

Improving quality of care through better water, sanitation, and hygiene

A pan-European perspective

[Draft report]

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Aknowledgments

[to be added]

Abbreviations


AMR	Antimicrobial resistance
CRE	Carbapenem-resistant Enterobacteriaceae
ECDC	European Centre for Disease Control
EEA	European Economic Area
EU	European Union
ESBL	<i>extended-spectrum β-lactamase-positive bacteria</i>
ICU	Intensive Care Units
IPC	Infection prevention and control
HAI	Healthcare associated infections
MHM	menstrual hygiene management
MDRKO	<i>multidrug-resistant IMP-8 producing Klebsiella oxytoca</i>
MRSA	methicillin-resistant Staphylococcus aureus
NHS	National Health Service
NSI	needlestick injury
UHC	Universal Health Coverage
WASH	Water, sanitation, hygiene

To readers from the health sector who are not familiar with aspects related to WASH

Water for drinking, hygiene and other purposes, hand hygiene practices, toilets and wastewater collection, cleaning and waste segregation procedures and management – in this report referred to as WASH services – are important aspects for anyone entering a health care facility, be it a medical post or a hospital, for the surrounding community and the environment. Anyone within the health care system – as health worker, as manager, as user or as family member – has a role to play in ensuring adequate WASH services and practices when conducting their work or visiting the facility.

WASH services are fundamental to achieving health systems priorities and objectives, such as the delivery of quality care, patient safety and satisfaction, outbreak preparedness and response, among others. For example, a doctor cannot deliver care safely without equipment for hand hygiene available, including soap and alcohol based hand rub. Health workers cannot comply with infection prevention control and injection safety measures if there are insufficient containers for safe waste segregation and collection. A health facility cannot function efficiently during droughts or flooding if essential WASH services are not equipped and managed resiliently.

Regardless of your role in the healthcare system, whether you are a health worker or a user, you should be able to recognize the importance of WASH services and your role in contributing to keeping them safe. Some examples and perspectives are shown below. .



Have you been a patient?

No one likes having to wait in pain for care. What if this discomfort is worsened as you have to avoid the use of toilets because they are not functional or unhygienic? What if you have to leave the seat or bed and walk up and down the stairs and go outside in the cold just to succeed in emptying the bladder?

You can have great influence on good treatment and care. How do you feel about asking the staff what are the hand hygiene practices they follow to prevent infections? Or if they can organize that you get water to keep hydrated? Through cooperation, little questions can change behaviors – and improve your satisfaction with the care delivered.

Are you managing a health care facility?

The management of the healthcare facility puts a lot of efforts to ensure pleasant working conditions to attract, maintain and motivate qualified staff. What if regular sharps injuries start happening among staff due to insufficient or inadequate containers for sharp waste? or due to the lack of knowledge of staff on standard procedures for safe handling? How could you address the issue?

In some hospitals, the management has a limited budget which needs to be split up between buying medical supplies and simple things like soap. How to distribute the limited money available? A fixed budget for WASH services contributes at reducing the number of health care associated infections – which may save costs on medications while improving quality of care.

Are you a health care professional?

Providing good care to patients can be a rewarding job. Knowing that you are helping people in recovering and in feeling better can be very fulfilling. But what if your care could also make people sick – just because you do not have the opportunity to properly and regularly clean your hands?

Imagine working your 10-hours shift, in full concentration mode and responding to the most diverse needs that your task requires. How do you feel if you have been thirsty since the second hour of your shift, but you have no chance to find a break to reach the staff toilets to get a sip and you have no coins or time to get something to drink at the vending machines? How is your concentration level at after 7 hours being thirsty?

Do you have a role in keeping a health care facility running well?

A lack of safe water affects vulnerable patients in hospitals most of all. An outbreak of Legionellosis in a neonatal ward can lead to tragic losses of young life. What if the insufficient environmental cleaning and maintenance of humidifiers and water taps was the cause?

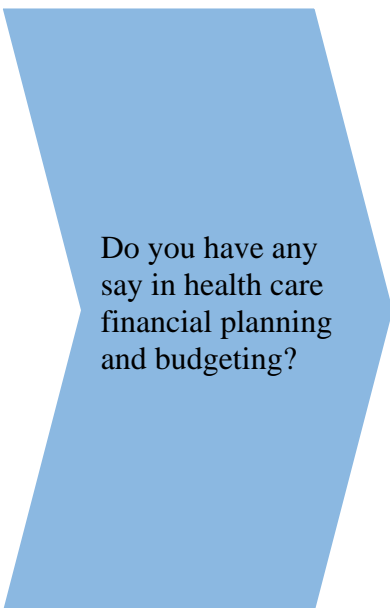
Several patients in an ICU get infected by a drug-resistant pathogen. Revising the daily cleaning procedures and ensuring proper hand hygiene practices can help you hinder further patients becoming sick. Where would you start?

Small gestures make a change. The provision of delicious, fresh drinking-water from water dispensers can give a small moment of relaxation during a busy working day. Well-fortified, one can continue with the work with new energy. The development of antibiotic therapies is a great achievement of research for curing patients. However, this achievement is being threatened by the rise and spread of drug-resistant bugs. The proper hygiene management of sinks and wastewater can reduce the need to give precautionary antibiotics and the spreading drug-resistant pathogens. How can you initiate a change for the better?

Do you have a role in the work on strengthening health care?

Nowadays extreme weather events, such as storms and flooding, are becoming more frequent. Imagine how these can affect the health care facilities in your area while a greater number of affected people from the region seeks help for their injuries. What if treatment cannot be provided because there is no safe running water at the point of care? Or because the sewage system is obstructed? What can you do to make the hospital more climate resilient?

Imagine, if an oversight agency, while supervising the hospital performance, identifies one hospital with remarkably higher expenses than the others in their annual accounting. What if these costs are linked to nosocomial infections and outbreaks and that they can be prevented through provisions for hand hygiene, sanitary facilities and environmental cleaning? What would be your next step?



Do you have any say in health care financial planning and budgeting?

Being responsible for financing, you know that cost-effectiveness of interventions is important. You are surely investing in hand hygiene interventions because you are well aware of the financial benefits of preventing disease outbreaks in hospitals. And isn't it great that this cost-effectiveness also saves lives?

Imagine a norovirus outbreak in a local healthcare facility forces the management to close several wards, because staff and patients are affected. The outbreak causes substantial direct and indirect financial losses due to prolonged hospital stay, increased staff needed, medical and technological equipment needed, as well as loss of productivity for the wider community. These types of outbreaks can be prevented or reduced by adequate hand hygiene practices, sanitary facilities, environmental cleaning and efficient management. Do you think these can be included in the budget planning for next year?

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Introduction

Adequate water, sanitation and hygiene as well as waste management and environmental cleaning (abbreviated in this report as WASH) in health care facilities are essential for ensuring quality health services that are equitable, responsive to evolving needs and resilient to environmental and health emergencies. Proper WASH services in health care facilities come with a number of benefits and are a core provision, which determine the strength and quality of the health care system, and related health functions (Fig. 1).

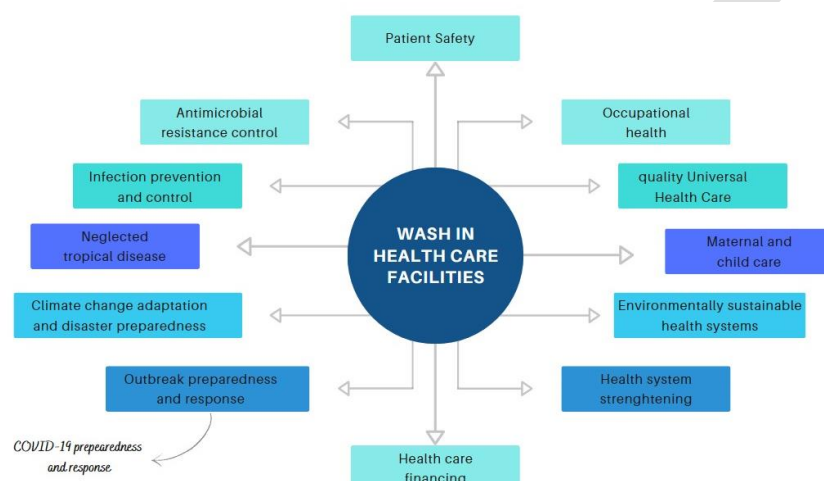


Fig. 1 Benefits of improved WASH services in health care facilities contributing and supporting related health and environmental functions

All health care facilities in the pan-European region¹, in every country, have been put under major pressure in the recent past due to numerous stressors including the COVID-19 pandemic, emerging epidemics, increased frequency and intensity of extreme climatic events (such as droughts, flooding, heatwaves) as well as the economic crisis and increasing lack of human resources to cope with increasing demands for health care services. Political agendas have thus progressively put more attention on strengthening resilience and preparedness of health care systems to evolving needs and emergencies, while there has been a slow but steadily increase of recognition and political momentum for WASH services in health care facilities as an essential pillar for providing quality health care. This culminated in 2019, when a resolution was adopted by the World Health Assembly to improve WASH services in health care facilities². The commitment was taken by all countries, including those in the pan-European region.

However, to date, there is no overview of where countries in the region stand with respect to provisions for WASH services in health care facilities and their impact, and what still needs to be done. This publication aims at filling the gap, collecting evidence from the region on the relevance and role of WASH services for quality and resilient health care and providing an overview of achievements and gaps as well as opportunities for action.

¹ This publication uses the term “pan-European region” to refer to the Member States in the WHO European Region and Liechtenstein. The WHO European Region comprises 53 countries: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, the Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Türkiye, Turkmenistan, Ukraine, the United Kingdom and Uzbekistan.

² World Health Assembly resolution WHA72.7 of 2019 on WASH in health-care facilities
https://washinhcf.org/latest_news/resolution-on-wash-in-hcf/

1. The high momentum for integrated action for quality health care and for equitable and safe WASH services

key messages:

- Internationally, WASH services in health care facilities are politically recognised as a priority for achieving global health goals and to strengthen countries outbreak preparedness
- Countries are called to report on their commitments for WASH in health care facilities, including through legally binding agreements, to improve quality of care, safeguard the health of the population, and prevent and respond to public health emergencies
- Integrated action between sectors sharing responsibility for health care service delivery, quality of care and WASH, is crucial to achieve shared goals for maternal and child health, infection prevention, patient satisfaction, and to ensure a supporting and nurturing space for users and their families and health workers.

Access to safe and reliable water and sanitation are of fundamental nature and considered basic human rights³. The 2030 Agenda for Sustainable Development calls on countries to address WASH in institutional settings explicitly under Goal 3 for good health and well-being – addressing the need for quality essential health-care services (Target 3.8) – as well as Goal 6 for clean water and sanitation – calling for universal and equitable access to safe WASH services in all settings, with special attention to women and girls and those in vulnerable situations.

The World Health Assembly (WHA) resolution on WASH in health care facilities, adopted at the 72nd session of the WHA in May 2019⁴, stresses the fundamental importance of adequate WASH services in achieving universal health care (UHC) and re-emphasizes attainment of the WASH-related commitments, such as expressed by SDGs. The resolution calls upon the Member States to improve WASH in health care facilities through conducting, among others, comprehensive assessments of the WASH conditions according to the national context, on the base of which follow-up actions should be identified and prioritized (Box 1).

Box 1 Commitments by Member States under WHA Resolution 72.7

- | | |
|---|---|
| <ul style="list-style-type: none">• Conduct comprehensive assessments of WASH conditions• Set WASH-related targets within health policies• Integrate indicators for safe WASH and IPC into national monitoring and accreditation mechanisms• Develop and strengthen national roadmaps of action towards improving WASH in health-care facilities• Develop and strengthen national WASH standards for health-care facilities | <ul style="list-style-type: none">• Strengthen integration of WASH across relevant topics and health programs• Address inequities in WASH service provision, addressing first facilities with higher priority and poorest conditions• Secure funding, investing in trained health care staff on WASH-related practices• Strengthen education and raise awareness of health care staff and managers on WASH• Strengthen multisectoral coordination• Develop and strengthen a safe working environment |
|---|---|

Source: WHO, 2019⁴

³ UN Human Rights Council Resolution No. 64/292 on human rights and access to safe drinking water and sanitation September 2010 <https://daccess-ods.un.org/tmp/6128458.97674561.html>

⁴ Water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2019 (WHA72.7; https://apps.who.int/gb/e/e_wha72.html#resolutions)

WASH in health-care facilities as an essential component for outbreak response and preparedness

The period since 2020 was strongly marked by the spread of the COVID-19 pandemic. Through the pandemic escalation and the efforts to control it, WASH services in health care facilities have been recognized as a critical measure to control the spread of infections. Countries committed under the WHA resolution 73.1 on COVID-19 to strengthen health care systems and, in particular, by strengthening access to safe WASH, and infection prevention and control⁵. This was also reflected in the WHO Manifesto for a healthy recovery from COVID-19, and also echoed in the WHO and UNICEF campaign to ensure that all people have access to and can practice hand hygiene: the “Hand Hygiene for All (HH4A) Global Initiative”. This campaign calls to action through increasing investments and defining comprehensive roadmaps that bridge national emergency pandemic plans with mid- and long-term investments to ensure WASH and IPC efforts are implemented sustainably to stay beyond the pandemic⁶.

WASH services and IPC in health care facilities have been also integrated under the core capacities of the International Health Regulations (2005)⁷ – under Core Capacity 9 indicator 3 - Safe environment in health facilities. The International Health Regulations are an instrument “to prevent, protect against, control and provide a public health response to the international spread of disease [...]”. They are legally-binding on 196 countries, including the 194 WHO Member States.

WASH as an essential component of a functioning and strong healthcare system across all levels of care that puts the people at the centre

Global health goals aim at achieving universal health coverage, building on a firm foundation of safe, high-quality care with people-centred approaches, and what is needed to sustain it. Such goals, however, cannot be achieved without a commitment to address health care as a system, starting from the basic services at its fundament: such as quality WASH and energy provisions, including their proper operation and maintenance. This is critical to ensure adequate and acceptable health care services, making health facilities prepared to future outbreaks, and promoting health.

Being WASH at the fundament of IPC and quality of care, countries’ work on quality of care and strengthening health systems thus presents a window of opportunity to increase attention on and prioritization of WASH services, addressing improvements both at the governance and the facility level (Fig. 2). WASH services are the ‘hardware’ for quality service delivery, affecting patients’ recovery, workforce performance and motivation. WASH services are also recognized critical elements for patient satisfaction to ensure the physical comfort and a

⁵ (Source: COVID-19 response. Geneva: World Health Organization; 2020 (WHA73.1 https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R1-en.pdf))

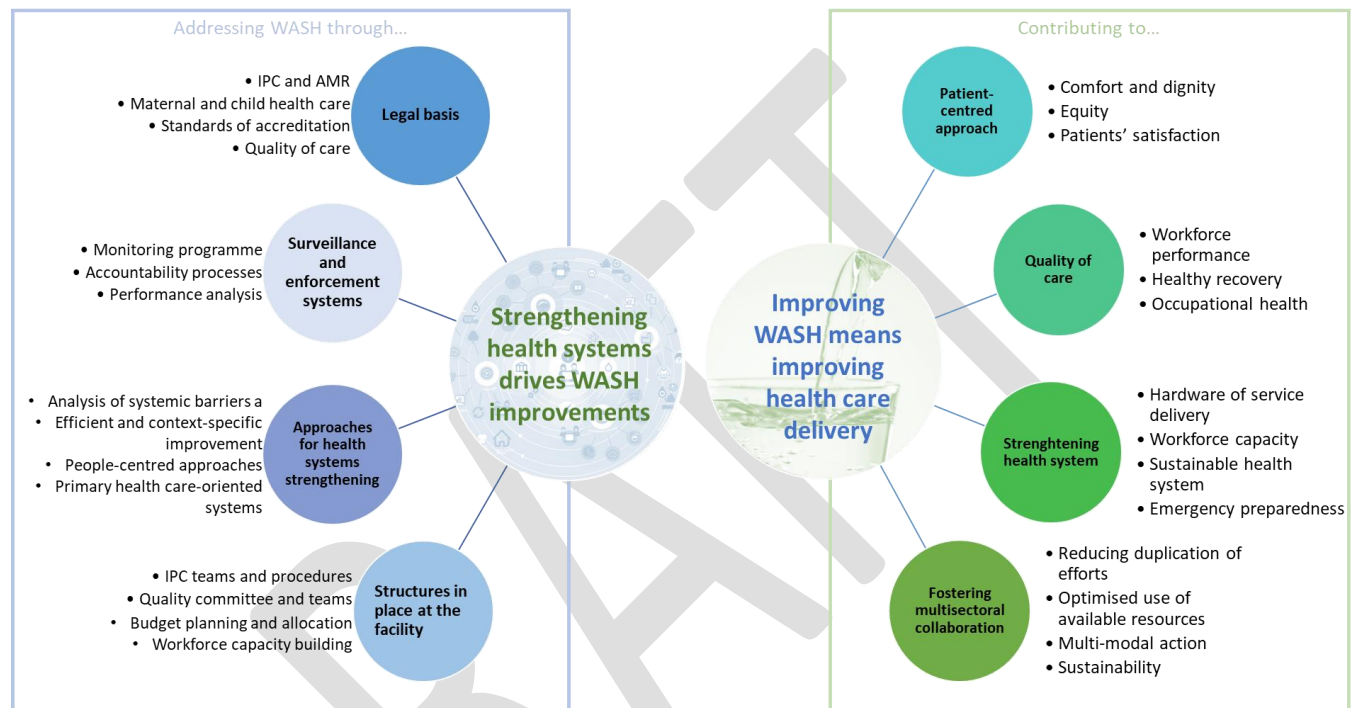
⁶ (Hand hygiene for all. Geneva: World Health Organization/United Nations Children’s Fund; 2020 (<https://www.unicef.org/reports/hand-hygiene-for-all-2020>, accessed 20 November 2020).)

⁷ International Health Regulations (2005): State Party Self-assessment annual reporting tool, second edition.

Geneva: World Health Organization; 2021.

supporting and nurturing space for patients, families and employees⁸. At the same time, system and people centred approaches ensure effectiveness of WASH improvement (Fig. 2).⁹

Fig. 2 Improved WASH for strengthening health systems and health system strengthening for improving WASH services



Provisions of WASH services are embedded and/or closely interlinked with many global frameworks, initiatives and strategies focusing on the health-care context with the shared goal of improving health, equity and quality of care (Fig. 1). These may serve as an entry point to integrate WASH in related health system strengthening, and efforts for health promotion and environment safeguard. Existing commitments and processes create a space to join ongoing efforts and make efficient use of resources. Examples of such existing frameworks and initiatives at the global level are listed in the table below.

⁸ Achieving Person-Centred Health Systems: Evidence, Strategies and Challenges. World Health Organization, 2020 DOI 10.1017/9781108855464 Accessed August 1, 2022. <https://euro.who.int/publications/m/achieving-person-centred-health-systems-evidence-strategies-and-challenges>

⁹ WaterAid, 2022. Water, sanitation and hygiene: A foundation of strong, resilient health systems. https://www.wateraid.org/in/sites/g/files/jkxooof336/files/2022-05/water-sanitation-and-hygiene-a-foundation-of-strong-resilient-health-systems_0.pdf

Table 1 Explicit and suggested links with WASH from global commitments and strategies for improving health services and strengthening health systems


<i>Frameworks and strategies</i> Link with WASH in healthcare facilities	
MATERNAL, NEWBORN AND CHILD HEALTH	
<ul style="list-style-type: none"> Partnership for maternal, newborn and child health (PMNCH) initiative (2005) Every Woman Every Child (2010) Every Newborn Action Plan (Resolution WHA67.10,2014) Global Strategy for Women's, Children's and Adolescents Health 2016-2030 Global Accelerated Action for the Health of Adolescents (AA-HA!) (2017) 	Equitable access to functioning and safe WASH in all sectors provides an enabling environment for high-quality health care that meets patients' needs to end all preventable deaths of women, children and adolescents
<ul style="list-style-type: none"> Every Child Alive campaign (2018) 	Urgent, global plea to invest in the “four P’s”: Places, People, Products and Power to fulfil the promise of universal health coverage and keeping every child alive. Places intending clean, functional health facilities with access to clean, running water, sanitation facilities and electricity.
<ul style="list-style-type: none"> Network for Improving Quality of Care for Maternal, Newborn and Child Health (2017) 	WASH services is one of the eight standards to deliver quality care, including aspects of provision and experience of care, as well as infrastructure and services needed.
QUALITY OF CARE and PRIMARY HEALTH CARE	
<ul style="list-style-type: none"> Framework on Integrated, People-centred Health Services 	WASH is a key quality provision for a supportive environment that helps caregivers practicing and ensuring the safety of patients in any healthcare setting so that “all people have equal access to quality health services that are co-produced in a way that meets their life course needs”.
<ul style="list-style-type: none"> Declaration of Astana (2018) 	WASH as an efficient measure to improving and maintaining physical infrastructure, workforce, and a fundamental component of systems for improving the quality of care and monitoring and evaluation; all actions required to strengthen primary health care for accelerated progress on UHC and the SDGs.
<ul style="list-style-type: none"> The Global patient safety action plan 2021–30 (2021) 	WASH in health care facilities as a core element of IPC and AMR control for safe clinical processes – by ensuring a clean and hygienic environment that incorporates a water, sanitation and hygiene infrastructure – and enabler for a safe and dignified workspace.
<ul style="list-style-type: none"> Operational framework for primary health care 	Physical infrastructure (WASH and energy) is one of the operational levers for delivering primary health care, which is one of the key mechanisms for realizing universal health coverage. It is timely, cost-effective and focused on prevention and patient centered goals. https://www.who.int/publications/i/item/9789240017832
INFECTION PREVENTION AND CONTROL	
<ul style="list-style-type: none"> SAVE LIVES: Clean hands 	This is a campaign to foster action at the point of care on hand hygiene – a core dimension of WASH -- for reducing health care-associated infections and for better patient safety.

