Disruption in services for HIV, viral hepatitis and sexually transmitted infections during the COVID-19 pandemic in the WHO European Region
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Abstract
This scoping review provides an overview and analysis of publications and data from 1 February 2020–15 September 2021 that assessed the disruption of HIV, sexually transmitted infection (STI) and viral hepatitis services, and/or reasons for the disruption and adaptive measures implemented as a result of the coronavirus disease 2019 (COVID-19) pandemic in the WHO European Region. The scoping review identified 132 relevant publications, with almost two thirds in the form of grey literature, in addition validated data from UNAIDS and WHO databases and surveys were included in the analysis. Data suggest that the COVID-19 pandemic has caused various degrees of disruption of these services, in particular at the very onset of the pandemic, with some rebound by the end of 2020, but with persistent reports of disruption into 2021. Large variations across countries and within countries were noted. The services most affected appeared to be testing services for each of HIV, STIs and hepatitis; hepatitis treatment services; and HIV prevention services—although the impact of the pandemic on harm reduction services, including OST was highly variable across the Region. Antiretroviral therapy (ART) services were generally more resilient, however a disruption of new enrollments into ART was evident. The trends depicted in the review are comparable to findings globally and from other regions and countries, although further data, particularly validated national and disaggregated data, are required to confirm the impact on COVID-19 on these services as well as specific coverage gaps of key populations in the Region. More evidence is also required on the effectiveness and sustainability of adaptive mechanisms applied during the pandemic. Considerations for a more efficient future monitoring of disruption in services include: supporting monitoring at national level; stimulating rigorous implementation research; integrating and streamlining data collection at global level; and improving coordination of service disruption monitoring.

Key words
HIV, SEXUALLY TRANSMITTED INFECTION, HEPATITIS, COVID-19, WHO EUROPEAN REGION


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### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AAE</td>
<td>AIDS Action Europe</td>
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<tr>
<td>AIDS</td>
<td>Acquired immune deficiency syndrome</td>
</tr>
<tr>
<td>ART</td>
<td>Antiretroviral therapy</td>
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<tr>
<td>ARV</td>
<td>Antiretroviral</td>
</tr>
<tr>
<td>CD4</td>
<td>Cluster of differentiation 4</td>
</tr>
<tr>
<td>COVID-19</td>
<td>Coronavirus disease 2019</td>
</tr>
<tr>
<td>CSO</td>
<td>Civil society organization</td>
</tr>
<tr>
<td>DAA</td>
<td>Direct-acting antiviral</td>
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<tr>
<td>DSD</td>
<td>Differentiated service delivery</td>
</tr>
<tr>
<td>EATG</td>
<td>European AIDS Treatment Group</td>
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<tr>
<td>ECDC</td>
<td>European Centre for Disease Prevention and Control</td>
</tr>
<tr>
<td>ECOM</td>
<td>Eurasian Coalition on Health, Rights, Gender and Sexual Diversity</td>
</tr>
<tr>
<td>EECA</td>
<td>Eastern Europe and central Asia</td>
</tr>
<tr>
<td>EHG</td>
<td>Euro Health Group</td>
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<tr>
<td>EHRA</td>
<td>European Harm Reduction Association</td>
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<tr>
<td>EMCDDA</td>
<td>European Monitoring Centre on Drugs and Drug Addiction</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>GAM</td>
<td>Global AIDS Monitoring</td>
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<tr>
<td>HBV</td>
<td>Hepatitis B virus</td>
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<tr>
<td>HCC</td>
<td>Hepatocellular carcinoma</td>
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<tr>
<td>HCV</td>
<td>Hepatitis C virus</td>
</tr>
<tr>
<td>KII</td>
<td>Key informant interview</td>
</tr>
<tr>
<td>LMIC</td>
<td>Low- or middle-income country</td>
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<tr>
<td>MMD</td>
<td>Multi-month dispensing</td>
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<tr>
<td>MMP</td>
<td>Multi-month prescribing</td>
</tr>
<tr>
<td>MSM</td>
<td>Men who have sex with men</td>
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<tr>
<td>OST</td>
<td>Opiate substitution therapy</td>
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<tr>
<td>PHE</td>
<td>Public Health England</td>
</tr>
<tr>
<td>PLHIV</td>
<td>People living with HIV</td>
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<tr>
<td>PPE</td>
<td>Personal protective equipment</td>
</tr>
<tr>
<td>PrEP</td>
<td>(HIV) Pre-exposure prophylaxis</td>
</tr>
<tr>
<td>PWID</td>
<td>People who inject drugs</td>
</tr>
<tr>
<td>PWUD</td>
<td>People who use drugs</td>
</tr>
<tr>
<td>SARS-CoV-2</td>
<td>Severe acute respiratory syndrome coronavirus 2</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually transmitted infection</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNAIDS</td>
<td>The Joint United Nations Programme on HIV/AIDS</td>
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<tr>
<td>WHA</td>
<td>World Hepatitis Alliance</td>
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</table>
Background and Methods

Euro Health Group (EHG) was contracted by the WHO Regional Office for Europe to support the scoping review and analysis of relevant literature and databases that assessed the disruption of HIV, viral hepatitis and sexually transmitted infection (STI) services, the reasons behind this disruption and adaptive measures implemented during the coronavirus disease 2019 (COVID-19) pandemic from 1 February 2020–15 September 2021 in the WHO European Region. The review also aimed to assess how various stakeholders at different levels monitored the impact of COVID-19 on service uptake and delivery, and to provide considerations for future monitoring in this regard.

The scoping review of the literature was carried out in accordance with the PRISMA-ScR Checklist1 between 12 August 2021–15 September and included a range of source types, notably: databases with verified national data, such as those from WHO and the United Nations Programme on HIV/AIDS; published peer-reviewed articles; grey literature reports and websites, including difficult to locate or unpublished formats; and presentations from regional meetings.

Findings

Search characteristics

A total of 132 publications related to the disruption in HIV, viral hepatitis and STI services in the WHO European Region since the onset of the COVID-19 pandemic were included in this review, of which 82 were in the form of grey literature reports and 50 were studies published in peer reviewed journals. HIV services were somewhat overrepresented with fewer publications concerned with hepatitis and especially STI services.

Data and literature coverage well represented the western and eastern parts of the Region but publications from central parts were more limited. The majority of publications had collected data during the first wave of the COVID-19 pandemic in the Region (March 2020–July 2020), with only 7% based on data collected in 2021.

The impact of COVID-19 on HIV, viral hepatitis and STI services in the WHO European Region differed greatly, both between and within countries and across services and key populations2. Given that countries experienced different government responses to the pandemic and were at different stages of the COVID-19 pandemic at different times, this cross-country variation was expected.

Prevention services

Disruption in prevention services for key populations was observed in multiple countries and reported by various organizations in the WHO European Region. Community prevention services were generally cut back in the early pandemic, especially those involving face-to-face contact. However, a rebound in these services was observed in the second half of 2020 and into 2021, albeit to a varying extent, with some countries and organizations reporting an increased level of services compared to pre-COVID periods while others were still working at a reduced pace. New demands of key populations during the pandemic, including support for housing, food assistance and psychosocial support, were also noted.

Access to condoms was negatively affected to some extent, but only in some settings and particularly during periods with movement restrictions, and with large differences across countries. The roll out and scale up of (HIV) pre-exposure prophylaxis (PrEP) programmes seemed to have been more severely affected with the vast majority of PrEP programmes in the WHO European Region reporting substantial disruption during the early pandemic months.

The COVID-19 pandemic also challenged the delivery and uptake of harm reduction services – a vital component of prevention efforts – however civil society organizations, health-care workers and policy-makers in the Region have generally adapted quickly and with flexible models of service delivery to mitigate impact. Notably, in the early months of the pandemic, interruptions of both needle and syringe

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2 WHO defines key populations as populations who are at higher risk for HIV irrespective of the epidemic type or local context and who face social and legal challenges that increase their vulnerability. They include sex workers, men who have sex with men, transgender people, people who inject drugs, and people in prison and other closed settings.
and opioid substitute therapy (OST) programmes were reported across the Region, but were followed by a rebound with: national level data revealing an overall increase in the number of clean injection materials distributed by the end of 2020 compared to 2019 in eastern Europe and central Asia (EECA); and an increasing trend in OST levels reported primarily from EECA, likely as a result of both adaptation strategies and increased demand.

**Testing services**

This review indicated that despite the implementation of several mitigation strategies, the COVID-19 pandemic was associated with significant reductions in HIV, viral hepatitis and STI testing volumes, albeit with large inter- and intra-country heterogeneities. Based on national data, reductions varied between 0.5%–38% in early 2020 compared to 2019 levels in reporting countries, with some rebound during 2020 observed, but generally testing levels had not returned to pre-pandemic levels. Reductions in HIV, viral hepatitis and STI case notifications were also reported by many countries in 2020 compared to 2019, ranging from no change to a 45% decrease. The number of new enrollments in antiretroviral therapy (ART) and Hepatitis C (HCV) treatment were also reduced in many Regional countries in 2020, affecting ART scale-up efforts. A reduction in HIV viral load monitoring through 2020 was reported in five countries providing such data (from 67% coverage in 2019 to 61% in 2020), however this information was not commonly reported across the Region.

**Treatment Services**

Most countries in the Region have been able to continue providing ART services, in part due to the acceleration of differentiated models of care such as community-based service delivery and multi-month dispensing of medicines. However, some vulnerable and key populations reported facing challenges maintaining their treatment during the pandemic. For countries reporting national level data, the number of people on ART continued to increase between 2019 and 2020, but with a smaller annual increase than observed in previous years – likely corresponding to the reduced number of HIV tests conducted. The impact of the pandemic on ART adherence has not been studied well, and HIV viral suppression data are generally scarce.

Based on available data, viral hepatitis treatment services appear to constitute those most affected by the COVID-19 pandemic in the WHO European Region amongst all services investigated in this review. Preliminary data suggest a reduction in HCV treatment of 50% in 2020 compared to 2019.

**Reasons behind the observed service disruptions**

The disruption in HIV, viral hepatitis and STI services resulted from a mix of supply- and demand-side factors. Demand for these services reportedly declined during the peak waves of the COVID-19 pandemic as a result of: fear of contracting COVID-19 and lack of personal protective equipment (PPE) for health service users; travel and movement restrictions, social distancing and lack of public transportation; border closures; financial constraints; requirement to disclose HIV status/drug use/sex work to access services and data protection issues; and the lack of access to internet, phones or online services. The most frequently reported reasons for decreased service levels on the supply side included: closure of facilities for emergency procedures only; repurposing of facilities, services and staff to COVID-19 efforts; lack of PPE for health providers; physical distancing measures and regulations; travel and movement restrictions; and challenges around the supply chain for commodities, diagnostics, and medicine.

**Adaptation measures**

To mitigate the impact of movement restrictions, service providers have practiced: remote distribution of supplies (e.g. safe injection materials, condoms, and HIV self-testing kits); online consultations and appointments; provision of living support and food benefits to patients and community members; and provision of PPE. Flexible service delivery models, including take home doses and home-delivery of OST have been extensively applied, especially during periods with movement restrictions. The pandemic has compelled numerous countries to accelerate the scale-up of differentiated service delivery for HIV particularly by expediting multi-month distribution and home-delivery of antiretrovirals, and reducing the frequency of follow up visits.

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3 Services investigated comprised: condoms, PrEP, needle and syringe programmes, OST, testing for HIV, HCV, Hepatitis B and STIs; and ART/HCV treatment services.
Several civil society and international organizations have alerted, however, that some adaptive mechanisms, notably the shift to providing online counselling and telemedicine, carry a risk of leaving certain vulnerable populations behind, although more disaggregated data is needed in this regard. More evidence is also needed on the effectiveness and sustainability of adaptive mechanisms.

Conclusions
The COVID-19 pandemic has undoubtedly affected all aspects of the HIV, viral hepatitis and STI care continuum especially in the earlier timepoints of the pandemic. The extent to which these services were affected, as well as the level of adaption to disruption, however, was highly variable across the Region and between different populations and service types, although overall trends were in line with those reported in other Regions.

Data gaps were evident across several services and disaggregated data for key populations was also lacking, which is vital in assessing how COVID-19 has affected and potentially left behind specific vulnerable groups. The collection of additional validated national data would go a long way in confirming the impact of COVID-19 related disruption on HIV, viral hepatitis and STI services, and specific coverage gaps of key populations, as well as on the effectiveness and sustainability of adaptive mechanisms.

Considerations for the future monitoring of disruption in HIV, viral hepatitis and STI services
Future monitoring of HIV, viral hepatitis and STI service disruption should focus on supporting monitoring at national level; stimulating rigorous implementation research; integrating and streamlining data collection at global level; and improving coordination of COVID-19 disruption monitoring including among civil society organizations.
1. Background

HIV, viral hepatitis and sexually transmitted infections (STIs) pose public health concerns to the WHO European Region (1). These threats are addressed by global health sector strategies and Region-specific action plans for the health sector response to HIV and viral hepatitis with the goal of their elimination as public health threats by 2030, and to ending STI epidemics as major public health concerns by 2030 (2–7).

The coronavirus disease 2019 (COVID-19) pandemic has seriously affected the lives of people around the world and has hampered many essential health services. The interventions required to mitigate the spread of COVID-19 and the redistribution of health resources has disrupted the prevention, treatment and care of people affected by HIV, viral hepatitis and STIs and threatened the continuous progress towards elimination goals, but the extent and scope of this disruption in the Region is not well known. Multiple surveys and studies have been conducted since the onset of the pandemic to assess the level of and reasons behind the disruption of HIV, viral hepatitis and STI services in the WHO European Region.

Against this backdrop, Euro Health Group was contracted by the WHO Regional Office for Europe to support a scoping review and synthesis of these publications, as well as those assessing the adaptive measures implemented within these services during the COVID-19 pandemic. The scoping review also drew information from national surveillance data. All data and literature sources were from within the period of 1 February 2020–15 September 2021 and regarding the WHO European Region. This scoping review additionally aimed to identify gaps and opportunities for more efficient and coordinated assessment and prospective monitoring of the impact of the COVID-19 pandemic on HIV, viral hepatitis and STI services in the future.

For the purpose of this review, the term STI is restricted to chlamydia, gonorrhoea and syphilis.
2. Introduction

2.1 HIV, viral hepatitis and STI status in the WHO European Region

2.1.1 Progress of the WHO European Region towards global targets for HIV

Despite the availability of HIV testing and treatment that prevents illness, death and transmission, HIV remains a significant problem in the Region, with an estimated 2,287,179 people living with HIV (PLHIV) in total. Based on 2020 data from 47 Regional countries, the majority of PLHIV are residing in the Russian Federation (998,525) and Ukraine (251,168), followed by France (172,700), Spain (151,387), Italy (130,000) and the United Kingdom of Great Britain and Northern Ireland (United Kingdom) (103,800). In some parts of the Region, rates are still substantially increasing: in eastern Europe and central Asia (EECA) for example, the Joint United Nations Programme on HIV and AIDS (UNAIDS) estimates that between 2010 and 2020, there was a 43% increase in HIV infections and a 32% increase in AIDS related deaths.

In 2020, key populations and their sexual partners accounted for at least 90% of all new HIV infections in 10 countries of the WHO European Region.

The 90-90-90 targets – of having 90% of all PLHIV know their status, 90% of those diagnosed with HIV on antiretroviral therapy (ART) and 90% of those on treatment virally suppressed – were adopted by the United Nations (UN) General Assembly as a global target for 2020 and have guided progress on HIV testing and treatment. Full achievement of 90–90–90 is equal to viral load suppression in 73% of all PLHIV.

In June 2021, the UN General Assembly adopted the 2021 Political Declaration on HIV and AIDS: Ending Inequalities and Getting on Track to End AIDS by 2030, which includes a commitment to reach 95-95-95 testing, treatment and viral suppression targets within all demographics, groups, and geographic settings. The declaration also notes that key populations are at a greatly elevated risk of HIV acquisition and additionally states the need to ensure availability of (HIV) pre-exposure prophylaxis (PrEP) for these populations and post-exposure prophylaxis for people recently exposed to HIV.

2.1.2 Progress of the WHO European Region towards global targets for viral hepatitis

In 2016, WHO published the Global health sector strategy on viral hepatitis 2016–2021 aiming to achieve elimination by 2030. The impact targets for hepatitis C virus (HCV) and hepatitis B virus (HBV) include a 90% reduction of new HCV and HBV infections and a 65% reduction in mortality, supported by the intervention coverage targets of 90% people living with HCV and HBV diagnosed, and 80% of those eligible treated by 2030. The first Action plan for viral hepatitis in the WHO European Region was endorsed in 2016, which adapts the global health sector strategy on viral hepatitis to the context of the European Region. The goal of the regional Action plan is the elimination of viral hepatitis as a public health threat in the WHO European Region by 2030 through the reduction of transmission, morbidity and mortality, and by ensuring equitable access to comprehensive prevention, testing, care and treatment services.

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1 WHO defines key populations as populations who are at higher risk for HIV irrespective of the epidemic type or local context and who face social and legal challenges that increase their vulnerability. They include sex workers, men who have sex with men, transgender people, people who inject drugs, and people in prison and other closed settings.

2 WHO estimates, [unpublished data] 2021 and WHO Regional office for Europe [unpublished data], 2021 (see 11,12 respectively, for more information)).

---

7 Belgium, Denmark, Finland, Monaco, the Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom.
As estimated by WHO at the end of 2019, progress towards the 2030 goals for viral hepatitis has been slow for all regions, including the WHO European Region (Fig. 2), where only 19% of those with a HBV infection were diagnosed, and just 2% of all HBV infected persons were receiving treatment. For HCV, 2019 estimations indicated that 24% of infections were diagnosed, with only 8% of all HCV infections being treated (9).

2.2 COVID-19

2.2.1 COVID-19 pandemic and government introduced restrictions

COVID-19 was declared a pandemic on 12 March 2020 (13) and as of 8 September 2021, 66 313 191 COVID-19 confirmed cases and 1 286 339 COVID-19-related deaths had been reported across the WHO European Region (14). The trend of confirmed COVID-19 cases between February 2020–September 2021 in the WHO European Region is shown in Fig. 3. The attempt to halt the spread of COVID-19, lent governments across the globe extraordinary powers to take prompt action and introduce restrictions and states of emergency, including:

- closure of state borders;
- closure of the borders of certain regions and restrictions on interregional travel;
- cancellation of international flights;
- suspension or restrictions on public transportation;

The most recent estimates on STIs across the WHO European Region show a total of 23 000 000 new cases in the WHO European Region, with 3 800 000 incident cases of gonorrhoea, 12 400 000 incident cases of chlamydia and 240 000 incident cases of syphilis in 2020. Other than slow declines in congenital syphilis, the incidence of most other STIs is plateauing or even increasing across the Region (9).

2.2.3 Progress of the WHO European Region towards global targets for STIs

The Global Health Sector Strategy on STIs 2016–2021 (2) has a series of milestones and targets that should be met by 2020 and 2030. Compared to the baseline in 2016, a 90% reduction in syphilis incidence, a 90% reduction in gonorrhoea incidence, and less than 50 cases of congenital syphilis per 100 000 live births should be reached by 2030.
• closure of public spaces such as bars, restaurants, shopping centres, theatres and other entertainment areas;
• restrictions or bans on mass public gatherings, events and festivals;
• closure of educational institutions, such as schools and universities;
• closure of workplaces;
• social distancing measures and face mask requirements;
• self-quarantine measures; and
• encouraging people to stay at home, and other restrictions of movement.

Fig. 2. Viral hepatitis diagnosis and treatment percentages by WHO Region, 2019 data

Hepatitis B

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>10</td>
</tr>
<tr>
<td>African Region</td>
<td>2</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>2</td>
</tr>
<tr>
<td>South-East Asia Region</td>
<td>0.1</td>
</tr>
<tr>
<td>European Region</td>
<td>19</td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>14</td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>18</td>
</tr>
</tbody>
</table>

Hepatitis C

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>21</td>
</tr>
<tr>
<td>African Region</td>
<td>13</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>5</td>
</tr>
<tr>
<td>South-East Asia Region</td>
<td>&lt;1</td>
</tr>
<tr>
<td>European Region</td>
<td>22</td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>18</td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Reproduced from (9)

Fig. 3. Trend of confirmed COVID-19 cases in the WHO European Region, February 2020–September 2021

Source: Reproduced from (14)
Most countries in the WHO European Region experienced strict restrictions between March 2020–June 2020. In the last quarter of 2020 and in early 2021 some countries re-imposed restrictions corresponding to a second wave of COVID-19 with relaxations generally visible across countries from June 2021. By September 2021, however, almost all countries in the Region still had varying degrees of COVID-19 restrictions in place ranging from 20–70% on the stringency index. The response, however, varied significantly across countries of the WHO European Region (Fig. 4). Movement restrictions in the form of “stay at home orders” were particularly widespread in the Region during the first wave and reimposed in almost all countries in late 2020. These were relaxed by June 2021 in many countries but were still prevalent in others by September 2021 (Fig. 5).

