialists may rarely see HIV-negative individuals. In contrast, primary care physicians, often see HIV-negative individuals but are not necessarily trained to provide PrEP [53]. The intersections between PrEP-stigma [54,55], HIV-stigma, transphobia, homophobia, and disparities across gender, racial, and ethnic groups among PrEP providers have been well-documented [23]. Stigma and bias can result in an unwillingness to prescribe PrEP and internalised and anticipated stigma may prevent potential PrEP users from demanding PrEP. Social barriers in health literacy⁶ [56], such as structural stigmas relating to HIV and homophobia, can shape practitioner concerns and support for community members' willingness to engage with PrEP [57].

Similarly, healthcare providers are operational gatekeepers to PrEP implementation. These stakeholders should have or develop 'an open and genuine interest in the experiences of individuals and their expression of their identity' [31]. A positive relationship between client and prescriber can support PrEP initiation and adherence to PrEP regimes [47]. Training is a key component of facilitating PrEP programmes, particularly when converting clinician support into prescribing behaviours [58]. Training and education should include a basic understanding of PrEP [59] [60],[61], address prescription bias, condom use, counselling, and appropriate treatment of individuals [62]. Providers may also benefit from training to enhance skills with HIV risk assessments as well as comprehensive discussions about sexual behaviours and sexual orientation, which are important for identifying people who may benefit from PrEP [54] [55].

⁶ Health literacy can be defined as the capacity that an individual has to access and effectively use health-related information, in order to promote and maintain good health.

Implementation, standards and monitoring

Table 6. Quality statement and minimum standards for Principle 2

Quality statement	Minimum standard ⁷
Pre-PrEP programmes	
Identify/develop and review national and local implementation guidelines ensuring non-stigmatising language [63]	National and local implementation guidelines have been identified, reviewed and updated if needed
Identify and review relevant clinical guidance	Clinical guidance has been identified, reviewed and updated if needed
Create a PrEP positive and informed environment <ul style="list-style-type: none"> Aim to reduce HIV and PrEP stigma [24], for example, by creating non-targeted community education campaigns [35] which present PrEP to communities as a responsible choice that protects both partners [64] Conduct stigma-reduction campaigns [25] Invite willing PrEP-user champions to speak publicly about their experiences. They speak from a position of power, expressing in their own words the reasons why they chose to use PrEP to protect themselves, their partners and their community. This can be beneficial for communities and professionals [31] 	One event/meeting to discuss the rollout of PrEP has taken place
Enhance PrEP positive practice among future PrEP providers by providing training in: <ul style="list-style-type: none"> Effectiveness of PrEP [65] Long-term health effects of using PrEP [38,54,55,66] Sexual history-taking and sexual minority competence [67,68] Validity of concerns surrounding STI risk compensation [69] 	Training resources/guidelines for national use have been developed and are accessible online and have been distributed to key stakeholders, including PrEP providers
New PrEP programmes	
Introduce training and education programme for PrEP providers <ul style="list-style-type: none"> Training can be provided via webinar sessions to allow providers to access these at a convenient time. Training should include the following topics: <ul style="list-style-type: none"> PrEP implementation guidance [53] Guidance for clinicians [58] PrEP eligibility assessments, prescribing and management [21] Clinical support and counselling [58] 	Training sessions are accessible to all PrEP providers
Identify a clinical champion who can be visible and/or accessible in in each setting where PrEP is provided [27] <ul style="list-style-type: none"> This should be somebody who can provide reassurance and promote use of PrEP as well as contributing to development of clinic protocols [70] A remote clinical champion/hotline may be a cost-effective way to enable access to all providers [35] Consider having a rotating clinical champion, so that team members adopt the role for a limited period, ensuring an all-round champion and enabling the whole team [35] 	A clinical champion has been identified and is accessible to PrEP providers in each setting
Established PrEP programmes	
Ensure training resources remain accessible to PrEP providers and are regularly updated.	Training resources aimed at encouraging under-served groups have been developed, are accessible online and have been distributed to key stakeholders, including PrEP providers

⁷ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 3. Population-wide access, based on need

Definition

PrEP should be accessible and affordable to all people in need of HIV prevention, where clinically appropriate, as part of combination prevention services. [1,64].

Rationale

The specific emphasis of this principle is equity, which involves making PrEP available in different ways across all countries, and taking into account different healthcare settings and the needs of different population groups, including migrants, cis females, trans/transgender people, people who inject drugs, people in prisons and other closed settings, and sex workers and their clients [17] (see section '3 PrEP Readiness' for a non-exhaustive list of vulnerabilities).

Several rigorous clinical trials have shown that PrEP prevents HIV acquisition when taken regularly [1-4,53]. PrEP has been shown to be safe for all populations, including women who are pregnant and breastfeeding and people in serodiscordant couples who are HIV negative [8,71]. PrEP can be cost-effective at a population level as it can prevent new infections, strengthen global HIV treatment initiatives by decreasing the number of people who require lifelong treatment and have an additional benefit of increasing STI and HIV testing [22]. It can be particularly beneficial for people who are unable to use other HIV prevention methods, for example people who struggle using condoms or have barriers to condom use or negotiating condom use. The benefits of PrEP can be maximised when PrEP is used at scale and with broad coverage of the populations at highest risk of HIV. Evidence suggests that the benefits of PrEP reach beyond HIV prevention and extend to improvements in mental and sexual well-being in some groups [72,73]. This means that for PrEP to have an observable impact, groups in greatest need should have access to PrEP [8].

Current European guidance describes PrEP as a medical intervention that should 'be supervised by a doctor, experienced with sexual health and use of HIV medicines, possibly as part of a shared care arrangement' [19]. There is growing expert opinion that for many, ongoing PrEP use (after the initial eligibility consultation) can be overseen by non-HIV specialists and in non-medicalised settings [19]. For example, follow-up appointments could take place in general practice, gynaecological clinics and/or community-based settings. Appropriate local, national and international clinical guidance should be followed, irrespective of the setting in which PrEP is prescribed and delivered.

Although infectious disease, HIV and sexual health specialists may be most likely to have knowledge about PrEP and be more willing to prescribe it [58], national protocols should include a wider range of delivery models, accessible and relevant to specialists in other areas of medicine [25,48]. For example, wherever possible, expanding GP services, to better integrate PrEP can facilitate uptake and increase access to PrEP in primary and community care [25].

Using multi-service provision of PrEP medication and support, can be facilitated by organisations that are more visible and accessible for individuals [48]. For example, due to their experience with dispensing and counselling, pharmacists can prescribe PrEP. Innovative delivery methods such as online PrEP provision and peer-led community programmes may also increase the reach of the intervention.

[48]. For example, due to their experience with dispensing and counselling, pharmacists can prescribe PrEP. Innovative delivery methods such as online PrEP provision and peer-led community programmes may also increase the reach of the intervention.

Implementation, standards and monitoring

Table 7. Quality statement and minimum standards for Principle 3

Quality statement	Minimum standard ⁸
Pre-PrEP programmes	
<p>Identify and quantify key populations in greatest need of PrEP:</p> <ul style="list-style-type: none"> Population groups at greatest risk of HIV may be identified using national HIV surveillance data, where this is available. An HIV incidence of 3% or greater indicates ongoing HIV transmission and a possible need for biomedical HIV prevention, alongside other methods [74]; Depending on the setting, populations in greatest need may be identified using a combination of information, including geographical location, sex, age, or by risk groups, including men who have sex with men, transgender women, sex workers and their clients, people who inject drugs, heterosexual females, cis-females and migrants who also have other vulnerabilities [59] [19]; Consider other groups, such as people in serodiscordant couples who may be at high risk if their partner has not achieved durable viral suppression [35]; Consider sub-segments of populations (sub-populations) in particular need of PrEP, for example MSM who engage in chemsex [13]; Consider where PrEP services could be established. This should include an assessment of existing capacity and infrastructure of a given health jurisdiction (whether municipal, state or national) and factors that enable or inhibit access to, and provision of, services [74]. 	<p>At least one group is identified, as either/or combination of:</p> <ul style="list-style-type: none"> highest rates of HIV incidence; highest number of new infections.
<p>Prioritise HIV PrEP (for populations in greatest need) in local and/or national policy and guidelines:</p> <ul style="list-style-type: none"> Convene a multidisciplinary working group that will be responsible for gathering available information about PrEP need and identifying gaps for further research. This group should include governmental, clinical, public health and community representation. 	<p>At least one group is recognised as a priority for PrEP in local/national guidance.</p>
<p>Establish a means by which PrEP medication and related services can be made affordable for PrEP user.</p>	
New PrEP programmes	
<p>Ensure all phases of the PrEP programmes strategy, including the initial evaluation and follow-up, as well as dispensing can be fulfilled at the centre/multi-centre setting.</p> <p>All PrEP delivery settings should have/have access to the following [59]:</p> <ol style="list-style-type: none"> Physician with experience in the management of HIV infection, antiretroviral drugs, and STIs (to prescribe / oversee prescribing, provide expertise in clinical decision-making, ensure clinical governance of the service); Standardised clinical histories of potential PrEP users; Pharmacy service that stores, supervises, and dispenses medication and provides information on correct follow-up of the regimen prescribed; A laboratory to diagnose HIV infection, measure viral load, and study resistance; A laboratory for evaluation of blood parameters and biochemistry (necessary for follow-up of drug toxicity); Capacity to evaluate referral pathways to STI diagnosis facilities; Capacity to provide counselling on adherence and sexual health. 	<p>All seven set-up criteria are fulfilled.</p>
<p>Ensure availability of PrEP in a setting that is accessible to the groups identified as being in greatest need of PrEP:</p> <ul style="list-style-type: none"> Centres participating in/providing PrEP services may be varied and can adapt to various situations [59];[59] PrEP services should be integrated into settings which are already used by the target population for other purposes, including, but not restricted to HIV and sexual health. Consideration of intersectionality may enhance access. For example, PrEP may be offered in migrant support services or drug use support groups [24]. This may also support awareness of PrEP services and adherence to PrEP regimens (see Principle 9); Pharmacists are experienced in dispensing medication and increasingly in counselling and offer advice to the public [49]. The community settings may be more accessible [25]. 	<p>PrEP is made available in <i>at least one</i> setting accessible for each group identified as being in greatest need of PrEP.</p>
Established PrEP programmes	
<p>Ensure availability of PrEP in a variety of settings that are easy to access for the groups identified as being in greatest need of PrEP. This may now include telemedicine-delivered PrEP [25].</p>	<p>PrEP is made available in <i>more than one</i> setting accessible to each group identified as being in greatest need of PrEP.</p>
<p>Monitor uptake of PrEP in healthcare and community settings, amongst groups identified as being in greatest need of PrEP.</p>	

⁸ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 4. PrEP embedded in combination STI and HIV prevention, and sexual health programmes

Definition

Where possible, PrEP should be provided alongside and in combination with other STI and HIV prevention, and sexual health and wellbeing programmes, tailored to the individual's wants and needs. Where these additional services cannot be provided, PrEP users should be signposted to relevant services. This frames PrEP as a positive health and wellbeing choice.