<ul style="list-style-type: none"> World Health Assembly resolution 75.13 on Global Strategy on Infection Prevention and Control (2022) 	WASH services as a precondition for clean, high-quality, safe, affordable care to be universally available and key element to ensure sustainable infection prevention and control is implemented across all health care facilities, including in primary health care.
<ul style="list-style-type: none"> Global Strategy on IPC (forthcoming as requested by World Health Assembly resolution 75.13) 	WASH as a core element of IPC for an enabling built environment and as integral part of IPC programmes and strategies.

PREVENTION OF (RESISTANT) INFECTIOUS DISEASES AND OUTBREAKS

<ul style="list-style-type: none"> Global action plan against pneumonia and diarrhoea (2009) 	WASH as a proven means to prevent diarrheal and respiratory-tract infections
<ul style="list-style-type: none"> Global strategy 2015-2020 on water, sanitation and hygiene for accelerating and sustaining progress on neglected tropical diseases(2016) 'Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030' (2021) 	Provision of safe WASH as one of the five key interventions within the global roadmap for control and elimination of neglected tropical diseases – essential element of care provision and prevention of secondary disabilities.
<ul style="list-style-type: none"> Global action plan on antimicrobial resistance (2015) 	WASH in health care facilities to prevent hospital-acquired infections by enabling strengthening hand hygiene practices and IPC measures
<ul style="list-style-type: none"> International Health Regulations (2005) 	National standards and resources for safe built environment in health care facilities such as adequate WASH provisions, among others, are an integral component of the minimum core capacities under the international health regulation framework to prevent, control and respond to health events of international concern.
<ul style="list-style-type: none"> WHO Manifesto for a healthy recovery from COVID-19 (2020) Actionables for a healthy recovery from COVID-19 (2020) 	Essential services, from water and sanitation to clean energy in health care facilities (health care facilities be equipped with water and sanitation services, including the soap and water) ensuring that adequate attention is paid to the promotion of personal hygienic measures in all settings, including humanitarian settings, and particularly in health facilities

SUSTAINABLE DEVELOPMENT AND ENVIRONMENT PROTECTION

<ul style="list-style-type: none"> International Decade 2018-2028 for Action – Water for Sustainable Development (2018) 	Emphasizing the critical need for water for sustainable development including in healthcare settings
<ul style="list-style-type: none"> Stockholm Convention (2007) 	Safe health care waste management practices to protect health and reduce harm to the environment - prioritizing steam-based or other non-incineration methods of disinfection over incineration to decontaminate infectious waste.
<ul style="list-style-type: none"> <i>Global strategy on health, environment and climate change</i> (2020) 	Effective and financially sustainable implementation of universal health coverage is based on a resilient and responsive health system and encourages countries to take concrete actions to integrate climate-resilient and sustainable WASH services as a core component into health systems strengthening and in other health programmes

WASH in health-care facilities in the pan-European region

At the regional level, the Protocol on Water and Health and the Ostrava Declaration on Environment and Health are important frameworks for the work on WASH. In Ostrava in 2017, health and environment ministers of the Member States of the WHO European Region committed to develop national portfolios of action for selected priority areas including WASH in health care facilities. The declaration also calls on Member States to ratify and use the mechanisms of the legally binding, multilateral agreement of the Protocol on Water and Health to reach their WASH commitments. The Protocol links sustainable water management with the prevention, control and reduction of water-related diseases and has, so far, been ratified by about half of all Member States in the Region. A thematic priority area within the Protocol's programmes of work is WASH in institutional settings, including in health care facilities.

Also, in 2011 European countries anticipated the global commitment and adopted the European strategic action plan on antibiotic resistance, setting as a key objectives to improve awareness and understanding of antimicrobial resistance, addressing the promotion of stringent hand hygiene and other IPC practices which require access to WASH services.

Commitments and frameworks at the regional level focusing on dimensions linked to the provision of WASH services in health care facilities that create a good opportunity for integration and efficient resource investment are listed in Table 2 below.

Table 2 Explicit and suggested links with WASH from regional commitments and strategies for improving health services and strengthening health systems

Frameworks and strategies	Link with WASH in healthcare facilities
QUALITY OF CARE	
<ul style="list-style-type: none"> Framework for action on integrated health services delivery (EFFA IHSD) (2016) 	<p>Monitoring WASH services and access for health care staff to continued adjustment and improvement to ensure up-to-date and quality performance</p> <p>WASH and IPC continued education for medical and non-medical staff in line with the latest standards and state of the science to ensure a competent health workforce</p>
<ul style="list-style-type: none"> WHO pan-European strategy on primary health care „Primary health care: making our commitments happen: realizing the potential of primary health care,, (2022) 	<p>Financing WASH improvements as critical infrastructure for service delivery and comprehensive WASH provisions for equitable services to achieve improvements of the quality of primary health care services and leave no one behind.</p> <p>The European Commission has presented the European Care Strategy to ensure quality, affordable and accessible care services across the European Union</p>
SUSTAINABLE DEVELOPMENT AND ENVIRONMENT PROTECTION	
<ul style="list-style-type: none"> Tallinn Charter: “Health Systems for Health and Wealth” (2008) 	<p>WASH services for ensuring functioning and quality health care provision for all, particularly for vulnerable groups and meeting patients' needs to which policy makers strive to</p>
<ul style="list-style-type: none"> WHO small countries initiative - Ensuring safe and climate-resilient water and sanitation: the iceland statement (2018) 	<p>Strengthening disaster risk reduction, preparedness and response from climate-induced and water-related disasters to ensure universal and equitable access to water, sanitation and hygiene in all settings, including in schools, health care facilities and workplaces, as well as in urban and rural areas</p>
PREVENTION OF (RESISTANT) INFECTIOUS DISEASES AND OUTBREAKS	

<ul style="list-style-type: none"> European strategic action plan on antibiotic resistance (2011) 	WASH to prevent hospital-acquired infections by enabling strengthening hand hygiene practices and IPC measures
<ul style="list-style-type: none"> Immunization Agenda 2030¹⁰ (2020) 	WASH as a key sector to strengthen partnership with for increasing efficiency and reach of immunization efforts

¹⁰ Immunization Agenda 2030: A global strategy to leave no one behind. Geneva: World Health Organization; 2020
(https://www.who.int/immunization/immunization_agenda_2030/en/, accessed 20 November 2020).

2. WASH services as a non-negotiable precondition for a healthcare facility – evidence from the literature

key messages:

- Adequate WASH provisions are a core element to infection prevention and control, particularly relevant for vulnerable populations like new-born children and their mothers, and an effective measure for outbreak preparedness and response.
- Lack of WASH services in health care facilities directly impacts the burden of disease worldwide, mainly from health care-associated and their consequences, including from resistant pathogens, and contributing to increased health care costs.
- Accessible and acceptable WASH services in health care facilities are critical for workforce performance and contribute to make care people centered.
- Additional research from the Region on WASH provisions in health care facilities and their link with, among others, gender equity, climate change adaptation and mitigation and AMR are needed.

As a foundation for strong and prepared resilient health systems, adequate WASH services are indispensable in preventing health risks for all people, patients, visitors and health and care workers alike. Furthermore, they are indispensable, for fulfilling human rights, respecting people's dignity, and ensuring equity.

Adequate and environmentally sustainable WASH services, in particular safe health care waste and wastewater management, together with other critical infrastructure such as energy services, are also of critical importance for protecting the environment and contributing to a climate resilience environmentally friendly community.

This chapter presents the evidence from the literature on the importance of WASH services for core health care functions and present strong arguments for taking action. The role of different WASH aspects in the health care settings is highlighted and linked to examples from countries in the pan-European Region. While numerous studies can be found on the link between WASH and health care delivery, the evidence focus mainly on hospitals and acute care settings. As a consequence, primary health care facilities are not covered in this chapter, though many principles can be applied to these settings.

The literature was collated through a review on published articles or reports in English on different aspects of WASH in health care facilities from the Region, with a focus on articles presenting data published between 2000-2022. Data assessed through the WHO/UNICEF JMP framework will be presented in the next chapter.

Quality health care

Poor quality of care in health services causes worldwide more deaths than the lack of access to health care (1). Quality health care services should be effective, safe and people centred (2), and are dependent on the provision of WASH services as these are among the minimum threshold for quality of care (3). High quality health services involve the right care, at the right time, responding to the service users' needs and preferences, while minimizing harm and resource reduce waste. WASH services ensure that quality care is delivered in a dignified, clean and respectful environment. In many countries acute care has improved for different life-threatening conditions, and a growing number of countries have put attention to people-centred services.

Healthcare associated infections (HAIs) are one of the most common adverse events in healthcare settings (9). In 2011, they were estimated to affect at least 7% of all patients admitted to a hospital in high-income countries and 15.5% in low-income countries (10). And more recent figures from countries in the European Union indicated that on average 5.7% of patients acquired an infection during their hospital stay in 2016-17.¹²

And even of more concern, around half of all sepsis cases in Intensive Care Units (ICU) have a hospital origin (11). HAIs lead to prolonged hospital stay, increased morbidity and disability, and are associated with high risk of mortality (13). Each year, 3.1-4.6 million people are estimated to acquire a HAI in acute care hospitals in countries from the European Union, Iceland, Norway and the United Kingdom¹¹, of which most could be prevented through improved WASH and IPC services.

Across the WHO pan-European Region great disparities are further challenging and between hospitals and countries affecting healthy recovery for patients and working conditions (4). For example, 3.1-4.6 million people are estimated to acquire a health care-associated infection (HAI) each year in acute care hospitals in countries from the European Union, Iceland, Norway and the United Kingdom¹², of which most could be prevented through improved WASH and IPC services. Assessments conducted in Armenia, Kyrgyzstan and Tajikistan showed that in some areas of the Region bigger challenges are faced, with healthcare posts, primary and rural health care facilities in providing the most basic services - lacking running water and/or adequate sanitation services (5) (6)(7, 8). The following paragraphs present the links between quality health care delivery and adequate WASH services more in detail.

Health care-associated infections

Adequate hand hygiene, environmental cleaning and maintenance of water and sanitation systems are essential for the reduction of health care-associated infections.

Health care-associated infections (HAIs) are one of the most common adverse events in healthcare settings (9). Globally in 2011, they were estimated to affect at least 7% of all patients admitted to a hospital in high-income countries and 15.5% in low-income countries (10). And most recent figures from countries in the European Union indicated that on average 5.7% of patients acquired an infection during their hospital stay in 2016-17.¹² And even of more concern, around half of all sepsis cases in Intensive Care Units (ICU) globally have a hospital origin (11). HAIs lead to prolonged hospital stay, increased morbidity and disability, and are associated with high risk of mortality (13).

Watson et al. (13) have compiled a conceptual framework to better understand the relationship between WASH and HAIs based on a comprehensive review of the literature with focus on low- and middle-income countries. This framework suggests how existing gaps in provisions for any of the WASH dimensions – spanning from unsafe water to poor waste management and insufficient practice of hand hygiene – lead to increase in HAIs and consequently in increase of HAI-associated morbidity and mortality as well as increased health care costs.

¹¹ Suetens, C. et al. (2018), “Prevalence of healthcare-associated infections, estimated incidence and composite antimicrobial resistance index in acute care hospitals and long-term care facilities: results from two European point prevalence surveys, 2016 to 2017”, *Eurosurveillance*, Vol. 23/46, <http://dx.doi.org/10.2807/1560-7917.es.2018.23.46.1800516>.

¹² Suetens, C. et al. (2018), “Prevalence of healthcare-associated infections, estimated incidence and composite antimicrobial resistance index in acute care hospitals and long-term care facilities: results from two European point prevalence surveys, 2016 to 2017”, *Eurosurveillance*, Vol. 23/46, <http://dx.doi.org/10.2807/1560-7917.es.2018.23.46.1800516>.

Failure to adhere to good hand hygiene practices has been identified as the leading cause of the occurrence of HAIs (14). Hand hygiene practices are particularly important for settings and departments with patients that are vulnerable for infections, such as neonatal units, ICUs and post-operative wards (15-18). The availability of hand hygiene stations supplied with water and soap or alcohol-based hand rub is a critical element, but practice and compliance needs to be fostered through education, advocacy and behaviour change interventions., all of which are elements of a multimodal implementation strategy. There is clear evidence that hand hygiene multimodal improvement strategies are effective in improving practices and preventing microbial transmission and infections¹³. Also in the pan-European Region multimodal approaches to increase adherence to hand hygiene, including hand hygiene promotion campaigns, have proven to significantly increasing compliance and reducing the prevalence of ventilator-associated pneumonia (VAP) as reported, for example, in Swiss hospitals (compliance improved from 48% to 66%) (19) in ICUs in Turkey (46% reduction of VAP) (20). Because of the common occurrence of skin irritation (eczema) due to frequent hand washing in the health care context – affecting the well-being of staff and the hand hygiene practice – studies suggest the use of evidence-based hand hygiene protocols ((50) (51)52).

The water infrastructure is of particular importance for the prevention of HAIs as it have been found to be possible environmental reservoirs for pathogens, in particular the water distribution system (e.g. *Legionella pneumophila* and *Pseudomonas aeruginosa*, see Box 2), as well as the handwashing and wastewater infrastructure (sinks and drains) (e.g. *extended-spectrum β -lactamase-(ESBL) producing bacteria, multidrug-resistant IMP-8 producing Klebsiella oxytoca (MDRKO)*).

Box 2 Legionella and Pseudomonas

Safe provision of water services in health care facilities can reduce the occurrence of infections from *Legionella* and *Pseudomonas*

Legionella pneumophila and *Pseudomonas aeruginosa* belong to the group of bacteria that commonly cause nosocomial infections. They may originate from the water distribution system and are acquired mainly by inhalation of water droplets from sinks and showers. A large number of legionella outbreaks documented took place in health care facilities (70). In 2017, *Pseudomonas aeruginosa* was the most frequently isolated microorganism in ICU-acquired pneumonia in the EU (71). The history of *Pseudomonas* occurrence in hospitals goes far back, with studies from 1974 already highlighting the importance of prophylactic measures in water dispensers in the United Kingdom (72). Notably, in some occasions, contaminations with several pathogens might occur in the same setting, as one example of tap contamination with *Pseudomonas aeruginosa* and *Stenotrophomonas maltophilia* in a French hospital showed (73). Most at risk for contamination are rarely used and stagnant parts of the water supply system or objects filled with water supplies that are rarely used, thereby enabling the growth of biofilms which may harbour different bacteria, including *Legionella* species (74). In Cyprus, an outbreak of *Legionella* from cold-mist humidifiers for neonates led to an overall mortality of 33.3% in a private hospital (75). A water temperature below 65°C has been associated with higher legionella contamination in hospitals in the Russian Federation (74). A contaminated water system colonization poses a threat to all people in contact with health care facilities, patients, staff, but also visitors. In Cyprus, an outbreak of *Legionella* from cold-mist humidifiers for neonates led to an overall mortality of 33.3% in a private hospital (75).

¹³ World Health Organization. WHO guidelines on hand hygiene in health care 2009. Available from: <https://www.who.int/gpsc/5may/tools/9789241597906/en/>. [Accessed: 17.07.2020]

There are several measures that can be implemented to prevent the spread of *Legionella* and *Pseudomonas*. An example from Hungary showed the effectiveness of point-of-use filters in an ICU in Hungary, with the incidence of *Pseudomonas* decreasing from 2.71 to 0 cases/100 patient days (REF: Zsófia Barna, Katalin Antmann, Judit Pászti, Renáta Bánfi, Mihály Kádár, Anita Szax, Melinda Németh, Eszter Szegő, Márta Vargha; Infection control by point-of-use water filtration in an intensive care unit – a Hungarian case study. *J Water Health* 1 December 2014; 12 (4): 858–867. doi: <https://doi.org/10.2166/wh.2014.052>).

Outbreaks of infectious diseases (including COVID-19) can be prevented by prioritizing hygiene practices, safe waste management and risk-based environmental cleaning (see Box 3). For example, contaminated water and wastewater points have been implicated in numerous clinical outbreaks reported, among others, in France, Netherlands, UK, Spain, affecting the health outcome and leading in some cases to death before introduction of improvement measures (21) (22) (23) (24) (25) (38).). Health care waste is as well a possible reservoirs for pathogens suggesting that mishandling of infectious waste can lead to direct or indirect transmission (26).

Box 3 Outbreak prevention

Hygiene, in particular hand hygiene, has been at the forefront against nosocomial infections. Environmental cleaning, safe management of excreta, as well as safe management of waste, were recommended in health care facilities to reduce transmission of SARS-CoV-2 (76). Beside infection prevention, proper waste handling should target sustainable waste reduction and recycling procedures, given the high amount of waste occurring during outbreaks (77). As health care workers are disproportionately affected by COVID-19 infections, accounting for around 14% of all infections, measures to protect them should be prioritized. This includes hand hygiene, appropriate personal protective equipment, masking, and adequate IPC (78).

Cost-effectiveness

WASH interventions reducing the high-cost impact of HAIs.

Globally, every dollar invested in WASH services yields a return of 5 USD, because of reduced healthcare costs and greater productivity (58) and there is a 15 USD benefit from every 1 USD invested in hand hygiene in health care facilities¹⁴. In contrast, not investing in WASH can cause high costs. Studies from England, France and The Netherlands calculated high additional costs from nosocomial outbreaks – many of which preventable through improved WASH and IPC measures – due to extended hospital stays, extra medical costs, staff working hours and other cost items (60-62). Projections on the current trend of AMR expect that around 1.1 billion Euro will be spent yearly between 2015 and 2050 across European Economic Area (EEA) countries because of AMR pathogens.

Implementing different WASH aspects in health care facilities have been proven cost-effective. A review of economics studies on alcohol-based hand hygiene products concluded that the potential benefits most likely outweigh costs (14). A modelling study estimating the costs associated with *methicillin-resistant Staphylococcus aureus* (MRSA) infections

¹⁴ Stemming the Superbug Tide: Just A Few Dollars More. Paris: Organisation for Economic Co-operation and Development; 2018 (https://www.oecd-ilibrary.org/social-issues-migration-health/stemming-the-superbug-tide_9789264307599-en; accessed 20 November 2020).

indicated that noncompliance with hand hygiene was associated with significant attributional cost for the hospital and healthcare system, with around 52.53 USD per noncompliant event (59). A study in two hospitals in Canada found that investing in resources to support hand hygiene or cleaning and disinfection is a low cost and cost-effective way to prevent healthcare-associated infections: with a median cost of 20 to 21 cent of Canadian dollars per action (ca. 15-16 cents of Euro)¹⁵. And there are other measures that may bring a high return-of-investment. An evaluation of waste management in Irish health care facilities estimated that hospitals can save up to 27,000 € per year if non-hazardous waste is segregated from hazardous waste streams (63) due to less waste treatment costs of the non-hazardous waste. A new national waste system implemented in rural hospitals in Kyrgyzstan brought cost-savings of around 33% compared to the previous system (64).

Antimicrobial resistance

Good hygiene and safe disposal of waste and wastewater are relevant for addressing the rising threat from antimicrobial resistance.

Antimicrobial resistance (AMR) is an emerging problem in the WHO pan-European Region and worldwide (65). With the high rate of antibiotics used and high rate of infections present, health care facilities play an important role in the development, but also in the prevention and control of AMR. Resistance development in this setting can be triggered by several factors, such as poor hygiene conditions and practices or inappropriate use of antibiotics. Of the annual 8.9 million HAIs, multi-drug resistant bacteria are a leading cause in the EU/EAA (12), with around 75% of infections with AMR in EEA being classified as HAIs. Each year, around 670.000 infections occur due to AMR in the EU/EEA, that are associated with 33.000 deaths (65).