The World Bank warned that up to 115 million people were pushed into extreme poverty in 2020 as a result of the pandemic and its subsequent restrictions and socioeconomic downturns, which affected poorer and more vulnerable populations most acutely – further driving inequity.

COVID-19 vaccines however, have been described as the game changer in reducing the need for restrictions, but access to these vaccinations has been uneven across the WHO European Region, with first dose vaccination coverage varying between 11 and 87% as of 15 September 2021.

2.2.2 COVID-19 disruption in essential health care services at global level

The COVID-19 pandemic has severely disrupted essential health-care services globally as attention, resources and personnel have been diverted to fight COVID-19. Non-COVID-19-related health-care services have generally been deprioritized, restricted, or even completely unavailable, with health facilities repurposed, face-to-face services suspended or restricted, and many people having avoided or been unable to access health care. Hospitals have been reprofiled, specialized COVID-19 treatment and care centres set up and laboratory capacity built under a very short timeframe.

\[\text{Notes:}
\]
\[\text{The y-axis represents the stringency index, which is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the subnational level, the index is shown as the response level of the strictest subregion.}
\]
\[\text{Source: Reproduced from (15)}\]

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5 The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the subnational level, the index is shown as the response level of the strictest sub-region.
each requiring enormous levels of funding (18–20). A global systematic review on the impact of COVID-19 on the utilization of health-care services, primarily cardiovascular services, in the first few months after the onset of the pandemic found that utilization decreased by about a third during the pandemic. There was considerable variation across countries and type of services, and greater reductions among people with less severe illness (19).

The collective top five reasons for service disruption across all essential health services at global level during the first and the second round of a WHO pulse survey comprised, in descending order (average over the two surveys): patients not presenting for care; insufficient staff availability; cancellation of elective care services; government or public transport restrictions hindering access; and financial difficulties (20) (Fig. 6).

By March 2021, almost all responding countries had implemented at least one approach to overcome disruptions owing to the COVID-19 pandemic. Using community communications and triaging to identify priorities were the most common responses to disruptions (66% and 60% respectively). Other frequently reported approaches included recruitment of additional staff (56%), redirection of patients to alternative care sites (54%); provision of home-based care (51%); telemedicine deployment to replace in-person consultations (48%); self-care interventions (40%) and novel prescribing approaches (40%) (20).

### 2.3 Purpose of the scoping review

To assess the level of disruption of HIV, viral hepatitis and STI services, as well as the response to this disruption in the WHO European Region, multiple surveys and studies have been conducted (for example, by civil society organizations (CSOs), the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA) and EuroTEST), and national data have been collected (for example, by national government institutions, the European Centre for Disease Prevention and Control (ECDC), UNAIDS and WHO), at different points in time since the beginning of the COVID-19 pandemic. This scoping review analyses and consolidates the information generated by these multiple publications and databases with the aim of providing a comprehensive analysis of the situation and identifying gaps and opportunities for more efficient and coordinated assessment and monitoring of the impact of the COVID-19 pandemic on HIV, viral hepatitis and STI services in the future.
Fig. 6. Reasons for service disruptions across essential health services at global level

Percentage of countries (%)

- Decrease in outpatient volume due to patients not presenting
- Decrease in inpatient volume due to cancellation of elective care
- Insufficient staff availability (due to staff deployment to provide COVID-19 relief or other)
- Government or public transport lockdowns hindering access
- Insufficient PPE available for health care providers
- Closure of population level screening programmes
- Change in treatment policies
- Closure of outpatient disease specific consultation clinics
- Financial difficulties during outbreak/lock down
- Closure of outpatient services as per government directive
- Unavailability/stock out of health products at health facilities
- Inpatient services/hospital beds not available

Notes: The survey was completed by 129 countries in the first round, and 112 countries during the second round. Source: Reproduced from (20)
3. Methodology

3.1 Search strategy, selection criteria and databases/dashboards

3.1.1 Search strategy

In order to maintain a systematic approach in mapping topic-related evidence and identifying main concepts, theories, sources, and knowledge gaps required of a scoping review, the PRISMA-ScR Checklist was employed (21). The literature search was conducted between 12 August 2021–15 September 2021 and included both published and difficult to locate or unpublished “grey” literature and websites, and presentations from pan-European meetings.

An electronic search was conducted in Medline (PubMed) for articles published from 1 February 2020–15 September 2021 using comprehensive search terms. For PubMed the following Medical Subject Headings (MESH) search terms were used: (“Hepatitis B”[Mesh] OR “Hepatitis C”[Mesh] OR “HIV Infections”[Mesh] OR chlamydia OR gonorrhoea OR syphilis OR “Sexually Transmitted Diseases”[Mesh] OR “Opioid” OR “harm reduction” OR “Substance use disorders”) AND (“COVID-19” OR “coronavirus 2019” OR “COVID-19” OR “2019-nCoV” OR “SARS-CoV-2” [Mesh]).

The search strategy resulted in 1335 published articles, which were manually screened for relevance to the topic of the literature review (disruption of HIV, viral hepatitis and STI services), first by title and abstracts then by the full text of pre-selected documents, which were then scrutinized and selected if relevant. Relevance screening was undertaken in duplicate by two reviewers working independently, with any disagreements resolved by consensus. The reference lists of the included peer reviewed articles were subsequently carefully scanned to detect other eligible articles, which resulted in six additional records.

Grey literature was found through a structured internet search approach. Websites of 11 international organizations were searched and in addition, the website of relevant initiatives and literature/data portals were consulted. National ministry of health websites in the WHO European Region were also searched for relevant surveillance data and data available in English or Russian were included as per overall limitations of the review (see section 3.1.2). Furthermore, raw data from several surveys conducted by WHO during the pandemic to track disruption were also extracted and analysed for this report. Meeting reports and presentations from relevant pan-European meetings occurring during the chosen time period and provided by relevant WHO technical staff of the WHO Regional Office for Europe were also included.

3.1.2 Selection criteria and limitations

The following selection criteria were applied to the review:

- published in the time period after the onset of the pandemic from 1 February 2020–15 September 2021;
- full text available in either English or Russian;
- studies were undertaken in the countries of the WHO European Region, or WHO European Region countries were disaggregated by region or by country in global studies.

All study designs except modelling studies were included in the review. Reviews were only included if they had collected new data and thus provided new information. To focus this scoping review to the priorities of the WHO European Region, HIV, viral hepatitis and STI prevention aspects were limited to

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9 AIDS Action Europe; AIDS Foundation East-West International; Alliance for Public Health; Centers for Disease Control and Prevention; Correlation European Harm reduction Network; East Europe & Central Asia Union of PLWH; ECDC; Eurasian Coalition on Health, Rights, Gender and Sexual Diversity; Eurasian Harm Reduction Association; Eurasian Women’s Network on AIDS; European AIDS Treatment Group; European Monitoring Centre for Drugs and Drug Addiction; European region of the International Lesbian, Gay, Bisexual, Trans and Intersex Association; Global network of sex work projects; Harm reduction International; International Center for AIDS Care and Treatment Programs; International Network of People Who Use Drugs; Eurasian Network of People who Use Drugs; Platform for International Cooperation on Undocumented Migrants; President’s Emergency Plan for AIDS Relief; The Global Fund to fight AIDS; The United Nations Office on Drugs and Crime; The United Nations Children’s Fund; The United Nations Population Fund; WHO; World Bank Group; World Health Organization.

10 AIDS clearinghouse; AIDSmap; Coalition for Global Hepatitis Elimination; EuroTEST; Global HIV Prevention coalition; HIV Outcomes; HIV policy lab.

11 Modelling studies were only used to provide perspective in the discussion section.
focus on service delivery and uptake of condoms, PrEP, needle and syringe programmes and opioid substitution therapy (OST) particularly among key populations. Prevention of mother-to-child transmission and vaccination services and uptake were excluded from this review. Treatment aspects were limited to focus on ART and HCV treatment services, which have global goals and where monitoring efforts are stronger. We further restricted the hepatitis focus to HBV and HCV because of the interlinkages in transmission modes with HIV and STIs. STIs of interest to the review, in addition to HIV, were chlamydia, gonorrhoea and syphilis because of their global relevance and prevalence levels in the Region.

3.1.3 Databases and dashboards

WHO and UNAIDS dashboards and databases (including the Global AIDS monitoring (GAM) mechanism) were queried to analyse trends in country-level service statistics. Where available, pre-COVID-19 data reported through the GAM mechanism were also analysed to assess trends before the pandemic.

Indicators reported by countries to the databases and dashboards that are relevant to this review include:

- HIV testing and treatment indicators, namely HIV testing volume/positivity and distribution of self-testing kits, treatment and newly initiated treatment, and levels of viral suppression;
- coverage of HIV prevention programmes among key populations, including needles and syringes distributed among PWID, coverage of OST;
- prevention measures including PrEP services, number of condoms distributed, and voluntary medical male circumcision.

Every indicator area includes a question on reporting coverage within the reporting country.

In this report “national surveillance data”, only refers to that reported through official channels to the GAM mechanism.

**WHO Dashboard**

WHO is, at global level, tracking the continuity of essential health services during the COVID-19 pandemic across 129 countries/territories with data obtained through regularly conducted pulse surveys (22). Within the timeframe relevant to this scoping review, WHO conducted two rounds of pulse surveys; the first between May and June 2020 (18) and a follow-up expanded survey between January and March 2021, where levels of disruption in 25 and 35 essential health services were recorded respectively, as well as the main causes of and approaches to overcome these service disruptions (20). The web-based surveys were distributed to WHO country offices throughout the five WHO regions and each country completed one survey per round based upon the situation immediately prior to survey submission. Results of the two pulse surveys are available at the WHO dedicated dashboard (22). Services for HIV, viral hepatitis and STIs were included in these surveys albeit with limited focus in the first round.

**GAM mechanism**

HIV service coverage data were obtained through the GAM mechanism. Data are submitted annually (in March) to the system by countries and are reviewed by UNAIDS and partners. During this review process, UNAIDS and partners liaise with national GAM focal points to request clarification or to revise data submitted through the mechanism. A description of the target-related indicators that countries report on is provided in the UNAIDS 2021 GAM guidelines (23).

**UNAIDS HIV Services Tracking Database**

UNAIDS, with support from WHO and the United Nations Children’s Fund, collects data from countries through an online platform (24) to track potential HIV service disruptions. This data collection activity was initiated as a COVID-19 response and aims at identifying national, regional, and global disruptions of routine HIV services caused by COVID-19. The data sharing effort also aims at facilitating countries in collating key HIV service delivery statistics; producing analytics and identifying shortfalls; and helping to steer action to remedy programme gaps. Countries have been encouraged to regularly share and update their relevant data from health information systems, or aggregate data from electronic medical records from January 2020 and onwards.
mechanism, WHO or UNAIDS databases, or data from websites of official government entities where the validity of data is checked.

3.2 Data charting and analysis

Data from eligible articles and publications (peer-reviewed and grey literature) were charted using a standardized and pretested data abstraction tool in Microsoft Excel designed for this study to capture the relevant information on key study characteristics. Two reviewers independently charted data from each eligible record. Any disagreements were resolved through discussion between the two reviewers. Data on article characteristics (e.g., study design, type of infection, country(ies), sample size, type of respondents) and the level of disruption was extracted when applicable. Data from WHO and UNAIDS Databases were also extracted and analysed using the same predesigned tool.

A descriptive analysis of the characteristics of the included literature and data was conducted and based on pre-defined categories, namely the type of study design applied; the topic of the data (HIV, viral hepatitis and/or STIs); publication type (peer-reviewed articles, grey literature, and/or databases); geographical representation across the WHO European Region; and the data collection period.

To look at subregional aspects, this scoping review groups WHO European Region countries into western, central and eastern subregions\(^\text{12}\) based on epidemiological considerations and following the division of countries used in reports published by WHO and the ECDC over the past two decades (25).

\(^{12}\) The western subregion (west): Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Liechtenstein, Malta, Monaco, the Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, and the United Kingdom.

The central subregion (centre): Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Hungary, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, and Türkiye as well as Kosovo.

The eastern subregion (east): Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.
4. Findings

4.1 Search results and publication characteristics

4.1.1 Publications

Through the search strategy, 1341 peer-reviewed articles and 96 grey literature publications were initially identified. Following title and abstract screening 1037 of these were excluded due to irrelevance. The full texts of the remaining 400 publications were retrieved and screened and of these, a further 268 publications were excluded as they did not meet the eligibility criteria of this review. A total of 132 publications related to the disruption in HIV, viral hepatitis and STI services in the WHO European Region since the onset of the COVID-19 pandemic were therefore included in this review (Fig. 7), which comprised 50 articles published in peer-reviewed journals and 82 grey literature publications. A descriptive summary of these publications is provided in Table 1.

Of the multi-country publications included in the scoping review, most had collected data from countries in the western subregion or eastern subregion whereas the central subregion was slightly underrepresented (Table 1). It is also worth noting that the majority of peer reviewed articles were based on data collected in western subregion, whereas the grey literature was mainly from central and eastern subregions.

The majority of publications related to HIV, with STI service disruption having the least. The most frequent study theme was related to the extent or scope of disruption of services followed by adaptation and mitigation measures. Only a few studies investigated the reasons behind service disruption.

The most frequently applied study design was a cross sectional design. Multiple civil society networks carried out rapid assessments to get a better understanding of the impact of COVID-19 on their communities. Most were in the form of online surveys or key informant interviews, however relatively few of these were published in peer-reviewed journals.

Fig. 7. Flow chart - search strategy results for the scoping review
The largest percentage of publications included in the review related to the earliest data collection period corresponding to the first wave of COVID-19 in Europe, with only very few publications from the later pandemic period (Table 1).

Table 1. Summary characteristics of included publications (n=132)

<table>
<thead>
<tr>
<th>Characteristics of included publications</th>
<th>Grey literature (n=82)</th>
<th>Peer-reviewed literature (n=50)</th>
<th>Total (n=132)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single country</td>
<td>27 (33%)</td>
<td>35 (70%)</td>
<td>62 (47%)</td>
</tr>
<tr>
<td>Multi-country</td>
<td>55 (67%)</td>
<td>15 (30%)</td>
<td>70 (53%)</td>
</tr>
<tr>
<td>Type of infection(^a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td>58 (71%)</td>
<td>32 (64%)</td>
<td>90 (68%)</td>
</tr>
<tr>
<td>STIs</td>
<td>14 (17%)</td>
<td>11 (22%)</td>
<td>25 (19%)</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>38 (46%)</td>
<td>24 (48%)</td>
<td>62 (47%)</td>
</tr>
<tr>
<td>Study theme(^a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruption in services</td>
<td>53 (64%)</td>
<td>37 (74%)</td>
<td>90 (68%)</td>
</tr>
<tr>
<td>Reasons for disruption in services</td>
<td>27 (33%)</td>
<td>6 (12%)</td>
<td>33 (25%)</td>
</tr>
<tr>
<td>Adaptation strategies</td>
<td>50 (61%)</td>
<td>18 (36%)</td>
<td>68 (52%)</td>
</tr>
<tr>
<td>Study design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time trend/ time series analysis</td>
<td>1 (1%)</td>
<td>18 (36%)</td>
<td>19 (14%)</td>
</tr>
<tr>
<td>Cross sectional</td>
<td>25 (30%)</td>
<td>22 (44%)</td>
<td>47 (36%)</td>
</tr>
<tr>
<td>Case report</td>
<td>16 (20%)</td>
<td>9 (18%)</td>
<td>25 (19%)</td>
</tr>
<tr>
<td>Intervention study</td>
<td>0</td>
<td>1(2%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>National surveillance data</td>
<td>7 (9%)</td>
<td>0</td>
<td>7 (5%)</td>
</tr>
<tr>
<td>Mixed methods: KII and review of grey literature</td>
<td>16 (20%)</td>
<td>0</td>
<td>16 (12%)</td>
</tr>
<tr>
<td>Meeting reports</td>
<td>17 (21)</td>
<td>0</td>
<td>17 (13%)</td>
</tr>
<tr>
<td>Data collection period(^b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March–July 2020</td>
<td>55 (67%)</td>
<td>43 (86%)</td>
<td>98 (74%)</td>
</tr>
<tr>
<td>Aug 2020–Dec 2020</td>
<td>21 (26%)</td>
<td>21 (42%)</td>
<td>42 (32%)</td>
</tr>
<tr>
<td>Jan 2021–Sep 2021</td>
<td>6 (7%)</td>
<td>3(6%)</td>
<td>10 (8%)</td>
</tr>
</tbody>
</table>

Notes: KII: Key informant interview.  
\(^a\) Can include more than one category  
\(^b\) data was collected within the mentioned periods

4.1.2 UNAIDS and WHO databases and surveys

In addition to the publications described above in Table 1, available primary data were included and analysed in the scoping review. This included data from UNAIDS and WHO databases and raw data from WHO led surveys on the topic, with search results and indicators elaborated on below.

GAM data

The number of countries consistently reporting to the GAM mechanism on relevant indicators is presented in Table 2, with most reporting countries from EECA. Only a limited proportion of the 53 WHO European Region countries consistently submitted data on key indicators from 2018–2020, limiting the possibility for
a comprehensive trend analysis to assess the disruption of services due to COVID-19.

**UNAIDS HIV services tracking database**
During the period of interest, only five countries, all from EECA, consistently reported data for at least 6 months on most indicators.

**WHO surveys during the COVID-19 pandemic**
In addition to the WHO pulse surveys, WHO carried out a rapid assessment of disruption to HIV, viral hepatitis and STIs services in June 2020 and a follow up in November 2020, by sending relevant surveys to national focal points. The response rate to questions related to HIV/hepatitis was 19 of 53 (36%) from the WHO European Region, however some indictors had a very limited number of respondents.

### 4.2 The extent of COVID-19 disruptions on HIV, hepatitis and STI prevention services during the COVID-19 pandemic

#### 4.2.1 Disruption in community-based prevention services

A number of publications report concerns about the effects of social distancing and other COVID-19 restrictions on maintaining prevention activities for HIV, viral hepatitis and STIs, particularly regarding ongoing prevention efforts in socially and economically vulnerable populations (26–28). Disruption in community-based prevention services for key populations, particularly in the early months of the pandemic, have been observed in various countries and reported by different organizations (26–30). Table 3 provides a generalized overview of the reported level of disruption across community-based HIV, viral hepatitis and STI prevention services for key populations as reported by international CSO networks. Specific prevention service data are provided in section 4.2.2.

In a WHO led survey providing updated national data from 17 countries of the WHO European Region on the level of disruption of HIV prevention services in the period December 2020–February 2021, eight of 15 (53%) countries reported continued disruption; higher than the global average of 46% (20).

Only two countries in the WHO European Region reported substantial enough data to the UNAIDS HIV services tracking database to allow for trend analysis in the number of key population community prevention services provided (Fig. 8). In one of these countries,
Table 3. Reported disruption in community prevention services for key populations

<table>
<thead>
<tr>
<th>WHO subregion</th>
<th>Disruption to prevention services for Key Populations</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>west, centre, east</td>
<td>20 of 30 (66%) respondents reported suspension of all face-to-face activities</td>
<td>Mar–Apr 2020</td>
<td>CSOs</td>
<td>EATG 2020 (31)</td>
</tr>
<tr>
<td>centre, east</td>
<td>20 of 33 (60%) respondents reported the number of clients had reduced by 50% or more</td>
<td>Apr 2020</td>
<td>CSOs for MSM and transgender people</td>
<td>ECOM 2020 (32)</td>
</tr>
<tr>
<td>west, centre, east</td>
<td>25 of 43 (58%) respondents reported suspension of all face-to-face activities</td>
<td>Jun 2020</td>
<td>CSOs for key populations</td>
<td>AAE 2020 (27)</td>
</tr>
<tr>
<td>west, centre, east</td>
<td>11 of 27 (41%) respondents reported the number of community services they provided had increased since June 2020. 17 of 28 (61%) respondents reported that the number of services remained the same as in June 2020 or had even decreased.</td>
<td>Jan 2021</td>
<td>CSOs for key populations</td>
<td>AAE 2021 (27)</td>
</tr>
</tbody>
</table>

Notes: AAE: AIDS Action Europe; EATG: European AIDS Treatment Group; ECOM: Eurasian Coalition on Health, Rights, Gender and Sexual Diversity; MSM: men who have sex with men.