Rationale

PrEP provides a high level of protection against HIV acquisition. However, it does not protect against other STIs, blood borne viruses or unintended pregnancy. PrEP should therefore be used in combination with other preventive interventions. PrEP offered within a broader sexual health and STI prevention package offers the potential to reduce/stop the increase in new cases of HIV. It may also help contain other STIs, such as syphilis and Hepatitis C [75] through regular asymptomatic screening, through more prompt diagnosis, treatment and partner notification, as well as ongoing engagement and support for PrEP users.

Behavioural research evidence [62] also suggests that embedding PrEP as part of an integral programme of prevention of HIV transmission can be effective. Integration of PrEP services is appropriate in all epidemic settings and is most important where HIV prevalence is high. The primary purpose of service integration is to increase access to and uptake of PrEP services in places where people are already attending for other reasons [76].

Clinics that offer HIV testing services and ART will often have the resources required to initiate a PrEP service. Other settings that could consider integrating PrEP services include: sexual health clinics, family planning services, services for men who have sex with men and transgender people, services for sex workers, harm reduction services, private healthcare providers [76], family practitioners, and pharmacies. As demand for PrEP increases, additional human and physical resources may be needed. Integration enables the sharing of resources, realisation of economies of scale and expansion of a PrEP programme over time [76]. Integration of PrEP with relevant services will increase sustainability and foster comprehensive care [38].

Combination prevention approaches are most likely to succeed if they simultaneously use behavioural, medical, and structural approaches to address multiple junctures that facilitate STI and HIV transmission [62]. The focus should be on holistic and comprehensive sexual health and well-being. This is key, as in the future, reaching the 90-90-90 goal may mean that there may be less focus on HIV prevention. A holistic narrative could also encourage service planners to utilise the skills and experiences of peer counsellors and nurses and support community-based delivery models, where these are appropriate.

Implementation, standards and monitoring

Table 8. Quality statement and minimum standards for Principle 4

Quality statement	Minimum standard ⁹
Pre-PrEP programmes	
Review national STI/HIV/bloodborne virus strategies to identify options for alignment between PrEP delivery and provision of other related prevention, testing and treatment services [35]	A map of defined referral pathways between services has been created
Establish necessary resources to enable successful integration of PrEP activities into existing clinical and programmatic operation <ul style="list-style-type: none"> • Seek to achieve administrative buy-in from executive staff in provider settings who are responsible for resource allocation [53] • Create sexual health networks which enable staff to share sexual health counselling resources [48] 	A network has been created with clear communication pathways and expectations
New PrEP programmes	
Utilise existing infrastructure that facilitates the provision of HIV treatment and related services: <ul style="list-style-type: none"> • Expand STI screening programmes to improve the integration of PrEP into related STI programmes [25] • This expansion and integration can be achieved by sharing laboratories [67], staff and other resources. Placing bulk orders for STI testing kits can help realise economies of scale [67].	
Established PrEP programmes	
Monitor the impact of increased STI testing: <ul style="list-style-type: none"> • Maintain relationships with broader sexual health colleagues through sharing of lessons learned and information [35]; • Conduct regular local situation analyses to check clinic capacity to provide PrEP services on an ongoing basis. Use information gained from these analyses to update practice and improve delivery of PrEP [35]; • Review national surveillance data to explore whether and to what extent, STI testing is impacted by PrEP implementation [35]. 	

⁹ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU/EEA and the UK.

Principle 5. Proactive approach to raising PrEP awareness and demand creation

Definition

People from groups in greatest need of HIV prevention should be made aware of PrEP, how to access it and how to use it safely and effectively.

Rationale

Evidence suggests that raising community-wide interest in and knowledge of PrEP could facilitate adherence and uptake of PrEP. For example, community engagement and word-of-mouth recommendations from friends in the lesbian, gay, bisexual, and transgender community can help increase demand and promote access to care [77]. Other populations in need, should be considered, even if the group(s) has not yet been explored in depth and therefore research evidence is still under development. This includes people with vulnerabilities within specific sub-populations, such as migrants, trans people, sex workers and people who inject drugs.

Strong adherence has been noted among individuals who had actively sought PrEP (self-referred) [67]. Therefore, a focus on demand creation can support adherence and thus effectiveness of the programme at population level.

Community educators, including peer educators are identified as a key stakeholder group. Community education can also shape appropriate demand for PrEP, facilitate reach and inform people who might benefit most from taking it [31].

Of equal importance is demand estimation, as this can inform the likely size of each national PrEP programme and help to determine the budgetary implications [29].

'In France we conducted surveys among MSM to assess how many were not using condoms and have multiple partners. This is an evolving subject but it can help to provide rough estimates [of the size of eligible population]. We ended up with nearly 20% of MSM in France.'

Jean-Michel Molina, Scientific Panel Member

While attempts have been made to estimate demand for PrEP among MSM populations in the Netherlands, France and the UK [29,78,79], comparable figures are not yet available for other key populations for HIV prevention, including black African heterosexuals, throughout Western Europe.

Implementation, monitoring and standards

Table 9. Quality statement and minimum standards for Principle 5

Quality statement	Minimum standard
Pre-PrEP programmes	
<p>Raise awareness of PrEP among populations in need</p> <ul style="list-style-type: none"> • A clear understanding of how potential users perceive PrEP, and their willingness and intentions to use PrEP is needed to inform service design and enhance access. This can be achieved through literature reviews and empirical data collection among the relevant population [23] • Work with NGOs and CBOs, who may be able to raise awareness with their own communities [31] • Internet-based social media, dating and peer-to-peer offer a low-cost method of reaching potential PrEP users. They are particularly useful for documenting and sharing stories from early adopters of PrEP, to encourage people who could benefit from PrEP to seek PrEP services [31,80]. However, relying solely on internet-based sources is likely to preclude the most vulnerable for who alternatives will be needed [35] 	<p>A data source(s) is available, providing information about perceptions of PrEP, willingness and intent to use PrEP</p>
New PrEP programmes	
<p>Develop and implement strategies which continue to raise awareness and create demand for PrEP</p> <ul style="list-style-type: none"> • Design an awareness [34] and demand-creation [64] campaign which: <ul style="list-style-type: none"> - Describes PrEP and its uses [81] - Describes the efficacy of PrEP [81] - Provides advice regarding eligibility for PrEP [81] - Provides advice regarding other HIV prevention methods [81] - De-emphasises risk perception as a precursor for PrEP, allowing potential users to enquire about PrEP without fear of prejudice and stigma [37] - Signposts readers/users to sources of further information • Consider developing campaigns using multimedia approaches; community forums, and street outreach were a few of the methods used to increase awareness [53]. The social media campaign could use print, Facebook, websites, promotion posters, language-specific brochures, and a PrEP hotline • Consider producing information in the languages, tones and formats most accessible to the target audience 	<p>All groups identified as being at increased need of PrEP are provided with accessible information about PrEP</p>
<p>Estimate the demand for PrEP</p>	<p>Identify a tool which can be used to estimate demand for PrEP</p>
Established PrEP programmes	
<p>Monitor demand for PrEP and tailor provision of services accordingly</p>	<p>Identify a tool which can be used to monitor demand for PrEP</p>

Principle 6. Compliance with clinical and public health guidelines

Definition

PrEP programmes should be delivered within a system that enables and supports provider compliance with relevant clinical and public health guidelines (i.e. local, national, EACS, WHO guidelines).

Rationale

Clear protocols and guidance for clinical care are key facilitators to safe PrEP implementation programmes. In addition to national guidelines, local guidelines can benefit service providers [63] [67]. Implementing national and local guidance, protocols and systems will require large-scale education and information programmes for service providers [58], as well as continuing support in practice [34].

Each PrEP delivery setting should have protocols for the procurement of required medicines and laboratory and clinical supplies. Clinical protocols and standard operating procedures also need to be developed to initiate a PrEP programme [76]. As part of ongoing quality improvement, these documents should be reviewed regularly and revised to address issues as they arise.

As should take place with all HIV care services, all staff would receive training in relevant standard operating procedures before they are applied. At all levels, protocols for training and supervising new staff are needed. Buy-in from executive and administrative staff can support programme development through provision of resources and support the integration of PrEP activities into existing clinical and programmatic operations [37].

Monitoring systems should be put in place to collate data to inform impact and solutions for future development of the PrEP Programme.