One example of AMR pathogens are *carbapenem-resistant Enterobacteriaceae* (CRE) – found in the hospital water environment, among others – that are difficult to treat and associated with high mortality. The European Centre for Disease Prevention and Control (ECDC) estimates the mortality for bloodstream infections with CRW to be between 30-70% (66). Several large hospital outbreaks with CRE occurred in Europe, for example in health care facilities in the Czech Republic, France, Germany, Greece, Italy, Spain and the United Kingdom (66). These outbreaks were also very costly, with an estimated additional cost of around 1.1 million € over 10 months during an outbreak across five hospitals in the UK (9).

The role of WASH provisions in the prevention and control of AMR is manifold, though complex to assess. Reducing antibiotic residues in wastewater can be important in preventing the spread of AMR. In sanitary units of patients wards in Germany high amounts of antimicrobial residues were found, suggesting that antibiotics persist in biofilms and can support develop of AMR bacteria living in those biofilms (67). Drug-resistant bacteria are not only a problem within health care facilities, but also outside and the transmission from hospitals to the municipality may occur via patients or wastewater. Several studies have investigated the role of multidrug resistant bacteria in hospital wastewater. A study from Portugal explored the role of *vancomycin resistant enterococci* in hospital wastewater, finding that the community environment was continuously being contaminated with these microbes and that further action should be taken to avoid the spread of AMR (69). Findings of drug-resistant and hospital associated *Enterococcus* species in wastewater treatment plants in

¹⁵ Tchouaket Nguemeleu, E., Robins, S., Boivin, S. *et al.* A pre-pandemic COVID-19 assessment of the costs of prevention and control interventions for healthcare associated infections in medical and surgical wards in Québec. *Antimicrob Resist Infect Control* **10**, 150 (2021). <https://doi.org/10.1186/s13756-021-01000-y>

Poland (68) underpinned this need for action. More information on practical actions can be found in the subchapter on environmental pollution.

Maternal and child health

Safe water, access to adequate sanitation and good hygiene practices uplift maternal and child health by reducing avoidable infections and maintaining health and well-being.

Globally, unsafe deliveries are associated with more than 1 million deaths of mothers and newborns each year, with infections being responsible for 26% of neonatal deaths and 11% of maternal deaths in total (27-29). In the WHO pan-European Region the maternal mortality rate is constantly going down, however enormous differences between countries exist, with the highest rate exceeding 25 times the lowest (30). A cross-sectional study on healthcare associated infections in children from 29 countries (including high-income countries from the Region) found a prevalence of 4.2%, with the highest prevalence in paediatric and neonatal ICUs (31). The spread of HAIs due to insufficient WASH services and the application of prophylactic antibiotics after birth – in some countries applied to up to 90% of women (32) – can also raise the risk for the spread of AMR.

The link between the provision of adequate WASH services in health care facilities and maternal and newborn health has been scientifically proven. Inadequate or insufficient WASH provisions compromise safe births and may be responsible for delays in care-seeking of mothers (27). Two main patterns have been identified through which WASH services affect maternal and reproductive health. These are related to 1) what is in the water and 2) what interaction or behaviour have patients related to WASH infrastructure (Fig. 3) (33).

Water quality Ingestion, inhalation or contact with 'contaminated water'	<ul style="list-style-type: none"> Water-system related infections, transmitted through droplets of water (e.g. Legionella) Water-borne infections, transmitted via oral-faecal infections (e.g. Hepatitis E)
Behaviour related to hygiene Availability/location of water and sanitation, logistics of handling them or stigma of biological processes	<ul style="list-style-type: none"> Water-washed infections, with insufficient water for hygiene (e.g. Influenza, COVID-19). Perception of water and sanitation availability, stigma or fear around use of sanitation facility resulting in mental distress or lack of use of health services

Fig. 3 Health effects linking water, sanitation and hygiene with maternal and reproductive health. Adapted from Campbell et al. (33)

The risk of infections, sepsis and death for children and mothers can be reduced by up to 25% through simple measures such as properly practiced hand washing and clean birthing surfaces. This is evident for all stages of maternal and new-born care and in particular during the management of complications such as caesarean sections (34). Multimodal hygiene interventions have been shown to increase the compliance with hygiene regulations of health care workers in Swedish departments of gynaecology and obstetrics (35) and in paediatric and neonatal intensive care unit in Germany effectively, with higher compliance rate of hand hygiene for nurses compared to physicians (36).

The provision of appropriate sanitary facilities in maternal health facilities is important to avert infections, but also to preserve other health aspects of patients. A study from East Kazakhstan investigating the perceived quality of maternity care revealed a lack of bathrooms and shower cabins in maternity wards (37), which may lead to mental distress and avoidance/delay a lack of using of health services.

HAIs may particularly affect pregnant women and newborns. In hospitals in Northern Ireland a number of neonates died from *Pseudomonas aeruginosa* bacteraemia, presumably due to contaminated water outlets in taps from neonatal units (38). The need for adequate water and hand hygiene provisions in new-born care should thus include also proper operation and maintenance to reduce contamination and minimizing risk for susceptible patients.

Gender equity

Gender equity can be ensured through sensible provision of means for menstrual hygiene and decent sanitation services reflecting the needs of all patients.

Providing people-centered quality of care has to respond to individual preferences, needs and values, which require ensuring equitable services (2). Pregnant and menstruating women and girls are disproportionately affected by the limited access to drinking-water, decent sanitation and hygiene facilities (that are accessible, clean and private). This affects the quality of maternal and reproductive health services and the chance to safe menstrual hygiene management and it has consequences on their well-being, mental health and care-seeking behaviours (33) (39) A global survey of 1 million women in 114 countries on quality reproductive and maternal health care revealed that water, sanitation and hygiene was the second most requested need, after respectful and dignified care (41).

As women account for around 70% of healthcare workers worldwide (40), gender considerations are also important for maintaining good occupational health.

However, menstrual hygiene management is a largely overlooked issue within health care facilities of the WHO pan-European Region, but evidence from other settings suggest that it remains a significant challenge for girls and women in resource-constraint settings leading to negative health and social effects (42). Recent studies addressing menstrual health from UK and Germany confirmed that challenges are also faced by girls and women in the pan-European region, including stigma and difficulties to access means for safe menstrual hygiene, including menstrual products, and adequate toilet facilities ^{16, 17}. Though not focused on specific settings, these studies cannot be ignored by health care facilities aiming at providing quality services for all equitably. More research from countries in the Region is needed for an improved understanding of the impact of these issues on health and well-being.

Patient satisfaction

Patient satisfaction and empowerment can be achieved through active involvement in good hand hygiene practices and assessing patients' needs for water and sanitation services.

People-centred services also require empowering patients and respecting their preferences – individuals at different ages, families and communities, are participants as well as beneficiaries of trusted health systems (43). People-centred services lead to an improved experience of healthcare quality and equity. The uptake of hand hygiene practices is an aspect that can be strongly influenced by patient empowerment. Various approaches have been tested to increase empowerment, involvement, and encouragement of patients to participate in hand hygiene promotion (44). Programmes for patient empowerment can be divided into three categories: Education (including information provision), motivation (including visual reminders) and role modelling by peers or superiors (14). A project in the United Kingdom empowered patients with responsibility for their own care, including encouraging patients to

¹⁶ Break the Barriers: Girls' experiences of menstruation in the UK. London: Plan International UK; 2018 [download \(plan-uk.org\)](https://plan-uk.org/download)

¹⁷ focus topic: menstruation experience of girls and women in Germany and throughout the world. Hamburg: Plan International Deutschland e.V.; 2022. [Plan-Umfrage Menstruation-A4-Juli2022-engl-final.pdf](https://plan-international.de/plan-umfrage-menstruation-a4-juli2022-engl-final.pdf)

practice hand hygiene and asking healthcare workers if they have had washed their hands (45).. Findings from a German hospital also suggested that patients find active inclusion on hygiene measures very important and that they are willing to contribute to an improved infection prevention control (46).

Studies on patient satisfaction in hospitals from the Region do not always address environmental aspects or specifically WASH aspects. When these are considered, the results show that patients are often more satisfied with the treatments and the interpersonal interaction with medical staff than with the adequacy of toilets and cleanliness, reported, for example, with lower or the lowest scoring in hospitals in Bosnia and Herzegovina, Poland, Serbia and Turkey¹⁸.

Occupational health

Improving occupational health through safe waste management and environmental cleaning, adequate sanitation, and provision of drinking-water.

As health care workers are the backbone of every healthcare system, proven more than ever during the COVID-19 pandemic, their health and well-being are pivotal for its function. However, staff working in health care facilities face the highest risk for injuries and infections, especially in the area of hygiene and waste management.

Proper hand hygiene and personal protective equipment are not only means to protect patients, health and care workers but essential for a safe care and safety. In the United Kingdom of Great Britain and Northern Ireland, for example, healthcare workers were 7 times more likely than the general public to suffer from severe COVID-19¹⁹.

Sharp injuries of healthcare workers carry the risk of transmitting blood-borne pathogens such as hepatitis B, hepatitis C, HIV or others. In Europe, an annual average of 0.64 needlestick injury (NSI) per healthcare worker was estimated (47). A Polish study calculated that around 13,567 NSIs occur each year among healthcare worker, with a higher rate for nurses compared to doctors (48). Even healthcare students were at high risk for NSIs as a study from Italy found (49). There is alarming evidence from both studies, that the number of unrecorded cases was even higher than the officially reported number (48, 49). While injuries may occur during medical procedures, a significant risk is posed by inadequate segregation, management and handling of sharp waste. Risk of NSIs is also reported documented for housekeepers, cleaners, observed, for example, in Portuguese hospitals housekeepers had with the highest

¹⁸ Tengilimoglu D, Kisa A, Dziegielewska SF. Measurement of patient satisfaction in a public hospital in Ankara. *Health Serv Manage Res.* 2001 Feb;14(1):27-35. doi: 10.1258/0951484011912500. PMID: 11246782.

Pękacz A, Kądalska E, Skoczylas A, Targowski T. Patient satisfaction as an element of healthcare quality - a single-center Polish survey. *Reumatologia.* 2019;57(3):135-144. doi: 10.5114/reum.2019.86423. Epub 2019 Jun 28. PMID: 31462828; PMCID: PMC6710846.

Haller A, Haller A, Tirić D, Tomić V. Assessment of mothers' satisfaction with health care during childbirth in a tertiary-level maternity ward. *Med Glas (Zenica).* 2021 Aug 1;18(2):510-515. doi: 10.17392/1373-21. PMID: 34308621.

Matejić B, Milićević MŠ, Vasić V, Djikanović B. Maternal satisfaction with organized perinatal care in Serbian public hospitals. *BMC Pregnancy Childbirth.* 2014 Jan 13;14:14. doi: 10.1186/1471-2393-14-14. PMID: 24410839; PMCID: PMC3916080.

¹⁹ Mutambudzi M, Niedzwiedz C, Macdonald EB, et al Occupation and risk of severe COVID-19: prospective cohort study of 120 075 UK Biobank participants *Occupational and Environmental Medicine* 2021;78:307-314.

contact with waste but the lowest risk perception for NSIs compared to nurses and doctors.²⁰ Studies from countries in the Region reconfirm the need for adequate health care waste management for sharps, supported by protocols and continued education for staff to ensure adherence, as the essential means to reduce occupational risks through infections and injuries and for cross-contamination.²¹

Adequate sanitation is also relevant for healthcare workers as a lack of adequate services may lead to discomfort and a reduced performance at work, but also an increased risk of acquiring infections. Nurses often experience restricted accesses to toilets due to workload and workplace environments. Several studies in different countries outside and inside the Region have shown how this affects their health and ability to concentrate²². Another aspect is the need to guarantee separate toilets for staff and patients. However reality falls sometimes short of the claim, as discussed in the chapter on Data.

Assurance of adequate hydration throughout the working day is important for everyone, in particular for professions with a high physical activity, which may include healthcare workers. Dehydration leads to discomfort and reduced work performance, including lack of concentration, and in severe cases to major adverse health outcomes (54). Therefore, provision of safe drinking-water, with easy access, should be ensured to increase productivity and well-being.

²⁰ Ferreira, Vera, and Margarida Ribau Teixeira. 2010. "Healthcare Waste Management Practices and Risk Perceptions: Findings from Hospitals in the Algarve Region, Portugal." *Waste Management* 30 (12): 2657–63.

²¹ References: • Angelillo, I F, G Nardi, C F Rizzo, and N M A Viggiani. 2001. "Dental Hygienists and Infection Control: Knowledge, Attitudes and Behaviour in Italy." *Journal of Hospital Infection* 47 (4). I.F. Angelillo, Medical School, Univ. of Catanzaro Magna Graecia, 88100 Catanzaro, Italy: 314–20. <http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L32631869>.

• Yüzbaşıoğlu, Emir, Duygu Saraç, Sevgi Canbaz, Y Sinasi Saraç, and Seda Cengiz. 2009. "A Survey of Cross-Infection Control Procedures: Knowledge and Attitudes of Turkish Dentists." *Journal of Applied Oral Science : Revista FOB* 17 (6): 565–69. doi:10.1590/S1678-77572009000600005.

• Ferreira, Vera, and Margarida Ribau Teixeira. 2010. "Healthcare Waste Management Practices and Risk Perceptions: Findings from Hospitals in the Algarve Region, Portugal." *Waste Management* 30 (12): 2657–63.

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• Tamburlini, Giorgio, Gelmius Siupsinskas, Alberta Bacci, Maternal, Neonatal Care Quality Assessment Working Group, and others. 2011. "Quality of Maternal and Neonatal Care in Albania, Turkmenistan and Kazakhstan: A Systematic, Standard-Based, Participatory Assessment." *PLoS One* 6 (12). Public Library of Science: e28763.

• Botelho, Anabela. 2012. "The Impact of Education and Training on Compliance Behavior and Waste Generation in European Private Health care facilities." *Journal of Environmental Management* 98 (1): 5–10. doi:10.1016/j.jenvman.2011.12.003.

²² Xu D, Zhu S, Li H, Gao J, Mou H, Wang K. Relationships among occupational stress, toileting behaviors, and overactive bladder in nurses: A multiple mediator model. *J Adv Nurs*. 2019 Jun;75(6):1263-1271. doi: 10.1111/jan.13940. Epub 2019 Feb 10. PMID: 30585354.

Pierce HM, Perry L, Gallagher R, Chiarelli P. Delaying voiding, limiting fluids, urinary symptoms, and work productivity: A survey of female nurses and midwives. *J Adv Nurs*. 2019 Nov;75(11):2579-2590. doi: 10.1111/jan.14128. Epub 2019 Aug 5. PMID: 31236988.

Kok G, Kocaoz S, Guvenc G, Akyuz A. Prevalence of lower urinary tract symptoms in nurses and civil servants working at a hospital: a cross-sectional study. *Afr Health Sci*. 2021 Mar;21(1):220-229. doi: 10.4314/ahs.v21i1.29. PMID: 34394301; PMCID: PMC8356616.

Staff working in health care facilities are exposed to chemical hazards, one of which are cleaning agents (55, 56). These may cause skin burn and respiratory effects when not used properly (57). Secure handling, storage and proper training based on protocols can reduce the negative health effects of this.

Climate change adaptation and mitigation

WASH in health care facilities and climate change are closely connected, for example through mitigation of green house gas emissions and adaptation to natural disasters.

Climate change and health are closely interlinked and dependent on each other, with the healthcare sector being responsible for around 4.4% of global greenhouse gas emissions (79), while health risks and losses are exacerbating through global warming and its direct and indirect consequences (80). Though there is limited evidence yet on the links between climate change and WASH services in health care facilities. In the light of observed and projected impacts of climate change in the WHO European Region²³, in particular the highlighted need for disaster resilience of health care institutions, it is likely that these impacts will increase, but there is a need for more evidence on this topic.

The number of natural disasters has been rising in the past years in Europe (83). Natural disasters are highly disruptive events that threaten lives and livelihoods. The protection and maintenance of public services within health care facilities should be a priority in these situations to avoid further health losses. Extreme weather events resulting from climate change threaten the infrastructure and performance of health care facilities, including the provision of WASH services. Water provision and waste management is explicitly mentioned under the *Hospital Safety Index* for emergency and disaster preparedness (84). Waste management is at risk for collapsing in emergency situations, while an accumulation of hazardous waste due to a malfunctioning infrastructure is a threat to human and environmental health (85). Floods may negatively affect sanitation systems and water provision, depending on the local infrastructure (86). In coastal regions, sea-level rise may flood sewage systems or increase the salinity of local water aquifers (86). An assessment on Greek islands, which are prone to different natural disasters and water shortage, identified a higher preparedness in hospitals compared to healthcare centres and health posts in terms of water and energy reservoirs (87). Hence, targeted intervention for disaster preparedness and response, adapted to the local settings and capacities are needed to ensure the maintenance of essential WASH services within health care facilities.

In addition, it is essential that health care facilities take over responsibility to mitigate their environmental impact, with waste management being a priority area for action. The National

²³ Cissé, G., R. McLeman, H. Adams, P. Aldunce, K. Bowen, D. Campbell-Lendrum, S. Clayton, K.L. Ebi, J. Hess, C. Huang,

Q. Liu, G. McGregor, J. Semenza, and M.C. Tirado, 2022: Health, Wellbeing, and the Changing Structure of Communities.

In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment

Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska,

K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University

Press, Cambridge, UK and New York, NY, USA, pp. 1041–1170, doi:10.1017/9781009325844.009.

Health Service (NHS) in the United Kingdom produces one in every 100 tonnes of domestic waste. These are largely disposed on landfills or incinerators and thereby adding to the GHG emission. Recycling of this waste could reduce the GHG impact on the atmosphere and reduce the demand for primary material (81). A reduction of the ecological footprint can also lead to cost-savings. An environmental programme at a hospital in Iceland reduced the usage of disposable plastic of 10 tons/year, with cost-savings of approximately 47.830 € annually (82). Environmental concerns have, however risen through the global COVID-19 pandemic, which built up significant pressure on the health care waste management due to a sudden massive increase of general and infectious waste, in particular from PPE, at the global level²⁴. These trends call for new and innovative ways to reduce the environmental impact of waste, with waste prevention and reduction having the greatest impact²⁵. Waste reduction can be achieved through the implementation of multimodal approaches to promote hand hygiene, as mentioned in the chapters before. Regarding waste recycling or reducing the ecological footprint of production and procurement, there are several examples available from the Region, for example the development of compostable face masks in France ²⁶ or the local PPE production in the UK²⁷.

Other potential areas of interest are the interlinkage between energy consumption and the provision of essential WASH services, such as water pumping, adequate lighting in toilet facilities, incineration or alternative treatment technologies. Due to financial and ecological reasons, the awareness on energy savings in health care facilities rose, opening up the debate on how to maintain at the same time IPC. Studies are available that provide hints for solutions between infection prevention and energy saving: In the UK it was possible to save 33% of energy and 24% of carbon emissions for Legionella control in water systems by reducing the water temperature to 42°C and applying copper and silver ionization²⁸.

However, more evidence is needed to assess the health outcomes of these interventions, their scalability and their impact on the environment in more detail.

²⁴ Global analysis of healthcare waste in the context of COVID-19: status, impacts and recommendations. Geneva: World Health Organization; 2022

²⁵ Global analysis of healthcare waste in the context of COVID-19: status, impacts and recommendations. Geneva: World Health Organization; 2022

²⁶ Masque biocompostable [Biocompostable masks]. Lezinnes: Geochanvre; 2020 (in French)

(https://www.geochanvre.fr/wp-content/uploads/2020/10/200908_MasqueBiocompostable_Geochanvre_Fiche_Produit_UNSl.pdf, accessed 10 November 2021).³⁴. Presenting the first compostable nanofibre mask with FFP2-like filtration capacity – made by Bioinicia and CSIC [website]. Valencia: Bioinicia; 2021 (<https://bioinicia.com/presenting-the-first-compostable-nanofibre-mask-with-ffp2-like-filtration-capacity-made-by-bioinicia-andcsic/>, accessed 10 November 2021).

²⁷ Rizan C, Reed M, Bhutta MF. Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic. *J Roy Soc Med*. 2021;114(5):250–63. doi:10.1177/01410768211001583.

²⁸ Cloutman-Green E, Barbosa VL, Jimenez D, Wong D, Dunn H, Needham B, Ciric L, Hartley JC. Controlling Legionella pneumophila in water systems at reduced hot water temperatures with copper and silver ionization. *Am J Infect Control*. 2019 Jul;47(7):761-766. doi: 10.1016/j.ajic.2018.12.005. Epub 2019 Jan 18. PMID: 30661910.

Environmental pollution

Implementing adequate waste and wastewater management of health care facilities avoid pollution of air, land and water.

The impact of health care waste, both fluid and solid, on water, land and air depend on the method of disposal. Waste disposal through incineration is often considered to be less damaging to the environment compared to other measures. However, priority should be given to alternative processes, techniques or practices that have similar usefulness, but which avoid the formation and release of harmful substances, such as dioxins and furan ²⁹. When this is not feasible, proper handling and modern incineration technology is important, because otherwise it can cause severe harm to human health and environmental sustainability (88). In Greece and Poland the ash of incinerators was found to contain high levels of heavy metals (89, 90) and in Turkey other harmful pollutants such as absorbable organic halogens were found (91). As some of these metals have a high leachability value, adequate measures needs to be taken to avoid a contamination of the surrounding (89).