Fig. 8. Trend in the number of key population community prevention services across two WHO European Region countries, March 2020–June 2021, percentage change (%) compared to baseline

Notes: Countries are presented anonymously based on understandings between the UNAIDS HIV services tracking database and data reporting countries. The average of January and February serve as the baseline (0). Inclusion criteria: a) WHO European Region country; b) country provided data for January and February 2020; c) country provided data for at least 6 months; d) no variance in the number of facilities reporting.

Source: produced with data from (24)
HIV prevention services for sex workers and men who have sex with men (MSM) experienced an initial disruption, whereas disruption in services for sex workers and PWID was noted in January–March 2021 for the other reporting country. Otherwise, the number of services provided rebounded and/or stayed above baseline for almost all other reporting months.

Additionally, some grey literature sources reported an increase in new demands for services by key populations due to loss of income and housing especially for sex workers, people who use drugs (PWUD), migrants and transgender people during periods with severe COVID-19 restrictions, including support for food, housing, shelters, and domestic violence as well as psychological support and counselling (28,33–36).

4.2.2 Disruption of key prevention services

In this section, the impact of COVID-19 on specific HIV, viral hepatitis and STI prevention efforts are explored. This includes access to condoms, harm reduction services (focusing in particular on needle and syringe programmes, OST, and PrEP), which are all key interventions for the prevention of these diseases in the WHO European Region (5–7).

Condoms

The supply of condoms and lubricants is reported to have been affected by general supply chain challenges including constrained worldwide ocean freight, restricted air cargo and increased transport prices (37). Other barriers have included a ban on selling non-food items in supermarkets in some countries and limited HIV and STI prevention outreach work by CSOs due to travel restrictions (35,38,39). An assessment in central and eastern Europe found that 27% of CSOs for MSM and transgender people had reduced their provision of condoms and lubricants in April 2020 (32). Three publications were found on the perceived accessibility of condoms by recipient populations during the pandemic, with 6–30% of respondents reporting a lack of access (Table 4).

Table 4. Perceived condom accessibility during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage reporting lack of access to condoms</th>
<th>Data period</th>
<th>Respondent</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-country studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belarus, Belgium, Germany, Italy, Kazakhstan, the Russian Federation, Ukraine, United Kingdom</td>
<td>11–20% of respondents from Belarus, Germany, Italy and the Russian Federation, 21–30% of respondents from Belarus, Germany, Italy, Kazakhstan, Ukraine, and United Kingdom</td>
<td>Apr–May 2020</td>
<td>MSM</td>
<td>Rao et al 2021 (40)</td>
</tr>
<tr>
<td>Single study countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Russian Federation</td>
<td>16.4%</td>
<td>Aug 2020</td>
<td>PLHIV</td>
<td>Ladnaya et al 2020 (41)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>18% men: 6% women</td>
<td>Apr–May 2020</td>
<td>General population</td>
<td>Dema et al 2021 (42)</td>
</tr>
</tbody>
</table>

Notes: Data are provided to the same level of accuracy as provided by the data source.

One further study – a global online survey with almost 50% of respondents from the WHO European Region – investigated access to condoms for minority groups within key populations (MSM and gay men) in April–May 2020 (43) The study found that individuals who identified as a racial or ethnic minority or who reported having ever engaged in sex work described significantly more difficulties in accessing condoms compared to those who did not.

Furthermore, a total of 10 countries in the WHO European Region reported national level data through the GAM mechanism on the number of condoms distributed in 2019 and 2020. Seven of the
10 (70%) countries reported a significantly lower number distributed in 2020 compared to 2019 (Fig. 9) with reductions of up to 38%. Two countries reported an increase in distribution – with Georgia increasing distribution by 53% – and one country reported no change. Overall, a 7% reduction in the number of condoms distributed was noted for the 10 reporting countries in 2020 compared to 2019.

Only two countries in the WHO European Region provided multi-month national trend data through 2020 and 2021 to the UNAIDS HIV services tracking database related to the number of condoms distributed. One country reported an 8–33% reduction during April 2020 and January–March 2021 compared to baseline (January and February 2020). In the remaining months however, condom distribution levels were all above baseline. The second country reported an initial decrease in March–May 2020, followed by a general increase in the number of condoms distributed from June–December 2020 (24).

**Fig. 9. Condoms distributed across 10 countries in the WHO European Region, percentage change from 2019 to 2020**

Harm reduction services

Early on in the pandemic, several publications from international and pan-European CSOs and initiatives reported that COVID-19 mitigation measures, including movement restrictions, limited the operation of harm reduction services and disrupted global supply chains of essential supplies, as well as making it harder than ever for PWUD to travel to their harm reduction service points (35,46–53). Furthermore, PWUD in some countries of the Region described that when mainstream health-care services had been affected by COVID-19 restrictions, the only available harm reduction services were CSO initiatives (53).

In April 2020, the EMCDDA found that 60% of national focal points in European Union (EU) countries and Norway reported a decrease in the provision of harm reduction services since COVID-19 measures had been implemented, with drop-in centres, shelters, outreach services, drug consumption rooms, and needle and syringe exchange services most frequently affected (46).

These findings are supported by other studies or reports from various countries across the Region. In Spain, the average number of service users across 11 harm reduction centres decreased by 22% in March–June 2020 compared to the same months in 2019 (54). In Poland, 48 of 62 (77%) participating harm reduction facilities, reported a decrease in the availability of harm reduction programmes from April–May 2020 (55). Additionally, a countrywide study in the Russian Federation in 2020 found that during the pandemic, 10% of PLHIV lacked access to harm reduction services.
A significant reduction in the availability of safe drug consumption sites during the early pandemic months (56) and limited availability of naloxone for overdose prevention were also reported across several countries by different organizations (57).

Conversely, there were two country case studies, however, from Republic of Moldova and Ukraine in 2020, where no major interruption to harm reduction services were reported, as a result of general resilience, increased funding and quick adaptation (34,58). However, based on the limited reach of the data collected, this report of resilience may not be fully country representative.

Trends across time in relation to access to harm reduction services beyond the onset of the pandemic have not been well studied. However, one report – a survey among 32 harm reduction providers and experts in Europe – described that by October 2020 the provision of harm reduction services had generally improved since the early pandemic period (59).

Additionally, the European Drug report 2021 (60) summarizes that while some services for PWUD were disrupted due to the COVID-19 pandemic, both CSOs and the health-care sector quickly adapted to circumstances and were able to introduce innovative working practices to mitigate the impact of the crisis and resumed their operations– albeit some at reduced capacity – by June 2020. In line with this, a global follow up survey among PWUDs from June 2020, reported increasing availability of harm reduction services compared to earlier pandemic months (57).

**Needle and syringe programmes**

Overall, studies in a number of countries across the Region indicate that there was a disruption in needle and syringe programmes during the early pandemic months with between 25–52% of respondents reporting reduced service access (Table 5). Respondents from other countries, such as Lithuania and the Russian Federation, also reported this initial decreased access to harm reduction commodities, including clean injection materials, though without specifying the extent of the disruption (61).

GAM database national level data, mainly from EECA countries13 revealed an overall 28% increase in the number of clean injection materials distributed in 2020 compared to 2019, although levels were in line with 2017 data, following a dip in supply in 2018–2019 (45,62). Likewise, the number of countries reporting medium coverage rates (100–200 syringes per PWID per year) or high coverage (>200 syringes per PWID per year) of syringe distribution increased between 2019 and 2020 (Fig. 10) (44,45).

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of respondents reporting service disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-country studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents from Estonia, Ireland, Italy, Latvia, Lithuania, Luxembourg and Spain accounted for 80% of the sample</td>
<td>52 of 260 (20%) reported less access to clean injecting materials</td>
<td>Apr 2020</td>
<td>PWIDs</td>
<td>EMCDDA 2020 (46)</td>
</tr>
<tr>
<td>Respondents from 28 countries of the WHO European Region</td>
<td>13 of 48 (27%) reported disruption in needle and syringe and/or condom distribution services for PWUDs</td>
<td>Apr 2020</td>
<td>Addiction medicine professionals</td>
<td>Radfar et al 2021 (63)</td>
</tr>
</tbody>
</table>

13 Albania; Armenia; Azerbaijan; Belarus; Czechia; Estonia; Georgia; Israel; Kazakhstan; Kyrgyzstan; Montenegro, North Macedonia, Republic of Moldova; Tajikistan; Ukraine; Uzbekistan and Kosovo.
Data on the impact of COVID-19 on OST are mixed. Some organizations and studies reported a reduction in these services, with services only maintained in larger city hubs in the first months of the pandemic but limited or non-existent elsewhere. For example, an EMCDDA rapid assessment among EU countries and Norway conducted in April 2020 (46) found that 10 of 24 (42%) countries reported closure of or a significant reduction in OST services in specialized centres, and 7 of 13 (54%) reported disruption in non-specialized centres, from March when COVID-19 restriction measures were initiated. Furthermore, 45 out of 202 (22%) PWID surveyed from June to October 2020 still noted difficulties in accessing OST in England and Northern Ireland (65). Other studies, however, reported an increased provision of OST services during the early stages of the pandemic – as a result of increased demand – described in greater detail below. In general, large variability in terms of services offered and service demand were reported both between countries and within countries, and across time (30,46,67,68).

### Table 5. contd.

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of respondents reporting service disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>Up to 40% reduction of needle distribution</td>
<td>Apr–May 2020</td>
<td>Harm reduction centres in Spain</td>
<td>Picchio et al 2020 (54)</td>
</tr>
<tr>
<td>Sweden (Stockholm)</td>
<td>50% increase in the number of needles and syringes distributed in 2020 compared to 2019</td>
<td>2019 and 2020</td>
<td>Harm reduction centre</td>
<td>Lindqvist K et al 2021 (64)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>25% reported difficulties in accessing safe injection materials</td>
<td>Jun–Oct 2020</td>
<td>PWID</td>
<td>Croxford et al 2021 (65)</td>
</tr>
</tbody>
</table>

### Fig. 10. Needle and syringe programme coverage levels (%), 2017–2020 trends across countries of the WHO European Region

![Graph showing needle and syringe programme coverage levels from 2017 to 2020](image)

**Notes:** n= number of countries reporting. Inclusion criteria: a) WHO European Region country; b) Country provided data for at least two of the four years. Included countries/area: Albania; Armenia; Azerbaijan; Belarus; Czechia; Estonia; Georgia; Israel; Kazakhstan; Kyrgyzstan; Montenegro; North Macedonia; Moldova; Tajikistan; Ukraine; Uzbekistan and Kosovo (14).

Source: produced with data from (44,45,62,66).
A global survey of health-care providers at the early onset of the pandemic found that 9 of 24 (38%) respondents from the WHO European Region had experienced shortages of opioid medications (63). This was supported by an EMCDDA report, which found shortages of OST medications in three of the sampled EU countries (Belgium, Czechia and Hungary). However, in some cases, these had been observed even prior to the COVID-19 pandemic (46). Disruption in OST supply was also reported from Moldova (68).

Beyond supply and provision, the enrollment of new clients on OST was also highlighted as a challenge, particularly during the initial phase of the pandemic and within specialized treatment centres (46,53,55,61,68). The total number of opioid users entering drug treatment decreased by almost 50% between January–March 2020 in Bulgaria, Ireland, Lithuania and Portugal, yet rebounds were noted by April 2020 (46).

Despite provision challenges, demand for OST appears to have increased during the pandemic in some countries and in some settings, notably as a result of the initial shortage of street drugs due to COVID-19 restrictions reported in some countries, coupled with a general loss of income among PWUD as well as the less strict regulations on OST access that were introduced in many countries during the pandemic (67,69). These increases in demand were reported through EMCDDA Surveys in Armenia, Azerbaijan, Belarus, Czechia, France, Georgia, Germany, Ireland, Italy and Luxembourg from April–May 2020 (46,68,69). This is in line with reports from the European Harm reduction network which described an increased demand for and rapid expansion of OST services after the onset of the COVID-19 pandemic, and an increase in the distribution of take-home doses covering an extended duration, reported across many EECA countries (56).

A study from Spain across six harm reduction centres also found a 22% increase of methadone distribution from March–June 2020 compared to the same period in 2019 (54).

The findings of these studies are supported by national data from nine WHO European Region countries (Albania, Armenia, Azerbaijan, Belarus, Kazakhstan, Moldova, Tajikistan, Ukraine and Serbia) reporting through the GAM mechanism, where the number of PWID on OST increased by almost 14% from 2019–2020 – above the annual increase of 7% observed from 2017–2018 and 2018–2019 (Fig. 11).

**Fig. 11. PWID on OST across nine countries of the WHO European Region, 2017–2020**

Notes: Inclusion criteria: a) WHO European Region Member State; b) Country provided data for all four years. Included countries: Albania; Armenia; Azerbaijan, Belarus; Kazakhstan; Moldova; Serbia; Tajikistan; Ukraine.
Source: produced with data from (44,45,62,66)
It should be noted, however, that Ukraine contributed vastly to the overall increase between 2019–2020 with an increase of almost 20% and by far the largest number of people on OST in the Region. Excluding Ukraine from the analysis, the remaining eight countries increased the number of PWID on OST by 6.2% from 2019–2020, compared to previous annual increases of 4.6% and 1.7% between 2018–2019 and 2017–2018 respectively. The extent of these increases varies markedly between countries (Table 6). Overall OST coverage (the proportion of PWID on OST) increased for five of the nine countries between 2019–2020 (44,45,62,66).

This increase in OST provision was also observed to a lesser extent in monthly national data submitted through the UNAIDS HIV service tracking database from January 2020–June 2021. However, only three countries of the WHO European Region, all from EECA, provided enough data to assess such trends.

The number of PWID who received OST dipped below baseline in the earlier months of the COVID-19 pandemic in two of the three countries, but this reduction did not exceed 5%. An increasing trend was noted already from March in one country and from June in another (Fig. 12).

**PrEP**

By the end of 2019, 35 of the 53 (66%) countries in the WHO European Region had adopted the WHO PrEP recommendations, however 20 of 48 (42%) reporting countries still lacked systematic provision of PrEP in 2020 (70). Available data suggested that the COVID-19 pandemic negatively affected the roll out and scale up of PrEP programmes across the Region, with some exceptions (Table 7). It is important to note however, that any reductions in PrEP use indicated during the early stages of the pandemic do not necessarily equate to a higher risk of exposure to HIV: one study found that MSM respondents in the early

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**Table 6. Number of PWID on OST in nine WHO European Region Countries, 2017–2020**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>751</td>
<td>695</td>
<td>780</td>
<td>938</td>
<td>-7.5%</td>
<td>+12.2%</td>
<td>+20.3%</td>
</tr>
<tr>
<td>Armenia</td>
<td>501</td>
<td>568</td>
<td>625</td>
<td>702</td>
<td>+13.3%</td>
<td>+10.0%</td>
<td>+12.3%</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>224</td>
<td>338</td>
<td>520</td>
<td>734</td>
<td>+50.9%</td>
<td>+53.8%</td>
<td>+41.1%</td>
</tr>
<tr>
<td>Belarus</td>
<td>770</td>
<td>728</td>
<td>690</td>
<td>696</td>
<td>-5.5%</td>
<td>-5.2%</td>
<td>+0.9%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>529</td>
<td>389</td>
<td>296</td>
<td>316</td>
<td>-26.5%</td>
<td>-23.9%</td>
<td>+6.8%</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>497</td>
<td>498</td>
<td>522</td>
<td>564</td>
<td>+0.2%</td>
<td>+4.8%</td>
<td>+8.0%</td>
</tr>
<tr>
<td>Serbia</td>
<td>5404</td>
<td>5664</td>
<td>5834</td>
<td>5917</td>
<td>+4.8%</td>
<td>+3.0%</td>
<td>+1.4%</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>654</td>
<td>605</td>
<td>655</td>
<td>668</td>
<td>-7.5%</td>
<td>+8.3%</td>
<td>+1.9%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>10 189</td>
<td>11 385</td>
<td>12 411</td>
<td>14 868</td>
<td>+11.7%</td>
<td>+9.0%</td>
<td>+19.8%</td>
</tr>
</tbody>
</table>

| Total incl. Ukraine    | 19 519 | 20 870 | 22 333 | 25 403 | +6.9%                       | +7.0%                        | +13.7%                      |
| Total ex. Ukraine      | 9 330  | 9 485  | 9 922  | 10 535 | +1.7%                       | +4.6%                         | +6.2%                       |

Source: (44,45,62,66)
Fig. 12. Percentage change in the number of PWID on OST in three WHO European Region Countries, February 2020–September 2020

Notes: Countries are presented anonymously based on understandings between the UNAIDS HIV services tracking database and data reporting countries. January 2020 data constitute the baseline (0). Inclusion criteria: a) country provided data for at least 6 months; b) country provided data for January 2020; (c) minimal fluctuations in number of facilities reporting.
Source: produced with data from (24)

Table 7. COVID-19 related disruption of PrEP programmes in the WHO European Region

<table>
<thead>
<tr>
<th>Country/subregion</th>
<th>Disruption of PrEP</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-country studies</td>
<td>A rapid assessment indicated disruption in PrEP consultations as reported by 16 of 53 (30%) of CSOs.</td>
<td>Apr 2020</td>
<td>CSOs</td>
<td>EATG 2020 (28)</td>
</tr>
<tr>
<td>east, centre, west</td>
<td>PrEP distribution was reported to be discontinued in Portugal and Seville, Spain.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>east, centre, west</td>
<td>Temporary suspension of PrEP services reported in Czechia, England, Italy, Kyrgyzstan, Portugal, Serbia, Slovenia (as part of a clinical study) and Switzerland, and lack of availability of PrEP in Albania, Greece, Kazakhstan, Romania and the Russian Federation</td>
<td>Apr 2020</td>
<td>CSOs</td>
<td>EATG 2020 (28)</td>
</tr>
<tr>
<td>globala</td>
<td>1059 of 1892 (56%) respondents reported potential interruption to PrEP, with greater interruptions seen in Türkiye compared to other countries included in the study</td>
<td>Apr–May 2020</td>
<td>MSM (via social networking app)</td>
<td>Rao et al 2021 (40)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single study countries</th>
<th>Disruption of PrEP</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Of MSM who used PrEP 93 of 198 (47%) had stopped taking PrEP; 46 of 198 (23%) had PrEP appointment postponed; and 16 of 198 (8%) were concerned about insufficient pill supply due to COVID-19 restrictions</td>
<td>Mar 2020</td>
<td>MSM</td>
<td>Reyniers et al 2020 (71)</td>
</tr>
<tr>
<td>Spain</td>
<td>Halted the rolling out of the PrEP programme</td>
<td>Mar 2020</td>
<td>CSOs</td>
<td>Ministry of Health Spain (30)</td>
</tr>
</tbody>
</table>

Notes: EATG: European AIDS Treatment Group

a Twenty countries were included in the study, of which 10 were from the WHO Europe Region: Belarus, Belgium, France, Germany, Italy, Kazakhstan, the Russian Federation, Türkiye, Ukraine, and the United Kingdom, and 75% of respondents were from the WHO European Region, with approximately one third from the Russian Federation and one fifth from Türkiye.
Fig. 13. PrEP uptake in the WHO European Region, 2017–2020

a. Ukraine

b. Armenia, Georgia, Kyrgyzstan and Republic of Moldova

Notes: Inclusion criteria: a) WHO European Region country; b) country provided data for at least 3 out of 4 years.

Source: produced with data from (44,45,62,66)

phase of the pandemic had greatly reduced sexual contact with non-steady partners (from 59% to 9%), suggesting that PrEP use had declined due to a perceived reduced risk of HIV infection (71).