Implementation, standards and monitoring

Table 10. Quality statement and minimum standards for Principle 6

Quality statement (Pre-, New and Established PrEP programmes)	Minimum standard ¹⁰
<p>Identify and review relevant clinical guidelines and current regulatory approval of medications to allow their use as prevention treatment in the EU/EEA, including:</p> <ul style="list-style-type: none"> • WHO Module 1 [64]; • EACS – a summary of key clinical guidelines at each stage of PrEP implementation is provided in [19]; • GESIDA – Guidelines from Spain regarding PrEP [59]. 	<p>Countries should consider the applicability of all guidelines in their national and local setting.</p> <p>A minimum set of baseline and follow-up clinical assessments must be identified and agreed, as per EACS [19] and/or national guidelines. This should include a negative HIV result based on a test taken at an appropriate time point in relation to possible exposure.</p>
<p>Develop/identify documentation to suit your national and local context. These might include:</p> <ul style="list-style-type: none"> • Local, national and international guidelines to make them available in your national/local context [35]; • Mobile PrEP programmes, case management, peer navigation, support services to support adherence and retention in care [82]; • Methods for streamlining clinical procedures to facilitate same-day PrEP prescription for individuals without medical contraindications [59]; • Methods for streamlining PrEP follow-up [37]; • Localised protocols and make these accessible. These should: <ul style="list-style-type: none"> - detail a clear workflow or client pathway for each clinical visit for PrEP into several steps within a protocol [70]; - provide information on how staff can support daily routines in PrEP use, which can increase adherence and change behaviours of clients [26,44]. 	<p>Protocols or methods are documented and made accessible at the point of use to all involved in delivering PrEP and/or online, such as <EACS tools>, to consolidate training and enhance provider confidence.</p>
<p>Provide initial and refresher training to PrEP providers in all relevant aspects of PrEP delivery including the following topics:</p> <ul style="list-style-type: none"> • HIV and PrEP literacy [35] • PrEP delivery according to clinical guidelines [59] • PrEP implementation guidance [53] • Local guidelines for clinicians [58] • PrEP eligibility assessments, prescribing and management [83] • Clinical support and counselling [58]. 	<p>All PrEP prescribers should complete initial training in the following topics:</p> <ul style="list-style-type: none"> • HIV and PrEP literacy [35] • PrEP delivery according to clinical guidelines [59] • PrEP implementation guidance [53] • Local guidelines for clinicians [58] • PrEP eligibility assessments, prescribing and management [83] • Clinical support and counselling [58].
<ul style="list-style-type: none"> • Ensure availability of systems which support PrEP delivery and monitoring • Where possible, PrEP templates should be integrated into electronic health records to facilitate provision of services, documentation, monitoring, and data reporting [53] • Streamline clinical procedures and models of care to allow same-day PrEP starts for clients without obvious medical contraindications and with a negative HIV test result [25]. This can minimise delay for those in greatest need [63], whilst creating a clear support pathway for clients [26] 	

¹⁰ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 7. Use of standardised eligibility criteria to assess need

Definition

PrEP programmes should offer clinical and behavioural/risk assessment against standardised eligibility criteria to determine whether PrEP is a suitable option for an individual.

Rationale

While PrEP is efficacious in preventing HIV infection, it is not recommended for all persons who engage in activities which might put them at risk of HIV. According to current EACS guidelines, PrEP should be used in adults at high-risk of acquiring HIV infection when condoms are not used consistently [19], and who meet the recommended eligibility criteria [19]. Meanwhile, the WHO emphasises the criterion 'substantial risk' [8], which includes those who request PrEP [64] acknowledging that an individual may be aware of a risk behaviour, but at the same time, may be unwilling or unable to disclose it [35].

Country-specific eligibility criteria

The WHO [8] and EACS PrEP eligibility criteria [19] are thorough and widely accepted. However, individual countries and regions may need or choose to expand access beyond these criteria and/or to focus provision on specific groups who could also benefit from PrEP. Local epidemiological data identifying a need for PrEP and data on cost effectiveness thresholds should be used to inform country-specific eligibility criteria. As an example, in Scotland, PrEP was introduced for people who inject drugs, who are at risk of sexual exposure to HIV, due to the context of an HIV outbreak.

Implementation, standards and monitoring

Table 11. Quality statement and minimum standards for Principle 7

Quality statement (Pre-, New and Established PrEP programmes)	Minimum standard ¹¹
<p>Comply with the PrEP eligibility criteria stated in the most recent recommendations and guidelines from WHO [8] and EACS [19].</p> <p>After the recommendations and guidelines provided by EACS and WHO have been implemented, supplement with the additional PrEP eligibility criteria based on local epidemic, research and surveillance data. For example, the following criteria are used in Spain [59]:</p> <p>Where the risk is greater than three cases per 100 person-years, MSM and transgender women who have had sexual relations (including penile-anal sex) without a condom during the previous 6 months, plus one of the following:</p> <ul style="list-style-type: none"> • Sexual relations with more than two partners • Diagnosis of ≥ 1 STI • Administration of post-exposure prophylaxis • Use of psychoactive substances during sexual relations. 	<p>Countries should consider the applicability of all recommended criteria, in their national and local setting and have a national / local set of criteria</p>
<p>Provide training (initiation and refresher) to PrEP providers in assessing and addressing PrEP eligibility [84] and relevant screening questions, framed in terms of people's behaviour.</p>	<p>All providers receive training before PrEP programmes begin (i.e. local/national epidemiological situation, eligibility criteria)</p>

¹¹ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 8. Linkage into care

Definition

PrEP programmes should promptly refer individuals who are diagnosed with HIV (at any stage) to appropriate settings where they can receive HIV treatment and care, as needed. In addition, where needed, individuals should be referred to appropriate settings where they can receive sexual health and wellbeing information and support.

Rationale

Creating clear referral procedures, with integrated treatment and counselling pathways [24] can facilitate prompt linkage to care, including substance use/misuse services. Clinical evaluation prior to PrEP initiation and during PrEP, as well as ongoing engagement with NGOs and CBOs supporting an individual's care are key to identifying and addressing the wider health needs of PrEP users. NGOs and CBOs may be able to signpost PrEP users to required services, where these are available. In particular, people who are newly diagnosed with HIV as a result of their assessment for PrEP require support to access HIV care in a timely way. Linkage to care at this early point in the HIV cascade is an attrition blackspot where clients can most benefit from support, such as peer support and navigation [35].

Implementation, standards and monitoring

Table 12. Quality statement and minimum standards for Principle 8

Quality statement	Minimum standard ¹²
<p>New PrEP Programmes</p> <p>Develop and maintain comprehensive wraparound services [24]. This should include provision for:</p> <ul style="list-style-type: none"> • Individuals newly diagnosed with HIV; • Mental health and emotional well-being needs; • Drug and alcohol misuse; • Support for people who wish to reduce or stop engaging in chemsex; • Pregnancy testing and care; • STI treatment and prevention; and • Gender or sexuality support. 	<p>A local pathway and supporting standard operating procedures for linkage to care for people with an identified or suspected need, including:</p> <ul style="list-style-type: none"> • Individuals newly diagnosed with HIV • Mental health and emotional well-being needs; • Drug and alcohol misuse; • Pregnancy testing and care; • STI treatment and prevention; and • Gender or sexuality support.
<p>New and established PrEP programmes</p> <p>Identify individual needs:</p> <ul style="list-style-type: none"> • Take a complete clinical history to identify support needs related to substance use and addictions, sexual behaviour, STI management and concomitant medication [59]; • Provide assessments for mental ill-health, substance use/misuse and STI screenings to identify any unmet needs [53]; • Conduct an initial test for HIV infection prior to initiation of PrEP; • Follow up with participants approximately 4 weeks after initiating PrEP to conduct an HIV test to ensure that PrEP is not prescribed to individuals with undiagnosed acute HIV infection, address any issues/problems being experienced and to verify contact information; • Capture reasons for stopping PrEP use to identify temporary periods of increased risk [53]. 	<p>Assessments at initial consultation and at follow-up appointments are undertaken and documented</p>

¹² Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 9. Continuation of PrEP

Definition

PrEP programmes should continue to support PrEP users to use PrEP appropriately, as required for their individual needs. This is a critical component of safe and effective PrEP use. Support can be delivered through a combination of clinical and community-based interventions/services and should include support with adherence, risk compensation, follow-up appointments, and when/how to safely stop/restart PrEP.

Rationale

Support along the whole PrEP pathway is important for safe and effective use [47]. Some PrEP users may require more extensive counselling and support to address potential barriers to adherence including a specific PrEP regime, monitoring and testing schedule. This may be particularly pertinent to some trans people, some young people and some heterosexual men and women in need of support to gain PrEP literacy [47]. Interventions that improve retention in PrEP services may lead to greater reductions in population-level HIV incidence compared with interventions focused exclusively on adherence [82]. PrEP provision needs to be flexible and is expected to vary according to factors, such as local health systems, infrastructure, and epidemiology. Precise models of delivery should be context specific, clinically safe and as accessible as possible to those in need. In some settings, primary care providers may be able to support PrEP users given their long-term relationships with individuals in HIV care, integrating PrEP into routine care [48]. The suitability of PrEP varies among the same individual depending on the level of risk they are exposed to at a specific time. Clear strategies are needed to support individuals at different stages of their PrEP use, including initiation, discontinuation and re-starting PrEP [85].

Implementation, monitoring and standards

Table 13. Quality statement and minimum standards for Principle 9

Quality statement (Pre-, New and Established PrEP programmes)	Minimum standard ¹³
<ul style="list-style-type: none"> • Assess clients' needs to ensure that the right support is made available to address client specific concerns and barriers [53,59]; • Verify clients' willingness to adhere appropriately prior to prescribing PrEP [59]; • Empower individuals to connect with their doctors or community agencies using face-to-face or online, evidence-based, continuing medical education on PrEP [63]; • Encourage clients to connect with their family doctors with face-to-face or online, evidence-based, continuing medical education on PrEP [86]; • Support the provision of comprehensive wraparound services [24]; • Provide assessments for mental ill health, substance use/misuse and STI screenings to identify any unmet needs which might affect a client's ability to adhere to their prescribed regimen; • Follow up with participants approximately two weeks after initiating PrEP to address any issues/problems being experienced and to verify contact information [53]; • Document reasons for stopping PrEP use to identify 'seasons of risk' – specific time periods and events when an individual may engage in higher-risk behaviour. 	<p>A framework exists to support the development of client-specific support plans</p>

¹³ Minimum standards are provided where there was an evidence-base and clear consensus among the Panel with regards to a target that is applicable across the EU and UK.