Wastewater from health care facilities may contain harmful matters such as pathogens, medical residues, chemicals or radionuclide agents. Some of these pollutants have adverse effects on human and animal life and well-being, as well as the integrity of the ecosystem. Data from a Turkish study showed that hospital wastewaters pose an environmental and toxicological risk and that advanced treatment processes should be applied (92). However, a recognizable amount of pharmaceutical residues is disposed via urban wastewater, leading to a generally higher pharmaceutical load to the environment from urban wastewater when compared to hospital wastewater (93). The implementation of measures to decrease pharmaceuticals in wastewater from hospitals was shown to be accepted among relevant stakeholder in a Swiss study (94) (for more information see the paragraph on AMR). Therefore, efficient measures should be implemented to prevent the spread of AMR from health care facilities. Possible actions include the pre-treatment of wastewater from health care facilities that do not go to a central community secondary treatment plant, by development and implementation of improved manure treatment practices and capacity strengthening of environmental authorities to issues and enforce adequate discharge permits³⁰.

²⁹ UNEP (2007). Guidelines on Best Available Techniques and provisional guidance on Best Environmental Practices relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutant. (<http://chm.pops.int/Implementation/BATandBEP/BATBEPGuidelinesArticle5/tabid/187/Default.aspx> accessed January 2017).

³⁰ Delivering safe sanitation for all: areas for action to improve the situation in the pan-European region. Copenhagen: WHO Regional Office for Europe; 2022.
<https://www.who.int/europe/publications/i/item/9789289058438>

3. Status of WASH services in health care facilities in the pan-European Region – the data

WASH services in health care facilities did not receive great attention in the pan-European Region in the past: there has been little scientific research on the topic; there are not enough data to draw a regional situation; there are not sufficient data on conditions of toilets/latrines or wastewater collection or environmental cleaning or on specific settings like primary health care facilities and private facilities; and although governance structures are in place, many gaps and systemic barriers are observed hindering advancement. The information available show a heterogeneous picture, sometimes dependent on the source of the information but also largely dependent on developmental and geographical differences. When segregated and systematically collected empiric data are available, it becomes visible that many facilities in the Region do not reach a minimum level of provisions to protect the health of patient and staff, especially for equitable sanitation services, safe waste handling and standardized cleaning procedures. Provisions for safe drinking-water and hand hygiene stations are common reality in health care settings, with exceptions in specific geographical areas, but important elements such as, for example, easy access to water for drinking, to soap or hand hygiene at toilets are not yet guaranteed. Disparities are observed between rural and urban areas and between levels of care, where primary and rural health care facilities face the most challenges in provision of basic WASH services – lacking, for example, more often cleaning protocols or adequate hand hygiene stations, but also beyond the basic level, having, for example, less often provisions for safe storage of infectious waste. Gaps in WASH provisions at the facility level are sometimes linked with gaps in the legal framework, in particular for sanitation and cleaning, but also for waste management and laundry services. The broad range of legal requirements, not always specific for health care settings, and the spread responsibilities across ministries make it challenging for health care facilities to understand their responsibilities for WASH services and require the development of standards and guidelines. Important governance elements are in place in countries for ensuring WASH or related aspects such as AMR and/or IPC, creating a solid basis for improvement, but streams of work are not always coordinated, policies are not observed being comprehensive of all WASH dimensions or reveal gaps for efficient implementation, especially in the use of monitoring for informed decision-making, planning and allocation of human and financial resources or coordination across sectors and levels of responsibilities.

This chapter presents an overview of the available data and insights on:

- existing conditions and provisions for WASH services at the facility level across countries; as well as
- governance elements in place for ensuring an enabling environment for implementation and improvement of WASH services in health care facilities, including policies and regulations, financing, institutional arrangements and surveillance.

The overview does not comprehensively address the status of WASH in health care facilities for the entire Region, but is aimed to help depicting existing realities to inform on priorities, strengths and gaps. Information was retrieved in particular from global assessments and data collections on WASH, WASH in health care facilities, IPC, AMR and sustainable health care services, such as JMP or GLAAS and others as referred in the text. The overview is also complemented with details and examples from:


- systematic reviews of scientific literature on WASH in health care facilities in the European Region conducted in 2018 and 2019 in English and Russian and national systematic reviews of scientific and grey literature in English national languages for Georgia, Hungary and

Tajikistan conducted between 2016 and 2020 (unpublished data, in the text referred to as “systematic reviews”);

- a rapid review of information collected from 19 countries at a regional meeting on WASH in health care facilities in 2017³¹ (in the text referred to as “rapid review of information collected at the regional meeting”);
- and data from deep-dives (in the text referred to as “country deep dives”) such as situational analysis on conditions and governance conducted in Georgia, Hungary, Montenegro, Serbia, Tajikistan between 2018 and 2020³², (see annex 2); pilot surveys conducted in Kazakhstan and Moldova between 2017 and 2019, and representative data collections between 2016 and 2021 in Georgia, Hungary, Montenegro, Serbia, Tajikistan³². **Error! Bookmark not defined.**; all following a standardised methodology^{33,34} and supported by the WHO Regional Office for Europe.

Data on WASH provisions in health care facilities

Box 4. Practical steps to improve WASH in health care facilities – situational analysis and assessment



1. A critical step for improving WASH in health care facilities is conducting a situation analysis coupled with a recent assessment of current WASH in health care facility services provides a basis for planning and resource mobilization. It can also be used to set incremental targets toward the goal of universal access by 2030. An assessment compiles existing data on WASH in health care facilities coverage at the national and sub-national levels, or if data does not exist, assessments need to be conducted. By using global indicators for WASH in health care facilities, countries can standardize their data and facilitate comparisons and determine progress toward meeting SDGs. For the pan-European Region a *Survey checklist for assessing WASH in health care facilities* is available for public-health experts.

Source: ³⁵

In the WHO European Region there are not sufficient data on minimum provisions for water in health care facilities (in line with indicators defined by the JMP for basic WASH) or any of the other WASH dimensions to calculate regional averages³⁶. According to 2021/2022 JMP

³¹ Improving water, sanitation and hygiene in health care facilities: Meeting report, 27–28 September 2017, Bonn, Germany. Copenhagen: WHO Regional Office for Europe, 2019 (<https://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/publications/2019/improving-water,-sanitation-and-hygiene-in-health-care-facilities-2019>)

³² National situational analysis of water, sanitation and hygiene in health care facilities in Serbia. Copenhagen: WHO Regional Office for Europe; 2020. <https://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/publications/2020/national-situational-analysis-of-water,-sanitation-and-hygiene-in-health-care-facilities-in-serbia.-summary-report-2020>

³³ Water, sanitation and hygiene in health-care facilities: a practical tool for situation assessment and improvement planning. Copenhagen: WHO Regional Office for Europe, 2022. <https://apps.who.int/iris/handle/10665/363511>

³⁴ Understanding barriers to quality of care: an approach for conducting a situational analysis of water, sanitation and hygiene (WASH) and quality in health care facilities. World Health Organization. (<https://apps.who.int/iris/handle/10665/340297>)

³⁵ Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access. Geneva: World Health Organization; 2019

³⁶ WHO/UNICEF Joint Monitoring Programme, washdata.org (Accessed: 08/2022)

reporting³⁶, only a few countries (4-11, depending on the WASH dimension) reported data on basic WASH service provision at the national level available from empiric data collections or surveillance inspections (Fig. 1), covering only less than 2% of the population in the Region. The JMP definitions for basic WASH services in health care facilities are provided in Fig. 4.

Fig. 4 JMP definitions of basic services for monitoring WASH in health care facilities

WATER	SANITATION	HYGIENE	WASTE MANAGEMENT	ENVIRONMENTAL CLEANING
Basic service: Water is available from an improved source* on the premises.	Basic service: Improved sanitation facilities** are usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, at least one toilet accessible for people with limited mobility.	Basic service: Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets	Basic service: Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.	Basic service: Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training.

*In accordance with the JMP definition, improved water sources include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water; **In accordance with the JMP definition, improved sanitation include: flush/pour flush to piped sewer system, septic tanks; ventilated improved pit latrines, composting toilets, or pit latrines with slabs

Source: WHO/UNICEF, 2018 (37)

The majority of these datasets focused on water, hand hygiene or waste management, while aspects related to basic provisions of sanitation services and environmental cleaning are less often addressed. Additional countries (a total of 9-19, depending on the WASH dimension considered) have data available for a specific area, either focusing on a certain type of health care facilities (e.g. hospitals) or setting (e.g. urban areas). The most commonly available data relate to the provision of basic WASH services in hospitals. Data and assessments often address public health care services, except for those countries where health care services are prevalently private.

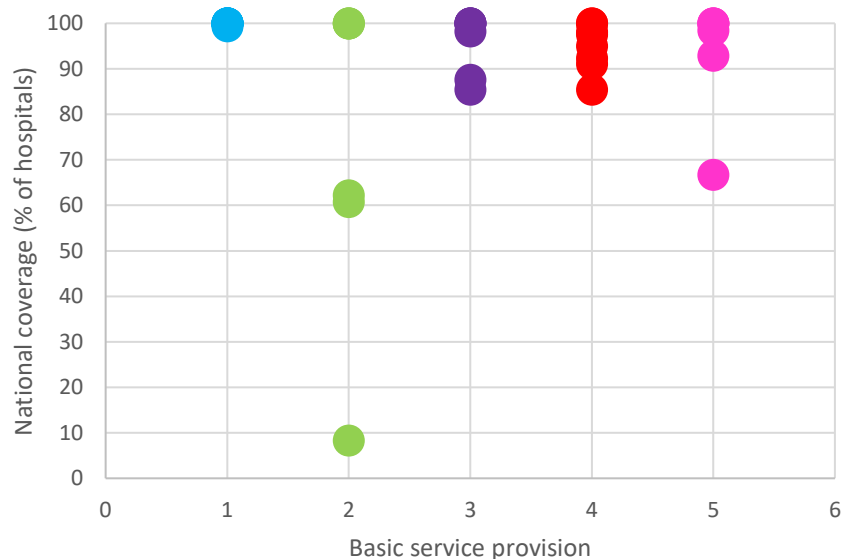
³⁷ Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2018. Available at: <https://apps.who.int/iris/rest/bitstreams/1160058/retrieve>

Fig. 5 Available data on national coverage of basic WASH service provision in health care facilities in countries of the WHO European Region reported in 2021³⁸



Besides the limited number of countries with data on indicators for basic WASH services (national datasets and figures from statistical bodies or the Ministry of Health), scientific research and published scientific articles rarely describe basic conditions related to WASH aspects in health care facilities or compliance with national requirements in countries in the Region. The conducted systematic reviews did not add significantly to the figures available at the national level and provided only limited additional information on basic provisions.

Fig. 6 Available national coverage data from countries of the WHO European Region on basic service provision in hospitals for water, sanitation, hygiene, waste management and environmental cleaning³⁹



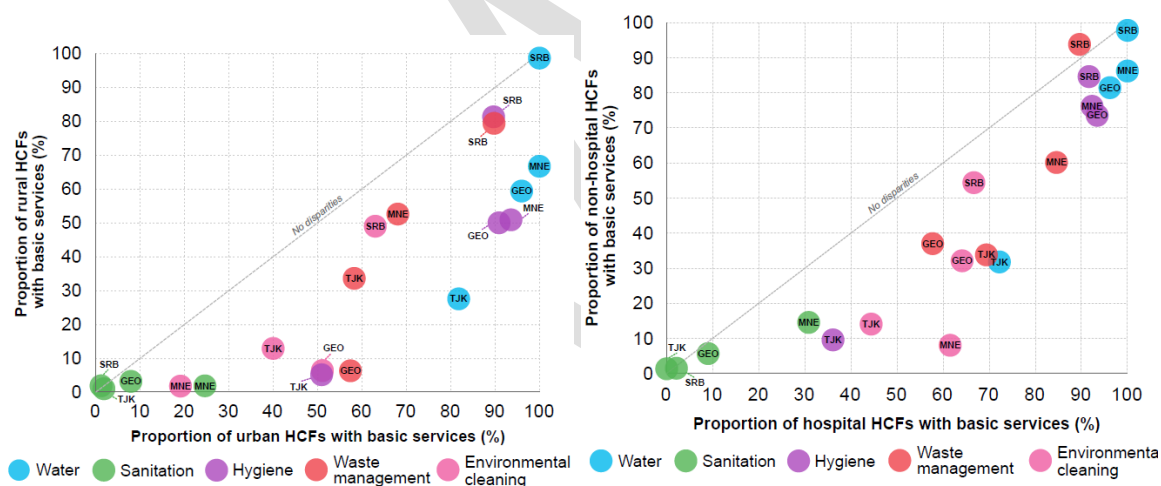
According to the JMP data from the Region, very high or full coverage of basic services was observed for most of the WASH dimensions in many of the reporting countries³⁶, except for sanitation. Similar high coverage was observed for basic water services – except one country in central Asia – and for health care waste management, while the data showed slightly more

³⁸ Reporting countries: Andorra, Armenia, Azerbaijan, Czech Republic, Estonia, Kyrgyzstan, Lithuania, Montenegro, North Macedonia, San Marino, Serbia.

³⁹ Reporting countries: Albania, Austria, Germany, Hungary, Israel, Malta, North Macedonia, San Marino, Serbia. Data from Hungary represent conditions in outpatient departments only.

differences for national coverages of (hand) hygiene, sanitation and environmental cleaning services. Data from the country deep dives showed a more heterogeneous picture and often lower coverage for basic WASH services in health care facilities compared to JMP national estimates (Fig. 5), including for countries for which JMP estimates are available, which might be related to different factors. These factors may include a different level of representativity in estimates from national surveillance used for JMP – as discussed later under the chapter *Surveillance and monitoring* – or differences in the methodology used for data collection⁴⁰ or the use of multiple sources of data under JMP. JMP data on hospitals (Fig. 4) show similar patterns to national overall estimates, but generally with slightly higher coverage of provisions, suggesting possible disparities across types of health care facilities for a few countries, but largely due to the fact that different countries reported either overall or hospital coverages. Disparities could be, nevertheless, confirmed and quantified through the country deep dives, which highlighted how primary and rural health care facilities face the most challenges in provision of basic WASH services and beyond the basic level (Fig. 7). More insights of the conditions for basic WASH provisions in health care facilities in the pan-European Region are presented in the following paragraphs by WASH dimension.

Fig. 7 Segregated data of coverage for basic WASH provisions by health care type and urban-rural settings (data from Georgia, Montenegro, Serbia, Tajikistan)



Water

According to the available data, countries generally had high coverage of basic water provisions. 11 countries reported >97% coverage at the national level⁴¹, and pilot surveys in two additional countries showed a similar situation, indicating that almost all health care facilities were provided with water on premises, available at all times and coming from a potentially safe (improved) source (Fig. 4). This indicator does not provide information on the quality of drinking-water available or the actual accessibility of drinking-water for staff and patients throughout their daily activities or their stay³⁷. Four countries were observed with considerably lower basic water coverage: two with coverage of more than 90% of healthcare

⁴⁰ World Health Organization. Regional Office for Europe. (2020). National situational analysis of water, sanitation and hygiene in health care facilities in Serbia: summary report. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/354708>

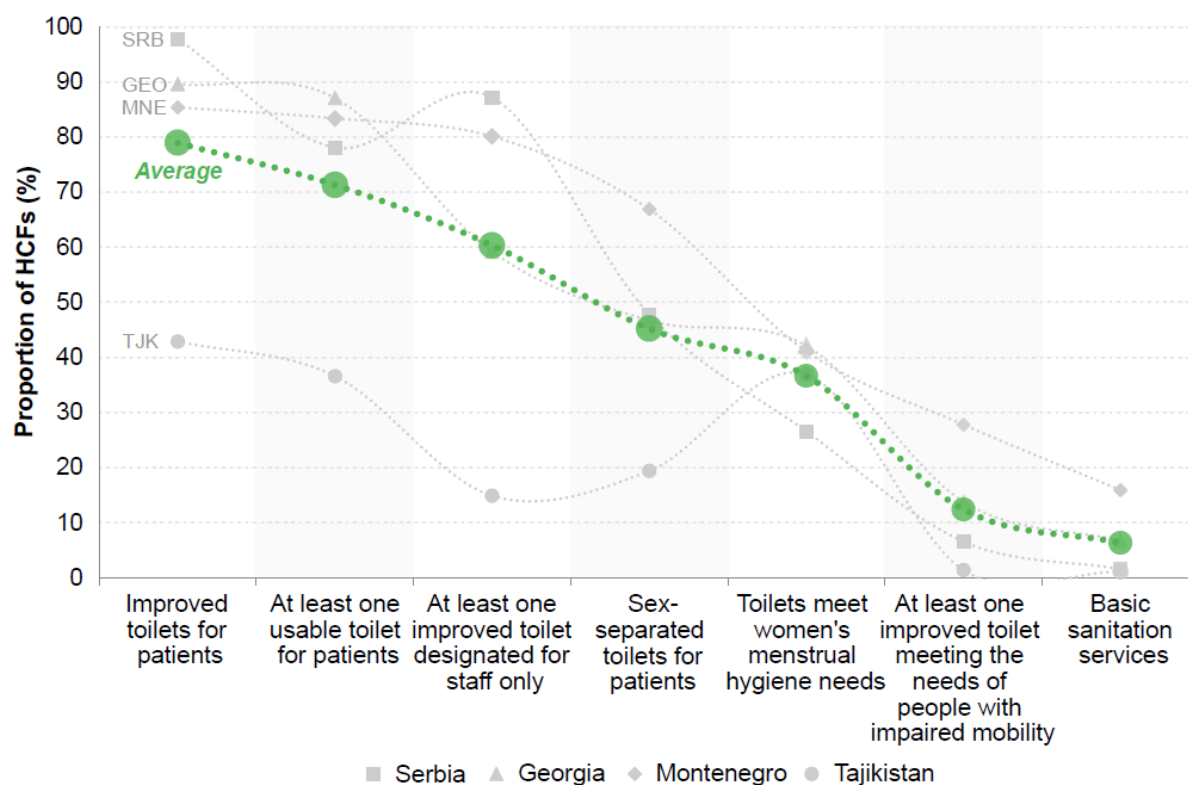
⁴¹ The figures reflect JMP estimates unless more recent or updated data became available through the country deep dives. Data was available for both inpatient and outpatient health care facilities except for one country where only data for inpatient facilities were available.

facilities and two countries of less than 50% of healthcare facilities. The latter two from central Asia. According to the country deep dives, health care facilities not meeting the basic water service level most often lacked any type of water supply (neither centralized nor individual in 1-4% of facilities in 3 countries and 45% in one country), though a little number of health care facilities used potentially unsafe water sources (unprotected dug wells or springs or surface water).

Sanitation

Health care facilities in countries across the pan-European Region were lagging behind basic sanitation provision, mainly due to the lack of provisions related to equitable access. Among the WASH dimensions, sanitation is the one with most diverse figures reported by countries with no evident geographical patterns. According to JMP data, one country in the Region had full coverage of basic sanitation in health care facilities, while two others had less than 50%. Four more countries had data for basic sanitation in hospitals, with two reporting full-coverage and two about 60% coverage. Data from country deep dives, however showed that less than 20% of surveyed healthcare facilities across all levels met all criteria for basic sanitation (Fig. 4). The low coverage was not about the mere presence of improved toilets or latrines, which were commonly in place (flush/pour-flush toilets or pit latrines with slabs) and usable, though a number of facilities faced issues with functionality or (more often) with privacy. Most commonly, sanitation facilities were not meeting the needs of women and girls on menstruation or after giving birth and the needs for people with impaired mobility. Also, many health care facilities lacked separate improved toilets for staff and sex-separated toilets for patients, with very diverse coverage across countries. An overview of the different coverage for individual aspects observed across country deep dives is shown in Fig. 8 The low coverage of sanitation services in countries should be considered in line with the existing national regulations and sanitation standards discussed later in the chapter.