Five countries reported national data on PrEP use for the period 2017–2020 through the GAM mechanism, with all indicating an increase in the number of people receiving PrEP at least once from 2017–2020. Ukraine reported a dramatic increase in the number of new PrEP users especially between 2018 and 2019, which continued, albeit to a less extent through to 2020 (Fig. 13a). Armenia, Kyrgyzstan and Republic of Moldova also reported, to different extents, increases from 2019–2020, with only Georgia reporting a decrease (Fig. 13b).
4.3 The extent of COVID-19 disruptions on HIV, STI and viral Hepatitis testing and screening services

4.3.1 HIV testing

Studies and available data suggest an overall decreasing trend in the number of HIV tests performed in 2020 compared to 2019 in the WHO European Region, albeit with significant variation. Several surveys were conducted with key populations and CSOs to assess self-reported challenges to HIV testing access immediately after the onset of the COVID-19 pandemic and the introduction of countrywide restrictions across the Region. In some cases, testing services were temporarily suspended, especially in countries with more stringent COVID-19 control measures (31,38). Most CSOs and key populations reported high levels of disruption, especially during the first wave. Additionally, national level surveillance data from 14 countries found HIV testing volume reduced from between 0.5% (Kazakhstan) to 35% (England) in 2020 compared to 2019 (Table 8). Below is a narrative reflection from a study respondent from the Russian Federation:

“With the start of the epidemic, the NGO-run HIV testing in the city stopped. Since March (2020) everything was closed, and projects were suspended. We routinely had two public HIV testing campaigns led by NGOs that were not organized last year… Last year (2020), NGOs covered more than 32 000 people with rapid HIV testing, and more than 1000 people tested positive. However, temporary interruption of the activities and especially with key populations, entailed a reduction in a number of clients coming for anonymous testing at our Centre. There was a time in March-April-May, when we faced a reduction in clients by half.” (47).

<table>
<thead>
<tr>
<th>Table 8. Reporting of HIV testing volume changes or disruption of HIV testing in the WHO European Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country/subregion</strong></td>
</tr>
<tr>
<td>-----------------------------------------</td>
</tr>
<tr>
<td><strong>Multi-country studies</strong></td>
</tr>
<tr>
<td>west, centre, east</td>
</tr>
<tr>
<td>centre and east</td>
</tr>
<tr>
<td>west, centre, east</td>
</tr>
<tr>
<td><strong>Single country studies/ dataa</strong></td>
</tr>
<tr>
<td>Albania</td>
</tr>
<tr>
<td>Armenia</td>
</tr>
<tr>
<td>Azerbaijan</td>
</tr>
<tr>
<td>Belarus</td>
</tr>
<tr>
<td>Country/subregion</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Belgium (Liege)</td>
</tr>
<tr>
<td>Georgia</td>
</tr>
<tr>
<td>Kazakhstan</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
</tr>
<tr>
<td>Republic of Moldova</td>
</tr>
<tr>
<td>Republic of Moldova</td>
</tr>
<tr>
<td>The Russian Federation (St. Peterburg)</td>
</tr>
<tr>
<td>Sweden, (Stockholm)</td>
</tr>
<tr>
<td>Tajikistan</td>
</tr>
<tr>
<td>Ukraine</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
<tr>
<td>Uzbekistan</td>
</tr>
</tbody>
</table>

Notes: EATG: European AIDS treatment group; ECOM: Eurasian Coalition on Health, Rights, Gender and Sexual Diversity. Data are provided to the same level of accuracy as provided by the data source. Country case reports by the Alliance for Public Health provide data from key informants from the period April 2020–January 2021. They also report reductions in HIV testing in Bosnia and Herzegovina, Georgia, and Kyrgyzstan, but do not specify the extent of the reduction (47–50).

<sup>a</sup> All percentage changes presented for 2020 are comparisons to the same period in 2019, with the exception of <sup>b</sup>
<sup>b</sup> Data not reported by the Ministry of Health but available online at HIVRUSSIA.info reported by Federal Research and Methodology Centre on AIDS Prevention and Control (2020) under the Central Research Institute of Epidemiology of the Rospotrebnadzor.
<sup>c</sup> No comparison point, but reported simply on HIV testing disruption being perceived or not.
Ten countries in EECA provided national level data on the number of HIV tests performed and the number of HIV positive tests in the period 2018 through 2020 to allow for trend analysis of positivity rates across this time period (Fig. 14) (44,45,62). An average decrease of 9.3% was observed in the number of HIV tests performed between 2019–2020 across the 10 countries, in contrast to the 10.2% increase noted for 2018–2019. In terms of the HIV positivity rates, a marginally decreasing rate was observed from 2018–2020 (from 0.14% in 2018 to 0.125% in 2019 and 2020), with no changes observed between 2019 and 2020. Disaggregating data for each of the 10 reporting countries reveals that the decreasing HIV testing volume trend from 2019 to 2020 is widespread across all 10 EECA countries (Fig. 15), with a range of 1–21%.

4.3.2 Continuing disruption of HIV testing

Only a few studies report on HIV testing disruption after the first wave of COVID-19 in the WHO European Region. Notably, Simões and colleagues (72) compared HIV testing disruption from a 2019 baseline to March–May 2020 and later in June–August 2020. In this study, 76 out of 85 (90%) testing sites/respondents across 34 countries reported HIV testing volume reductions above 11% in March–May 2020, with 52 of the 85 (61%) respondents reporting severe disruptions (>50% reduction). In June–August 2020, 52 of 86 (60%) respondents still reported disruptions to HIV testing services, however the rate of those reporting severe disruptions dropped to 20% (17 out of 86 respondents). Nine of 86 respondents (10%) reported increased volumes of HIV testing services in June–August 2020 compared to March–May 2019.

Furthermore, 8 of 15 (53%) countries in the WHO European Region reported continued disruption in HIV testing services from January–March 2021 in a WHO led national survey, which was marginally higher than the global average of 49% (20).

Contrastingly, HIV testing data from the Russian Federation for the first six months of 2021 show a rebound to 2019 levels. In total 19 762 962 people were tested for HIV in the Russian Federation from January–June 2021, which is 17% more than for the same period in 2020 and almost corresponds to testing levels in the first half of 2019. However, the proportion of key populations tested decreased, with key populations only accounting for 3.2% of all HIV test in the Russian Federation in 2021 compared to 4.1% in 2019 (76).

Fig. 14. HIV testing volume (millions) and HIV positivity rates (%) across 10 EECA countries, 2018–2020

Notes: Data for 2020 have not yet been validated by WHO. Inclusion criteria: a) WHO European Region country; b) Country provided data for all three years. Included countries: Albania; Armenia; Azerbaijan; Belarus; Georgia; Kazakhstan; Kyrgyzstan; Republic of Moldova; Tajikistan; Uzbekistan

Source: produced with data from (44,45,62)
The number of HIV tests performed monthly at national level was reported through the UNAIDS HIV services tracking database by four WHO European Region countries for at least six consecutive months following the onset of the pandemic. Each of the four countries also provided pre-COVID-19 data for the months of January and February 2020, which were averaged to serve as baseline. The number of tests performed across these four countries had large monthly fluctuations within the reporting period, from anywhere between 60–70% fewer tests and 180% more tests compared to pre-COVID-19 levels (Fig. 16).

4.3.3 Hepatitis testing (HBV and HCV)

Data on the impact of the COVID-19 pandemic on hepatitis testing services are generally scarce. However, a few surveys conducted with key populations and CSOs to assess self-reported challenges with access to hepatitis testing services after the onset of the pandemic indicated severe disruption. This disruptive trend was also confirmed through a small number of peer reviewed articles and national surveillance data, albeit with large country variation (Table 9).

**HCV testing among people starting ART**

HCV testing coverage of PLHIV starting ART was reported annually by 10 countries of the WHO European Region through the GAM mechanism from 2017–2020. All countries except one were from the EECA Region. Overall testing coverage increased from 53 to 66% from 2019–2020, yet in 2018 the proportion was higher at 72%. However, as Fig. 17 indicates there is a very mixed pattern across the 10 countries.

**Hepatitis testing volume recovery**

At the time of this data collection for this scoping review, only two studies had followed up on the levels of disruption in hepatitis testing volumes through 2020 and 2021. Simões et al (72) assessed the changes in HCV and HBV testing volumes across 34 countries of the WHO European Region at the early onset of the pandemic (March–May 2020) and then again later in 2020 (June–August).
Notes: Countries are presented anonymously based on understandings between the UNAIDS HIV services tracking database and data reporting countries. Missing data within the country reporting period is indicated by a fragmented line. The average of January and February serve as the baseline (0). Inclusion criteria: a) country provided data for at least 6 months; b) country provided data for January and February 2020; c) minimal fluctuations in the number of facilities reporting. The spikes in November and December could be explained by the large-scale pan-European HIV testing week in the last week of November. Source: produced with data from (24).

Table 9. Disruption of viral hepatitis testing services

<table>
<thead>
<tr>
<th>Country/subregions</th>
<th>Hepatitis testing disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-country studies</td>
<td>27 of 48 (56%) respondents reported disruption</td>
<td>Apr–May 2020</td>
<td>PLHIV and CSOs</td>
<td>EATG 2020 (28)</td>
</tr>
<tr>
<td>west, centre, east</td>
<td>7 of 16 (44%) respondents reported disruption</td>
<td>Apr–May 2020</td>
<td>CSOs</td>
<td>Wingrove et al 2020 (78)</td>
</tr>
<tr>
<td>west, centre, east</td>
<td>47 (100%) reported disruption in HBV testing volumes and 96% reported disruption in HCV testing volumes from March–May 2020a</td>
<td>Mar–May 2020 and Jun–Aug 2020</td>
<td>CSOs, Health-care providers, national focal points</td>
<td>Simões et al 2020 (72)</td>
</tr>
</tbody>
</table>

52% of respondents reported disruption in HBV testing volumes and 54% reported disruption in HCV testing volumes during June–August 2020a
### Table 9. contd.

<table>
<thead>
<tr>
<th>Country/subregions</th>
<th>Hepatitis testing disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
</table>
| Belgium, Liege     | Testing volume change for HCV: -8.2%
Testing volume change for HBV: +77.8%<sup>a</sup><sup>b</sup> | Jan–Dec 2020 | PLHIV (case records) | El Moussaoui et al 2021<sup>(73)</sup> |
| England            | Testing volume change for HCV: -38%
Testing volume change for HBV: -31%<sup>a</sup> | Jan–Jun 2020 | National surveillance data | Public Health England 2020<sup>(74)</sup> |
| Sweden, Stockholm  | Testing volume change for HCV: No change
Testing volume change for HBV: -18.7%<sup>a</sup> | Jan–Oct 2020 | PWUDs Case records | Lindqvist et al 2020<sup>(64)</sup> |
| United Kingdom     | 35 of 188 (19%) of PWIDs had difficulties accessing hepatitis testing services | Jun–Oct 2020 | PWIDs | Croxford et al 2021<sup>(65)</sup> |

**Notes:**
- EATG: European AIDS treatment group. Data are provided to the same level of accuracy as provided by the data source.
- Changes refer to data collection period compared to the equivalent pre-COVID-19 period.
- Increase reported related to implementation of systematic screening policy in Belgium during 2020.

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**Fig. 17. Proportion of people starting ART tested for HCV, for 10 countries of the WHO European Region, 2017–2020**

![Proportion of people starting ART tested for HCV](image)

**Notes:**
- Inclusion criteria: a) WHO European Region country; b) country provided data for all four years. Kosovo<sup>14</sup> reported a very small number of people (<10) starting ART during the period of investigation.
- Source: produced with data from (44, 45, 62, 66).

<sup>14</sup> All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).
The study found a significant decrease in the number of tests conducted for both HBV and HCV during both periods compared to pre-COVID-19 levels. In the early phase of the pandemic, 60–70% of respondents stated that HBV and HCV testing volumes had decreased by more than 50% compared to the same months in 2019, but by June–August the picture was more stabilized, with testing volumes having rebounded to some extent for both HBV and HCV. Some respondents even reported an increase compared to the pre-COVID-19 period.

However, a later report, based on a WHO led survey, collecting data from December 2020–February 2021, found that HBV and HCV diagnosis and treatment services were still severely affected in the WHO European Region, with 7 of 13 (54%) countries still reporting disruption; higher than the global average of 43% (20).

### 4.3.4 STI (chlamydia, syphilis and gonorrhoea) testing

COVID-19 restrictions and pressure on health systems had the effect that some countries only tested symptomatic patients for STIs, or in emergency situations, and had suspended general STI screening programmes (79). Spain, for instance, reported that some of the largest STI clinics closed during lockdown and others decreased working hours or restricted care to emergency and symptomatic cases (30). Several reports from CSOs also indicated that access to community STI testing decreased during the period with strict COVID-19 restrictions throughout the Region and reported that they saw fewer clients because of “stay at home” orders, or that they had to suspend community testing services (28,38,79).

The overall trend as reported by countries of the WHO European Region depicts a marked disruption of and a decline in STI testing after the onset of the COVID-19 pandemic, particularly in earlier periods, but the extent of disruption both among and within countries were highly variable (with 30–90% of survey respondents reporting disruption), and generally a rebound, although not necessarily to pre-pandemic levels, in STI testing after June 2020 was observed (Table 10). However, no studies presenting data after January 2021 were available.

<table>
<thead>
<tr>
<th>Country/subregions</th>
<th>STI testing disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-country studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>west, centre, east</td>
<td>25 of 50 (50%) respondents reported STI testing being only available in case of emergency, 11 of 50 (22%) reported that it remained the same</td>
<td>Apr–May 2020</td>
<td>CSOs</td>
<td>EATG 2020 (28)</td>
</tr>
<tr>
<td>(24 countries)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>centre and east</td>
<td>10 of 33 (30%) respondents reported STI testing disruption</td>
<td>Apr 2020</td>
<td>CSOs for MSM and trans</td>
<td>ECOM 2020 (32)</td>
</tr>
<tr>
<td>(9 countries)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>west, centre and east</td>
<td>95% of respondents reported disruption in STI testing, and 60–70% reported that testing volumes for chlamydia, syphilis and gonorrhoea had reduced by more than 50% during the period March-May 2020a</td>
<td>Mar–May 2020 and Jun–Aug 2020</td>
<td>CSOs, Health care providers, national focal points</td>
<td>Simões et al 2020 (72)</td>
</tr>
<tr>
<td>(34 countries)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
National surveillance data from three countries (England, Norway and Ukraine) (44,45,74,80) indicates that the number of STI tests conducted in 2020 compared to the same period in 2019 reduced by 15–30%.

### 4.3.5 Linkage to care from HIV, hepatitis, and STIs testing

Several reports and studies mention that linkages to care following a positive HIV, viral hepatitis or STI test were delayed during the early phase of the COVID-19 pandemic where only acute medical care was prioritized, but the majority of these studies did not measure the extent of these delays (36,81,82). In response to a survey conducted in April 2020 in Ukraine, an individual reported on the increased time from diagnosis to enrollment in care during the pandemic:

“Prior to the pandemic, a client could be put on the HIV-positive register in 1-2 days, whereas it now takes much longer. As a result, clients are being lost to the organization.” (52)

Contrastingly, 40 of 54 (74%) CSO respondents from 26 countries from the Region reported no disruption in linkages to care for new HIV diagnoses in March–April 2020 (28) and the Simões et al study (72) also found an overall stable level of time from initial diagnosis to HIV and HCV treatment initiation across 34 countries in the Region. However, large variations between the pre-COVID-19 baseline (March–May 2019) and the early COVID-19 period (March–May 2020) were noted between countries in this latter study, with this variation continuing in June–August 2020: for example, about 20% of countries reported an increase and 20% reported a decrease in time to treatment compared to baseline (72).

### 4.4 The extent of COVID-19 disruptions on ART and hepatitis treatment services

#### 4.4.1 ART continuation and initiation

As with the community prevention services described in section 4.2.1, access for PLHIV to clinics, hospitals, and pharmacies has been disrupted across the WHO European Region affecting ART services, which have generally been deprioritized during the COVID-19 pandemic. Face-to-face consultations were postponed or cancelled, and the bulk of support in 2020 was provided through online platforms, which continued into 2021 for some countries. For example, a study from the Russian Federation (41) reported that of 562 PLHIV, almost 30% had faced challenges accessing ART services during the first 6 months of the COVID-19 pandemic, of which 3.7% reported that

<table>
<thead>
<tr>
<th>Country/subregions</th>
<th>STI testing disruption</th>
<th>Data period</th>
<th>Respondents</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>Number of tests for chlamydia, gonorrhoea and syphilis were reduced by 30%</td>
<td>Jan–Jun 2020</td>
<td>National surveillance data</td>
<td>Public Health England 2020 (74)</td>
</tr>
<tr>
<td>Norway</td>
<td>Number of tests for chlamydia were reduced by 18%</td>
<td>Jan–Dec 2020</td>
<td>National surveillance data</td>
<td>Norwegian Institute of Public Health 2020 (80)</td>
</tr>
<tr>
<td>Ukraine</td>
<td>Syphilis testing among MSM and sex workers reduced by 15-21%</td>
<td>Jan–Dec 2020</td>
<td>National focal points</td>
<td>GAM data 2019 and 2020 (44,45)</td>
</tr>
</tbody>
</table>

Notes: EATG: European AIDS treatment group; ECOM: Eurasian Coalition on Health, Rights, Gender and Sexual Diversity.

*Changes refer to data collection period compared to the equivalent pre-COVID 19 period
their usual AIDS centre was closed or was working with a lower intensity.

However, ART provision has largely been resilient due to adaptive measures implemented by health systems, health-care providers and communities. Data suggest that the majority of PLHIV who had started on ART in the WHO European Region before the pandemic continued their treatment. For example, the combined results of two WHO led surveys (20) reflecting data from April–August 2020 found that only 1 of 28 (4%) reporting countries in the WHO European Region had faced disruption in the provision of ART services, with the remaining 27 countries reporting no disruptions. Furthermore, in the follow up survey from January–March 2021 (20), ART service delivery levels were still found to be resilient for PLHIV already on ART, with only 2 of 15 (13%) countries reporting continued disruption. However, 4 of 14 (29%) countries reported disruption in ART initiation services for newly diagnosed PLHIV (Fig. 18), which was slightly higher than the global average of 25% (20). This trend in the disruption of ART initiation was also noted elsewhere, particularly in the early COVID-19 pandemic months (28,35,38). In a report by the Alliance for Public Health one informant stated:

“Unfortunately, at that moment our main task was to keep those who were already on (Antiretroviral) therapy, but not to attract new patients.” CSO key informant, The Russian Federation (47)

In Regional countries reporting sufficient national level data to allow trend analysis, the number of people on ART appears to have continued its increasing trend into 2020, albeit at a slower pace than observed in previous years (8% increase from 2019–2020 compared to a 26% and 12% increase in 2017–2018 and 2018–2019 respectively) (Fig. 19), and with fewer newly enrolled patients compared to pre-COVID-19 periods. Of note, Ukraine contributed significantly to the total number of people on ART across all years (around 70% of total), however, increases from 2019–2020 were evident across all eight countries, from 2% in Republic of Moldova to 15% in Kazakhstan (Fig. 20)(44,45,62,66).

Similar to the above-described studies, four Regional countries submitting detailed monthly national data to the UNAIDS HIV services tracking database demonstrated a continued increasing trend for the number of PLHIV on ART (Fig. 21).

![Fig. 18. ART service disruption in the WHO European Region, January–March 2021](image-url)

**Notes:** n=17. The numbers within the bars represent the number of countries indicating that level of disruption. Percentage categories indicate the percentage of users not served as usual. “Do not know” indicates that Information was not yet available. <5% disruption was considered no disruption of services. Source: produced with data from (20)
Fig. 19. Consolidated number of people on ART across eight EECA countries, 2017–2020

Notes: Inclusion criteria: a) WHO European Region country; b) country provided data for all four years. Included countries: Albania; Armenia; Belarus; Georgia; Kazakhstan; Republic of Moldova; Tajikistan; Ukraine
Source: produced with data from (44,45,62,66)

Fig. 20. Number of people on ART across eight EECA countries, 2017–2020

Notes: Inclusion criteria: a) WHO European Region country; b) country provided data for all four years;
Source: produced with data from (44,45,62,66)
However, 60–70% fewer newly enrolled people on ART was observed in country B and C compared to the baseline (Fig. 22). Country A and D showed fluctuations, with significant dips of newly enrolled ART patients in March–May 2020 (up to a 56% decrease in Country A and a 22% decrease in Country D), with some rebounds. However, all four countries still remained under baseline by their last reporting month.

Beyond national data, as with other parameters, very few studies collected data from later pandemic periods regarding ART provision. However, one global survey from July–November 2020 (84) collected data from 247 PLHIV, of which around 60% were from the WHO European Region (primarily Belgium and the Russian Federation) and found that HIV care had returned to pre-COVID-19 levels for around 50% of respondents. Additionally, of 604 999 PLHIV having received ART in the Russian Federation during 2020, 33 941 (5.6%) had discontinued therapy (76). While the same indicators are not available for 2019, as of June 2021, 620 936 patients had received ART and 16 069 discontinued therapy, in 2021 (2.5%), with the overall treatment coverage of people diagnosed with HIV slightly increasing from 53.2% in 2020 to 54.6% in June 2021 (76).