Principle 10. Monitoring and evaluation

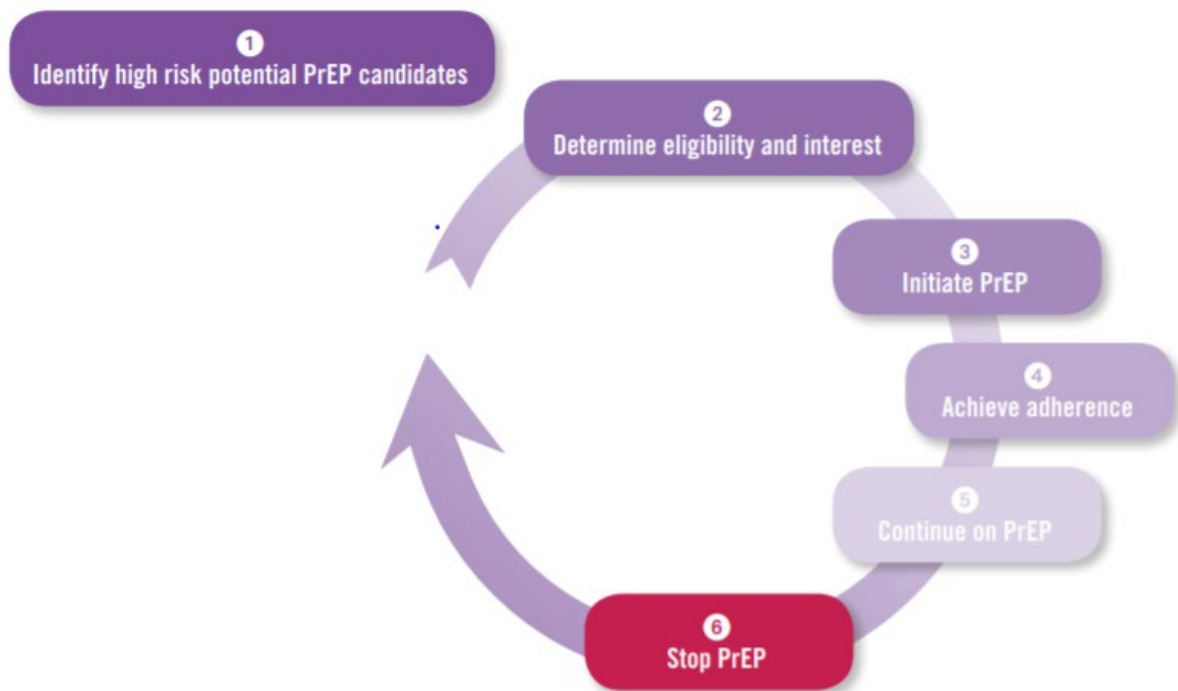
Definition

PrEP programmes should strive to deliver services within a monitored system in which it is possible to measure basic data on e.g. people on PrEP, stopping PrEP, breakthrough infections, new STI infections and transmitted drug resistance, so that effectiveness of the programme can be measured.

Rationale

An effective PrEP programme is one in which people in greatest need of HIV prevention are appropriately identified, offered PrEP and then receive continued support to use PrEP, as needed. To achieve this, PrEP programmes need to be appropriately focused, according to the epidemiological profile in a given country. PrEP programmes also need to be designed with consideration of the PrEP cascade [12] (Figure 3).

Figure 1. HIV PrEP Cascade



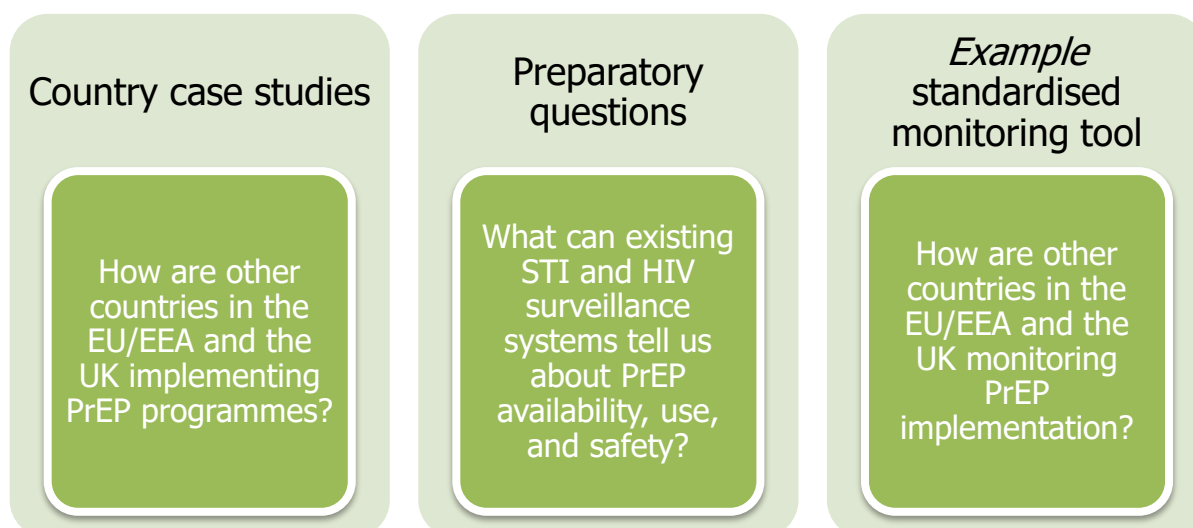
Source: WHO [12]

The Scientific Panel considered the need for monitoring indicators of PrEP implementation that are applicable across EU/EEA context, while being feasible to collect and relevant to the varying stages of PrEP implementation. The Panel agreed that four broad areas should be included in a monitoring framework [35]:

- Access and need;
- Uptake and use;
- Continued or persistent use of PrEP; and
- Toxicity, drug resistance and seroconversion.

Determining the optimal monitoring indicators of PrEP implementation across different countries and healthcare settings is challenging and the task is further complicated by a lack of widely accepted definitions for terms such as 'on PrEP' and 'discontinued'. It is acknowledged that an acceptable, feasible and standardised method of monitoring PrEP programmes is important for all countries and that developing this requires additional consultation with member states. ECDC will therefore take a modular approach to producing guidance to support the implementation and monitoring of PrEP programmes in the EU/EEA. In 2021, ECDC will develop a separate monitoring tool, suitable for EU/EEA countries at all stages of PrEP implementation, including those in the preparatory stages.

To prepare for the future PrEP Programme Monitoring Tool, it may be useful for countries to consider the three resources illustrated in Figure 4:

Figure 2. PrEP Monitoring: preparatory resources

Country case studies

All EU/EEA countries are encouraged to review the country case studies on [ECDC's website](#). These case studies provide detailed information about PrEP implementation within the context of combination HIV prevention, and also describe:

- different PrEP delivery models;
- lessons learned from past experience of implementation; and
- advice to support the inclusion of PrEP in national HIV prevention programmes.

This information may prove useful to countries when considering how they may set up PrEP programmes which enable the questions above to be answered.

Preparatory questions

The following preparatory questions address the main data areas for PrEP monitoring (Table 14). Countries may find it useful to review their surveillance systems to determine the extent to which the questions could currently be answered.

Table 14. PrEP Monitoring: preparatory questions

Monitoring Area and Question	Purpose of question
STI AND HIV SURVEILLANCE IN YOUR COUNTRY/REGION	
1. How many HIV tests are currently performed annually?	To determine the presence of an STI and HIV surveillance system which would support PrEP programme delivery
2. How many individuals have one or more HIV test annually?	
3. How many individuals have been newly diagnosed with HIV annually?	
4. How many individuals have one or more STI test annually?	
5. How many individuals have been newly diagnosed with one or more STIs in your region?	
NEED AND DEMAND	
6. What is the demand for PrEP in your region, by population group?	To establish the need for PrEP in a defined region and among key populations
7. What is the need for PrEP in your region, by population group?	
8. How many individuals have ever used PrEP?	
ACCESS AND UPTAKE	
9. In which settings is PrEP available? And to which populations?	To monitor access to and uptake of PrEP
10. How many individuals have attempted to access PrEP in a 12-month period?	
11. How many individuals were eligible for PrEP in a 12-month period?	
12. How many individuals were offered PrEP in a 12-month period?	
13. Are reasons for not offering or not being eligible recorded in a standardised way?	
14. In prescribing data, is it possible to distinguish ARTs for HIV prevention (PrEP) from ARTs prescribed for treatment purposes?	
15. How many individuals accepted the offer of/were prescribed PrEP for HIV prevention purposes, in 12-month period?	
PREP USE	
16. How many people have been prescribed PrEP at least once in a 12-month period?	To explore PrEP use among individuals who use PrEP daily, intermittently and/or on a risk/risk perception-basis
17. How many people have only been prescribed PrEP once in a 12-month period?	
18. Are reasons for missed follow-up appointments recorded in a standardised way??	
TOXICITY, DRUG RESISTANCE AND SEROCONVERSION	
19. Among individuals diagnosed with HIV, how many have ever used/been prescribed PrEP?	To monitor the safety of PrEP and to monitor seroconversions 'on PrEP'
20. How many people with a history of PrEP use who are newly diagnosed with HIV, have evidence of viral resistance mutations associated with tenofovir disoproxil fumarate/emtricitabine use?	
21. Is a record of renal function maintained?	
22. Is there a record of side effects or medical complications experienced by PrEP users?	

Where it is not currently possible to answer a question, countries may consider:

- 'can existing data collection tools and/or surveillance systems be modified to capture information that is relevant to the question posed?'
- 'can population surveys be used to provide an answer?'
- 'can proxy measures be used to estimate an answer to this question?'
- 'which stakeholders can support changes to data collection, collation or use?'

Once a PrEP programme is set up and established, monitoring and evaluation outcomes and performance indicators can be used to inform strategic planning and decision-making, and to improve the overall progress of PrEP programmes. Measuring indicators are an important aspect of PrEP implementation that can serve as a measure of progress and flag areas that may warrant further investigation [7].

Example monitoring tool

Annex 3 contains an example of a standardised monitoring tool relevant to the specific situation in the UK and the Republic of Ireland. This example monitoring tool provides key monitoring indicators developed using a modified Delphi approach and three rounds of consultation with public health, epidemiology, clinical academic and health planning experts from the four nations of the UK and the Republic of Ireland.