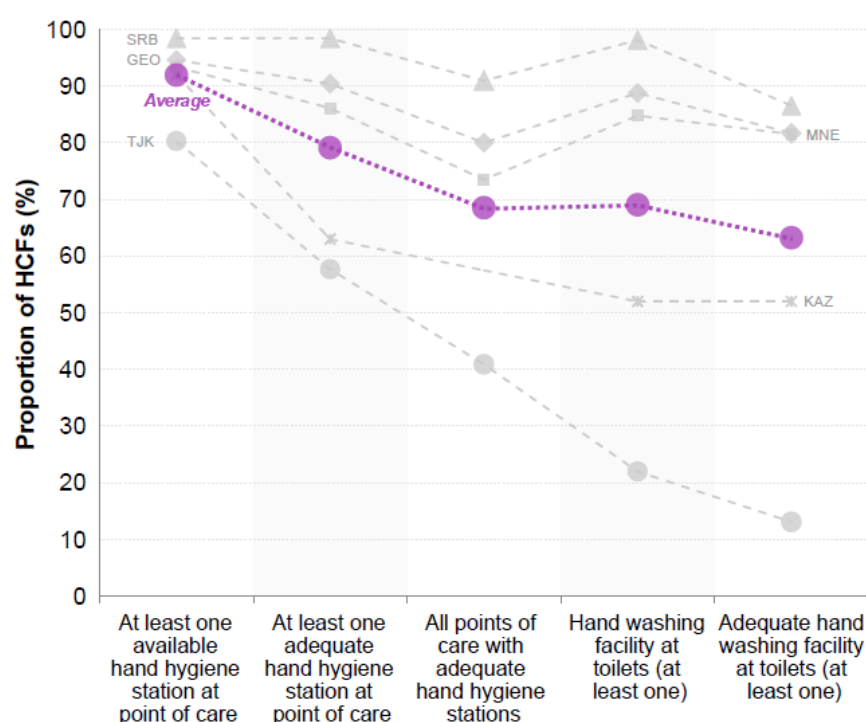
Fig. 8 Data of coverage for basic sanitation segregated by individual criteria (data from Georgia, Montenegro, Serbia, Tajikistan)



Hygiene

High coverage of basic provisions for hand hygiene was reported by several countries, but the situation differs in health care facilities across the Region and universal coverage has not yet been achieved. Data on overall coverage for basic hygiene in hospitals and non-hospitals was available from 11 countries: seven countries reported national high coverage >99%, while four countries reported lower coverages, between 69-86%. Only one country (from central Asia) had particularly concerning low coverage (12%) of basic hand hygiene in health care facilities. Three more countries reported on coverage of basic hand hygiene provisions in hospitals only: two reporting basic hygiene coverage of >98% and one of 88%. According to the insights gained through the country deep dives, universal access to basic hygiene coverage services was mainly hindered by the lack of adequate hand washing facilities at toilets (Fig. 9), because of missing soap and, in some countries or settings, due to the lack of toilets for patients with an adjacent hand-washing facility. Hand hygiene stations at points of care were very often in place across the Region and many – but not all – provided adequate means for hand hygiene, such as water and soap or alcohol-based hand rub. In the current pandemic of COVID19, it should be also noted that basic level only indicates hand hygiene provisions at least at one point of care, but these were not equally observed for all point of cares.

Fig. 9 Data of coverage for basic hygiene segregated by individual criteria (data from Georgia, Kazakhstan (regional), Montenegro, Serbia, Tajikistan)



Health care waste management

Basic waste management provisions were implemented to different extents across healthcare facilities in the Region. According to the available data, basic waste management services were provided to a very high extent with 97-100% of health care facilities in seven countries and in the majority of health care facilities (85-93%) in two more countries. Data on hospitals provisions for basic waste management from four additional countries ranged from 91-98% of coverage. Four countries achieved less than 50% of health care facilities with basic waste management, with the lowest coverage being 39%. Segregated data from the deep dives show that the lower coverage was due the lack of three separate bins for sharps, infectious and non-

infectious waste were not always provided (missing in 10-43% of health care facilities across the considered countries). Other common gaps observed in the provisions for safe segregation of waste at the point of care included using bins not appropriate to the type of waste (6-30% if observed), or not adequately labelled and/or colour coded – in some countries observed in a few facilities (5-6%), but in others observed in a significant number facilities ranging from 22-41%).

When it comes to the treatment or disposal of the infectious waste and sharps, the coverage of potentially safe treatment options was generally high. In several countries, most of health care facilities had contracts with dedicated companies for off-site treatment or disposal of medical waste, incineration and autoclaving were also practiced as treatment procedures (Fig. 9). Unsafe disposal options such as uncontrolled waste combustion (Fig. 11), open dumping, or adding infectious waste to general waste, remain a challenge, in particular in primary care facilities in rural areas, observed to varying extent ranging from 5% to about 20% of facilities in the considered countries, more often observed in central Asian countries, with significantly higher or lower coverage observed at the regional level within countries. Autoclaving is not practiced by many health care facilities, observed only in one country as a common practice for 18% of facilities, all providing secondary or tertiary services.

Fig. 10 Examples of coverage for practiced treatment and disposal of infectious waste in health care facilities in the pan-European region (data from Georgia, Serbia, Tajikistan)

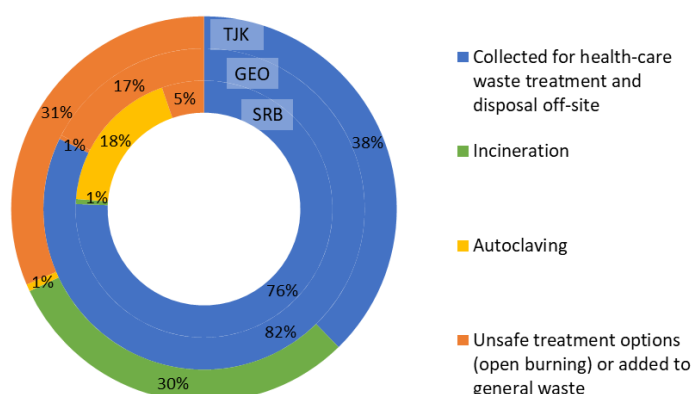


Fig. 11 treatment technology ladder

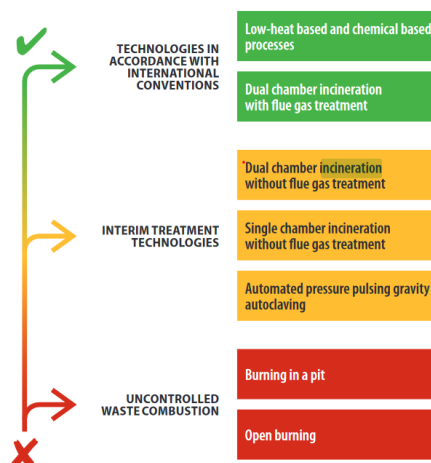
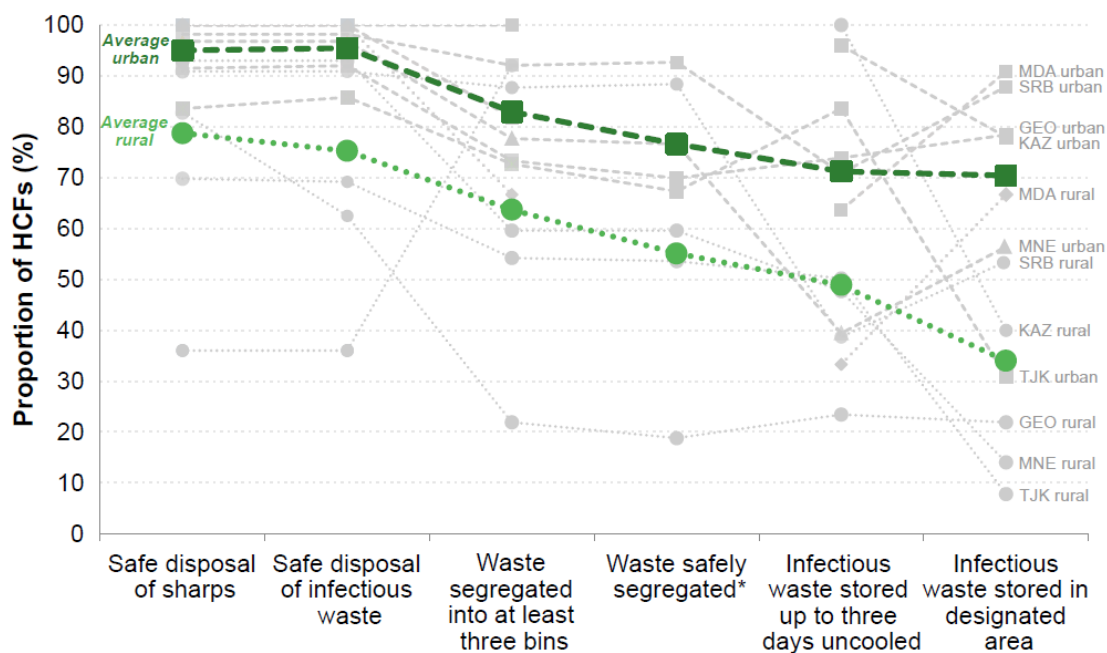


Fig. 12 Data of coverage for waste management segregated by individual criteria (data from Georgia, Kazakhstan (regional), Montenegro, Republic of Moldova (regional), Serbia, Tajikistan)



Non-representative data on two countries from the literature⁴² and the deep-dives shed light on private (specialized) outpatient facilities and the necessity for these facilities to be included in monitoring as gaps in provisions were observed especially for health care waste management. Shortcomings in segregation practices were observed in private facilities in one country, and for both countries in the implementation of protocols and national standards, including on the safe storage of infectious and hazardous waste.

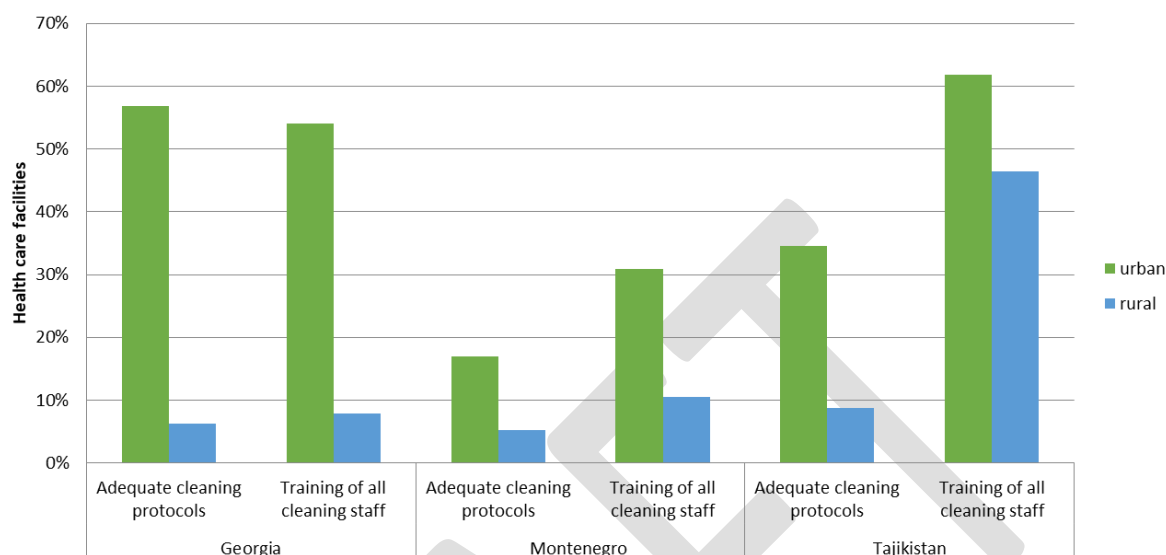
Environmental cleaning

Basic environmental cleaning services – monitored through the availability of protocols and properly trained staff (Fig. 4) – remain a challenge in several countries across the Region. The coverage of the basic service provisions differed to a great extent between the countries. According to the available data, basic environmental cleaning services were broadly provided in 6 countries – with basic level met in 100% of health care facilities in three countries, in 85% of facilities in one country and in the majority of hospitals (93-100%) in three more countries. In four countries less than 60% of health care facilities achieved basic environmental cleaning services, with the lowest coverage being 13%. Segregated data from the deep dives show that the primary reason for the low coverage was the lack of regular structured training for all the cleaning staff, which was well-below 50% in several countries considered, with the lowest coverage being 23% in one country. However, also cleaning protocols are not often in place (with the coverage in facilities ranging from 21% to 85% for countries with available data). Even when available, these protocols frequently lacked one or more important aspects (in 10-57% of facilities with protocols), such as step-by-step cleaning techniques, cleaning frequencies, and / or roles and responsibilities for cleaning tasks. An important aspect to be noted, lack of trained staff may sometimes mean lack of staff at all. A lack of cleaning staff working at healthcare facilities was reported in up to 16% of facilities in the considered countries, of great importance for practical implementation of adequate

⁴² Botelho, Anabela. 2012. "The Impact of Education and Training on Compliance Behavior and Waste Generation in European Private Health care facilities." *Journal of Environmental Management* 98 (1): 5–10. doi:10.1016/j.jenvman.2011.12.003.

environmental cleaning in several countries and of utmost urgency to respond and prepare for outbreaks. Environmental cleaning is a dimension where the disparity across settings and type of health care facilities was particularly evident (Fig. 13), as rural facilities achieved a significantly lower coverage with differences ranging up to 57% compared to urban facilities.

Fig. 13 Examples of coverage for individual indicators of basic environmental cleaning by country and urban-rural settings (data from Georgia, Montenegro, Tajikistan)



Data on WASH services beyond basic level of provisions

A defined level of basic provisions for WASH services in health care facilities is useful to assess the minimum provisions for protecting the health of staff and patients and facilitate comparison across countries and it is defined internationally. Additional aspects have a critical role when ensuring quality health care through adequate WASH services. Data on WASH aspects beyond the basic level have been retrieved through country deep dives and from the literature. The data show that health care facilities in countries of the pan-European region do provide additional WASH services but not with such high coverage.

Water

Aspects beyond the basic level for drinking water may include provisions for improved and continuous water supply, drinking-water quality control, and operation and maintenance of the water source or the water system at the facility. The country deep dives revealed that many health care facilities with an improved water source available on site had continuous supply (or the presence of an alternative improved water source in case of shortages, including packaged water). Coverage of improved continuous water supply among health care facilities (about 90% for the majority of countries) is, however, lower than coverage of basic water services, with some differences between seasons, individual regions within the countries, types of healthcare facilities (higher coverage observed for secondary/tertiary facilities than in primary), and the location of healthcare facilities (higher coverage observed in facilities in urban areas compared to rural areas). Shortages are faced by health care facilities across the considered countries in the Region, in some with seasonal variance (more often reported in summer months), in both urban and rural settings but prevalently in rural settings.

According to the data from the country deep dives, drinking-water quality at point of use is not extensively assessed or monitored – not in all countries and not in all health care facilities, with varying coverage of regular water quality controls conducted by responsible surveillance

agency or by the facility ranging from 22% to 71% health care facilities across the considered countries). Drinking-water quality surveillance may be done centrally by providers elsewhere, but it is also relevant at the facility level especially for those facilities with an individual supply and for bigger facilities with a complex system. When in place, secondary and tertiary health care facilities located in urban areas more frequently reported receiving controls from surveillance authorities than primary healthcare facilities in rural areas. In four countries where water quality was assessed on purpose during the survey (independently from existing regular surveillance programmes)⁴³, country- and regional-specific levels of compliance with the national standards were observed for chemical and microbiological quality. Microbiological compliance of the water quality was more often observed across countries in the Region considered, but still 6-10% of health care facilities with poor microbiological quality of water. Levels of compliance of the drinking-water quality with respect to chemical parameters varied between countries and regions, as more closely linked with the local geographical characteristics. Only in one country, a pilot survey revealed that the majority of health care facilities considered from one urban and one rural districts were not in compliance with quality standards and staff in all facilities indicated the main supply as the preferred source for drinking.

The country deep dives revealed that a substantial number of healthcare facilities – in all six countries where it was assessed with one exception – make use of multiple water sources (in most countries 20%-30% of health care facilities, in one country 74%), keeping the main supply for general purposes (e.g. cleaning) and a secondary water source most frequently used for drinking. Secondary water sources included wells, boreholes, springs, and purchased bottled water. The proportion of healthcare facilities where packaged bottled water was preferred for drinking by staff and patients at the facility varies considerably between countries where this data is available, for two countries being pretty high (79%-96%) and for two countries staying between 20% -30% of health care facilities with a secondary preferred source for drinking.

Aspects often neglected across the countries in the Region are operation and maintenance and more in general risk-based processes to ensure the safety of the water at the facility as protocols and standard operating procedures. Hygiene or safety protocols for the water system were observed in (observed in 5-20% of health care facilities). These plans may cover several critical aspects among: regular controls of the water supply, protocols for incidents with water supply (shortages, leaks, constructions), monitoring of water quality and of implementation, water treatment options, and, less often, preventive measures against water-borne infections and antimicrobial resistance. Although not explicitly obliged by the law, a number of health care facilities of different types and settings across countries reported regularly treating water on-premises either as preventing measure or because of (perceived) poor quality of the drinking-water (generally reported in between 3-6% of health care facilities, but from pilot surveys or surveys from inpatient facilities reaching high coverage of 53-85%) . Reported treatment technologies used across countries in the Region are filtration (Hungary, Kazakhstan, Serbia), boiling (Hungary, Georgia), or chlorination (Georgia, Kazakhstan, Serbia, Tajikistan). Provisions for adequate water operation and maintenance, such as having staff in charge with specific tasks assigned seem, however, to be dependent on the location of the healthcare facility. Unlike facilities in urban areas, those located in rural areas typically lack technical staff in charge of the building's water network, which may affect water supply and quality. From the country deep dives, it emerged that the healthcare staff experienced

⁴³ Kazakhstan, Montenegro, Republic of Moldova, Serbia

difficulties to understand the technical issues related to water accessibility, technical requirements, and operation and maintenance.

Additional challenges that may be faced in health care facilities in the Region, according to the rapid review of information collected at the regional meeting and the deep dives, also include water shortages in winter times, difficulties in the supply of cold and hot water, easy access of drinking-water in common areas and for patients with reduced mobility and a general lack of shower cabins.

Sanitation

Aspects beyond the basic level for sanitation may include, but are not limited to, operation and maintenance of the sanitation infrastructure, and aspect related to safety and easy access. According to the country deep dives, toilets are often close to the point of care (89-95% of facilities in the majority of the considered countries), less often in regions where pit latrines are outside the health care facility (63% in one pilot survey). Adequate lighting, especially of importance for external toilets, is also often observed, but it emerged as an issue in central Asian countries. Aspects related to operation and maintenance are addressed with different level of attention in different countries. Regular cleaning at least once per day, for example, was reported with different degree across the considered countries, at highest observed in 88-90% of facilities in two countries (and in 100% in a pilot survey) and at lowest in 54% of facilities in one country. More frequent cleaning is observed in a significantly lower number of facilities across the countries and observed state of cleanliness seemed often related to the cleaning frequency, with 44-95% of facilities observed with cleaned toilets (when available) in different countries. Routine cleaning may include the supply of consumables such as toilet paper, observed present with similar coverage as the daily cleaning in many countries (up to 1-6% difference), with an exception in one country where toilet paper was rarely observed even though commonly used.

Hand hygiene

Besides basic provisions, ensuring hand hygiene practice requires an enabling climate, adequate environment, continued training and reminders. Data from country deep dives highlighted that even when hand hygiene infrastructure at critical points is present, there is need for increased efforts for ensuring also other enabling factors that facilitate maintaining good hand hygiene practice. For example, adequate hand hygiene stations were observed less frequently in common areas (also for visitors and patients), with different frequency across countries independently from the conditions at the point of care: in less than a third of healthcare facilities in two countries, and between 60 and 90% of facilities in other three countries. Reminders and posters at points of care and other key areas were used in two-thirds or more health care facilities in the considered countries across the Region, except one country, and often followed WHO guidelines on hand hygiene techniques and the five moments for hand hygiene in health care. However, there is need to ensure their presence at all critical points of care and in toilets and it would be beneficial to keep them updated.

Thanks to the data collected through the *WHO Hand hygiene self-assessment framework survey* (HHSAF), it emerged that a high number of hospitals⁴⁴ have staff (on average more than one nurse and a doctor) responsible for infection prevention and control and a high involvement in hand hygiene promotion with good levels of compliance with WHO hand

⁴⁴ Data from the European Region was reported from 29 countries, included a sample of 246 respondent health care facilities, 17% located in middle income countries. Source: Summary Report: Hand Hygiene Self-Assessment Framework Survey 2015/2016
<https://www.who.int/gpsc/5may/hand-hygiene-report.pdf?ua=1>

hygiene recommendations improving over time, with a positive improvement observed especially in the implementation of hand hygiene evaluations and of a favorable institutional safety climate.⁴⁵ Nevertheless, according to the scoring system of the survey, the median overall score for health care facilities in the pan-European region is above 350, third in the ranking by regions and lower than the global median score. These data may present a bias, as they were reported voluntarily by health care facilities, meaning that they represent mainly facilities interested in the topic⁴⁵. Data from the country deep dives confirmed that many facilities in countries across the Region have teams or staff in charge of IPC. However they also showed how they lack continuous structured training over time regarding IPC, including mandatory structured training for all health-care staff at the beginning of employment, followed by annual training, performed in three countries in less than a third of all health care facilities and in one country in about half.