**Key populations**

Some studies investigated access to ART services for key populations during the pandemic. A global online survey (43) among MSM and gay men undertaken from April–May 2020, with almost 50% of respondents from the WHO European Region, found that individuals who identified as a racial or ethnic minority or reported ever having engaged in sex work, described significantly more difficulties in accessing ART compared to those who did not. Furthermore, a global study among transgender and nonbinary PLHIV found that access to an HIV service provider after the onset of the pandemic was significantly lower (Odds Ratio= 0.78%) in the European Region compared to those who lived in the south-east Asia Region (85), although access to treatment was not significantly different.

Furthermore, European AIDS treatment group (EATG) surveys undertaken in March–April 2020 (28) reported that with the closure of borders, some PLHIV were unable to return to their countries of origin or residence. Respondents from Italy, Cyprus, Lithuania,
Malta, Poland, the Russian Federation and Serbia reported issues accessing medications when their personal stock ran out due to cost and/or legal restrictions on who can access the health-care system where they were located. This included undocumented migrants without residency status. Limited access to ART services for sex workers and PWIDs have also been reported by several CSOs. The Eurasian Women’s Network on AIDS revealed:

“some women reported that Antiretroviral drugs were dispensed for people living with HIV on the street near the AIDS centre, and the clinic doors were closed for sex workers and women who use drugs, both literally and figuratively.”

4.4.2 HIV care and monitoring
PLHIV require medical care beyond the provision of ART, with regular health service visits and blood testing required to ensure cluster of differentiation 4 (CD4) and HIV viral load monitoring, but these services were substantially affected across the Region with the onset of the COVID-19 pandemic.

One survey from March 2020 among infectious disease specialists responding on behalf of 19 respective central and eastern European countries found that additional HIV care services were functioning normally in only six (32%) of these countries (87). Furthermore, 10 of 19 (52%) reported that their country had suspended regular visits and blood tests for PLHIV, with only ART services being provided, and 11 of 19 (58%) reported that physicians were sharing HIV and COVID-19 care duties. In another survey of CSOs in the Region in April 2020, 16 of 51 (31%) respondents reported that blood tests and consultations as part of HIV monitoring occurred as usual, 19 of 51 (37%) reported that they were postponed and 13 of 51 (25%) replied that these services were only possible in case of an emergency (28). Disruption in CD4 testing and HIV viral load monitoring of PLHIV receiving ART was also reported in other studies (28,73,86). Furthermore, the EATG found that during the early pandemic, 60% of CSO respondents across 26 WHO European countries reported that viral load monitoring was postponed or only available in emergency situations (28). A respondent from Kazakhstan to the Eurasian Women’s Network on AIDS study expressed:

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Notes: Countries are presented anonymously based on understandings between the UNAIDS HIV services tracking database and data reporting countries. Country B: missing data for Nov and Dec 2020; Country C: data available only up to Aug 2020; Country D: missing data for July 2020. Missing data within the country reporting period is indicated by a fragmented line. The average of January and February 2020 serve as the baseline (0). Inclusion criteria: a) country provided data for at least 6 months; b) country provided data for January and February 2020; c) no fluctuations in the number of facilities reporting.

Source: produced with data from (24)
“CD4 count, viral load was not even tested in this period. We were told that there are CD4 count tests, but that we should limit visits to the AIDS centre” (86)

Moreover, five EECA countries provided national data through the GAM mechanism from 2018–2020 allowing a trend analysis of viral load monitoring coverage of PLHIV on ART during this period. The overall population weighted average viral load monitoring coverage for the five countries was 67% in 2018 and 2019 but decreased to 61% in 2020, with individual countries reporting reductions of 5–35% from 2019–2020 (Fig. 23).

Fig. 23. Viral load monitoring coverage in five EECA countries 2018–2020

Notes: Inclusion criteria: a) WHO European Region country; b) Country provided data for all three years.
Source: produced with data from (44,45,62)

4.4.3 HIV viral suppression
Individual-level viral load is the recommended measure of ART efficacy. Given the reported lower levels of viral load monitoring, the declining trend in ART initiation and concerns surrounding ART attrition or adherence after the onset of the COVID-19 pandemic, it is reasonable to assume a knock-on effect on HIV viral suppression levels.

One study from Italy, however, found that the percentage of 3576 PLHIV on ART with HIV viremia15 (88), was actually lower compared to pre-COVID-19 levels (7% in 2019 and 2.8% in 2020), indicating good ART adherence among the studied population during the pandemic. Another Italian study, in Milan, found a similar trend, with increasing levels of HIV viral suppression from 2016 through to 2020 among a study population of 5000 PLHIV (89). Conversely, one small study from Switzerland found a 60% increase in patients with a detectable viral load after the onset of the pandemic based on the average of the previous 3 months (90).

National level data across 17 WHO European Region countries, the majority in EECA, suggested continuous increasing levels of viral load suppression16 in 16 of these 17 countries from 2019–2020 (Fig. 24) with suppression levels ranging from 82–98% in 2020. While this could indicate that clinical care for HIV and ART adherence remained sufficiently stable or even improved since the onset of the COVID-19 pandemic,

15 Defined as viral load > 50 copies/mL after 6 months of ART
16 Defined in Global AIDS monitoring indicator guidelines as HIV viral load less than 1000 copies/mL, and calculated from the number suppressed among those with a viral load test, multiplied by the total number of people on ART.
it should also be considered that the viral load tested population may not be representative of the whole on-ART PLHIV population. Those who missed viral load testing in 2020 are likely to be the most vulnerable populations with the lowest levels of adherence and thus suppression data reported by countries may be skewed towards a more positive trend. Therefore, the possible effects of the COVID-19 pandemic on HIV viral suppression may only be visible when those lost to clinical care resume viral load monitoring.

4.4.4 Antiretroviral (ARV) supply

Serious disruptions in supply chains and restrictions on the international shipping of essential commodities have been reported globally. UNAIDS noted this issue at the global level, highlighting that severe COVID-19 restrictions and border closures impacted both the production and distribution of medicines (92).

Generic manufacturers of ARVs, who are mainly based in India, report having experienced delayed access to raw materials, international shipping delays, increased lead times and rising production costs in the early days of the pandemic. Such generic ARVs are mainly procured by low and middle-income countries (LMICs), yet globally, transportation complexities, increased prices for airlifting, and suppliers demanding advanced payment, added challenges to supply chains across the world (41,93).

International organizations, CSOs and research studies also reported on the ARV supply challenges in the WHO European Region. A survey from the Russian Federation (41) indicated that 23 of 562 (4%) PLHIV on ART had missed taking ARVs due to shortages at AIDS centres. Surveys carried out by EATG (31) among representatives from CSOs in March–April 2020 also noted concerns about HIV medicine shortages in Albania, Bulgaria, Italy, Kazakhstan, Romania, the Russian Federation and Ukraine. Further data from May 2020 (28) suggest these shortages could have been related to issues such as consumer stockpiling (Switzerland), delays in procurement (the Russian Federation), ARVs being diverted to treat COVID-19 patients (Italy), and delays in contracting (Kazakhstan). The same study also reported that PLHIV were asked to switch therapy in Albania, Bulgaria, Italy, Kazakhstan, the Russian Federation, Serbia, Switzerland and Ukraine. In most cases, such a request was due to shortages related to stockouts of medicines. In only a few cases were
patients asked to switch due to medicines being used for the treatment of COVID-19 (28). Alliance for Public
Health reports from Georgia and Ukraine also reported
stockouts of first line ARVs in certain periods during
2020 (34,50).

Moreover, in a WHO led survey carried out in April–June 2020, three out of six (50%) reporting countries from the WHO European Region reported a critically low stock (<3 months) of major first line ARVs (World
Health Organization [unpublished data]. 2020 (see 94
for more information)). This proportion had slightly
decreased by November 2020, with two out of seven
(29%) countries reporting a critically low stock (World
Health Organization [unpublished data], 2021 (see
95 for more information)).

Consistently, reports received through the GAM
mechanism confirmed that 2 of 12 (17%) reporting
countries experienced a stockout of one or more
required ARV medicines during 2020: Ukraine
experienced stockouts in 17 of 500 (3%) and
Kazakhstan in 5 of 25 (20%) of all facilities dispensing
ARVs. It is worth noting however that Kazakhstan also
reported ARV stockouts in the years prior to the
pandemic (7 of 24 (29%) facilities in 2019 and 5 of 25
(20%) facilities in 2018 (45,62).

4.4.5 HCV treatment
Hepatitis treatment is reported to have been
substantially disrupted due to the COVID-19
pandemic with preliminary data suggesting that a
reduction of approximately 50% in HCV treatment,
including with direct-acting antivirals (DAA), in 2020
across the WHO European Region compared to 2019
(96). This rate varied substantially between studies
and countries, however.

Notably, a global DAA agent utilization trend study by
Shakeri et al (81) found that 46 of 54 (85%) countries
reported an average decline of 43% in DAA pharmacy
sales purchasing in March–August 2020 compared to
the same period compared to 2019 (Belarus, Latvia,
the Russian Federation and Ukraine).

Several other publications and studies confirmed
decreasing access to and uptake of HCV treatment
during the COVID-19 pandemic in the Region.
Estimates by national experts in central Europe
(Bulgaria, Croatia, Czech Republic, Hungary, Latvia,
Lithuania, Poland and Slovakia) found that the total
number of treated HCV infected patients, which was
almost 18 000 in 2019, were expected to decrease to
fewer than 12 000 in 2020 across the eight countries
(97) with only Czechia reporting an expected increase.
Most respondents reported that the decrease was
 correlated with decreasing HCV screening activities
and temporary suspension of hepatitis testing centres
during the early stages of the pandemic.

Furthermore, the World Hepatitis Alliance global
survey (78) found that viral hepatitis treatment access
had significantly deteriorated following the onset of the
COVID-19 pandemic in LMICs, including those in the
WHO European Region. Furthermore, in the Region,
of 16 respondents, those from Bulgaria, Georgia and
Greece replied that people living with viral hepatitis on
treatment could not access their medication according
to Wingrove, [unpublished], 2021 (see 98 in the
reference list for further information). Buti and
colleagues reported that Spain was still on track for
HCV elimination by 2030, but the COVID-19
pandemic had hindered efforts to maintain the
cascade of care for HCV and many micro-elimination
programmes (82). A few further studies also provided
quantitative data on the level of disruption in HCV
treatment services (Table 11).

Furthermore, a survey exploring the changes in
hepatitis care during the COVID pandemic from
March–December 2020 aimed at clinicians and
programme managers at global level, including 15
respondents from 11 different European Region
countries17, found that four Regional countries
(Georgia, Portugal, Romania and Türkiye) witnessed
abundant clinical visit deferrals (more than 50% of
planned visits) at peak impact compared to the

17 Respondents from the WHO European Region: Armenia (1), Georgia (2),
Germany (1), Hungary (1), Iceland (1), Italy (1), Republic of Moldova (1),
Portugal (1), Romania (1), Spain (1), Turkey (3), and Ukraine (1)
Table 11. HCV treatment disruption in 2020

<table>
<thead>
<tr>
<th>Country</th>
<th>Reported disruption of HCV treatment</th>
<th>Data period</th>
<th>Respondents/data</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>10 of 106 (9%) reported missed doses or that HCV treatment was not available</td>
<td>Jun–Oct 2020</td>
<td>PWIDs</td>
<td>Croxford et al 2021 (65)</td>
</tr>
<tr>
<td>Italy</td>
<td>44 of 194 (23%) reported that initiation of HCV antiviral treatment was postponed</td>
<td>Apr 2020</td>
<td>Specialists in Gastroenterology/health-care providers</td>
<td>Aghemo et al 2020 (99)</td>
</tr>
<tr>
<td>Spain</td>
<td>82% decrease of patients receiving DAA from 88 in 2019 to 16 in 2020a</td>
<td>Mar–Jun 2020</td>
<td>Six harm reduction focal points</td>
<td>Picchio et al 2020 (54)</td>
</tr>
<tr>
<td>Sweden, Stockholm</td>
<td>30% reduction in HCV treatment initiations</td>
<td>Jan–Oct 2020</td>
<td>PWUDs clinical case records</td>
<td>Lindqvist et al 2020 (64)</td>
</tr>
</tbody>
</table>

Notes: * Changes refer to data collection period compared to the equivalent pre-COVID 19 period.

pre-COVID-19 period (100). The survey further indicated that all 11 countries had experienced some level of deferral but with a noted rebound by December 2020, although only three countries reported a return to pre-COVID levels.

Six EECA countries reported national data through the GAM mechanism on the proportion of HCV/HIV co-infected people on ART who started HCV treatment, although only three countries reported data for both 2019 and 2020. Of these, only Kyrgyzstan reported a decrease from 2019–2020 while Kazakhstan and Ukraine reported an increase (Fig. 25).

4.5 Reported reasons for the HIV, viral hepatitis and STI service disruptions

Government responses to curtail the COVID-19 pandemic included country-wide movement restrictions, social distancing, and closures of large parts of societies. These restrictions as well as other barriers lead to the varying levels of disruptions summarized above. A comprehensive analysis of all included literature and data found that the disruption in HIV, viral hepatitis and STI services resulted from a mix of demand- and supply-side factors, and that their extent and characterization differed across and within countries and between different population groups. On the one hand, the demand for HIV, viral hepatitis and STI services reportedly declined during the COVID-19 pandemic as a result of multiple factors including: fear of contracting COVID-19 and lack of personal protective equipment (PPE) for health service users; travel and movement restrictions, social distancing and lack of public transportation; border closures; financial constraints; requirement to disclose HIV status/drug use/sex work to access services and data protection issues; and lack of access to internet, phones or online services (27,31,39,52,86,101,102).

On the other hand, in many Regional countries, especially in EECA, health service providers have been juggling limited resources in over-burdened health systems as priorities shifted towards the management of COVID-19. The most frequently reported reasons for decreased service levels on the supply side included: closure of facilities or access for emergency procedures only; repurposing of facilities, services and staff to combat COVID-19; lack of PPE for health providers; physical distancing measures and
regulations; travel and movement restrictions; and challenges around the supply chain for commodities, diagnostics, and medicines (26,41,46,78,100,103).

Table 12 provides multiple examples of narratives from various publications on the perceived barriers and reasons behind the disruption of services from both a supply and demand perspective across the WHO European Region.

Simões and colleagues undertook a survey from October–November 2020 (72), in which they asked community organizations, clinical health-care providers and public health institutes about the reasons for lower testing volumes of HIV, HBV, HCV and STIs across 34 countries of the WHO European Region during the early stages of the COVID-19 pandemic (March–August 2020). The most frequently cited reasons were: fewer appointments scheduled, sites closed down, reduced staff, lack of drop-in services and staff re-allocated to the COVID-19 response. In the same survey, of 24 respondents who reported challenges in ensuring linkages to care for people testing positive for HIV, hepatitis or STI in a

Table 12. Narrative examples of reasons for HIV, viral hepatitis and STI service disruption during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>BARRIERS – DEMAND SIDE</th>
<th>Narrative/Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of contracting COVID-19 and lack of PPE for health service users</td>
<td>“When COVID struck, there was a dramatic reduction in [HCV] testing in drug services; people were reluctant to go and the drug services didn’t have PPE. It meant testing for hepatitis C disappeared.” (101) United Kingdom</td>
</tr>
<tr>
<td></td>
<td>“Some OST sites are beginning to require clients to wear masks to enter, partly thanks to the efforts of the ‘Positive Movement’ whereby 1600 masks were made and handed over to such sites in the capital, Minsk. But masks are not available in the regions” (52) Belarus</td>
</tr>
</tbody>
</table>
Table 12. contd.

<table>
<thead>
<tr>
<th>BARRIERS – DEMAND SIDE</th>
<th>Narrative/Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel and movement restrictions, social distancing, and limited public transportation</td>
<td>“Everyone tried to get there (to the OST service delivery point) by whatever means they had. Some walked, some hitchhiked. Many were stopped, interrogated, many, it so happened, were taken away, but then released.” (86) Kyrgyzstan</td>
</tr>
<tr>
<td>Travel and movement restrictions, social distancing, and limited public transportation</td>
<td>“For the community, the main problem is transport: it has either been stopped or a special pass is required, and each city has its own system; a number of cities have provided such passes to members of the drug using community.” (52) Ukraine</td>
</tr>
<tr>
<td>Travel and movement restrictions, social distancing, and limited public transportation</td>
<td>“Now, the country has one AIDS centre in Yerevan. The people who live outside of Yerevan, all of them are registered in the AIDS centre and they all receive medications, tests, everything, everything, everything. After the roads were closed and it was impossible to move, they had problems with accessing treatment.” (86) Armenia</td>
</tr>
<tr>
<td>Border closures</td>
<td>“For example, in the city of Vitebsk, no OST sites are currently open, meaning that about 10 people are having to travel around 100 km’s every day to Polotsk and back to access OST.” (52) Belarus</td>
</tr>
<tr>
<td>Border closures</td>
<td>“OST services are open but as public transport is not working it means many clients cannot access their medication.” (52) Slovenia</td>
</tr>
<tr>
<td>Border closures</td>
<td>“Due to quarantine measures, no parcels from relatives are accepted, which can include medicines. This makes it impossible in some prisons to continue ARV therapy.” (39) EECA</td>
</tr>
<tr>
<td>Border closures</td>
<td>“Respondents from Italy, Cyprus, Lithuania, Malta, Poland, the Russian Federation and Serbia reported helping PLHIV unable to return home, that are having issues accessing medications when their personal stock ran out due to cost and or legal restrictions on who can access the health-care system where they are located. This includes a number of undocumented migrants without residency status.” (28)</td>
</tr>
<tr>
<td>Border closures</td>
<td>“In Cyprus, if the confinement is prolonged, people living with HIV treated in the south but living in the northern part may face treatment interruption as they can no longer cross to the other side.” (31) Cyprus</td>
</tr>
<tr>
<td>Border closures</td>
<td>“I was in Türkiye and could not get home. I ran out of the two-month supply of medications. I applied to an organization in Istanbul. If I went to the pharmacy, I would have to pay up to US$1,000. And the people living with HIV advocacy organization issued me a 50 per cent discount. I had no information on who was involved in addressing this issue.” (86) Georgia</td>
</tr>
<tr>
<td>BARRIERS – DEMAND SIDE</td>
<td>Narrative/Quote</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Financial constraints</td>
<td>“The risks of interrupting the treatment [ART] were great, some people couldn’t get there, they had no money for a taxi.” (86) Ukraine</td>
</tr>
</tbody>
</table>

“Also, a temporary ban on selling sexual services further added to creating barriers for seeking aid from health and social service providers … Several service users (sex workers) stated that they continued to sell sex, despite great personal fear of both infection and the prohibition, to support themselves financially. Some also indicated that they had compromised their work standards by dropping prices, offering sex without condoms or seeing clients that they would not typically accept”. (102) Norway

| Requirement to disclose HIV status/drug use/sex work to access services and data protection issues | “You could move around, but then disclosure of one’s HIV status was required for that. Not everyone is ready to show that they are registered in the AIDS centre when the police stop you. One woman was in the car, and delivered ARVs as best she could. Because she had transportation and she didn’t conceal that she was a person living with HIV and an employee of the organization.” (86) Uzbekistan |

“Other service providers closed their premises and employees worked remotely from home, giving services such as guidance and advise via telephone and online. These service providers expressed frustration over the limitations this entailed; several service users needed practical aid which required the use of a PC, such as filling out forms with sensitive personal information. Giving guidance via telephone or online was, therefore both ethically and legally problematic concerning professional secrecy and personal data protection.” (102) Norway

“The feedback is 50% positive, 50% negative. (…) it is not always possible to provide advice and assistance online or on the phone, as the confidentiality of information about the person is violated.” (27)

| Lack of access to internet, phones or online services not appropriate | “There are groups of people for whom the online format is not available. (…) and of course, some of the services simply cannot be transferred from offline.” (27) |

“Our clients [usually] don’t have access to the internet.” (27)

“People on drugs in particular have not been able to do phone or video calls for counselling as it activates their paranoia. Its impossible to do proper therapeutic work if not face to face. Some counselling and advice is harder to do via messages or phone.” (27)