The indicators are:

- Number of sexual health clinic attendees (as this is where PrEP is available in the UK and the Republic of Ireland);
- Number of attendees in the reporting quarter who are estimated to be taking PrEP;
- Number of attendees in the reporting quarter who are estimated to have stopped PrEP; and
- Number of new HIV diagnoses and observed recent seroconversions.

Minimal reporting requirements have the advantage of enhancing accuracy, enabling more timely reporting and allowing for more rapid review and comparison between countries [12]. This minimal, consensus-built dataset is a pragmatic framework for evaluation which aims to facilitate consistent and comparable data collection across the UK and the Republic of Ireland. It extends the suggested core indicators proposed by WHO [12] which in turn align with the PrEP cascade (Figure 3, page 34).

Some countries may already be collecting additional data which is useful in their local context. This should continue where possible. Achieving a balance between collecting actionable data and the reporting burden on health providers and systems is critical. Generally, core indicators should be measured at all levels of the health system (site, sub-national, national), while additional indicators should be collected depending on feasibility and timeliness for decision-making. Only indicators that are actionable for those reviewing the data at a given level are worth collecting at that level [12].

PrEP Programme: future guidance/next steps

This guidance will be reviewed and updated in line with key scientific and operational developments in HIV prevention, PrEP and related areas which may affect the prioritisation, design, implementation and monitoring of PrEP programmes.

References

1. Baeten JM, Donnell D, Ndase P, Mugo NR, Campbell JD, Wangisi J, et al. Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *N Engl J Med*. 2012 Aug 2;367(5):399-410.
2. Grant RM, Lama JR, Anderson PL, McMahan V, Liu AY, Vargas L, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med*. 2010 Dec 30;363(27):2587-99.
3. McCormack S, Dunn DT, Desai M, Dolling DI, Gafos M, Gilson R, et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *Lancet*. 2016 Jan 2;387(10013):53-60.
4. Molina JM, Capitant C, Spire B, Pialoux G, Cotte L, Charreau I, et al. On-Demand Preexposure Prophylaxis in Men at High Risk for HIV-1 Infection. *N Engl J Med*. 2015 Dec 3;373(23):2237-46.
5. Siguier M, Mera R, Pialoux G, Ohayon M, Cotte L, Valin N, et al. First year of pre-exposure prophylaxis implementation in France with daily or on-demand tenofovir disoproxil fumarate/emtricitabine. *Journal of Antimicrobial Chemotherapy*. 2019;74(9):2752-8.
6. Fonner VA, Dalglish SL, Kennedy CE, Baggaley R, O'Reilly KR, Koechlin FM, et al. Effectiveness and safety of oral HIV preexposure prophylaxis for all populations. *Aids*. 2016 Jul 31;30(12):1973-83.
7. European Centre for Disease Prevention and Control (ECDC). Pre-exposure prophylaxis to prevent HIV among MSM in Europe. Stockholm: ECDC; 2015 [cited 25 August, 2020]. Available from: <https://www.ecdc.europa.eu/en/news-events/pre-exposure-prophylaxis-prevent-hiv-among-msm-europe>
8. World Health Organization (WHO). Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection—recommendations for a public health approach. Geneva: WHO; 2016 [cited 27 August, 2020]. Available from: <https://apps.who.int/iris/handle/10665/208825>
9. Noori T, Pharris A. Meeting report: Pre-exposure Human Immunodeficiency Virus Prophylaxis in the EU/EEA: Challenges and Opportunities, Stockholm April 2016: *Eurosurveillance*; 2016. 30263]. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2016.21.25.30263>
10. Brown AE, Hayes R, Noori T, Azad Y, Amato-Gauci AJ, Pharris A, et al. HIV in Europe and Central Asia: progress in 2018 towards meeting the UNAIDS 90-90-90 targets. *Eurosurveillance*. 2018;23(48):1800622. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2018.23.48>
11. UNAIDS. FAST-TRACK COMMITMENTS TO END AIDS BY 2030: UNAIDS; 2016. Available from: http://www.unaids.org/sites/default/files/media_asset/fast-track-commitments_en.pdf
12. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 5: Monitoring and evaluation. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>.
13. European Centre for Disease Prevention and Control (ECDC). HIV and STI prevention among men who have sex with men. Stockholm: ECDC; 2015 [cited 27 August, 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/public-health-guidance-hiv-and-sti-prevention-among-men-who-have-sex-men>
14. European Centre for Disease Prevention and Control (ECDC). HIV and men who have sex with men. Monitoring implementation of the Dublin Declaration on partnership to fight HIV/AIDS in Europe and Central Asia: 2018 progress report. Stockholm: ECDC; 2020 [cited 27 August, 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/hiv-and-men-who-have-sex-men-monitoring-implementation-dublin-declaration>
15. Hayes R, Schmidt AJ, Pharris A, Azad Y, Brown AE, Weatherburn P, et al. Estimating the 'PrEP Gap': how implementation and access to PrEP differ between countries in Europe and Central Asia in 2019. *Eurosurveillance*. 2019;24(41):1900598. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2019.24.41>.
16. World Health Organization (WHO). WHO: HIV Factsheet. Geneva: WHO; 2020 [cited 27 August, 2020]. Available from: <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>
17. UNAIDS. The Gap Report 2014 - Migrants. UNAIDS, 2014.
18. European AIDS Clinical Society. European Guidelines for Treatment of HIV-positive adults in Europe – Version 8 2015. Available from: http://www.eacsociety.org/files/guidelines_8_0-english_web.pdf
19. European AIDS Clinical Society. Guidelines for the clinical management and treatment of HIV-infected adults in Europe. (Version 10) EACS 2019. Available from: <https://www.eacsociety.org/guidelines/eacs-guidelines/eacs-guidelines.html>.
20. European Medicines Agency (EMA). First medicine for HIV pre-exposure prophylaxis recommended for approval in the EU: EMA; 2016. Available from: http://www.ema.europa.eu/docs/en_GB/document_library/Press_release/2016/07/WC500210885.pdf
21. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 1: Clinical. Geneva: 27 August, 2020; 2017. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>.
22. Coleman R, Prins M. Options for affordable pre-exposure prophylaxis (PrEP) in national HIV prevention programmes in Europe 2017 [cited 17 November, 2020]. 17-00698]. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2017.22.42.17-00698>
23. Pinto RM, Berringer KR, Melendez R, Mmeje O. Improving PrEP Implementation Through Multilevel Interventions: A Synthesis of the Literature. *AIDS Behav*. 2018 Nov;22(11):3681-91.
24. Beach LB, Greene GJ, Lindeman P, Johnson AK, Adames CN, Thomann M, et al. Barriers and Facilitators to Seeking HIV Services in Chicago Among Young Men Who Have Sex with Men: Perspectives of HIV Service Providers. *AIDS Patient Care STDS*. 2018 Nov;32(11):468-76.
25. Sullivan PS, Mena L, Elope L, Siegler AJ. Implementation Strategies to Increase PrEP Uptake in the South. *Curr HIV/AIDS Rep*. 2019 Aug;16(4):259-69.
26. Gregg E, Linn C, Nace E, Gelberg L, Cowan B, Fulcher JA. Implementation of HIV Preexposure Prophylaxis in a Homeless Primary Care Setting at the Veterans Affairs. *J Prim Care Community Health*. 2020 Jan-Dec;11:2150132720908370.
27. Pyra MN, Haberer JE, Hasen N, Reed J, Mugo NR, Baeten JM. Global implementation of PrEP for HIV prevention: setting expectations for impact. *J Int AIDS Soc*. 2019 Aug;22(8):e25370.