WASH aspects related to IPC and outbreak preparedness

Hygiene elements for outbreak preparedness are of prime importance during and after times of pandemics. In three countries, deep-dives were conducted during the COVID-19 pandemic (Georgia, Montenegro, and Tajikistan in 2020-2021). In two countries, many healthcare facilities were observed with several hygiene provisions for outbreak preparedness. For example, sufficient risk-appropriate personal protective equipment for the healthcare staff were observed in more than two thirds of facilities (75-94%) in two countries and in 37% of facilities in one country. Sufficient stocking of hand hygiene supplies and for cleaning and disinfection supplies were observed in the majority of health care facilities (68-83%) in two countries and in 17-18% of facilities in one country. Procurement plans and budgets for hygiene supplies or cleaning and disinfection supplies were less commonly observed in two countries, while in one country they were commonly in place – in 88-92% of facilities.

Health care waste management

According to the data from the country deep dives, healthcare facilities across the Region had less commonly provisions of waste management services beyond the basic level, such as safe storage practices and standard operating procedures in place for the safe management of waste. Properly storing infectious waste in designated area was observed in less than two thirds of health care facilities across the countries considered in the Region (Fig. 12). In three countries, the designated area was however often not safe, due to issues with respect to the restriction of access or possible risk of contamination – as observed in 31-48% of these facilities. An additional country had issues only in 10% of facilities with the designated storage area. The length of the storage of infectious waste emerged as a possible issue in health care facilities across the Region, observed not in line with WHO recommendations⁴⁶ or national standards (generally up to three days or with cooling) in 42-60% of facilities in four countries. Waste management protocols, required by law in several countries (as described below), are observed across countries, but with very diverse coverage at the national level ranging from 32% to 81% of facilities having protocols for waste management in place in four countries.

⁴⁵ Kilpatrick, C., Tartari, E., Gayet-Ageron, A., Storr, J., Tomczyk, S., Allegranzi, B., & Pittet, D. (2018). Global hand hygiene improvement progress: two surveys using the WHO Hand Hygiene Self-Assessment Framework. *Journal of Hospital Infection*. doi:10.1016/j.jhin.2018.07.036

⁴⁶ WHO. Safe management of wastes from health-care activities. World Health Organization, 2014.

Evidence from across the Region obtained through the systematic reviews stressed also stressed the relevance of continued education for healthcare workers on waste management, as staff in different countries and health care settings may be observed with relatively high risk and at the same time low risk perception due to the lack of knowledge and low understanding of the importance and their own responsibilities for adherence to preventive measures.⁴⁷

Environmental cleaning

Environmental cleaning services beyond basic provisions may include cleaning practices, bed hygiene practices – changing of linen or covers and disinfection of beds and tables –, and the management of soiled linen. According to the information from the country deep dives, the majority of the healthcare facilities (86-90%) in five countries across the Region had facility floors, surfaces, and toilets regularly cleaned at least once per day and whenever soiled. Likely wise, 88-89% of facilities were observed well-maintained, visibly clean (without dust, soil, clutter, or damage). In countries with lower coverage of regular cleaning (with lowest coverage report of 18% of facilities in one countries) seemed to be linked with the lack of appropriate and sufficient cleaning equipment and / or the lack of cleaning staff.

The country deep dives suggested that attention for adequate services for bed hygiene and soiled linen management in health care facilities across the Region is lower compared to other WASH dimensions. The number of health care facilities changing regularly bed linen or table covers between patients and whenever soiled was significantly different among the 5 countries from which national or pilot data is available, ranging from 85% in one country to less than one third (17-28%) in two countries. Disinfection of mattresses and beds was reported as more or less commonly practices depending on the country, with significant differences. Even when used and regularly changed, management of soiled linen also showed needs for improvement with respect to safely practices for storage and transport or laundry. For example, soiled linen were kept in separate bags in 44% of facilities in two countries, 83% in one country and 19% in another country, while pilot surveys from other two countries revealed a coverage between 31 and 64 .

⁴⁷ References(mentioned in chapter on LIT REVIEW too): • Angelillo, I F, G Nardi, C F Rizzo, and N M A Viggiani. 2001. "Dental Hygienists and Infection Control: Knowledge, Attitudes and Behaviour in Italy." *Journal of Hospital Infection* 47 (4). I.F. Angelillo, Medical School, Univ. of Catanzaro Magna Graecia, 88100 Catanzaro, Italy: 314–20.

<http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L32631869>.

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Data on the enabling environment (governance) for WASH in health care facilities

Regulations and policies

Box 5. Practical steps to improve WASH in health care facilities – national standards



3.

National standards and policies for WASH in health care facilities are necessary for implementing, monitoring, and regulating health services. Standards should be comprehensive (including items such as safe health care waste management), specific enough to provide actionable technical guidance, and relevant to the local context. In addition, standards ought to

- meet the needs of vulnerable populations who, for example, might require gender-segregated toilets, menstrual hygiene facilities, or—for those with limited mobility—ramps, handrails, and wide doorways. Once developed, WASH standards ought to be included in quality of care guidance (especially for mothers, neonates, and children), IPC strategies, cholera prevention and control plans, and national quality policies and strategies. One effective way to embed standards into health programmes is by identifying common goals (i.e., reducing maternal and newborn deaths, increasing uptake and satisfaction of care, improving adherence to recommended hand hygiene practices) and jointly monitoring and reviewing progress. Standards should also be accompanied by oversight and sufficient resources for implementation

Source:⁴⁸

Many countries in the Region have a legal framework in place for ensuring many aspects related to WASH provisions in health care facilities. According to a rapid review of information collected at the regional meeting, all participating countries (19) reported having legally binding regulations and/or standards targeting water, sanitation, hygiene or waste management in health care facilities (laws, ordinances and other legally binding documents). Usually WASH requirements are addressed in legally binding documents, while detailed guidelines may be also available. A review of the reported legal references from these countries revealed a great variation between the countries, ranging from the minimum of two legislations up to more than ten per country, the majority addressing one specific dimension or one aspect related to WASH. This was confirmed by the conducted country deep dives, which also revealed that dedicated guidelines or standard operating procedures to allow implementation of the law, in particular of relevance for IPC and environmental cleaning, were not always observed. Identifying relevant policy documents is not always easy as they are not always explicitly addressing health care settings and because responsibilities for regulating such services may be spread across several ministries (health, environment, water, agriculture, energy, etc.): many of the included documents relate to sanitary conditions, which mainly address hygiene and cleaning, or in fewer cases to water and/or sanitation. From the country deep-dives (e.g. in Georgia, Hungary, Serbia, Tajikistan), it emerged that additional provisions for WASH services could be included in existing standards for IPC, specific environmental standards for waste management and wastewater or for the prevention of nosocomial infections, and standards for accreditation and licensing of health care facilities.

⁴⁸ Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access. Geneva: World Health Organization; 2019

The majority of countries in the region have policies for maternal and newborn health and at least 10 countries in the have national standards for delivery of health services specifically for young people (10-24 years of age) ⁴⁹. Requirements on availability of clean water and sanitation in facilities were also found in many of such national policies and/or guidelines, as reported in 82% of 39 countries (92% having such policies in place) responding to a recent WHO policy survey on sexual, reproductive, maternal, newborn, child and adolescent health⁵⁰.

Information collected through the country deep dives (Annex x) confirmed that strong legal frameworks are in place across the Region with legally binding standards and norms addressing many aspects related to WASH in healthcare facilities. However, the analysis also showed gaps and needs to update requirements that are not reflecting the latest recommendations on health and environmental protection by WHO for health care facilities. In all assessed countries a lack of or low attention on quality and acceptability of WASH services (e.g. means for privacy in toilets, access to drinking-water, operation and maintenance) was observed. Provisions for inclusiveness and accessibility of WASH services for people with impaired mobility were rarely observed and none of the assessed countries regulated the provisions for hygienic menstrual management of mothers and women. Linked to this, across the assessed countries, only Hungary and Serbia policies and regulations explicitly embedded the human rights to water and sanitation. Fewer gaps were in general observed in countries that implement directives from the European Union (Hungary, Montenegro, Serbia). An overview on the key characteristics on the legal framework for WASH in health care facilities can be found in Table 3.

Table 3. Overview on legal framework and political leadership from the country deep-dives (information available from Georgia, Hungary, Montenegro, Serbia, Tajikistan)

Dimension	Situation in the countries from the in-depth review		
Legal framework	In all countries a policy framework exists, is approved and is legally binding.		
Comprehensiveness and evidence-based	In one country (TJK) regulations did not address all dimensions of WASH and not all aspects addressed were in line with	In one country (GEO) regulations addressed all dimensions of WASH but not all aspects addressed were	In three countries (SRB, HUN, MNE) regulations addressed all dimensions of WASH and aspects addressed are in line with WHO recommendations

⁴⁹ Information from countries that responded to the Global Maternal, Newborn, Child and Adolescent Health Policy Indicator Surveys (2009–10; 2011–12; 2013–14; 2016) undertaken by the Department of Maternal, Newborn, Child and Adolescent Health; World Health Organization (274)

Global accelerated action for the health of adolescents (AA-HA!): guidance to support country implementation. Annexes 1–6 and Appendices I–IV. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO. <https://www.aidsdatahub.org/sites/default/files/resource/global-accelerated-action-health-adolescents-annexes-2017.pdf>

⁵⁰ Sexual, reproductive, maternal, newborn, child and adolescent health policy survey, 2018-2019: summary report. Geneva: World Health Organization; 2020. Annex 1: Reproductive, Maternal, Newborn, Child and Adolescent Health Policy Survey 201 https://www.who.int/docs/default-source/mca-documents/policy-survey-reports/srmncah-policysurvey2018-fullreport-pt-7.pdf?sfvrsn=f158f37c_2

	WHO recommendations	in line with WHO recommendations	
Inclusiveness and accessibility	In three countries most, but not all aspects related to inclusiveness were found in national policies and regulations. Main gaps were found on accessibility for people with limited mobility.		In two countries policies and regulations explicitly embedded the human rights to water and sanitation and address accessibility.
	No country comprehensively considers essential provisions for menstrual hygiene management.		
National Targets defined (under the protocol on WASH in HCF)*	From one country (HUN) no information was available.	Two countries (SRB+GEO) do not have any targets defined.	Two countries (TJK, MNE) have national targets adopted or drafted.
Political leadership	From one country (HUN) information was not available	In one country (SRB) was only partially observed.	In three countries (TJK, MNE, GEO) political leaders promote and commit to accelerate improved WASH services.

Looking at the different WASH dimensions more in detail from the country deep-dives, drinking-water and hand-hygiene were dimensions with comprehensive requirements in place across countries often in line with WHO standards. Critical aspects were however not covered by the regulations, such as measures to prevent bacterial growth and provisions for standard procedures or protocols for water safety in health care facilities, except in one country (Hungary, see Box). For hand hygiene gaps observed were on the lack of provisions on number and appropriate location of hand hygiene stations for easy access. In addition, training and continued education for hand hygiene, as well as for other WASH aspects such as environmental cleaning and waste management, were commonly observed gaps, with need for legally binding requirements and clear definitions for recurrent structured lessons with a specific target group, to include also non-medical staff.

Box 6. Legionella prevention in health care facilities in Hungary

Water quality in buildings is, reportedly, an often-overlooked risk factor for the occurrence of water-related diseases in Hungary. Legionella is the pathogen associated with premise plumbing that caused most of the cases. To prevent outbreaks, a ministerial decree was adopted containing specific public health requirements: all public facilities were required to assess the risk of Legionella colonization, and priority premises, including health care facilities, became subject to a monitoring obligation.

Furthermore, to support implementation of the decree, the National Public Health Centre produced a guidance document, which contains a step-by-step guide on risk assessment and risk management, including survey templates for the evaluation of good operational

practices. Chemical water treatment aimed at legionella prevention have been introduced and are now in place in many facilities.

Source:⁵¹

Waste management was also observed broadly regulated at the national level across the region, but it showed varying challenges in different countries, ranging from a lack of definition of adequate storage areas, conflicting recommendations not in line with latest WHO standards, to limitation of applicability of requirements only for some levels of care. For environmental cleaning, there is legislation in place in most of the countries, but low attention is given to bed hygiene and laundry requirements in health care settings, with very few countries having some regulations in place on the change of bed linens/bed covers. Sanitation and wastewater norms are observed with the largest gaps in several countries, possibly because the matter is often under the exclusive responsibility of the environment sector: in four countries requirements for safe discharge, treatment and prevention of environmental contamination were missing at the national level or were limited to infections-related care, or general regulations on wastewater were outdated and not implementable in health care settings.

The rapid review of information collected at the regional meeting also revealed that many of the legal references considered relevant or applicable for WASH in health care settings are not specific for health care facilities, but rather cover WASH dimensions in general with varying level of detail. The deficit of explicit focus on WASH in health care facilities denotes a probable negligence of additional requirements, which are highly needed in this particular setting with a high vulnerability of patients and a high burden of pathogens. Yet, the dimensions of water and sanitation are generally represented, but without the focus on health care facilities. An analysis of a number of original documents showed, that in those documents specifically targeting at health care facilities important aspects of water and sanitation are underrepresented. This was confirmed by the information collected through the in country deep dives. For example, regulations on drinking water quality are observed to be in place in general, though these regulations lacked specific requirements to ensure minimum quantities of water for different use and departments in health care facilities, and three countries missed requirements for water used for vulnerable patients (missing in 3 out of 5 investigated countries). Country deep-dives also showed the need for more inclusive or dedicated requirements explicitly targeting smaller, rural and/or outpatient facilities. In some countries, policies tend to be exclusive of small and/or rural facilities which may require decentralized systems and ad-hoc measures for autonomous/smaller scale systems – a matter of particular importance for countries with remote rural areas.

From the conducted country deep dives, it is possible to observe that for some weaknesses and gaps observed in the existing regulations, emerged through the analysis, corresponding aspects were observed with lower coverage of service provision in the health care facilities. This applies in particular to aspects related to accessibility of WASH service for people with limited mobility, but also to provisions for menstrual hygiene management for women, as well as waste management and practices for bed hygiene and laundry.

⁵¹ Fourth reporting exercise under the Protocol on Water and Health - *Summary report of Hungary in accordance with article 7 the Protocol on Water and Health*
https://unece.org/fileadmin/DAM/env/water/Protocol_reports/reports_pdf_web/2019_reports/Hungary_summary_report_4th_cycle_26Apr19_signed_final.pdf

Political commitment, targets and policy implementation

Box 7. Practical steps to improve WASH in health care facilities – political leadership, targets and roadmaps and plans



2.

A critical step for for improving WASH in health care facilities is setting targets and defining a roadmap. These should be supported by a an intersectoral (WASH and health) taskforce or technical working group with formally-defined terms of reference and membership, providing technical and political leadership, and coordinating implementation efforts. Targets and a national roadmap should be defined based on the

situation analysis and assessment, and taking into consideration the special needs of vulnerable groups and underserved areas and facilities.

Across all eight practical steps recommended by WHO for WASH in health care facilities, strong institutional leadership from the Ministry of Health and good governance at all levels (national, sub-national, and facility) of the health system is required.



4.

Most large infrastructure for WASH and health care waste management improvements as well as implementation of operation and maintenance processes require the engagement of finance institutions, government agencies, and contractors. An infrastructure plan can help define the scope of work and outline the costs in a particular facility (primary, secondary or tertiary) and location (urban or rural), including costs and

capacity for ongoing operation and maintenance. Even in health care facilities equipped with advanced WASH infrastructure, this can quickly fall into disrepair without sufficient staff, funds, and systems to maintain it.

Source: **Error! Bookmark not defined.**⁵²

Through the country deep-dives, political leadership on the topic of WASH in health care facilities was reported in three out of four countries. In Tajikistan, the Ministry of Health clearly articulated a commitment to improve the situation of WASH in health care facilities, which was underpinned by the current national priorities, in particular, on maternal and child health and quality health care. Responsible actors also expressed interest to support relevant programmes focusing on WASH and advocating for integrating WASH FIT in the health agenda. Due to the COVID-19 pandemic, governments in other countries increased their commitment to accelerate action on WASH in health care facilities. Under the Protocol on Water and Health, six countries in the pan-European Region^{53,54} reported having set national targets for WASH in health care facilities to drive policy implementation. More confirmed having some related targets, but without specific information under a survey on national systems for WASH⁵⁵ and three more countries were in the development process of targets

⁵² Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access. Geneva: World Health Organization; 2019

⁵³ (Armenia, Azerbaijan, Bosnia and Herzegovina, Hungary, Tajikistan, Ukraine)

⁵⁴ Fourth reporting exercise under the Protocol on Water and Health - Summary reports (4th cycle). Last update date: December 28, 2021 <https://unece.org/environment-policy/water/areas-work-protocol/improving-governance-water-and-health/fourth-reporting-exercise-under-protocol-water-and-health>

⁵⁵ National systems to support drinking-water, sanitation and hygiene: global status report 2019. UN-Water global analysis and assessment of sanitation and drinking- water (GLAAS) 2019 report - data annex tables:

and/or national roadmaps (Kyrgyzstan, Montenegro and Serbia) as reported under the WHO/UNICEF country tracker from 2021-2022⁵⁶. Targets reported under the Protocol often aimed at the improvement of water and sanitation services, typically by a given percentage or targeting a specific number/type of facilities, including hospitals and maternity homes, while two countries (Bosnia and Herzegovina and Hungary) set targets also on capacity development, addressing WASH research in institutions and the development of guidance material for measures to reduce water-related nosocomial infection. Example of targets are listed in Box 8.

Box 8. Examples of targets set on WASH in health care facilities (non-exhaustive)

Country	Target	Target area
Azerbaijan	Providing access of medical and preventive institutions to improved sources of water supply: <ul style="list-style-type: none"> - 85% of facilities by 2019-2020; - 100% of facilities by 2030 	Access to drinking water
Hungary	Reduction of water-related nosocomial infections through the development of guidance on WASH in health care facilities	Reduction of the scale of outbreaks and incidents of water-related disease
Tajikistan	To provide 20 medical facilities (maternity homes) with water supply and sewage systems by 2019	Access to drinking water

Source: 53

Available data for the Region from a survey on national systems for WASH⁵⁵, show, however, that countries with targets for WASH in health care facilities do not always consider critical elements for efficient implementation, such as an analysis and sufficient allocation of resources needed (financial and human) for implementation. Human resources available were reported as sufficient only in 4 countries (total sample: 15). In little more than half of the reporting countries targets are politically endorsed, or shared with the public and reviewed, while 11 countries reported to have done baseline assessments and engaged relevant stakeholders in the process of target setting for WASH in health care facilities.

Under the WHO/UNICEF country tracker from 2021-2022, three countries (Hungary, Tajikistan and Montenegro) reported having a national programme in progress or planned to improve WASH infrastructure and compliance in health care facilities led by Ministry of Health, with accompanying policies, resources & strategies for sustainability. According to a rapid review of information collected at the regional meeting in 2017, programmes with objectives related to WASH in health care facilities have been conducted in several countries (reported in 15 out of 19 countries). For example, the Lithuanian national waste management plan by the government set clear goals for improving waste management including medical waste until 2020. However, unlike the legislative documents, implementation programmes are not always specifically targeted at health care settings; they often address only partially one or

Country data Geneva: World Health Organization; 2019. UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS)

⁵⁶ WHO/UNICEF country tracker (to the 2019 World Health Resolution on WASH in health care facilities) <https://washinhcf.org/country-progress-tracker/> (accessed on 17 June 2022)

more aspects such as waste management or water; or WASH aspects are often secondary objectives or indirectly benefit from the planned measures. Thus, the impact of these programmes for consistent improvement of WASH in health care facilities remains unclear. At the 2017 meeting, when asked about programmes addressing WASH in health care facilities, country representatives rarely mentioned programmes related to IPC or AMR. Such programmes exist in many countries and they should address WASH aspects as they represent critical elements for improvement. Available information for the Region on such programmes is described in the following paragraphs.

WASH implementation through national action plans on AMR and IPC

In 2019 and 2020, the vast majority of the countries in the WHO European Region had an AMR action plan in place at the national level. Out of 50 reporting countries in the Region in 2020-2021, only two countries had no national action plan on AMR and one had no plans to initiate the development (reported instead in Poland) (Fig. 14).⁵⁷ Similarly to the previous reporting cycle, in 2020 many countries (57%) had already been implementing their plan (18) and monitoring implementation of their plan (11). A small number of countries (8) reported an explicit link of their national plans to other existing action plans, strategies or targets related to WASH and there is not sufficient information on whether such aspects address health care settings, where AMR are observed in association with health-care acquired infections (See chapter 4). A global analysis revealed in fact that WASH is often only vaguely referenced in national action plans, with no specificity of the setting, target or means of implementation⁵⁸. In 5 countries the plan was still under development.