“In Belarus, we have more than 600 people living with HIV who are over 60…. “They don’t have the skills to work with computers.” (39) Belarus
<table>
<thead>
<tr>
<th>BARRIERS – DEMAND SIDE</th>
<th>Narrative/Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closure of facilities or emergency services only</td>
<td>“All respondents reported that in-person health services have been limited to emergencies and ARVs distribution.” (31)</td>
</tr>
<tr>
<td></td>
<td>“We were faced with the situation that this [HIV testing] had moved away from the priority, while COVID became the priority. As a result, testing for HIV infection fell by three times, as compared to the same period in 2019.” (34) Ukraine</td>
</tr>
<tr>
<td></td>
<td>“Due to the COVID-19 restrictions all static services have had to be suspended, such as the provision of outpatient services such as psychiatric care, dependence treatment, social care, and other HR services.” (52) Poland</td>
</tr>
<tr>
<td></td>
<td>“In Kyrgyzstan and Switzerland, respondents reported that consultations are postponed when not urgent.” (28)</td>
</tr>
<tr>
<td></td>
<td>“No HIV rapid testing points are currently available due to restrictions imposed as a result of COVID-19.” (28) Estonia</td>
</tr>
<tr>
<td></td>
<td>“Trans people also report lack of access to other important prescription drugs, and lack of access, for financial and logistical reasons, to trans-friendly doctors.” (39) EECA</td>
</tr>
<tr>
<td></td>
<td>“Due to COVID-19 and the resulting government recommendations, it is only possible to provide advice to [harm reduction] clients concerning medical services and treatment during the quarantine period.” (52) North Macedonia</td>
</tr>
<tr>
<td></td>
<td>“However, those not already enrolled into the OST programme prior to the pandemic cannot now gain access to this service.” (52) Slovenia</td>
</tr>
<tr>
<td></td>
<td>“Nearly all service providers were forced to shut down drop-in services [for sex workers].” (102) Norway</td>
</tr>
<tr>
<td>COVID-19 focus and repurposing</td>
<td>“During the time of COVID-19, the narcological clinic building was repurposed for patients who are suspected to have the virus, and for the people who are on substitution therapy, they opened an OST office in the city of Karaganda. Every morning people had to travel 20 kms to take the medication. Many are tired of travelling, some even want to drop out of the programme altogether.” (86) Kazakhstan</td>
</tr>
<tr>
<td></td>
<td>“According to some news reports from the Russian Federation, people in need of treatment for viral hepatitis do not receive their medication because of the repurposing of health-care facilities.” (39) the Russian Federation</td>
</tr>
<tr>
<td>BARRIERS – DEMAND SIDE</td>
<td>Narrative/Quote</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>COVID-19 focus and repurposing</td>
<td>“We have two hospitals in our country, infectious and multidisciplinary. All HIV positive people were sent to these institutions. But due to the quarantine, the hospitals were repurposed, and now they only accept patients with COVID. Our beneficiaries were simply left on the streets. And we had to look for other options for them.” (86) Armenia</td>
</tr>
<tr>
<td></td>
<td>“The diagnostics has stopped altogether. Our laboratory, which was for viral load tests, has been converted into a COVID laboratory”. (87)</td>
</tr>
<tr>
<td></td>
<td>“To a large extent, the health system was refocused onto COVID-19, and existing doctors had increased workloads due to having to work both on COVID and HIV.” (47) the Russian Federation</td>
</tr>
<tr>
<td></td>
<td>“We had to stop the admissions to [HCV] treatment because our clients were sitting in overcrowded waiting rooms in the same hospital that treats COVID-patients.” (61) Hungary</td>
</tr>
<tr>
<td></td>
<td>“Issues on viral hepatitis, HIV and drug use have faded into the background” (78) EECA respondent</td>
</tr>
<tr>
<td></td>
<td>“Everything is bad, nothing good. Everyone is busy with COVID. People rot- doctors do not have time to do anything with them.” (57) the Russian Federation</td>
</tr>
<tr>
<td>Lack of personal protective equipment (PPE) for health providers</td>
<td>“Outreach workers had neither masks nor antiseptics. Girls and women who live in my centre, were sewing masks, and we were giving them out to the people who use drugs.” (86) Kazakhstan</td>
</tr>
<tr>
<td></td>
<td>“In Kyiv, Ukraine, pharmacies lack protective masks, gloves and disinfectants” (31) Ukraine</td>
</tr>
<tr>
<td>Lack of personal protective equipment (PPE) for health providers</td>
<td>“hospitals are severely underequipped and there are anecdotal reports that doctors refused to work due to lack of PPE.” (39) Georgia</td>
</tr>
<tr>
<td></td>
<td>“According to a survey in Russia, 39% of doctors said PPE was supplied irregularly or in inadequate quantities to their facility, and 48.5% said they had to reuse PPE.” (39) the Russian Federation</td>
</tr>
<tr>
<td>Physical distancing measures and regulations</td>
<td>“In Moscow and St. Petersburg for example, community-based organisations had to suspend their activities to prevent COVID-19 infections among staff, as well as to avoid additional legal risks arising from potential non-compliance to lockdown regulations.” (47) the Russian Federation</td>
</tr>
</tbody>
</table>
4.6 Potential impact of COVID-19 induced disruptions on HIV, viral hepatitis and STI case notification

4.6.1 New HIV diagnoses and late presentation

Data available on the reported number of new HIV diagnoses across the WHO European Region during 2020 are limited\textsuperscript{18}. However, among countries who had reported nationwide data (England, Netherlands, Norway, Sweden, the Russian Federation and Ukraine) decreases in the number of new HIV diagnoses of 4–26% were observed in 2020 compared to the equivalent period in 2019. Other data from single centre studies of cities or those only collecting data in the very first months of the epidemic reported higher decreases in new HIV diagnoses ranging between 45–60% (Table 13).

\textsuperscript{18} Note that the HIV/AIDS surveillance in Europe 2021 (2020 data) by ECDC/WHO was not published at the time of this review.

<table>
<thead>
<tr>
<th>BARRIERS – DEMAND SIDE</th>
<th>Narrative/Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical distancing measures and regulations</td>
<td>“In the prevention package of services, testing has suffered the most, with fewer being conducted because they involve people congregating together” (52). Republic of Moldova</td>
</tr>
<tr>
<td></td>
<td>“There was a large shortage of employees of the AIDS Center and, besides that, limitations in a number of people to be inside the medical institution, so everyone else was just standing out in the street. All that put pressure on the AIDS Center system.” (47) the Russian Federation</td>
</tr>
<tr>
<td>Travel and movement restrictions</td>
<td>“We had a disciplinary meeting for one of our outreach workers. She was fined for violating the emergency situation – she had to hand out syringes, but it was forbidden.” (86) Republic of Moldova</td>
</tr>
<tr>
<td></td>
<td>“Regarding HR [harm reduction] services, no outreach services are currently operating in Belgrade, and there is no indication as to when they may be able to resume.” (52) Serbia</td>
</tr>
<tr>
<td>Challenges with the supply of medicine and diagnostics</td>
<td>“There was such an influx of people living with HIV into the AIDS centre in great numbers, they wanted to get their medication for several months. There was not enough medication, because they haven’t arrived yet, because the borders started to close.” (86) Armenia</td>
</tr>
<tr>
<td></td>
<td>“Respondents reported shortages [of ARVs] in the last two weeks in Italy, Bulgaria, Serbia, Switzerland, Albania, Ukraine, Kazakhstan and in the Russian Federation” (28)</td>
</tr>
<tr>
<td></td>
<td>“In Switzerland, consumers were reported stockpiling over-the-counter medications, thus leading to supply issues.” (28) Switzerland</td>
</tr>
</tbody>
</table>

community site, 16 (67%) reported delays in scheduling consultations and 14 (58%) reported difficulties in contacting the specialists care units, while 12 (50%) reported that no referrals were possible except in emergencies.
To what extent the observed decrease reflects an actual decline in the number of new HIV infections as a result of decreased levels of high-risk sex or unsafe drug use during 2020, or the declines in HIV testing is not possible to determine at this point. However, given that in the Russian Federation for instance, new HIV infections have been decreasing at a rate of 2–6% annually over the past years, the magnitude of the decline from 2019 to 2020 (26%) is unlikely to be predominantly due to a sudden real decrease in the number of cases, and more likely attributable to a reduction in testing coverage due to the COVID-19 pandemic. The number of newly diagnosed HIV infections in the Russian Federation is by far the largest in the WHO European Region with 72,023 diagnosed in 2020 and 97,176 diagnosed in 2019 (76). The number of new diagnoses in the first half of 2021 (36,759) in the Russian Federation revealed a continuing decrease at 3.4% compared to the first six months of 2020 (76) and has only reached a third of the total number of HIV cases detected in 2019.

HIV Late presentation

Based on an analysis of 11 Regional country GAM data from 2017–2020, the number of people presenting late to care with HIV marginally decreased from 2019–2020, although limited fluctuations were seen from 2017–2020 (Fig. 26). In 2020, more than 52% of adults presented late to care for the first time (defined as a CD4 cell count <350 cells/mm³) and about 30% presented with advanced HIV disease (defined as a CD4 cell count below 200 cells/mm³). Given the lower HIV testing volumes in 2020 across the WHO European Region and therefore possible missed diagnoses, it should be expected that the late presentation of HIV patients might increase in 2021 and beyond.

4.6.2 New Hepatitis C and B diagnoses

Data on new HCV and HBV diagnoses are generally less available than for HIV. Of the few countries

Table 13. Changes in the number of new HIV diagnoses in 2020 compared to 2019

<table>
<thead>
<tr>
<th>Country</th>
<th>Change from pre-COVID-19 period</th>
<th>Data period</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium, Liege</td>
<td>-45%</td>
<td>Jan–Dec 2020</td>
<td>El Moussaoui et al 2021 (73)</td>
</tr>
<tr>
<td>Italy</td>
<td>-60%</td>
<td>Mar–Apr 2020</td>
<td>Quiros-Roldan et al, 2020 (104)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>-26%</td>
<td>Jan–Dec 2020</td>
<td>National Institute for Public Health and the Environment (RIVM) 2021</td>
</tr>
<tr>
<td>Norway</td>
<td>-20%</td>
<td>Jan–Dec 2020</td>
<td>Norwegian Institute of Public Health 2020 (80)</td>
</tr>
<tr>
<td>Sweden</td>
<td>-18%</td>
<td>Jan–Dec 2020</td>
<td>Folkhälsomyndigheten 2021 (106)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>-56%</td>
<td>Apr–Jun 2020 (12 weeks)</td>
<td>Steffen et al 2020 (107)</td>
</tr>
<tr>
<td>The Russian Federation</td>
<td>-26%</td>
<td>Jan–Dec 2020</td>
<td>Federal Research and Methodology Centre on AIDS Prevention and Control, 2020 (76)</td>
</tr>
<tr>
<td>Ukraine</td>
<td>-3.7%</td>
<td>Jan–Dec 2020</td>
<td>Ministry of Health, Ukraine 2021 (108) (national surveillance data)</td>
</tr>
</tbody>
</table>

Notes: Data are provided to the same level of accuracy as provided by the data source.

1 Changes refer to either the early pandemic period or the period March–December 2020 or the whole of 2020 compared to the equivalent pre-COVID 19 period.


3 Data not reported by the Ministry of Health, but available online at HIVRUSSIA.info reported by Federal Research and Methodology Centre on AIDS Prevention and Control (2020) under the Central Research Institute of Epidemiology of the Rospotrebnadzor
providing nationwide data, a decreasing tendency in the number of new HCV (range: -27 to -45%) and new HBV (range: -20 to -34%) diagnoses were reported in 2020 compared to 2019 (Table 14). As above, it remains to be seen if this represents a true decline or is a result of inadequate testing or under-reporting. However, given the above-presented findings on declining HCV and HBV testing volumes, and the general suspension of many viral hepatitis testing activities especially during the first three months of the COVID-19 pandemic, it is likely that inadequate testing plays a significant role in this decreasing trend.

4.6.3 New STI diagnoses
The evidence on how COVID-19 related disruption has affected reported STI cases is mixed. The data available suggest generally fewer new diagnoses of syphilis, chlamydia and gonorrhoea were made in 2020 than in 2019, particularly in the first six months of 2020. However, some countries reported an increase or no change in the number of cases of one or more STI compared to pre-COVID periods. Table 15 provides an overview of available data on these reported changes.

As seen in Table 14, among countries reporting national surveillance data, changes in STI notifications from 2019–2020 ranged from +39% to -17% for Syphilis cases; from no reported change to -29% for Chlamydia, and from +7% to -39% for Gonorrhoea. In general, countries who reported a smaller negative change in STI diagnoses included the second half of 2020 in their analysis, implying that the number of cases rebounded during the second half of 2020 and beyond. A few countries took the number of STI tests performed into consideration in their analysis and found that the change in the number of tests performed could explain the change in the number of notified cases.
### Table 14. Trend of viral hepatitis case notifications in 2020 compared to 2019<sup>a</sup>

<table>
<thead>
<tr>
<th>Country</th>
<th>Hep C</th>
<th>Hep B</th>
<th>Data period</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>-36%</td>
<td>-20%</td>
<td>2020</td>
<td>National Institute for Public Health and the Environment (RIVM) 2021 (105) (national surveillance data)</td>
</tr>
<tr>
<td>Sweden</td>
<td>-27%</td>
<td>-27%</td>
<td>2020</td>
<td>Folkhälsomyndigheten 2020 (106) (national surveillance data)</td>
</tr>
</tbody>
</table>

**Notes:** Inclusion criteria: only multi-centre studies reporting at least for 100 cases or national data.

<sup>a</sup> Changes refer to either the early pandemic period or the period March–December 2020 or the whole of 2020 compared to the equivalent pre-COVID 19 period.

### Table 15. Trend of STI case notifications in 2020 compared to 2019<sup>a</sup>

<table>
<thead>
<tr>
<th>Country</th>
<th>Syphilis</th>
<th>Chlamydia</th>
<th>Gonorrhoea</th>
<th>Data period</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czechia, Prague</td>
<td>Increase, but</td>
<td>-</td>
<td>+7%</td>
<td>Mar 2020–Feb 2021</td>
<td>Bížová et al 2021 (109)</td>
</tr>
<tr>
<td>Denmark</td>
<td>+13%</td>
<td>-</td>
<td></td>
<td>Mar–Dec 2020</td>
<td>Heerfordt 2021 (110), (national surveillance data)</td>
</tr>
<tr>
<td>Denmark</td>
<td>-</td>
<td>No change</td>
<td>-</td>
<td>Mar 2020– Apr 2021</td>
<td>Hedley et al 2021 (111), (national surveillance data)</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>No change</td>
<td>No change</td>
<td>Jan–Aug 2020</td>
<td>Kuitunen et al 2021 (112), (national surveillance data)</td>
</tr>
<tr>
<td>Greece</td>
<td>-10%</td>
<td>-</td>
<td>-37%</td>
<td>Mar–Oct 2020</td>
<td>Apalla et al 2021 (113)</td>
</tr>
<tr>
<td>Norway</td>
<td>+39%</td>
<td>-11%</td>
<td>-39%</td>
<td>Jan–Dec 2020</td>
<td>Norwegian Institute of Public Health, 2020 (80), (national surveillance data)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>-7.4%</td>
<td>-24%</td>
<td>-18%</td>
<td>Jan–Dec 2020</td>
<td>National Institute for Public Health and the Environment 2021 (105) (national surveillance data)</td>
</tr>
<tr>
<td>Spain, Madrid</td>
<td>-73%</td>
<td>-</td>
<td>-81%</td>
<td>First 26 weeks of 2020</td>
<td>de Miguel Buckley et al 2020 (114)</td>
</tr>
<tr>
<td>Spain, Catalonia</td>
<td>-22%</td>
<td>-72%</td>
<td>-53%</td>
<td>Mar–Aug 2020</td>
<td>Sentís et al 2021 (115)</td>
</tr>
<tr>
<td>Sweden</td>
<td>+10%</td>
<td>-</td>
<td>-17%</td>
<td>Jan–Dec 2020</td>
<td>Folkhälsomyndigheten 2020 (106), (national surveillance data)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>-84.8%</td>
<td>-11.8%</td>
<td>-16.5%</td>
<td>12 weeks with strict COVID-19 restrictions in 2020</td>
<td>Steffen et al 2020 (107)</td>
</tr>
</tbody>
</table>
(111). However, for most studies it remains unclear if any decline represents a true decline or inadequate testing or under-reporting (117). Data from the end of 2020 and into 2021 are generally lacking.

Seven countries of the WHO European Region provided sufficient national data through the GAM mechanism to allow a trend analysis of the annual number of gonorrhoea diagnoses among men between 2017–2020. A distinct decreasing tendency was observed from 2017, but the overall reduction was steeper from 2019–2020 (Fig. 27), with individual countries reporting declines of between -2 to -55%.

4.7 Cross-cutting issues related to disruption

4.7.1 Disproportional effects on key populations

Several reports and studies found that key populations and vulnerable communities were more severely hit by COVID-19 mitigation measures with limited or no access to services in several settings, including: PWUD and PWID; homeless people; irregular migrants; sex workers; the lesbian, gay, bisexual, transgender and queer and others community; and prisoners (27,30,36,61,118–126). In addition to

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Table 15. contd.

<table>
<thead>
<tr>
<th>Country</th>
<th>Syphilis</th>
<th>Chlamydia</th>
<th>Gonorrhoea</th>
<th>Data period</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>-</td>
<td>Decrease, but not specified</td>
<td>Second quarter of 2020</td>
<td>Whitlock et al 2020 (116)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-14%</td>
<td>-29%</td>
<td>-18%</td>
<td>Jan–June 2020</td>
<td>Public Health England 2020 (74) (national surveillance data)</td>
</tr>
</tbody>
</table>

Notes: Inclusion criteria: studies reporting at least for 100 cases of any STI, or national surveillance data.

a Changes refer to either the early pandemic period or the period March-December 2020 or the whole of 2020 compared to the equivalent pre-COVID 19 period.

b Note that the increasing trend was in accordance with the annual increase reported over the previous 3 years.

c when considering the change in the number of tests performed.

---

Fig. 27. Trend of gonorrhoea diagnosis among men across seven countries of the WHO European Region, 2017–2020

Inclusion criteria: a) WHO European Region country; b) country provided data for all four years.
Included countries: Armenia; Belarus; Georgia; Montenegro; Republic of Moldova; Tajikistan; and Türkiye
Source: produced with data from (44,45,62,66)
disruptions in access to essential medicines, commodities and health services, discriminatory law enforcement and restrictive orders may have disproportionately impacted key populations and undermined public health strategies and community trust in governments (127). Reports from CSOs have documented that sex workers, PWID, MSM and transgender people have been fined, arrested or detained for breaching COVID-19 related restrictions when accessing drug treatment centres or commuting to work for example, with cases of COVID-19 restrictions being used as an excuse to unjustly target such populations reported (128). The potential consequences of this include driving sex work further underground with greater health and safety risks and increasing unsafe injection among PWIDs due to isolation and lack of access to harm reduction services (38,69,129).

Fear of discrimination and abuse can itself be a significant deterrent in accessing health care for key populations. In a global survey, 656 of 2732 (24%) MSM respondents reported being worried they would face discrimination or violence based on their sexual orientation and/or gender identity if they accessed government resources or health care (43).

Several reports highlight the essential problem of human rights being jeopardized because of the COVID-19 response (79) and refer to COVID-19 having disproportionately affected already vulnerable groups (33,131).

Some key populations are at a disproportionally increased risk from the indirect impacts of COVID-19 related restrictions; particularly social distancing measures, which affect mental health issues arising from isolation, and a potential loss of income. Key populations who lack the resources to physically distance or who do not have access to social or economic safety nets, basic accommodation or the option of working from home, suffered more during the pandemic throughout the Region (132). Several studies found that the effects of the COVID-19 pandemic on mental health were substantially higher among PLHIV, racial and ethnic minorities, immigrants, transgender people, sex workers and socioeconomically disadvantaged groups (36,43). Furthermore, under circumstances of quarantine, PWID are more likely to use drugs alone, which increases their risk of fatal overdose (133). Social isolation, homelessness and loss of income were frequently reported by PWUDs and sex workers in the WHO European Region during periods of movement restrictions (39). Furthermore, some grey literature reports mention that a lack of access to basic needs such as food, accommodation and water for these populations was a concern during the pandemic (56,79).
There are, however, very few studies that provide disaggregated data or compare health service access data across these key populations and with general populations and therefore the extent to which these populations have been more affected by the pandemic remains unclear.

4.7.2 Impact on CSO service providers
CSOs are vital contributors to the success of HIV and hepatitis elimination programmes, and according to the World Hepatitis Alliance global survey to evaluate the effect of the pandemic on these programmes, 123 of 131 (94%) of CSOs reported that the COVID-19 pandemic altered their activities (26). Furthermore, 15 out of 16 CSO respondents from the WHO European Region indicated that hepatitis services had been affected by the COVID-19 outbreak according to an unpublished PowerPoint presentation of the study at the 2021 Viral Hepatitis Prevention Board Technical meeting (98). A global survey of PWUD service providers at the onset of the pandemic found that 44% did not have business continuity plans in place to continue operations for PWUD, and among WHO European Region PWUD service provider respondents 34% did not have business continuity plans in place (63).