28. Ross EL, Cinti SK, Hutton DW. Implementation and Operational Research: A Cost-Effective, Clinically Actionable Strategy for Targeting HIV Preexposure Prophylaxis to High-Risk Men Who Have Sex With Men. *J Acquir Immune Defic Syndr*. 2016 Jul 1;72(3):e61-7.
29. McCormack SM, Nosedá V, Molina J-M. PrEP in Europe - expectations, opportunities and barriers. *Journal of the International AIDS Society*. 2016;19:21103.
30. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 9: Strategic planning. Geneva: WHO; 2017. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
31. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 2: Community educators and advocates. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
32. Venter WDF. Pre-exposure Prophylaxis: The Delivery Challenge. *Frontiers in Public Health*. 2018;6:2579.
33. Kenison TC, Badenhop B, Safo S. Unlocking HIV Pre-Exposure Prophylaxis Delivery: Examining the Role of HIV Providers in Pre-Exposure Prophylaxis Care. *AIDS Patient Care STDS*. 2020 Jun;34(6):251-8.
34. Health Protection Scotland and Information Services Division. Implementation of HIV PrEP in Scotland: First Year Report 2019. Available from: <https://www.hps.scot.nhs.uk/web-resources-container/implementation-of-hiv-prep-in-scotland-first-year-report/>
35. Woode Owusu M, Noori T. PrEP in the EU/EEA: PrEP service delivery, standards and monitoring Scientific Panel Meeting, Stockholm, 12-13 February 2020 [cited 10 October, 2020]. Available from: https://www.researchgate.net/publication/343219036_PrEP_in_the_EUEEA_PrEP_service_delivery_standards_and_monitoring_Scientific_Panel_Meeting_Stockholm_12-13_February_2020
36. Ravasi G, Grinsztejn B, Baruch R, Guanira JV, Luque R, Cáceres CF, et al. Towards a fair consideration of PrEP as part of combination HIV prevention in Latin America. *J Int AIDS Soc*. 2016;19(7(Suppl 6)):21113.
37. Golub SA, Myers JE. Next-Wave HIV Pre-Exposure Prophylaxis Implementation for Gay and Bisexual Men. *AIDS Patient Care STDS*. 2019 Jun;33(6):253-61.
38. Cáceres CF, Borquez A, Klausner JD, Baggaley R, Beyrer C. Implementation of pre-exposure prophylaxis for human immunodeficiency virus infection: progress and emerging issues in research and policy. *Journal of the International AIDS Society*. 2016;19(7(Suppl 6)):21108.
39. Hirschhorn LR, Brown RN, Friedman EE, Greene GJ, Bender A, Christeller C, et al. Black Cisgender Women's PrEP Knowledge, Attitudes, Preferences, and Experience in Chicago. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2020;84(5):497-507.
40. Grimsrud A, Bygrave H, Doherty M, Ehrenkrantz P, Ellman T, Ferris R, et al. Reimagining HIV service delivery: the role of differentiated care from prevention to suppression. *J Int AIDS Soc*. 2016;19(1):21484.
41. Vanhamel J, Rotsaert A, Reyniers T, Nöstlinger C, Laga M, Van Landeghem E, et al. The current landscape of pre-exposure prophylaxis service delivery models for HIV prevention: a scoping review. *BMC Health Services Research*. 2020;20(1):704.
42. Woode Owusu M, Noori T. Scoping review exploring barriers and facilitators of PrEP implementation & monitoring. ECDC: Unpublished report. Stockholm2020.
43. Rojas Castro D, Delabre RM, Morel S, Michels D, Spire B. Community engagement in the provision of culturally competent HIV and STI prevention services: lessons from the French experience in the era of PrEP. *Journal of the International AIDS Society*. 2019;22(S6).
44. Scholl E. Improving outpatient implementation of preexposure prophylaxis in men who have sex with men. *J Am Assoc Nurse Pract*. 2016 Aug;28(8):446-52.
45. Doll M, Fortenberry JD, Roseland D, McAuliff K, Wilson CM, Boyer CB. Linking HIV-Negative Youth to Prevention Services in 12 U.S. Cities: Barriers and Facilitators to Implementing the HIV Prevention Continuum. *J Adolesc Health*. 2018 Apr;62(4):424-33.
46. Macdonald V, Verster A, Baggaley R. A call for differentiated approaches to delivering HIV services to key populations. *J Int AIDS Soc*. 2017 Jul 21;20(Suppl 4):21658.
47. Hillis A, Germain J, Hope V, McVeigh J, Van Hout MC. Pre-exposure Prophylaxis (PrEP) for HIV Prevention Among Men Who Have Sex with Men (MSM): A Scoping Review on PrEP Service Delivery and Programming. *AIDS Behav*. 2020 Apr 9.
48. Mayer KH, Chan PA, R RP, Flash CA, Krakower DS. Evolving Models and Ongoing Challenges for HIV Preexposure Prophylaxis Implementation in the United States. *J Acquir Immune Defic Syndr*. 2018 Feb 1;77(2):119-27.
49. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 6: Pharmacists. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
50. Golub SA. PrEP Stigma: Implicit and Explicit Drivers of Disparity. *Current HIV/AIDS Reports*. 2018;15(2):190-7.
51. Golub SA, Gamarel KE, Surace A. Demographic Differences in PrEP-Related Stereotypes: Implications for Implementation. *AIDS and Behavior*. 2017;21(5):1229-35.
52. Biello KB, Oldenburg CE, Mitty JA, Closson EF, Mayer KH, Safren SA, et al. The "Safe Sex" Conundrum: Anticipated Stigma From Sexual Partners as a Barrier to PrEP Use Among Substance Using MSM Engaging in Transactional Sex. *AIDS and behavior*. 2017;21(1):300-6.
53. Parisi D, Warren B, Leung SJ, Akkaya-Hocagil T, Qin Q, Hahn I, et al. A Multicomponent Approach to Evaluating a Pre-exposure Prophylaxis (PrEP) Implementation Program in Five Agencies in New York. *J Assoc Nurses AIDS Care*. 2018 Jan-Feb;29(1):10-9.
54. Pleuhs B, Quinn KG, Walsh JL, Petroll AE, John SA. Health Care Provider Barriers to HIV Pre-Exposure Prophylaxis in the United States: A Systematic Review. *AIDS Patient Care and STDs*. 2020;34(3):111-23.
55. Krakower DS, Mayer KH. Pre-Exposure Prophylaxis to Prevent HIV Infection: Current Status, Future Opportunities and Challenges. *Drugs*. 2015;75(3):243-51.
56. D'Eath M BM, Sixsmith J. Rapid Evidence Review of Interventions for Improving Health Literacy. . Stockholm: ECDC, 2012 Contract No.: 28/08/2020.
57. Young I, Valiotis G. Strategies to support HIV literacy in the roll-out of pre-exposure prophylaxis in Scotland: findings from qualitative research with clinical and community practitioners. *BMJ open*. 2020;10(4):e033849.

58. Zablotska IB, O'Connor CC. Preexposure Prophylaxis of HIV Infection: the Role of Clinical Practices in Ending the HIV Epidemic. *Curr HIV/AIDS Rep.* 2017 Dec;14(6):201-10.
59. Moreno S, Antela A, García F, Del Amo J, Boix V, Coll P, et al. Executive summary: Pre-exposure prophylaxis for prevention of HIV infection in adults in Spain: July 2016. *Enferm Infecc Microbiol Clin.* 2017 Jun-Jul;35(6):377-83.
60. Castel AD, Feaster DJ, Tang W, Willis S, Jordan H, Villamizar K, et al. Understanding HIV Care Provider Attitudes Regarding Intentions to Prescribe PrEP. *J Acquir Immune Defic Syndr.* 2015 Dec 15;70(5):520-8.
61. Krakower DS, Mayer KH. The role of healthcare providers in the roll out of preexposure prophylaxis. *Curr Opin HIV AIDS.* 2016 Jan;11(1):41-8.
62. Gaist P, Stirratt MJ. The Roles of Behavioral and Social Science Research in the Fight Against HIV/AIDS: A Functional Framework. *J Acquir Immune Defic Syndr.* 2017 Aug 1;75(4):371-81.
63. Koechlin FM, Fonner VA, Dalglish SL, O'Reilly KR, Baggaley R, Grant RM, et al. Values and Preferences on the Use of Oral Pre-exposure Prophylaxis (PrEP) for HIV Prevention Among Multiple Populations: A Systematic Review of the Literature. *AIDS Behav.* 2017 May;21(5):1325-35.
64. World Health Organization (WHO). Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 1: Clinical. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
65. Desai M, Gafos M, Dolling D, McCormack S, Nardone A. Healthcare providers' knowledge of, attitudes to and practice of pre-exposure prophylaxis for HIV infection. *HIV Med.* 2016 Feb;17(2):133-42.
66. Adams JL, Shelley K, Nicol MR. Review of Real-World Implementation Data on Emtricitabine-Tenofovir Disoproxil Fumarate as HIV Pre-exposure Prophylaxis in the United States. *Pharmacotherapy.* 2019 Apr;39(4):486-500.
67. Calabrese SK, Magnus M, Mayer KH, Krakower DS, Eldahan AI, Gaston Hawkins LA, et al. Putting PrEP into Practice: Lessons Learned from Early-Adopting U.S. Providers' Firsthand Experiences Providing HIV Pre-Exposure Prophylaxis and Associated Care. *PLoS One.* 2016;11(6):e0157324.
68. Saxton P, Giola M, Coughlan E, Rich J, Azariah S, Ludlam A, et al. Implementing HIV pre-exposure prophylaxis (PrEP): let's not get caught with our pants down. *N Z Med J.* 2018 Aug 31;131(1481):64-73.
69. Bil JP, Hoornenborg E, Prins M, Hogewoning A, Dias Goncalves Lima F, de Vries HJC, et al. The Acceptability of Pre-Exposure Prophylaxis: Beliefs of Health-Care Professionals Working in Sexually Transmitted Infections Clinics and HIV Treatment Centers. *Front Public Health.* 2018;6:5.
70. Huey MJ, Higham M, Watriss AL. Viewpoint: Why you should provide HIV pre-exposure prophylaxis (PrEP) at your college health center. *J Am Coll Health.* 2020 Feb-Mar;68(2):119-23.
71. Mugwanya KK, Hendrix CW, Mugo NR, Marzinke M, Katabira ET, Ngure K, et al. Pre-exposure Prophylaxis Use by Breastfeeding HIV-Uninfected Women: A Prospective Short-Term Study of Antiretroviral Excretion in Breast Milk and Infant Absorption. *PLoS Medicine.* 2016;13(9):e1002132.
72. Achterbergh RCA, Hoornenborg E, Boyd A, Coyer L, Meuzelaar SJA, Hogewoning AA, et al. Changes in mental health and drug use among men who have sex with men using daily and event-driven pre-exposure prophylaxis: Results from a prospective demonstration project in Amsterdam, the Netherlands. *EClinicalMedicine.* 2020;26.
73. Whitfield THF, Jones SS, Wachman M, Grov C, Parsons JT, Rendina HJ. The Impact of Pre-Exposure Prophylaxis (PrEP) Use on Sexual Anxiety, Satisfaction, and Esteem Among Gay and Bisexual Men. *The Journal of Sex Research.* 2019 2019/11/22;56(9):1128-35.
74. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 10: Testing. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
75. Hevey MA, Walsh JL, Petroll AE. PrEP Continuation, HIV and STI Testing Rates, and Delivery of Preventive Care in a Clinic-Based Cohort. *AIDS Educ Prev.* 2018;30(5):393-405.
76. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 8: Site planning. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
77. Sidebottom D, Ekström AM, Strömdahl S. A systematic review of adherence to oral pre-exposure prophylaxis for HIV – how can we improve uptake and adherence? *BMC Infectious Diseases.* 2018;18(1).
78. Saunders J, Gill N, Delpech V, Estcourt C. Minimum dataset for monitoring national Human Immunodeficiency Virus Pre-Exposure Prophylaxis (HIV-PrEP) programs: a five-nation consensus. *Eurosurveillance-D-20-01595.* In Press.
79. Coyer L, van Bilsen W, Bil J, Davidovich U, Hoornenborg E, Prins M, et al. Pre-exposure prophylaxis among men who have sex with men in the Amsterdam Cohort Studies: Use, eligibility, and intention to use. *PLoS One.* 2018;13(10):e0205663.
80. Hargreaves JR, Delany-Moretlwe S, Hallett TB, Johnson S, Kapiga S, Bhattacharjee P, et al. The HIV prevention cascade: integrating theories of epidemiological, behavioural, and social science into programme design and monitoring. *The Lancet HIV.* 2016;3(7):e318-e22.
81. World Health Organization (WHO). WHO Implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection. Module 12: Adolescents and young adults. Geneva: WHO; 2017 [cited 27 August, 2020]. Available from: <https://www.who.int/hiv/pub/prep/prep-implementation-tool/en/>
82. Chan PA, Goedel WC, Nunn AS, Sowemimo-Coker G, Galárraga O, Prospero M, et al. Potential Impact of Interventions to Enhance Retention in Care During Real-World HIV Pre-Exposure Prophylaxis Implementation. *AIDS Patient Care STDS.* 2019 Oct;33(10):434-9.
83. Skolnik AA, Bokhour BG, Gifford AL, Wilson BM, Van Epps P. Roadblocks to PrEP: What Medical Records Reveal About Access to HIV Pre-exposure Prophylaxis. *J Gen Intern Med.* 2020 Mar;35(3):832-8.
84. Zhang HL, Rhea SK, Hurt CB, Mobley VL, Swygard H, Seña AC, et al. HIV Preexposure Prophylaxis Implementation at Local Health Departments: A Statewide Assessment of Activities and Barriers. *J Acquir Immune Defic Syndr.* 2018 Jan 1;77(1):72-7.
85. Rutstein SE, Smith DK, Dalal S, Baggaley RC, Cohen MS. Initiation, discontinuation, and restarting HIV pre-exposure prophylaxis: ongoing implementation strategies. *The Lancet HIV.* 2020 2020/10/01;7(10):e721-e30.
86. Sharma M, Chris A, Chan A, Knox DC, Wilton J, McEwen O, et al. Decentralizing the delivery of HIV pre-exposure prophylaxis (PrEP) through family physicians and sexual health clinic nurses: a dissemination and implementation study protocol. *BMC Health Serv Res.* 2018 Jul 3;18(1):513.