Since 2017, 18 countries completed the IPC Assessment Tool (IPCAT2), and 35 countries the IPC Assessment Framework (IPCAF)⁵⁹. The outcomes of these assessments showed significant improvements but also highlighted how countries share many of the same challenges. In 2020, already one year into the COVID-19 pandemic, a significant number of countries reported no IPC programme in place (7) or that existing standards for IPC, WASH, and environmental health were not fully implemented (6) (

Fig. 15). Similarly to the previous reporting cycle, about half of the countries (27) had a national IPC programme in line to the WHO IPC core components guidelines⁶⁰ (where it is stressed how WASH is a critical precondition for IPC in all health care facilities) and guidelines implemented nationwide; while 17 countries reported also that compliance and effectiveness of the programmes are regularly evaluated and published and plans and guidance updated in response to monitoring. More recent data from a smaller sample of countries (28) collected through the State Parties Self-Assessment Annual Reporting on the implementation of The International Health Regulations seem to preliminary confirm these figures also for 2021⁶¹. Challenges observed in IPC align with those observed for WASH services and include⁵⁹: getting and keeping IPC on the national public health agenda;

⁵⁷ WHO, Food and Agriculture Organization, World Organisation for Animal Health. Global Database for the Tripartite Antimicrobial Resistance (AMR) Country Self-assessment Survey (TrACSS) <http://amrcountryprogress.org> (Accessed on 25 June 2022)

⁵⁸ Global progress report on water, sanitation and hygiene in health care facilities: fundamentals first. Geneva: World Health Organization; 2020.

⁵⁹ Global report on infection prevention and control. Geneva: World Health Organization; 2022 [Global report on infection prevention and control \(who.int\)](https://www.who.int/publications/m/item/global-report-on-infection-prevention-and-control)

⁶⁰ World Health Organization. (2016). Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. World Health Organization. <https://apps.who.int/iris/handle/10665/251730>

⁶¹ IHR State Party Self-Assessment Annual Report (SPAR). <https://extranet.who.int/sph/spar>

ensuring the sustainability of IPC programmes with the adequate human and financial resources; developing evidence based guidelines adapted to the local context and needs combined with the absence of accessible quality evidence in a national language; creating or maintaining IPC training and education programmes for a broad range of tasks, levels of education and experience of the healthcare workforce; encouraging reporting of health care-associated infections (HAI); implementing IPC measures using multimodal strategies; and implementing the monitoring and feedback required to ensure IPC interventions are applied correctly.

Fig. 14 Country progress with development of AMR action plans (source 57)

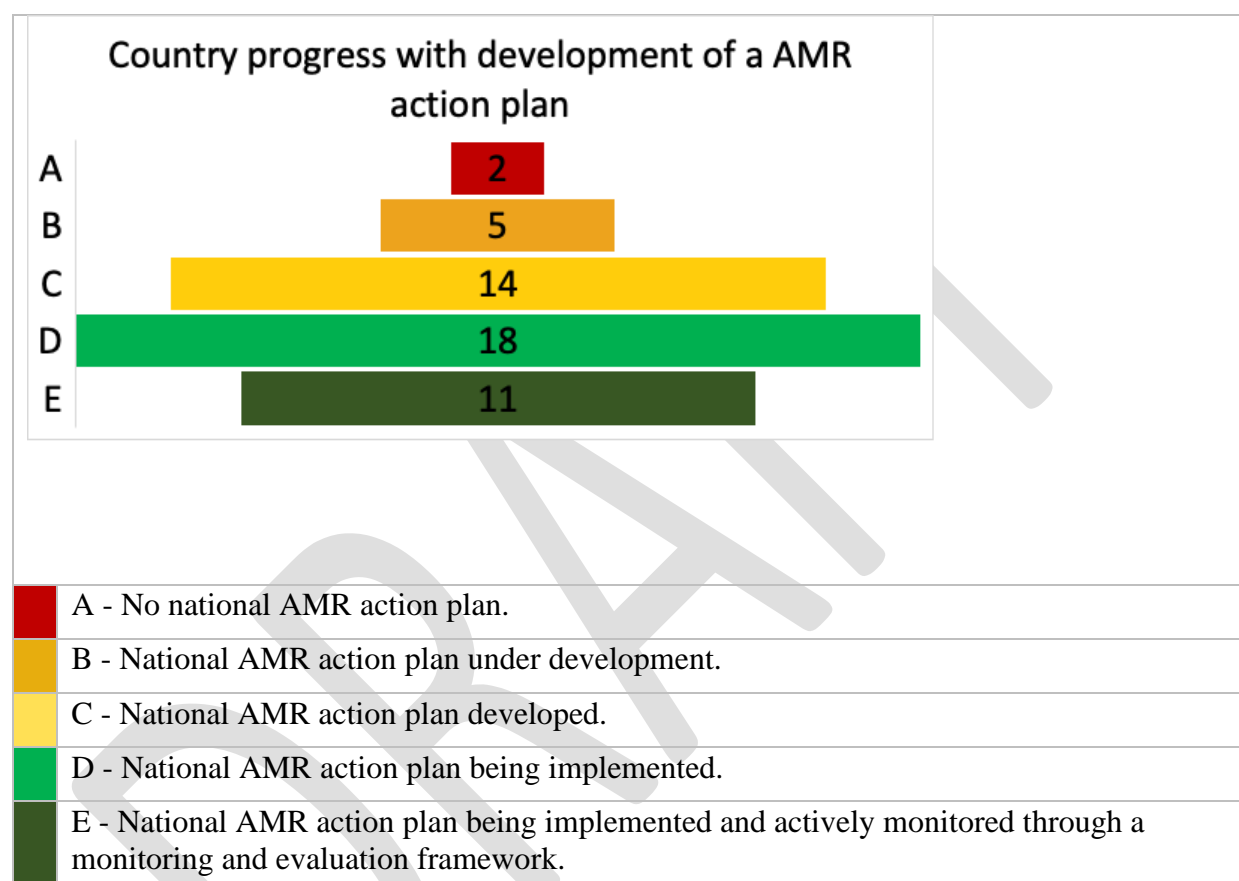
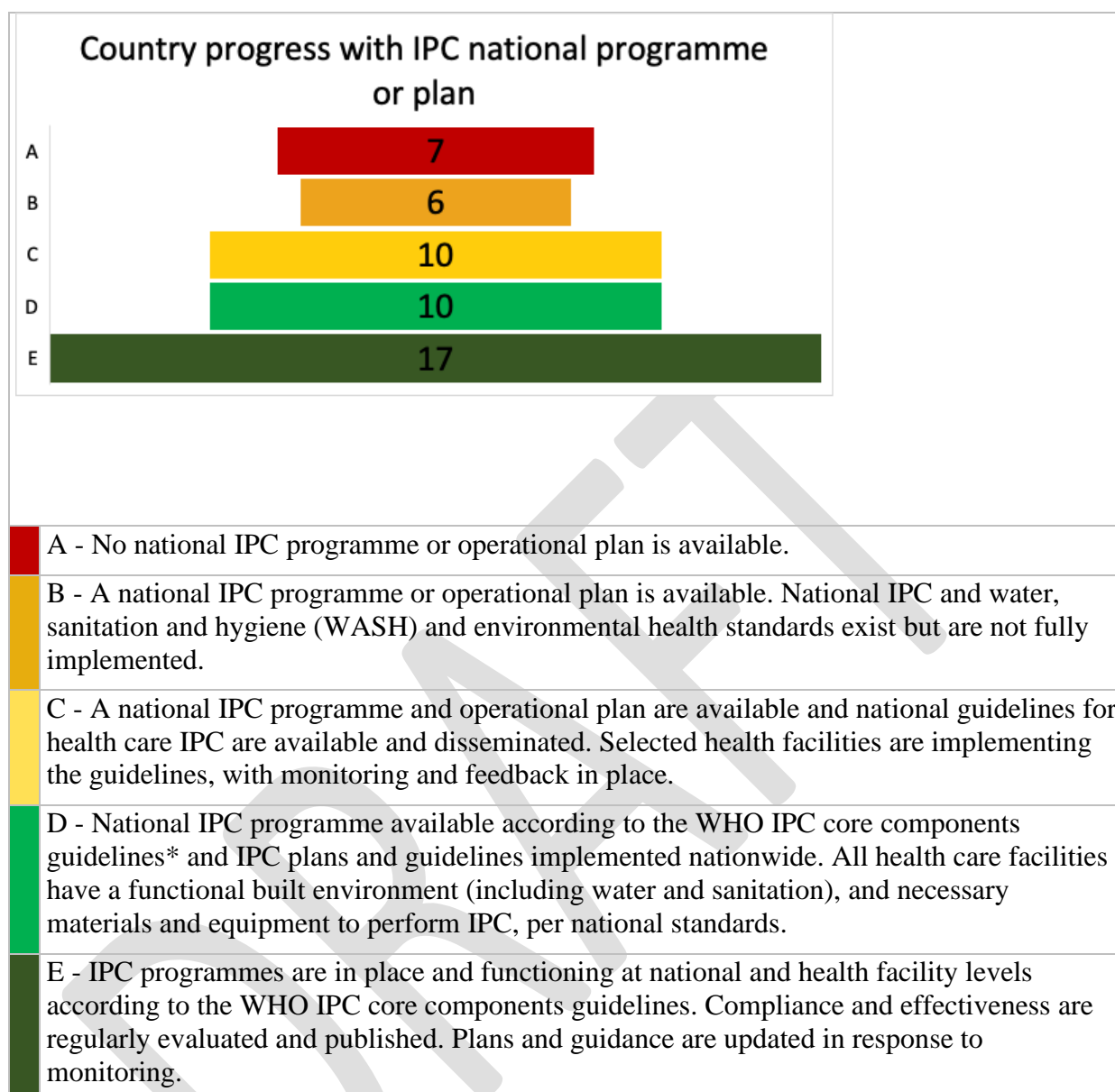


Fig. 15 Country progress with IPC national programmes or plans (source 57)



Financing

A critical element of an enabling environment for WASH in health care facilities is sufficient and informed financing. Available data suggests (summarized hereafter that there are rarely dedicated and adequate mechanisms in place for it but general information on this topic is sparse. From the country deep dives a clear lack in national overview and monitoring of expenditures and budgets for WASH in health care settings could be identified, and WASH expenditures seem to be spread across various unspecific budget lines in some countries, but not all. A dedicated budget line was reported in Georgia and Montenegro. Nevertheless, funding allocations were generally reported by key experts as insufficient or partially insufficient to meet the local needs. These results are in line with the data from the recent survey on national systems for WASH **Error! Bookmark not defined.**, which showed that nine participating countries (out of 15 in total, with 2 countries with no answer) had a financial plan in place (8) or under development (1), and in six the plan was fully implemented. In the survey, six countries could not report on the financial resources for WASH in health care facilities in general and of nine responding countries, only three

considered their WASH budget adequate for funding more than 75% of what is actually needed.

Institutional arrangements and responsibilities

National and local authorities, as well as other local actors (e.g. water providers) or the facility itself are named as responsible bodies for provision and/or enforcement of WASH services in health care facilities⁶². However, the information on responsibility allocation for provision, licensing, maintenance, funding, monitoring and surveillance for WASH in health care facilities is poor and significant differences are reported across the countries. Details from the country deep dives showed that in several countries across the region the governments at the national level are often formally responsible or legally bound to guarantee access to WASH services to the population. This includes the requirement for surveillance of activities to ensure adequate services. Meanwhile, the local administrations (e.g. municipality, local self-government units, counties public utility companies) may be responsible for the implementation and provision of services for water and sanitation at the facility level, e.g. for water supply, sewage, electricity, or waste disposal. While institutional roles for WASH in health care facilities are clearly defined for the different actors involved at the national level, this is not always the case at the local level (reported in one country) or at the facility level (in three countries).

The governmental responsibility for the provision of WASH services is often broadly distributed across different ministries. For example, in Tajikistan water provisions are regulated and supervised by the Ministry of Energy and Water Resources, while other WASH dimensions in health care settings are regulated and supervised by the Ministry of Health and Social Protection of the Population. In Montenegro, the main actors for the provision of WASH in health care facilities at the national level, depending on the dimension, are the Ministry of Health (together with the Institute of Public Health of Montenegro), Ministry of Ecology, Spatial and Urban Planning, Ministry of Finances and Social Care. Also, ministries of environment are often responsible for regulating waste and wastewater management. According to the information collected through the deep-dives, the level of cooperation and of intersectoral working groups differs from country to country, however no country reported an established long-term multisectoral coordination mechanism for WASH in health care facilities. In Serbia, for example, ministerial working groups for policy development and project implementation are often enacted ad-hoc between the Ministry of Health and the Ministry of Environmental Protection.

According to the country deep dives, rural facilities, in particular if they do not have access to centralized water supplies, tend to operate under different conditions than other health care facilities and distribution of responsibilities may also differ. General regulations and enforcement mechanisms may thus not always be applicable for these settings. These facilities, for example, more often rely on an individual water source. In Tajikistan and Hungary standards are in place considering these differences and in (rural) facilities without centralized system the head of facility is legally responsible for the provision of water. In Hungary, health care facilities with individual supply are required to develop a water safety plan. The analysis done in Serbia also revealed that rural facilities, though lacking staff with expertise on WASH (e.g. epidemiologist or hygienist), may have however weakened collaboration with public health authorities.


With respect to monitoring, the rapid review of information collected at the regional meeting revealed that in many countries the state authorities, namely the Ministries of Health and/or

⁶² Regional meeting report

their respective Public Health Institute are the responsible actors for monitoring, and often conduct routine and ad-hoc inspections. In Georgia, the National Food Agency under the Ministry of Agriculture is formally responsible for regulating and monitoring the water quality in the centralised systems. Only in few cases the hospitals are responsible for surveillance. Definitions and indicators of surveillance differ significantly between the countries.

Surveillance and monitoring

Box 9. Practical steps to improve WASH in health care facilities – monitoring and evaluating



5.

Monitoring data can be used to measure progress and hold stakeholders accountable. The best way to track the status or progress of WASH interventions is by monitoring and reviewing indicators on a regular basis. Appropriate data should be shared locally, nationally, and globally so that incremental progress can be documented and priority investments can be made. Indicators for WASH in health care facilities are most easily tracked when they are embedded in existing health monitoring systems. Indicators for WASH in health care facilities can also be embedded in externally-supported, nationally-representative surveys and programme-specific surveys.

Source: ⁶³

According to the rapid review of information collected at the regional meeting, many countries have a surveillance system in place (reported by 17 out of 19 participating countries at the 2017 meeting) — mainly for enforcement purposes – or even monitoring systems for data collection. However, only a few countries could provide empirically collected figures and numbers on the coverage of services related to WASH, while the majority had data on hygiene (12 out of 15 reporting countries). The data reported from these countries was the result of one-off assessments like a study or a project in half of the cases, and in the other half from regular national monitoring. These findings were confirmed by the country deep dives: surveillance systems addressing WASH in health care facilities are in place and differ from country to country, ranging from annual national surveillance, specific monitoring programmes, to recurring ad-hoc assessments on specific conditions. A summary of the results from the country deep-dives can be found in Table 4 and further described in the following paragraphs.

Table 4 Overview on monitoring and surveillance from the country deep-dives

Dimension	Situation in the countries from the in-depth review		
Monitoring systems are in place	In all countries some kind of monitoring system was in place.		
Monitoring comprehensive of all WASH dimensions*	One country (TJK) had several gaps in the surveillance system for	In two countries (GEO, MNE) the surveillance systems did not comprehensive of all WASH dimensions.	In one country (SRB) the surveillance systems comprehensively address all

⁶³ Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access. Geneva: World Health Organization; 2019

	WASH in health care facilities.		WASH dimensions.
Monitoring conducted systematically using surveillance checklists*	One country (TJK) conducted monitoring through individual inspection without checklist.	One country (MNE) is currently developing checklists.	Two countries (GEO, SRB) used surveillance checklists for their monitoring.
Monitoring reflecting international indicators and definitions	In two countries (TJK+GEO) the monitoring did not reflect international indicators.	One country (MNE) international indicators were only partially reflected.	In two countries (HUN, SRB) international indicators were reflected in the standards or in existing monitoring programmes.
Monitoring with national coverage*	In three countries (GEO, MNE, SRB) the national monitoring system had limited coverage.		In one country (TJK) the monitoring system had a national coverage for all health care levels.
National overview of surveillance data available and used to develop, review and implement policies and targets*	In three countries (GEO, MNE, TJK) a national overview surveillance data was not available.		In one country (SRB) a national overview was available, but data were not always used for policy-making.

*n=4 as there was no sufficient information from one country.

In the five considered countries, there were two or more systems in place for assessing the sanitary or environmental conditions in health care facilities, including on WASH aspects. In four countries, for example, the main surveillance system - represented by public health authorities or a dedicated unit under the Ministry of Health – involved the conduction of inspections of the sanitary conditions and quality of health care in line with the national standards routinely as well as in case of new opening, renovations or major complaints or outbreaks. These systems were usually for enforcement purposes only and were not supported by structured checklists for data collection. In two of these countries it was reported that surveillance reports are produced, focusing mainly on the work done and major infractions observed. In another country – where facilities are mostly privately owned –, the main surveillance system in place addressing WASH aspects, among others, is the permitting

system for the assignment of permits/licenses for newly built or renovated health care facilities, also auditing facilities reported/observed with repetitive violation of rules.

Beside these exercises and official mechanisms in place under the responsibility of governmental agents, committees for internal control of the quality of health care or patient satisfactory were reported in place at the facility level, for example in Georgia, Montenegro and Serbia. In Kyrgyzstan, according to the law, everyone has the right to submit an appeal regarding conditions in health care facilities **Error! Bookmark not defined.**

In Hungary, Montenegro and Serbia, the main surveillance is complemented by additional monitoring programmes at the national level that regularly collect thematic-specific or service-specific data from the facilities, such as infection prevention services, hand hygiene, environmental conditions, health care waste management, patient safety, or patient and staff satisfaction and one-shot surveys (on WASH or health-care waste) to inform specific policy-products or planning. These exercises are targeted at data collection and thus use standardized checklist and databases for national overview and evaluation of data. The programme for infection prevention services in Serbia is in place for health care facilities to monitor the hygiene conditions and comprehensively address WASH provisions. This programme in Serbia embedded all WASH dimensions, including indicators for basic WASH provisions in line with international definitions and indicators (adopted by law in Serbia), while other countries covered partially some elements of WASH such as general hygiene, and the presence of handwashing facilities and toilets, without reflecting their usability or accessibility, with two countries showing major gaps, linked with gaps in national regulations and standards (previously described).

In some countries, experts reported that public authorities are limited in their capacity to be prescriptive and oversee provisions or budgeting activities when facilities are privately owned, posing an additional challenge for surveillance and auditing. While only one country out of the five considered was observed with mainly private hospitals, primary health care facilities are were reported as private or partially private in more than one country.

Observed national surveillance and monitoring in place had, however, limited coverage in several countries: only in one of the five considered countries the surveillance system covers all facilities, though limited resource may affect the actual implementation of routine inspections; while in other countries existing system covers up to two-thirds of health care facilities, covering mainly secondary and tertiary facilities located in urban settings or only hospitals. Results from the surveillance and monitoring are commonly not publicly available and only one country had a national overview of WASH in health care facilities in place prior to the deep dive, a critical aspect that enables the targeted implementation of improvement measures. Without the aggregation of surveillance and monitoring data at the national level by one body, and due to the different and complex systems for surveillance in place, it is challenging to retrieve comprehensive WASH data and identify the real coverage. To fill the gaps of or to evaluate the current surveillance, a number of countries in the Region have recently conducted dedicated one-off surveys (Box 10).

Box 10 One-shot surveys of WASH provisions in health care facilities in the WHO European region

At least seven countries in the pan-European Region have conducted comprehensive assessments of WASH in health care facilities to create a baseline and collect an in-depth picture of the conditions of WASH services in health care facilities at the national and local level. Pilots or nationally representative data collections have been conducted with different methods and means depending on the resources available and the objective of the assessment. In Moldova, for example, a dedicated pilot survey was used to gain a quick insight on possible gaps of the routine surveillance and shed a light on the path for achieving the set targets for WASH in health care facilities, identifying priorities for action

and to inform follow-up improvement projects. In Kazakhstan, a pilot survey has been conducted in the context of a broad environment and health development project, to gain information specifically in two priority regions considered as underdeveloped compared to the rest of the country. In Albania and Hungary, a self-reported questionnaire has been collected – in one case to obtain data on core indicators from facilities at all health care levels, in the other to obtain data from inpatient facilities on a comprehensive set of indicators related to environment and health and on IPC, where WASH indicators have been integrated. In Georgia, Montenegro, Serbia and Tajikistan, nationally representative or full-coverage surveys of facilities at all health care level have been conducted through inspections and structured interviews by trained public health experts. The surveys were conducted to compensate the lack of a comprehensive database on WASH conditions in health care facilities or to complement existing data from a limited number of health care facilities.