CSOs also reported financial constraints related to the pandemic and many organizations had to invest from their own budgets, by using their overhead or accessing their reserves (26–28,36). The financial losses were reportedly due to cancelled activities, reduced funding from public resources, reduced number of clients, investment into hygiene and safety equipment and software and technical equipment and increased costs of service provision. By January 2021, the financial situation of CSOs providing HIV services had not significantly improved from June 2020 according to a survey across the WHO European Region (27).

4.8 Adaptation and mitigation measures to the COVID-19 situation
WHO has recommended differentiated service delivery for HIV services for more than 5 years (134) and has also launched specific recommendations during the COVID pandemic for the: scaling up of the multi-month dispensing (MMD) of drugs for PrEP, ART and viral hepatitis treatment; engagement of courier companies and community groups for home drugs and commodity delivery; teleconsultations; take home doses of OST; HIV and STI self-testing; and enhancing infection prevention and control at HIV, viral hepatitis and STI services (135). After the easing of pandemic restrictions and as services restarted, WHO has recommended that outreach prevention and testing campaigns among key populations should be deployed to ensure the at least the same level of service coverage available prior to the COVID-19 pandemic. WHO has further recommended that policies must be put in place to limit the number of health service visits, making it safe for those visiting with critical illness (136) and that approaches should consider the needs of key and other priority populations (137).

Countries in the WHO European Region have generally rapidly adapted HIV, viral hepatitis and STI services to the changed environment following the implementation of COVID-19 restrictions in accordance with this guidance from WHO. Adaptive measures have been reported for prevention activities, testing and treatment services across the three infection services.

4.8.1 Adaption measures in HIV, viral hepatitis and STI outreach prevention activities for key populations
CSOs have been able to adapt quickly and innovatively to the challenges the COVID-19 pandemic delivered with regards to prevention activities for key populations including through: going online with counselling and support; outreach to homes and through online media with prevention messages and commodities (28,36); vending machines for dispensing condoms and syringes (138); mobile testing units or home delivery of test kits (36); purchasing food and distributing food packages (38); providing shelters and accommodation for homeless people (35,138); and providing training on computer literacy for older PLHIV and those recently released from prison (39).

In a survey from June 2020, 40 of 43 (93%) of CSOs working with key populations from 29 countries of the WHO European Region reported that they had replaced some or all face-to-face services with online support (119). However, particular challenges in reaching key populations including prisoners during
the COVID-19 pandemic has been reported by several organizations (46,138).

Harm reduction, including needle and syringe programmes

Many reports and studies described the COVID-19 crisis as a catalyst for change in the delivery of harm reduction services. Despite the severe challenges of the COVID-19 pandemic, harm reduction responses, particularly by CSOs and other service providers, have generally been described as very flexible and adaptive, with a growth in online support, increased outreach, and an increase in the delivery of other demands such as food, water, accommodation and hygiene products (56,69,138–142).

Harm reduction service providers across the Region faced various degrees of early disruptions and challenges but generally continued or quickly re-initiated and adapted service delivery. Outreach services were noted in several reports as being the backbone to ensuring continuous harm reduction service delivery during the pandemic and most providers also introduced remote working methods with their clients including: online platforms and peer support groups; mobile services; HIV counselling; home delivery of harm reduction materials or distribution of supplies through pharmacies, vending machines and postal mail, courier services; as well as increasing the supply levels of harm reduction commodities to serve clients for longer periods of time (35,36,39,52,138).

The European Harm Reduction Association described an approach to harm reduction in Ukraine in detail:

“A system called ‘Harm Reduction 2.0’ was operating before the lockdown in Kiev and has become a useful option for clients to receive harm reduction commodities. It involves use of the ‘dark net’ where clients often purchase drugs for personal use, with such substances being left hidden at specific locations with a pre-arranged indicator, such as a chalk cross on a stone, to indicate the item is available for pick-up. Some harm reduction organisations have used this same approach but for the provision of needles and syringes and other harm reduction commodities, as well as information and education, and has become quite a popular service.” (52)

In the Russian Federation, harm reduction kits could be ordered online and delivered by courier services during periods with movement restrictions. From April–June 2020, a total of 1410 people received harm reduction kits through such a service (138).

OST

One of the most referenced COVID-19 adaptations in this review was the significant changes in the delivery of OST services across the Region during the pandemic. Services previously considered controversial, absent or largely under-scaled, such as take-home dosing of OST and virtual or unsupervised OST dispensing, were rapidly implemented during the first weeks of pandemic related restrictions. A review of the grey literature across the entire Region documents the various approaches to continue OST service delivery which included: an increase in the length of prescriptions; take-home doses of OST; relaxation of regulations in terms of OST prescribing and initiation of OST; telemedicine and online support for OST; and home delivery of OST (34,46,48,53,58,143,144).

A survey (63) at the very onset of the pandemic in March–April 2020 of addiction medicine professionals found that 47 of 55 (85%) respondents across 23 WHO European countries reported that longer-period prescriptions (up to 28 days) had been implemented for PWUDs. Take home OST had also reportedly been implemented by 52 of 60 (87%) respondents, whereas 30 of 52 (58%) respondents from the same study reported that programmes for the delivery of opioid drugs to patients’ homes had been implemented. Respondents from only 2 of 23 (9%) reporting WHO European Region countries stated that they had not applied longer period prescriptions or take-home OST during the early stages of the pandemic.

These results are supported by an EATG survey of CSOs in April 2020, where 24 of 48 (50%) respondents across all subregions of the WHO European Region reported an increase in OST take-home doses during the first months of the COVID-19 pandemic (28).
As of June 2020, OST take-home doses were reportedly available in all EECA countries except Azerbaijan, Belarus, Kazakhstan and the Russian Federation (39). Examples of increased take-home doses of OST were also reported in Austria, Germany, Kyrgyzstan, Latvia, the Netherlands, Norway, Ukraine and the United Kingdom (61,138,145,146) and peer-reviewed articles from Italy, Spain and Ukraine documented similar findings regarding both take-home doses and increases in home delivery to ensure uninterrupted access to medication while minimizing the risks of COVID-19 (147–149). It was noted, however, that OST flexibility, including take-home doses were not always implemented at national level, with the service only available in some cities, and that individual patients were required to be assessed for flexible OST service delivery models (53,142). This point is illustrated by a CSO informant from Kyrgyzstan from a study conducted by the Eurasian Women’s Network on AIDS in the period June-August 2020:

“The work was not organized very well. A decision was taken that those who are stable should be given methadone for five days. But it turned out that out of 39 clients, only 10 were issued for five days. And this creates conditions for infection, for non-compliance with sanitary and quarantine measures.” (86)

The European Harm Reduction Association (EHRA) reported in April 2020, that the most commonly reported take-home dosage was for between 5–14 days, although sometimes up to a month in EECA (52). In Ukraine, service providers and the Ministry of Health reported that almost all people (90%) receiving opioid substitution therapy received 10-day stocks rather than having to visit facilities each day (150).

Telemedicine by phone or video has been widely embraced as an alternative to in-person care across European drug services (46). Several countries reported an increase in the use of social media or online or phone resources to support OST programmes. For example, a national hotline on OST in Ukraine, saw a 50% increase in the number of calls during the early pandemic (35). Some countries, including Czechia, Portugal, Slovenia and Spain adapted mobile outpatient clinics that provide OST to serve clients in remote locations, and in some cases integrated this service with ART (52).

Flexible approaches towards OST initiation were also reportedly introduced during the COVID-19 pandemic across several countries of the Region, including in Germany, Ireland, Italy, and the United Kingdom (46,67,138,141), which, in Ireland, lead to a drop in methadone waiting times overnight from up to 14 weeks to just 2–3 days (141).

Some literature reports also describe of the use of slow-release OST during the pandemic. In an example from Scotland (151), the Scottish government requested that all patients in custody who were on daily oral OST and currently serving a sentence of six months or longer, be moved onto a slow-release OST injection where clinically appropriate, as a COVID-19 contingency measure to limit physical interaction and diversion.19

With the easing of COVID-19 restrictions, some OST programmes reportedly returned to pre-COVID-19 practices of daily supervised dosing, whereas others have continued providing flexible services (138). In October 2020, a survey among 32 harm reduction providers and experts across the Region (59) found that in 7 of 27 (26%) cities the relaxed measures for OST were maintained; original pre-COVID-19 procedures for OST were reinstated in 6 of 27 (22%) cities with the easing of COVID-19 measures; and the remainder reported that the decision as to whether to maintain relaxations was inconclusive or that it varied by type of service.

4.8.2 Testing services for HIV, viral hepatitis and STIs

Testing services have been greatly affected by the COVID-19 pandemic as discussed above (section 4.2). Countries, CSOs and health-care providers have responded by implementing measures to mitigate the negative impact of the COVID-19 pandemic and its restrictions. The Simões et al survey (72) conducted across 34 WHO European countries found that the most commonly reported measures implemented to restore HIV, viral hepatitis and STI testing provisions from March–August 2020 included the use of remote counselling appointments, triaging of patients and HIV self-testing, among others (Fig. 28).

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19 Diversion is defined as the unsanctioned supply of regulated pharmaceuticals from legal sources either to the illicit drug market or to a user for whom the drugs were not intended (184).
Numerous publications report that several countries during the COVID-19 pandemic increased the use of HIV self-testing kits, either posted to the home or made available via vending machines, pharmacies, online website ordering, or home delivery by social workers or nongovernmental organizations (28,29,33). HIV self-testing became a necessary modality in many countries, particularly in the EECA, that had not previously implemented self-testing programmes, including Georgia and Kazakhstan (35).

Three countries of the WHO European Region reported enough data to the UNAIDS HIV services tracking database to allow a trend analysis. Two countries reported substantial increases in the number of HIV self-test kits distributed compared to baseline (pre-COVID months of January and February 2020) with fluctuations across the reporting period, although decreases were observed in a third country (Fig. 29).

Additional examples of countries providing HIV self-testing kits during the pandemic were reported from Czechia, Georgia, Kazakhstan, Kyrgyzstan, Poland, the Russian Federation and Ukraine (35,138,152). In Poland more than half of the HIV self-testers were undergoing HIV testing for the first time in their lives (138). England reported that while HIV testing did decrease overall during 2020, the proportion of HIV tests, as well as bacterial STI tests, accessed via internet services, substantially increased from April 2020 (74). Additionally, a global survey among MSM during the early phase of the pandemic (40) found that respondents from Belarus, Belgium, Italy and the United Kingdom reported high levels of access to HIV self-testing, with more than 40% of respondents from these countries reporting having this access during the COVID-19 pandemic. Spain, on the contrary, found that the number of HIV self-test kits had declined by 17% in 2020 compared to 2019, which could be associated with financial constraints of users to buy the self-test kits (30).

Self-testing was generally combined with online support in form of counselling and linkage to confirmatory testing and care where necessary (34,138). According to the report from WHO’s second meeting of the Regional Collaborating Committee on Accelerated Response to Tuberculosis, HIV and viral Hepatitis, adaptations for testing included using WhatsApp for scheduling HIV testing, web-based rapid HIV testing appointment systems, and focused testing for HIV among key populations (153).
Testing outreach and integration

The use of mobile outreach units was another reported solution to continue testing activities for HIV, viral hepatitis and STIs during the pandemic. Specific examples were reported from Croatia (153), Georgia (50), Ukraine (34) and Uzbekistan (154).

Integration of HCV testing with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) screening was implemented as a pilot in Italy (155) and found a 2.9% seroprevalence of HCV (72 of 2505), of which 54% of the HCV-positive individuals were unaware of their serostatus. Alliance for Public Health reported that several EECA countries had implemented integrated tuberculosis and SARS-CoV-2 testing in 2020 (29) and in Czechia, SARS-CoV-2 testing was offered at clinics testing for HIV, STIs, tuberculosis and HCV (138).

4.8.3 Adaptations in treatment services for HIV and hepatitis

Similar to prevention and testing services described above, the main adaptation found across countries, was transforming from using almost exclusively face-to-face medical consultations and interaction to providing treatment services through online platforms. Home delivery, MMD of medicine and prioritizing urgency were other frequently reported adaptations implemented to limit face-to-face interactions, while ensuring continued care during the pandemic.

The EuroTEST COVID-19 impact assessment consortium of partners found that the most common COVID-19 adaptations in HIV, viral hepatitis and STI clinical care from March–August 2020 across 34 WHO European countries included telemedicine, reduced frequency of follow up visits and clinical monitoring visits, multi-month prescriptions and the home delivery of medicines according to Stengaard, [unpublished data], 2021 (see 83 for further information).

Telemedicine

Online platforms and telemedicine have been documented as some of the main adaptation strategies to the COVID-19 pandemic. Alliance for Public Health reported that eHealth and online consultations with service providers, including doctors, and communication through email and social media, had become the main method of supporting key populations in various countries of EECA and south-easter Europe. Alliance for Public Health further reported that electronic prescriptions were also introduced to optimize patient access to ARVs (29). Some countries only started offering virtual

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**Fig. 29. HIV self-testing kits distributed across three EECA countries, March 2020–June 2021**

*Notes: Countries are presented anonymously based on understandings between the UNAIDS HIV services tracking database and data reporting countries. Data available only up to end July 2020 in Country B and March 2021 in Country C. The average of January and February 2020 serve as the baseline (0). Inclusion criteria: a) country provided data for at least 6 months; b) country provided data for January and/or February 2020; c) minimal fluctuations in the number of facilities reporting. Source: produced with data from (24)*
consultations during the COVID-19 pandemic, as reported below by a study conducted in Romania:

“Our pilot study offers the first example of a telemedicine program in Romania for HCV therapeutic management. During the lockdown period, telemedicine has served as a reliable tool and novel alternative for conventional monitoring of patients treated with direct antiviral agents.” (156)

In a survey (100) among clinicians and programme managers of hepatitis services, 5 of 13 (38%) European respondents reported that more than 75% of patient care services was delivered by telemedicine in high impact COVID-19 months (100). However, no respondents implied such levels of telemedicine during the final month of reporting (December 2020), indicating a return towards normal service delivery models.

Despite its widespread use during the pandemic, several reports from CSOs note that online counselling and telemedicine also carried a risk of leaving behind certain vulnerable populations, especially people unable to access the necessary information technology equipment or without the required skills. There are further reports of potential risks to safety and privacy with an increased online presence, especially in countries where sex work or drug use is criminalized (33).

**Differentiated Service Delivery (DSD) of HIV services, including MMD of ART**

WHO has recommended DSD for HIV services for more than 5 years (134). The international AIDS society defines DSD as “a client-centred approach that simplifies and adapts HIV services across the cascade, in ways that both serve the needs of people living with HIV better and reduce unnecessary burdens on the health system” (157). Adoption of DSD is monitored a global level, by the initiative “HIV policy lab” (158), among others. In 2020, 4 of 32 (13%) Regional countries (France, Italy, Norway and the United Kingdom) reported having fully adopted DSD, 25 countries reported having partially adopted DSD, while 3 countries (Montenegro, Serbia, Türkiye) had not adopted any DSD for HIV services – indicating a increasing trend from previous years (Fig. 30) (158). A global survey among MSM from April–May 2020 found that more than 75% of respondents from Belarus (11 of 13), Kazakhstan (13 of 15) and the Russian

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**Fig. 30. Adoption of DSD HIV services across 31 WHO European Region countries, 2018–2020**

<table>
<thead>
<tr>
<th>Year</th>
<th>% adopted</th>
<th>% partially adopted</th>
<th>% not adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>30.4</td>
<td>65.2</td>
<td>4.3</td>
</tr>
<tr>
<td>2019</td>
<td>20.0</td>
<td>70.0</td>
<td>10.0</td>
</tr>
<tr>
<td>2020</td>
<td>9.7</td>
<td>77.4</td>
<td>12.9</td>
</tr>
</tbody>
</table>

**Notes:** Definitions: a) adopted: National policies include multiple options for DSD, including community ART distribution and maximum flexibility for clinic visit and multi-month dispensing; National policy allows people established on ART to receive 6 month refills of ART; b) partially adopted: National policies include at least one option for differentiated service delivery (i.e. community ART distribution, reduced clinic visits, or MMD) c) not adopted: National policies do not include options for differentiated HIV treatment services.

Source: Produced with data from (158)
Federation (345 of 399) were unable to refill their medication – and had therefore no access to DSD–remotely (40).

At the onset of the pandemic 5 of 19 (26%) EECA countries implemented the dispensing of more than a three-month supply of ART in March 2020 (87). Furthermore, 16 WHO European Region countries reported the frequency of ART pick up as of June 2020, of which the vast majority of countries (13 countries) reported supplying patients with ARVs for three months, with two countries reporting monthly distribution and one supplying ARVs for six months. These dispensing practices in the European Region are placed within globally frequencies in Fig. 31.

According to a global 2020 survey among all countries with UNAIDS offices, 49 of 87 (56%) countries reported a change in MMD practice due to COVID-19 (159). Reports from several CSOs across the Region confirmed that the pandemic accelerated policy change in this regard, decreasing the frequency of ART pick up to ensure ART continuation during periods with strict COVID-19 restrictions. This trend was supported by Alliance for Public Health that reported the introduction or significant scale up of MMD during the pandemic in Georgia, Kyrgyzstan, Republic of Moldova, the Russian Federation, and Ukraine (35). In May 2020, EATG reported an increase in the supplied amounts of ARVs from almost 50% of CSO respondents across all subregions in the WHO European Region, although the increase varied between countries (from 2–6 months of supplies distributed) and also within countries (28). MMD is subject to confidence in medicine stocks, and some settings faced challenges in this regard to allow its full continuation (34). With regard to PrEP supply, the majority of respondents reported no changes in the quantity received (28).

Delivery options for HIV medicines also expanded in some countries during the COVID-19 pandemic, including public entities or CSOs organizing home delivery of HIV treatment or increased access at community pharmacies (28,138). A survey from the Russian Federation reported that almost one in four of the 562 responding PLHIV on ART across multiple subregions within the country had ARV drugs delivered to their home (41). In Georgia and North Macedonia, ART home delivery increased by 70 and 50% respectively after the onset of the pandemic, and in Kazakhstan, every person on ART was reportedly ensured home delivery during periods with travel restrictions (35). Home delivery of ART was, however, only reported by a few sources (39,160).

Fig. 31. Global ARV pick-up frequencies, June 2020

Source: reproduced from World Health Organization [unpublished data], 2020 (see 94 in reference list for more information)
HCV treatment, differentiated care models
In contrast to the vast amount of literature and data on differentiated care models implemented for ART, such approaches for delivering HCV treatment were not well documented. One survey among clinicians and programme managers reported that 5 of 13 (38%) respondents from WHO European Region countries had increased the pill count per prescription during the COVID-19 pandemic (100). Furthermore, Alliance for Public Health, EHRA and European AIDS Treatment Group also reported examples of countries introducing multi-week dispensing of HCV medication (35,52,67,77). The home delivery of HCV treatment was also only reported by a few organizations in a few countries (78,138).
5. Discussion

5.1 Perspectives

5.1.1 Comparing findings of this review with global literature and reports

The HIV related findings of this Regional review are generally in line with the results of global studies and major global reports reporting that: HIV prevention services were generally cut back in the early pandemic months; HIV diagnoses and treatment starts were slowed; the roll out of PrEP programmes were interrupted; and the observed limited impact on ART services for those already receiving ART (8,37,161–170).

Data on the impact of the COVID-19 pandemic on hepatitis and STIs have not been studied as extensively as HIV, yet the reported disruption patterns on STI services and diagnoses entailing reduced STI testing volumes and case notifications in the WHO European Region are generally also comparable to findings in other regions and at global level (171,172). Similarly, the reduced trends for HBV and HCV diagnosis and treatment observed through this review have been reported in other countries and regions across the world (20,26,78,96,173,174).

Regarding HIV and viral hepatitis prevention services, notably those for harm reduction, the data analysed in this review, indicate that countries of the WHO European Region acted fast in adapting service delivery models, and in many cases faster than other Regions, and despite some initial dips, an overall general positive impact of the pandemic was noted by the end of 2020 on harm reduction services in large parts Region (9,175,176).

Several global level studies and publications have highlighted that some key populations have been at risk of being disproportionately affected by the pandemic (8,37,121,124–126,132,177,178). This review found similar trends based on substantial qualitative data and specific examples, however more quantitative disaggregated data is needed to explore the extent of this issue.

5.1.2 Modelling studies

Although modelling studies were not considered under the findings of this scoping review, some key modelling studies are presented here provide perspectives to these findings.