Annex 1. The Case for PrEP: considerations for HIV PrEP programmes

Overview of HIV PrEP

HIV Pre-exposure prophylaxis (PrEP) is the use of antiretroviral medication to prevent the acquisition of HIV infection. The effectiveness of PrEP in reducing risk of HIV transmission has been demonstrated in high-quality clinical trials [1-6]. In 2015, ECDC recommended that European Union (EU) and the European Economic Area (EEA) countries should consider integrating PrEP into their existing HIV prevention strategies for those *most at risk* of HIV infection [7]. In 2016 the World Health Organization (WHO) recommended that PrEP be offered as an additional prevention option to all people at *substantial risk of HIV infection* as part of combination prevention approaches [31]. This document uses the business analysis framework, PESTLE, to explore the political, economic, social, technological, legal and environmental rationales and considerations when implementing national and subnational PrEP programmes in the EU/EEA/UK.

Political considerations: global prioritisation of PrEP

Ministries of Health continually face a wide range of potentially conflicting priorities with regard to public health and infection prevention and control, including acute emergencies such as the unprecedented challenge of the emergence of SARS-CoV-2 coronavirus (Covid-19) in 2019/2020. However, it remains imperative that Governments work with key stakeholders to address both issues of present urgency (such as COVID-19), and those of long-standing importance, such as HIV. Ministries of Health will play a pivotal role in supporting the introduction and sustainability of PrEP programmes, by prioritising HIV prevention and PrEP in national agendas, policies and embedding PrEP programmes within existing national health programmes [31].

Although there has been a steady decline in diagnoses of new HIV infections in the EU/EEA, the 90-90-90 target set by UNAIDS has not been met consistently across EU/EEA countries [10]. The impact of Covid-19 on sexual and drug injecting behaviours remains unclear and routine HIV prevention efforts are likely to have been compromised in some settings. A further and substantial reduction in HIV incidence is required if Europe is to meet both the UNAIDS 2020 targets (75% reduction in HIV incidence) [10] and 2030 (zero new infections) global Sustainable Development Goals (SDGs) (Table 15). HIV prevention throughout the EU/EEA now requires new approaches, such as the large-scale implementation of PrEP programmes within combination prevention strategies.

Table 15. Global and regional targets for ending AIDS

SDG targets (by 2030)	Fast-Track targets (by 2020)	Specific targets for Europe (by 2020)
✓ Zero new infections (90% reduction)	✓ To reduce new HIV infections to fewer than 500 000 by 2020, globally ¹⁴	✓ Incidence reduction of 75% (2010 baseline) ✓ PrEP (no European target) ¹⁵
✓ Zero AIDS deaths (90% reduction)	✓ To reduce AIDS-related death to fewer than 500 000 by 2020, globally ¹⁶	✓ 90-90-90 ✓ Mortality (target not defined)
✓ Zero discrimination	✓ To eliminate HIV-related stigma and discrimination by 2020	✓ Eliminate stigma (currently not measured in the EU/EEA)

¹⁴ The figure 500 000 stated is based on global goals reported in the Fast Track Commitments Report. While regional targets are defined, these are not specific to Europe. Regional targets combine goals for the *Eastern Europe and Central Asia region* (reduction to 44 000) and for *western and central Europe and North America* (53 000).

¹⁵ Further research, monitoring and surveillance are needed to estimate the percentage of PrEP coverage that facilitate countries in reaching the goal of zero transmissions. It is likely targets will be country-/region-specific.

¹⁶ The figure 500 000 stated is based on global goals reported in the Fast Track Commitments Report. While regional targets are defined, these are not specific to Europe. Regional targets combine goals for the *Eastern Europe and Central Asia region* (reduction to 1.4 million people) and for *western and central Europe and North America* (reduction to 2 million people).

Economic considerations: cost-effectiveness of PrEP

The economic impact of HIV in Europe is significant. These costs include direct costs such as anti-retroviral therapies, hospitalisation, adverse effects of treatment, and diagnostic tests. There are also indirect costs such as occupational and non-healthcare costs which impact the economy. However, the breadth of costs associated with HIV diagnosis and a paucity of systemic evidence, make it difficult to quantify the true cost. The cost effectiveness of offering PrEP will vary by epidemiological context, trends in HIV transmission, available resources and the relative costs, feasibility, and demand for PrEP [30]. Where possible, governments and country programmes should consider the HIV incidence threshold and key populations for cost-effective delivery of PrEP programmes [27-29].

Social considerations: multi-level stigma and discrimination

Policy-makers are strategic gatekeepers to PrEP implementation; strengthening collective knowledge of HIV and PrEP could enhance the timely delivery of national and local PrEP programmes [36]. Unfortunately, policy and public health programmes can reinforce social stigmas, such as PrEP-stigma [54,55], HIV-stigma, transphobia, and homophobia. For example, governmental and political discrimination can lead to a limited range of HIV prevention methods being made available to entire populations.

Technological considerations: utilising existing systems

Implementing a PrEP programme does not require a new system. It may be more sustainable and scalable to embed PrEP programmes within existing healthcare systems, adapt existing technology and clinic pathways, health records and realise economies of scale [35,40,41]. For example, some aspects of PrEP programmes could be shared with other areas of HIV prevention, testing and care – to facilitate scale-up and reduce costs. Some aspects of the PrEP programme can be delivered online.

Legal considerations: PrEP funding, prescribing and dispensing

Implementation and uptake of PrEP within programmes is facilitated when the PrEP user does not bear any of the costs of the medication or is only responsible for a minor contribution. Therefore, having an agreed legal basis on which PrEP programmes can be procured and funded, is a crucial marker of PrEP readiness. Further, PrEP planning teams may consider whether PrEP may be funded within existing antiretroviral/HIV treatment budgets, or whether a separate HIV prevention medication fund is required and whether the costs of HIV and STI testing and counselling are to be financed through HIV or through STI prevention budgets, which sometimes are held by different organisations [32]. Changes to existing legislation may also increase opportunities for PrEP delivery.

Environmental considerations: the risk of unregulated PrEP systems

PrEP is already available within EU/EEA populations both online and through unauthorised and unregulated operations (black markets). Therefore, decisions concerning whether or not to implement PrEP programmes, must consider the wider environmental implications of not offering a national or sub-nation PrEP programme.