The COVID-19 pandemic has reportedly deteriorated progress towards the aim of elimination of HIV as a public health concern by 2030, and several global modelling studies have assessed the potential impact. Hogan and colleagues (162) in their modelling study estimated the number of excess deaths from HIV, as well as tuberculosis and malaria, that could plausibly occur as a consequence of the COVID-19 pandemic. They concluded that, in high-burden settings, HIV related deaths over a 5-year period could increase by 10%, and that although the loss of life-years from this impact is likely to be less than the direct impact of COVID-19, it could be of the same order of magnitude. The primary drivers of this predicted increased mortality were likely to be the interruption of ART and the disruption of timely diagnosis.

Furthermore, UNAIDS and WHO have also supported mathematical modelling to establish the benefits of continuing HIV services compared to the potential harm of additional COVID-19 transmission to both health-care workers and PLHIV. The analysis showed that maintaining HIV services would avert between 19 and 146 AIDS-related deaths per 10 000 people (general population) over the next 50 years, while the additional COVID-19-related deaths in 2020 and 2021 from exposure related to HIV services would be 0.002 to 0.15 per 10 000 people. The analysis therefore demonstrated that the benefits of continuing to provide HIV services during the COVID-19 pandemic outweigh the risk of COVID-19 transmission by around 100 to 1 (179).

A global modelling study on the use of PrEP by Robin Schaefer and colleagues found that without COVID-19 disruptions, there would have been a projected 0.9–1.1 million global PrEP users by the end of 2020, and 2.4–5.3 million users by the end of 2023. If COVID-19 disruptions resulted in no PrEP user growth in 2020, the projected number of PrEP users in 2023 would stand at 2.1–3.0 million (70). However despite PrEP services having experienced significant disruption in the WHO European Region, a continued growth in the number of PrEP users was observed in
some countries, making this likely to be an exaggerated prediction.

It is too early to estimate the actual impact of COVID-19 on the indicators proposed in the modelling studies conducted. AIDS related deaths will need to be observed closely, but the impact will most likely not be visible in the near future given the disease progression timeframe and considering that most HIV service interruption was noted in the early stages of the continuum of care (HIV testing and case findings) and not in ART services for current ART users.

In regard to viral hepatitis, a mathematical model projection by Blach et al (96) predicted that a one-year delay in viral hepatitis elimination programmes in the Region, assuming significant disruption in testing and treatment in 2020, would result in 15,800 excess HCV incident cases, 8,700 excess hepatocellular carcinoma (HCC) cases and 13,800 excess liver-related deaths from 2020–2030 relative to a no-delay scenario (2019 baseline). Most missed treatments would be in LMICs, whereas most excess HCC and liver-related deaths would be among high-income countries.

Reflecting on the actual impact of COVID-19 on HCV treatment and the above described modelling study conducted by Blach et al (96), the around 50% reduction in HCV treatment observed in 2020 across the Region is predicted to result in an excess 9,700 liver-related deaths by 2030 assuming that disruptions are not extended beyond 2020: this is unlikely however with similar reductions possible for 2021 – making the modelled effects of a 1 year delay more probable (180).

5.1.3 Leveraging opportunities of the COVID-19 pandemic

Acceleration of differentiated care models and people-centred care

Researchers and international organizations across the world have noted that the COVID-19 pandemic has presented a unique opportunity to scale up or roll out DSD models. Stating, for example:

“If ever there was a time to provide extended ART refills, and offer ARTs outside of conventional health-care facilities, now is the time. We call on health services and supporting partners to expedite the implementation of Differentiated service delivery to empower and protect PLHIV and capacitate health systems to respond to the COVID-19 pandemic.” (182)

To support countries in reorganizing and maintaining access to high-quality essential health services for all during the pandemic, WHO published updated guidance, including a set of immediate targeted actions that countries should consider, including optimizing service delivery settings and platforms (183). Due to the unprecedented circumstances of the pandemic, most countries of the Region largely adapted service delivery models to ensure continuity of care, including the scale up or introduction of HIV self-testing, MMD of ARVs, take home and MMD of OST, and telemedicine. The most novel, innovative and also in some cases controversial approaches, such as take-home doses of OST, and the use of telemedicine and virtual service delivery are discussed below.

Take-home doses of OST – the new normal?

Most countries in the WHO European Region have introduced or scaled up the provision of take-home doses of OST during the COVID-19 pandemic. This has significantly contributed to allowing continuity of care for PWIDs during the pandemic, improved aspects of patient-centred care and could potentially have stimulated the demand for OST among opioid users (39). However, the likelihood of OST diversion (184) and the overdose risk associated with increased take-home dosages and unsupervised dosing implemented during the pandemic have not yet been well investigated. One EMCDDA report indicated an increase in the misuse of Methadone, either diverted from OST programmes or private practitioners in Georgia and Ukraine since COVID-19 containment measures were implemented (68). However, studies from Austria and Spain found no change in diversion of OST after implementing a less restricted access model to substitution medicine (145, 148), while a study from the United States found only limited diversion of take-home doses (185).
Despite limited evidence of misuse with easier OST access, there are indications that pre-COVID models with supervised daily doses are being returned to upon the easing of restrictions (57). More rigorous research is therefore needed to understand the possible effects and risks of take-home and unsupervised dosing, and the COVID-19 pandemic is a window of opportunity for such research.

**Telemedicine and virtual service delivery**
Alternate service delivery models that prioritize continuity of care without increased face-to-face contacts have been greatly explored during the COVID-19 pandemic. However, reliance on remote support has its limitations. A global survey by the International Network of People who Use Drugs in May 2020 found that PWUD and homeless people had difficulties accessing harm reduction services when support was only available online or through the telephone (53). Another study indicated that some key populations were generally benefitting less from the online ordering of tests and online counselling services, including prisoners and PWUD (27). Yet, a global survey among PWIDs found that respondents overall were very supportive of online tools and platforms, however noting that PWIDs should have access to an appropriate mix of face-to-face and online services (186).

Telemedicine and virtual service delivery have been proven to be effective to sustain the continuum of care for a large number of patients during the pandemic, and could be considered as alternatives to, rather than replacements for, face-to-face services for a range of clients in the future (187).

**Communities as an integrated part of health systems**
COVID-19 is reported to have created better linkages and collaboration between public, private and CSO actors. The strong coordination between governments, the UN and other technical agencies, and civil society and affected communities witnessed in many countries have been essential for ensuring continuity of care during COVID-19. The pandemic has solidified civil society and communities as essential and credible partners in the elimination efforts of HIV, viral hepatitis and STIs across the Region, and continued investments into civil society post COVID-19 is critical (46,188).

5.1.4 Contingency planning and preparedness
The COVID-19 pandemic is far from over and the risk of new variants sending us back to square one should not be ignored. Furthermore, it is highly unlikely that COVID-19 is the last pandemic or high emergency situation of our time with the potential to severely disrupt access to health services.

The unpreparedness of governments and health systems to face the pandemic has been one of the main challenges in ensuring access to health services across the world. Preparedness and contingency planning, including the development of adequate plans for future emergency situations is vital, as are plans to address ongoing COVID-19 disruptions and to catch up with the gains lost during the pandemic. Advocacy by CSOs and other international partners to consider HIV, hepatitis and STIs services as essential health services is imperative, and protocols and guidelines to sustain HIV, hepatitis and STI prevention, testing and treatment services at national levels must be developed – preferentially with input from key populations.

5.1.5 Disruption Monitoring in HIV, STI and hepatitis and services
Tracking access to essential health services, including those for HIV, viral hepatitis and STIs, during the pandemic is critical in order to achieve the optimal balance between fighting the COVID-19 pandemic and maintaining these services and to decide where efforts must be focused.

This review has identified a range of methods monitoring disruption, including at global, regional, national and community level. During a crisis such as COVID-19 such monitoring is needed at all levels coupled with rigorous research.

- Global and regional level monitoring is needed to assess worldwide trends and highlight gaps and disruption and to advocate for funding by the international community.
- National level monitoring is paramount to be able to track disruptions and steer responses with national stakeholders
- Community level monitoring and operational research is crucial to highlight voices from the frontlines and affected populations and flag pertinent issues from the ground. Such issues
arising should then be taken up by national and global level monitoring efforts.

- Rigorous research is needed to support and inform evidence-based strategies.

**Observations on regional/global level monitoring:**
The review found that several actors at regional and global level were involved in monitoring the disruption of HIV, viral hepatitis and STI services. Databases have been set up specifically for monitoring COVID-19 disruptions (the HIV services tracking database, for example) and surveys have been spearheaded by agencies such as WHO, UNAIDS, ECDC and EMCDDA among others. All efforts aimed to shed light on the situation, however some duplication of efforts at regional/global levels were noted (e.g. global WHO pulse surveys and WHO Regional Office for Europe rapid assessment surveys) (95). Such duplication of efforts should be avoided to lessen the reporting burden on countries.

The GAM mechanism also seemed to suffer from reporting fatigue, with very few countries providing disaggregated data and only limited data on some key indicators. The COVID-19 pandemic has also disrupted the ability of countries to conduct national surveillance, while reporting demands from international organizations have increased. Some countries reported that the indicators suggested by the UNAIDS HIV services tracking database were not possible to report on or were not found to be appropriate, as formulated by Ministry of Health in Spain:

> “The NPA assessed the appropriateness and the feasibility to collect each one of the indicators requested by UNAIDS through the network previously described. Because of the decentralized nature of our system, it has been impossible to provide a quantitative assessment of all indicators. We have tried to meet the information needs by assessing alternative sources of information (i.e qualitative, publications), and have developed a set of additional indicators considered more appropriate for HIV service tracking in the Spanish setting.” (30)

Monthly reporting requirements for example to global level databases might not be feasible for countries in a context of crisis.

**Observations on national level monitoring:**
In March 2021, 95 of 112 (85%) countries reported to a WHO national pulse survey that they are regularly monitoring the continuity of essential health services during the COVID-19 pandemic; of which 84 out of 112 (75%) are also monitoring the implementation of strategies to mitigate service disruptions (20). However, countries track different indicators and some important indicators may be left out, making it difficult to compare between countries and make generalized Regional statements.

**Observations on community level monitoring:**
Implementation research helps to track why and how COVID-19 is disrupting health services, facilitate CSO operations, and explore provider behaviours, client experiences and demands (189). This is useful information for the CSOs to adapt their own responses as well as for flagging issues arising to national and regional or even global levels for attention. An abundant number of studies and assessments have been undertaken by various CSOs during the pandemic especially in the early stages. Yet the studies have been of varying quality often with limited scope to be representative with bias prone methods and no means of determining causality. There also appears to be duplication of efforts at this level, with many organizations investigating the same issue with multiple studies of small sample sizes. Again, this may very well be useful for the operational aspects of the CSOs, but on a larger scale, more coordination in monitoring among partners would be advantageous and more efficient.

5.2 Limitations

The search strategy for the scoping review was implemented in the period August–September 2021. Many national surveillance reports and official national data for 2020 had thus not yet been published by the time of the review. Additionally, it was difficult to assess trends across the chosen time period of March 2020–September 2021 since the vast majority of included data was collected exclusively in the first half of 2020, in the early stages of pandemic. The process of publishing in peer-reviewed journals and

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20 Definition: “Implementation research can consider any aspect of implementation, including the factors affecting implementation, the processes of implementation, and the results of implementation, including how to introduce potential solutions into a health system or how to promote their large scale use and sustainability. The intent is to understand what, why, and how interventions work in “real world” settings and to test approaches to improve them.” (189).
verifying data for databases such as the WHO/UNAIDS database, both through which the most reliable data can be found, takes a considerable amount of time, placing potential information for these later months outside the timeframe of this review. It is also worth mentioning that most studies did not have up-to-date data on what the situation was immediately before the pandemic to establish solid baselines.

In addition, the inclusion of languages other than English or Russian would have expanded the number of grey literature sources available, particularly at country-level. However, this would not have affected the availability of national data from databases or have substantially increased the number of peer reviewed studies, so was deemed beyond the scope of this review.

The quality of the included data and literature varied significantly, and this scoping review naturally suffered from inconsistent data reporting by countries and a lack of representativeness and bias.

Multiple cross-sectional surveys have been conducted by researchers and CSOs to estimate the current status of the coverage of health services or health outcomes during the pandemic and cross-sectional surveys constituted 36% of publications included in this review. In many cases, online surveys have been the preferred method of data collection due in order to decrease the need for face-to-face interaction under the pandemic situation. Cross-sectional surveys can be highly appropriate in depicting a snapshot of the current situation and can be conducted within a short timeframe, which is appropriate during a crisis situation, but they do not assess trends over time, and often have lower response rates and convenience sampling methods, with a high risk of introducing bias, and they cannot infer any causal relationship.

Time series analysis was another preferred method used in the publications included in this study (14% of included publications). This is a useful method to assess trends over time, comparing performance at a given date with a baseline, although again this does not provide evidence on any causal relationships. The choice of an appropriate baseline is challenging however. Baseline values for included studies varied significantly from study to study: from comparing with the same month in the previous year, or the same quarter or 12-month period a year earlier. Some studies compared outcomes over several years to assess trends which is a more rigorous model. However most included studies simply observed trends and did not calculate if an observed change was statistically significant (p< 0.05).

These limitations naturally affect the generalizability of findings from this scoping review.

Furthermore, for the majority of reports and studies there was insufficient information on which to judge the possibility that extraneous events occurring between pre-pandemic and pandemic periods may have influenced disruption in services, or to assess the risk of bias arising from differences between those eligible to use services in the pre-pandemic and pandemic periods.

The most common sampling method of the included studies was convenience sampling, one based on the ease of availability of participants, but this indicates that results are not generalizable to whole populations. In several instances, the response rates of surveys were not quantified, making it difficult to assess potential bias. Responses provided by only selected key informants are subjective, prone to bias, do not represent a reliable sample and often lack validation. In some literature included in this review, only one respondent from a given country gave statements of the situation for an entire country, city or subnational region. Such data were in most cases not validated nor triangulated. Therefore, neither subnational data nor statements from individual respondents were considered “nationally representative data” for the purpose of this review, but only used to highlight potential trends. Whereas national surveillance data in this review was treated as valid and nationally representative.

Another issue affecting representativeness and generalizability is the small sample sizes of several surveys and country case reports. Samples sizes varied significantly across the studies and ranged from a few key informants to over 10,000 respondents and the number of respondents has been provided throughout the review whenever available.

The COVID-19 pandemic has also affected the capacity of some countries to report to the GAM mechanism and the UNAIDS HIV services tracking
database. Trend data were somewhat limited, and the number of countries reporting varied by the indicator being reported: good multi-month trend data on one aspect of a country's HIV efforts was not often accompanied by similar trend data on another.

A few publications presented more comprehensive data sets including national surveillance data. The risk of bias and issues of lack of representativeness are much limited through such data sources, yet these studies take a large amount of time to collect and publish data. This meant that such reliable data sources, especially for latter parts of the pandemic, were only available to a limited extent for inclusion into this review.

Each of these presented limitations ultimately imply that results were not generalizable to the entire Region and that synthesis analysis was compromised by the lack of rapid but accurate ways to measure the disruption and recovery of services. The analysis was further complicated by the differential timings of the arrival of and responses to COVID-19 and differences in the intensity of restrictions across countries in the Region. This scoping review is thus not able to provide solid evidence on the actual impact of COVID-19 on HIV, viral hepatitis and STI services, but has nonetheless depicted important trends that both are comparable to findings from other Regions and countries, and provides a springboard for further investigation.

5.3 Conclusions

This scoping review is the first of its kind to bring together and assess all available data on HIV, viral hepatitis and STI service disruption during the COVID-19 pandemic for the WHO European Region. Despite its limitations, this allowed not only for the characterization of relevant publications and an overview of trends observed across the Region but also the clear identification of knowledge gaps in this area.

A total of 132 publications (82 grey literature reports and 50 peer-reviewed studies) related to the disruption in HIV, viral hepatitis and STI services in the WHO European Region since the onset of the COVID-19 pandemic were included in this scoping review, with the majority dedicated to HIV and the earlier timepoints of the COVID-19 pandemic.
6. Considerations for monitoring disruption in HIV, STI and viral hepatitis services

Based on the literature, as well as national data, this scoping review found that the COVID-19 pandemic did cause a disruption in these services in the WHO European Region, but to a greatly varying extent. Disruptions were mostly observed at the very onset of the pandemic with varying levels of rebound generally observed by the end of 2020, although often not to pre-COVID-19 levels. The services most affected appeared to be testing services for each of HIV, viral hepatitis and STIs, hepatitis treatment services and HIV prevention services, although the impact of the pandemic on harm reduction services, including OST, was highly variable across the Region. ART services were generally more resilient, however, a disruption of new enrollments into ART was evident. Data gaps were particularly noted for the impact of the COVID-19 disruption on STI services, but also on hepatitis treatment and ART adherence. More disaggregated data for key populations is also lacking and is vital in assessing how COVID-19 has affected and potentially left behind specific vulnerable groups. The collection of additional validated national data would go a long way in confirming the impact of COVID-19 related disruption on HIV, viral hepatitis and STI services, and specific coverage gaps of key populations, as well as on the effectiveness and sustainability of adaptive mechanisms.

The trends observed in this review cannot be generalized to the entire Region, due to its limitations, and the review is thereby not able to provide solid evidence on the actual impact of the COVID-19 pandemic on these services in the Region. However, the depicted trends are nonetheless comparable to findings from other Regions and countries and serve as a good springboard for future research into the impacts of the pandemic on these services.

Furthermore, this review begins to identify both those hardest hit by and knowledge gaps in HIV, viral hepatitis and STI service disruption: information which can guide and prepare both researchers and policymakers in making effective decisions. This is vital, given the potential emergence and spreading of SARS-COV-2 variants – coupled with the vastly uneven roll-out of COVID-19 vaccination – which threaten essential health service progress across in the Region, in “leaving no one behind”.

Based on the review findings and the above-mentioned limitations, four overarching areas of consideration on how to monitor the disruption of HIV, viral hepatitis and STI services at various levels are proposed below.

1. **Support monitoring at country level**
   At country level, continuous monitoring by State institutions would allow for continuous adaptation to changing contexts. Countries need to have defined the set of essential services to be maintained during a pandemic situation, to assess how these services are being affected and to track any changes that may be occurring as the outbreak progresses along its various stages.

   The WHO Regional Office for Europe has produced general guidance and tools for Member States on how to monitor disruption as a result of COVID-19 at national level through national information systems (190), however more programme specific tools might be needed for HIV, viral hepatitis and STI services to standardize monitoring across countries. This could include the monitoring of certain key indicators for the early identification of health service disruptions (e.g., stockout of medicines, enrollment of new patients in treatment programmes (ART, PrEP, OST) and testing rates), while monitoring any inequalities across groups.

2. **Stimulate rigorous implementation research**
   The COVID-19 pandemic was an unprecedented situation, and many efforts were made to adapt service delivery: efforts that need to be assessed and documented. Advancing high-quality operational research on innovation and adaptation, to guide future policy and normative guidance (e.g., experiences with take home OST and DSD models including telemedicine) is essential. Stronger partnerships between CSOs and academia could be a way forward to ensuring rigorous study designs, data collection and analysis. The participation of affected populations
and the collection of disaggregated data is a must to ensure non-discrimination and attention to the rights of vulnerable groups.

3. Integrate and streamline data collection at Regional and global level and improve preparedness
To prevent reporting fatigue, established data collection systems (e.g., the UNAIDS tracking database with monthly reporting requirements) should assess the frequency countries should report data, with consideration of the burden the submission of data entails. A systematic approach to data collection on disruptions in services, potentially under annual GAM monitoring or EDCD reporting for example, could provide the global community, funders and international organizations with an overview of disruptions. International organizations, however, will need to pay attention to the extent of pre-existing reporting requirements and consider integrating questions within existing initiatives to reduce the burden and increase reporting rates. This would also avert the need to set up COVID-19 specific databases. International organizations should also consider the broader perspectives, for example, how several waves of COVID-19, new emerging pandemics, natural disasters or conflicts in a country may disrupt services in the future and thus be prepared to collect key data and monitor potential disruption.

4. Improve coordination on monitoring COVID-19 disruption of services.
Efficient monitoring of COVID-19 disruption could be enhanced by improving information sharing between international agencies, national counterparts and CSOs. This will also prevent duplication of efforts and reduce the reporting fatigue mentioned above. Relevant networks or organizations could play a facilitating role in such information sharing in planned and ongoing monitoring efforts with clear definition of roles and responsibilities to specific topics of interest.
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The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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