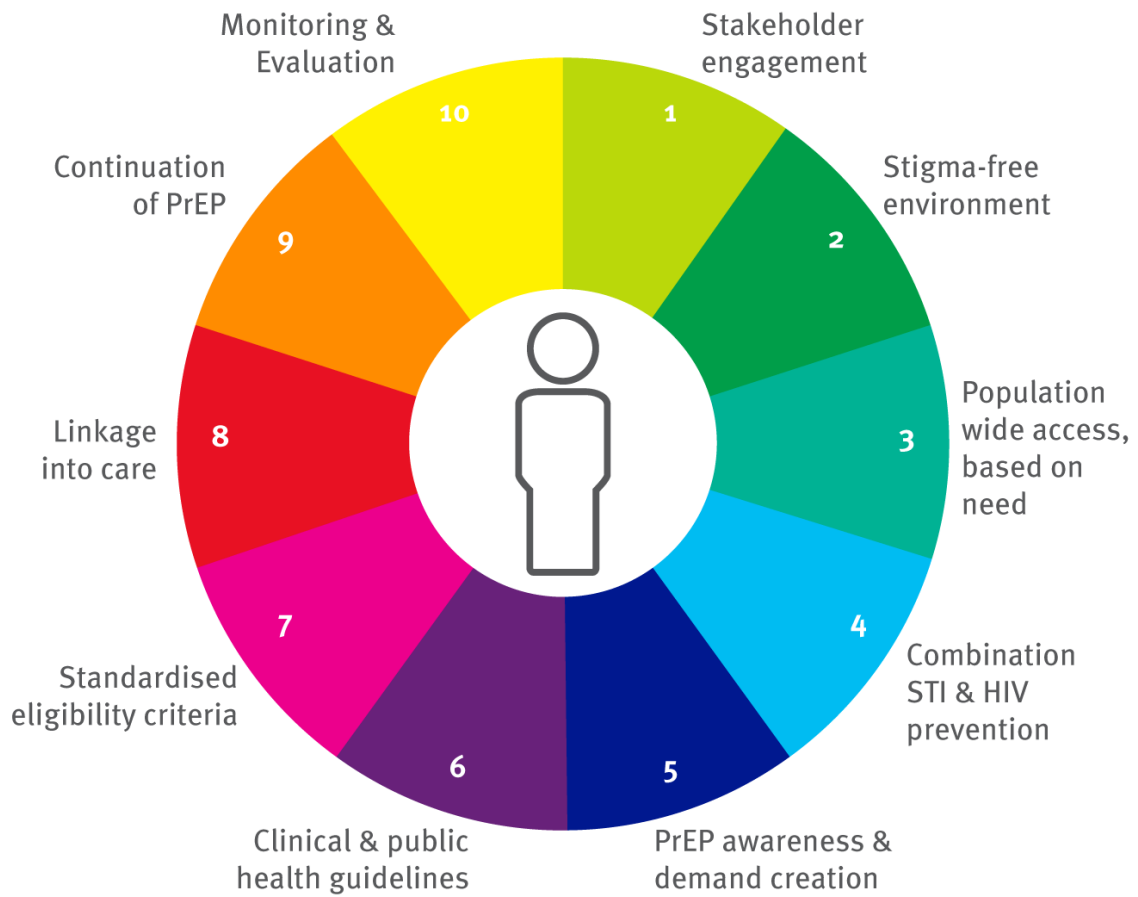
A major risk of unregulated markets is that PrEP will not be widely accessible to individuals who are in greatest need, as not all people will have access to an 'underground' PrEP supplier, and even where they do, this may involve disclosing risks, behavioural choices and experiences, which they are not ready to disclose. Furthermore, within an unregulated PrEP market, PrEP users will not receive ongoing support and monitoring which is required to stop and start using PrEP safely and prevent toxicities. Widespread misuse of PrEP could lead to increases in transmitted drug resistance and limit the use of these medicines not only for prevention but also within HIV therapy. National programmes are important to preserve the effectiveness of current HIV treatment options.

Additionally, prioritising and supporting PrEP programmes can be viewed as an active choice to deliver safe, regulated and supervised PrEP programmes to those in need. This supports a human rights and person-centred approach and emphasises issues such as, universal health coverage, gender equality and equity and health-related rights, including accessibility, availability, acceptability and quality of PrEP services and harm reduction services. This is in line with other forms of HIV prevention and promoted by the WHO [12].

Principles of accessible, scalable and effective PrEP programmes

Successful PrEP implementation relies on a defined model of care that is appropriate to the size of the population in need of PrEP, and existing system-level capacity. National commitment to address any structural, capacity, and policy barriers to safe and effective PrEP programmes [25,26] is also required and can be delivered through multi-sector and multi-stakeholder approaches. Ten principles should be considered to support the prioritisation, development and delivery of PrEP programmes (Figure A2).

Figure A2. Key principles for effective PrEP programme implementation



Annex 2. Scientific panel members

ECDC's process for establishing scientific panels to provide independent advice follows a strict methodology and includes the following steps: identification of experts; collecting declarations of interest from experts; evaluating eligibility; and ruling out conflicts of interest of experts through clearance by the ECDC compliance officer. At the end of this process, ECDC's Director formally appoints the panel members. The Scientific Panel members contributing to the development of this guidance were identified through the ECDC Expert Directory, suggestions from the ECDC Advisory Forum and ECDC experts, and a literature search for experts who have published on this or related topics.

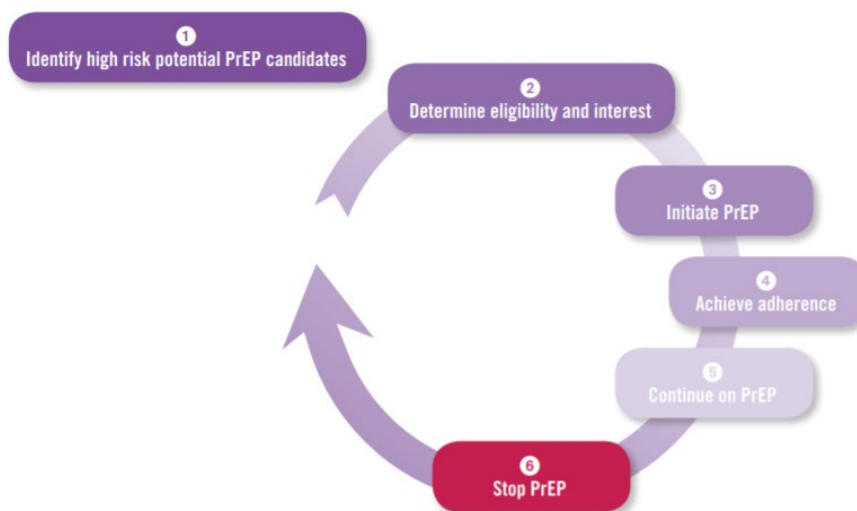
Panel members were expected to have experience and expertise in evidence-based decision-making, developing and/or delivering HIV prevention and/or sexual health promotion programmes. In deciding on the composition of the panel, ECDC also considered country representativeness and the specific expertise and experience of experts. All panel members signed a declaration of interest, which was reviewed by the ECDC compliance officer. None of the members of the panel declared any interests that were considered to be a conflict with regard to the topic or their participation in the panel. Panel members were asked to provide opinions based on their professional and scientific experience, and to do so on a personal basis as an independent expert, not representing the interests of any commercial body, professional body or country. The scientific panel was officially appointed by ECDC's Director in November 2019.

Names of panel members
Marie Laga
Josip Begovac
Anna Kubátová
Jean-Michel Molina
Uwe Koppe
Caroline Hurley
Fiona Lyons
Silke David
Elske Hoornenborg
Arild Johan Myrberg
Justyna Kowalska
Isabel Aldir
Janez Tomažič
Julia Del Amo
Finn Filén
Raj Patel
Jürgen Rockstroh
Birgit Van Benthem
Daniela Rojas Castro
Gus Cairns
Zoran Dominković

Annex 3. Example, from Scotland, of consensus built and standardised minimum dataset for monitoring HIV PrEP programmes

This tool addresses the majority of the stages of the PrEP cascade, as illustrated below [12].

Figure A3. HIV PrEP Cascade



Example monitoring tool

Countries are encouraged to:

- 'Use a denominator which most accurately reflects the health administrative areas to which the data will be used'; and
- 'Use demographic categories that are most relevant to the country context'

Table 16. Example of monitoring tool from Scotland

Example monitoring tool	1. Sexual health clinic attendees				2. Number on PrEP				3. Number of attendees stopping PrEP				4. Number of new HIV diagnoses and (observed recent seroconversions)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Scotland	53 293	52 575	53 609	54 118	397	1 019	1 460	1 658	*	*	65	181	60 (11)	51 (9)	48 (10)	40 (7)
Region of Attendance																
Ayrshire & Arran	4 180	4 149	4 319	4 323	9	25	39	45	0	0	*	*	*	*	*	*
Borders	924	893	891	996	5	6	7	10	0	0	*	*	*	*	*	*
Dumfries & Galloway	1 093	1 025	1 018	1 151	*	*	11	12	*	*	0	*	*	*	*	*
Fife	4 167	3 888	3 840	4 060	10	40	51	50	0	*	*	13	*	*	*	*
Forth Valley	1 956	1 678	1 717	1 842	16	28	40	47	*	*	*	*	*	*	*	*
Grampian	3 380	3 417	3 663	3 544	39	80	98	121	0	0	8	22	*	*	*	*
Greater Glasgow & Clyde	17 272	17 277	17 428	17 227	173	460	674	779	0	7	26	73	*	*	*	*
Highland	1 610	1 532	1 675	1 678	8	18	31	34	0	0	*	*	*	*	*	*
Lanarkshire	5 409	5 184	5 253	5 266	12	30	41	41	0	0	*	*	*	*	*	*
Lothian	9 815	10 205	10 315	10 597	95	274	407	446	*	*	11	43	*	*	*	*
Tayside	3 673	3 475	3 636	3 601	27	53	67	77	*	*	6	9	*	*	*	*
Sexual Orientation, Gender and Ethnicity																
Men who have sex with men	4 937	5 281	5 530	5 721	323	1 009	1 442	1 637	*	*	63	178	27 (5)	23 (7)	21 (*)	21 (*)
Heterosexual Women	26 210	25 182	25 707	25 590	*	5	7	7	*	0	0	*	14 (*)	13 (*)	12 (*)	8 (0)
Black African	173	166	177	167	*	*	*	*	*	*	*	*	8 (*)	6 (*)	6 (0)	* (0)
Heterosexual Men	7 674	7 310	7 176	7 627	*	*	5	5	*	*	*	0	7 (*)	11 (0)	10 (*)	7 (0)
Black African	94	101	96	103	0	0	0	0	0	0	0	0	0 (0)	* (0)	6 (*)	* (0)
Trans and diverse gender	45	41	63	67	*	*	*	6	0	0	0	0				
Age group																
15-24	19 924	20 094	20 743	20 242	71	184	286	326	*	*	26	48	6 (*)	* (*)	5 (*)	5 (*)
25-34	16 697	16 138	16 716	16 700	146	383	559	641	*	*	18	71	20 (*)	20 (*)	16 (*)	8 (0)
35-39	5 376	5 241	5 206	5 570	57	136	186	204	0	0	8	24	8 (*)	* (0)	8 (0)	8 (*)
40-44	3 676	3 624	3 583	3 767	35	87	115	138	*	*	7	14	8 (5)	5 (*)	8 (*)	3 (*)
45-49	3 089	3 088	3 012	3 121	30	78	115	121	0	*	*	10	5 (*)	5 (0)	5 (*)	6 (0)
50+	4 184	4 058	4 006	4 339	58	151	199	228	0	*	*	14	13 (*)	16 (*)	6 (*)	9 (*)

HIV: Human Immunodeficiency Virus; PrEP: Pre-Exposure Prophylaxis; Q: Calendar Quarter
 *Indicates cells where numbers have been suppressed to prevent potential risk of disclosure