Guiding factors used by countries for deciding the type of assessments for WASH in health care facilities

<i>Types of surveyà</i>	National survey	Pilot survey	Self-reported survey
<i>Guiding factorsà</i>	Sufficient resources and time	Limited resources	Limited resources
	Lack of national database/baseline for all health care facilities	Limited time	Specific goal <ul style="list-style-type: none">• focus on practices• Assessing administrative aspects or budgeting Existing routinely survey in place where WASH aspects can be integrated
	Monitoring of indicators for policy implementation not yet included in surveillance/monitoring	specific goal <ul style="list-style-type: none">• quick insight (e.g. to inform the need of a bigger survey or to confirm the need of planned projects)• geographical focus• testing of instruments and indicators	
	evaluation of national surveillance/monitoring		

4. The outcome: suggestions for action in the pan-European region

“Today, I {...} make a global **call to action** for water, sanitation and hygiene in all health care facilities... We must work to prevent the spread of disease. Improved water, sanitation and hygiene in health facilities is critical to this effort.” UN Secretary General Antonio Guterres, March 22, 2018.

At the global level, the World Health Assembly resolution WHA72.7 of 2019 on WASH in health-care facilities set the way for responding to the call of the UN Secretary General and WHO&UNICEF have proposed 8 steps (Fig. X) to fulfil the commitments of the resolution and achieve universal health care.

Fig. 16 practical steps to strengthen WASH provision in health care facilities and achieve universal access



Source: WHO, 2019⁶⁴

Action is needed also in countries of the WHO European Region. Every country may face different challenges and see different priorities, but services for water, sanitation, hygiene, waste management and cleaning remain of high relevance regardless the economy and status of the country. The Covid-19 pandemic stressed even more the importance of such services for outbreak preparedness and response across the region.

Based on the data and the evidence evaluated in this publication the following list of action points emerged as priorities for policy makers in the region to achieve the global and regional targets and in their implementation of the WHA Resolution on WASH in health care facilities. Action points are grouped by practical areas or steps suggested at the global level considered of higher priority at the regional level.

⁶⁴ Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access. Geneva: World Health Organization; 2019

Table 5 Suggested action points for countries in the pan-European Region

<i>Practical steps suggested at the global level</i>	<i>Priority areas for implementation of the practical step in the pan-European region emerged from the analysis presented in this report</i>
<p>Step 1</p> <p>Situational analysis and assessment</p>	<ul style="list-style-type: none"> • Close the data on conditions in health care facilities, collecting empiric data from non-hospital facilities, rural facilities. • Establish procedures for collating empirically collected data at the regional and national level for evaluation and informing decision-making.
<p>Step 2</p> <p>Targets and roadmaps</p>	<ul style="list-style-type: none"> • Review country status against the 8 steps to implement the WHA resolution on WASH in health care facilities and monitor progress towards the SDGs. • Strengthen partnership between health care programmes and departments, including: AMR, hygiene, environmental health, epidemiology, IPC, patient safety and quality health care. <ul style="list-style-type: none"> ○ Ensure that every AMR action plan has a component on WASH in health care facilities as a means for prevention and control of the spread of resistant pathogens. ○ Ensure that IPC programmes and responsibilities address WASH services in HCFs (including drinking-water provision, waste management, environmental cleaning and sanitation) ○ Ensure that quality and accessibility of WASH services are considered in national plans and strategies for quality of care, strengthening health systems and people-centred care as the key precondition and basic infrastructure to build upon a strong health care meeting patients' needs
<p>Step 3</p> <p>National standards and accountability mechanisms</p>	<ul style="list-style-type: none"> • Develop dedicated standards and guidelines comprehensive of different WASH dimensions and specific for health care settings • Embed multimodal and cross-sectoral approach in policies for improving quality of care and reducing AMR – addressing WASH and IPC – and vice-versa
<p>Step 4 improve infrastructure and maintenance</p>	<ul style="list-style-type: none"> • Integrating targets for ensuring operation and maintenance in programmes for strengthening quality of care or IPC or AMR control: protocol for safe management of water, sanitation, waste management and cleaning. • Integrating targets for ensuring operation and maintenance in programmes for strengthening quality of care or IPC or AMR control: Provisions for hygiene (soap) and menstrual hygiene management, and adequate cleaning equipment • Strengthen financial resources and in general budget lines for monitoring and allocation of sufficient funds for proper provisions of consumables (e.g. soap), human resources and equipment for operation and maintenance, including waste management and environmental cleaning.
<p>Step 5 monitor and review data</p>	<ul style="list-style-type: none"> • Integrate WASH indicators into existing surveillance and compliance programmes, including for patient safety, IPC, performance evaluation, as well as in accountability systems. In many countries of the European region there are well-networked and/or efficient systems to monitor health care facilities.

	<ul style="list-style-type: none"> • Define health-relevant indicators of priority at the national level beyond the basic level of WASH services, to aspire towards an advanced level of service provisions in all health care facilities, to foster health and well-being and ensure quality of care. • Improve collection, collation of data from existing at the regional and national level to enable the evaluation and use of data for driving improvement and policy-update. • Strengthen dissemination and communication of data across governing, regulatory and implementation bodies to ensure update of the outcome of the surveillance and use of data for decision-making • Integrating PHC in data collection and surveillance systems and incentivizing research in these settings
Step 6 health workforce	<ul style="list-style-type: none"> • Institutionalizing capacity building through standardized programmes for continued education on IPC and WASH for all staff health and non-health to reduce occupational risk and increase performance through adherence to (WASH) protocols • Ensuring resources and capacity of housekeeping staff for waste safety and O&M of WASH infrastructure • Ensuring resources and capacity of cleaning staff for IPC and cleaning practices
Step 7 engage communities	<ul style="list-style-type: none"> • Empowering patients in hand hygiene practices and programmes • Ensuring satisfaction with cleaning and sanitary conditions. Health care facilities should be set the gold standards for WASH services in the community with advanced protocols for risk-based procedures meeting the needs of patients and staff. • Data collections on patient satisfaction across countries should consider the accessibility an acceptability of WASH provisions comprehensively (including drinking-water, menstrual hygiene, etc.).
Step 8 conduct operational research and share learning	<ul style="list-style-type: none"> • Increase understanding on the role and responsibility of health care facilities in the community system as a possible source of risk for the community and the environment • Increase understanding on the role and responsibility of health care facilities in the system as an entry point for strengthening public health awareness on IPC and WASH

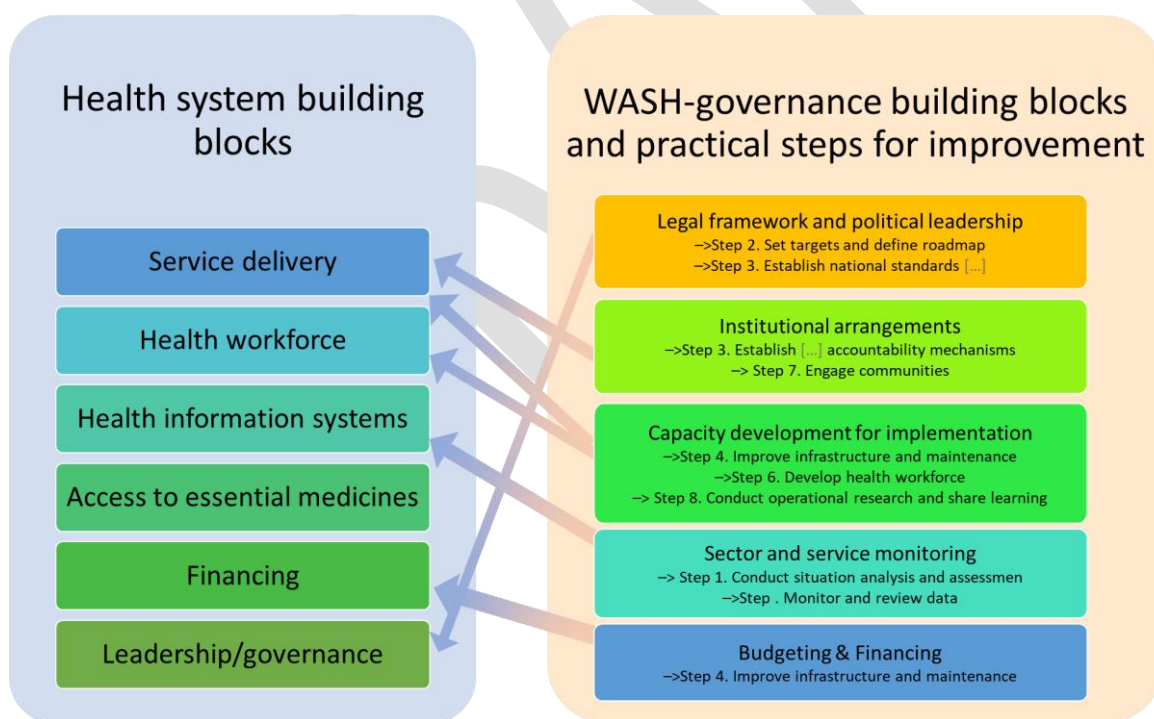
5. The windows of opportunity to strengthening quality of care through improved WASH in health care facilities at the national level

This chapter draws on the previous chapters to discuss opportunities and best practices observed and critical actions to be taken to improve WASH in health care facilities.

Addressing WASH through health system approach for better WASH services and improved quality care at all levels of care

The steps for improving WASH at the national level align and complement the building blocks of health system strengthening⁶⁵ (Fig. 17) and the levers for implementing primary health care-oriented health systems⁶⁶. Health system and quality health care approaches at the national level do not always address WASH services in detailed analyses, performance reviews or policies in place. Data evaluated in this report show how these disciplines are often kept separate, affecting on one side inclusivity and resilience of health care and on the other side the feasibility and efficiency of WASH improvements. Improving WASH services serves at building strong foundations upon which health systems can expand and enhance their medical skills and technologies, while ensuring at the same time equity, sustainability, efficiency, safety and patients' satisfaction. Systems thinking applied to WASH services serves to understand supporting mechanisms as well as the constraints and areas of weakness for implementation of WASH provisions in the complexity of the health care sector, and to apply this understanding to design and evaluate targeted, context-specific interventions. This would contribute at filling the observed gaps in governance structures and practices – such as surveillance and accountability mechanisms, accreditation processes, coordination and planning, financing – to create an enabling environment for ensuring quality of care through improved WASH services at the national and local level.

Fig. 17 Alignment of the dimensions for improving WASH services with the building blocks and functions of health system strengthening



⁶⁵ World Health Organization: Everybody's business: strengthening health systems to improve health outcomes. WHO's Framework for Action. Geneva: World Health Organization; 2007. [Everybody's business -- strengthening health systems to improve health outcomes : WHO's framework for action](#)

⁶⁶ Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2020.

Rethinking health care delivery moving away from the minimum standard towards the best level of quality, equity, occupational health and performance

While today still too many people die from COVID-19, the world has been slowly moving towards recovery from the pandemic, which led to renewed interest and reheated the debate on a different way to deliver health care - rethinking the near and long-term future of hospital⁶⁷ and strengthening primary health care⁶⁸. Health care system which were considered strong showed weaknesses in front of a health and economic crisis such as the COVID-19 pandemic and failed to ensure continued quality care equitably^{69, 70}. At the same time, the COVID-19 pandemic – together with the previous evidence on dissatisfaction of patients and staff and the high burden of preventable infections – showed how minimum standards or basic provisions, including for WASH services, even if not yet universally reached in the European region, are not good enough. Advanced services maximizing the health potential and promoting health of the population, meeting the needs of patients, staff and visitors are necessary to rebuild health care facilities and workforce to ensure recovery, strengthen outbreak preparedness, foster resilience to a changing climate and ensure the satisfaction of patients. The evidence shows how operation and maintenance, capacity building and the engagement of all staff (health workers, housekeeping, cleaners, IPC and clinical teams), standards procedures and protocols are essential elements in the provision of adequate WASH services to ensure any health gain. At the cornerstone of quality service delivery and occupational health, the current “post-pandemic” review of the role of health care facilities in society could be an opportunity to revolutionize the perception of drinking-water points, toilets and waste bins in these settings, among others - rethinking WASH in health care facilities. Health care facilities infrastructure, procedures and practices could set the gold standards for adequate, dignified and equitable WASH Services for the entire community, taking also in consideration their environmental impact.

Minimum legal basis in place and increased awareness on environmental conditions due to the pandemic can be used as a lather to prioritize WASH in national agenda

The existing policy frameworks are a strong basis and governments in many countries across the Region have a legal responsibility to ensure access to WASH to the population and legal frameworks exist to ensure (at least partly) that access is granted also in healthcare facilities. Several countries reported that the COVID-19 pandemic has served as a driver or accelerator at the national level for improving WASH provisions in health care settings. Yet, the data

⁶⁷ [Rethinking the future of hospitals in the WHO European Region](#)

⁶⁸ Primary health care: making our commitments happen. Realizing the potential of primary health care: lessons learned from the COVID-19 pandemic and implications for future directions in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2022. Copenhagen: WHO Regional Office for Europe; 2022. [WHO-EURO-2022-5173-44936-63926-eng.pdf](#)

⁶⁹ Ham C. The challenges facing the NHS in England in 2021 BMJ 2020; 371 :m4973 doi:10.1136/bmj.m4973

⁷⁰ Caimmi PP, Capponi A, Leigh F, Occo FD, Sacco R, Minola M, Kapetanakis EI. The Hard Lessons Learned by the COVID-19 Epidemic in Italy: Rethinking the Role of the National Health Care Service? J Epidemiol Glob Health. 2021 Sep;11(3):266-270. doi: 10.2991/jegh.k.210420.001. Epub 2021 Apr 25. PMID: 33969950; PMCID: PMC8435874.

show how changes have not been as rapid as needed (both at the policy and facility level) and while attention has been gained, WASH in health care facilities remains out of the top priorities, with significant gaps in human and financial resources and limited capacity at the facility level. Significant improvements are still needed at the policy level as numerous factors affect implementation and enforcement of existing legal requirements or their efficacy in ensuring quality of care. The chances presented by newly developed policies or review processes for strengthening the legal basis for resilience and quality of care should be taken seriously to set comprehensive WASH standards and properly plan long-term improvements, including considerations on advanced, equitable WASH services and for sustainability.

In particular, the work on strengthening maternal healthcare and reduction of antimicrobial resistance may not neglect basic WASH provisions for the protection of the health of mothers and newborns. The evidence is clear: WASH services are strongly interconnected with IPC and AMR as well as with outbreak preparedness and many countries policies on reproductive health or IPC already address at least partly elements of WASH. Policy frameworks and rules and regulations set the legal basis for the provision of health care services in all countries. Rules and regulations on topics closely connected to WASH in health care facilities, for example on IPC, already exist and are enforced in several countries in the Region. These regulations can serve as an entry point for integrating requirements on WASH in health care facilities and to ensure, at the same time, that their implementation is imposed. In addition, policy frameworks on health system strengthening provide an opportunity to feature WASH requirements at a high-level. Institutional bodies and professionals working in these areas could be easily encouraged to give more attention to other environmental aspects related to the provisions of WASH of critical importance for the health and well-being of the patients, including hand hygiene, environmental cleaning, adequate and equitable toilets and wastewater management.

Country examples

The European strategic action plan on antibiotic resistance (AMR)⁷¹, adopted by Member States in September 2011, among other priorities promoted the systematic implementation of infection prevention and control (IPC) measures for the prevention and treatment of bacterial infections in health care settings. In the region, addressing IPC through AMR initiatives has been a successful approach given the high commitment of countries to tackle AMR.

The government of Tajikistan, informed from a situational analysis, has been working since 2018 to prioritize WASH services as a means for prevention of nosocomial infections and AMR control. As a result, WASH provisions have been integrated in the national action plan on AMR and in the national health strategy. The Ministry of Health has been also planning the development of dedicated comprehensive standards to complement and strengthen the existing legal framework. The improvements at the policy level enabled strengthening coordination of partners and donors working in the field and the collection of funding for major infrastructural improvements.

⁷¹ Final report on implementation of the European Strategic Action Plan on Antibiotic Resistance. Regional Committee for Europe EUR/RC70/8(E)

Health-care related policies and programmes already in place as possible point of entrance for strengthening of WASH services

Gaps in provisions of WASH services in health care facilities in countries of the pan-European Region are sometimes linked to gaps in policies (e.g. for usable and equitable toilets/latrines), and in some cases to inefficient implementation (e.g. for health care waste management). Many countries have implemented or are implementing WASH-related programmes in place, as well as programmes targeting at environmental sustainability of health care facilities, AMR control, quality of health care, as well as disaster preparedness. Even though explicit reference or action for WASH is not commonly observed, these topics are recognised as having a close interconnection to WASH in health care facilities, strongly supported by the scientific evidence, and could thus be used as an entry point for action. Ongoing and past efforts done to strengthen programmes and implementation of measures for IPC (and control of nosocomial infections) have proven successful and could be an efficient entry point for closing gaps and improving provisions for quality WASH services, especially related to water and wastewater systems operation and maintenance, environmental cleaning and waste management.

The benefits of having inter-disciplinary programmes and policies is manifold: for example, implementation of water, sanitation, and health care waste policies and programmes, taking into consideration climate variability and change, and environmental sustainability, would contribute to ensuring the health and the safety of health care workers, patients and the communities around the health care facilities. Existing programmes and national priorities open a window of opportunity for further strengthening WASH topics in health care facilities (Box).

Country examples

In Tajikistan, the Ministry of Health and Social Protection, with the support of partner agencies, has been working on several programmes for reducing nosocomial infections and improving the quality of maternal and child care as well as to increase vaccination. After the gaps revealed by a situational assessments on health care waste and on WASH in health care facilities, the projects were used among others to strengthen WASH infrastructure and procedures with the support of partner organizations. This allowed planning for the rehabilitation of maternal houses and departments, also addressing the provisions of basic WASH services, and the improvement of health care waste disposal technology as well as the development of new evidence-based standards for the management of health care waste.

Strengthening WASH in institutional mechanisms, data collection and increasing multi-sectoral collaboration

Many countries report of strong surveillance systems for sanitary inspections, accreditation processes or to address outbreaks and complaints. These do at least in part address WASH services or are highly interconnected topics such as IPC. Additionally, monitoring programmes exist for collecting data on aspects often related to WASH but rarely specifically on WASH provisions. There is not one way of improving WASH services, every country has different systems in place and responsible authorities. However, it is true for all that systems in place can be strengthened and expanded to cover WASH aspects and address more health care facilities to ensure high coverage of inspections and data collections. A solid basis is already in place.

Moreover, the COVID-19 pandemic reminded on the role of health across all sectors and the need of the lead by the ministries for health to coordinate investments and responsibilities, suggested by the data as highly needed for ensuring WASH services. Already underpinned by

existing global resolutions (Chapter 3), the process of recovery offers an opportunity to draw a shared vision to join efforts and overcome existing gaps in sources and coordination to ensure that every health care facility has quality WASH services.

Due to the complex institutional arrangements and shared responsibilities across many actors at different levels (national and sub-national and at facility level), systemic coordination is essential for efficiently improving WASH services in health care facility. At the same time, dedicated programmes and efforts for WASH represent an opportunity to bring many different actors and sectors together and make collaboration real.

Country examples

In Tajikistan, a situational analysis revealed the lack of coordination for WASH in health care facilities, a critical challenge exacerbated during the COVID-19 pandemic, considering the significant challenges with WASH infrastructure in the country the numerous partner agencies and donors with increased interest for projects for improving IPC in health care settings. The Ministry of Health has thus established under its lead a WASH coordination group of donors and development agencies, which also address implementation in health care facilities, and regularly meets and reports to the Ministry.

At the international level, the Protocol on Water and Health is an example of a mechanisms for fostering the collaboration between environment and health sector within and across countries of the pan-European Region. Parties to the Protocol are legally obliged under art. 6 to develop environmental health targets informed by evidence and consultation and regularly review progress and target goals. In Serbia, for example, a ministerial working group was established bringing together the Ministry of Health and the Ministry of Environmental Protection to fulfil the legal obligation and implement the Protocol at the national level.

One-shot surveys or targeted assessments are useful to gain a comprehensive overview of WASH conditions in health care facilities. The objective information gained can be used for, establishing national and subnational baselines for target-setting, which can serve several purposes: informed policy-making, programming and planning, for advocacy purposes, or to initiate a dialogue with relevant stakeholders. Where a surveillance systems addressing WASH in health care facilities is already in place, such an assessment can serve to evaluate the quality, completeness and consistency of data collected by the existing surveillance.

Country examples

In 2018-2019, Hungary and Serbia conducted comprehensive situational analyses on WASH in health care facilities.

The assessment in Hungary revealed the need for strengthening provisions for equitable access to WASH services – not emerged otherwise from existing surveillance – and guidance for facilities to ensure and safe management of WASH services, now under development. The assessment also contributed to strengthening the coordination between the environmental health and the IPC departments which are jointly developing national indicators for the advanced level of WASH services.

The assessment in Serbia highlighted improvement needs of the existing surveillance practices, such as the need for segregated data collection by individual indicators or to increase coverage of monitoring to primary health care facilities. It also led to strengthening collaboration between the Ministry of Health and the Ministry of Environment for waste and wastewater management, but also within the different departments with responsibilities for WASH services and environmental cleaning in the Ministry of Health. This resulted,

among others, in the integration of relevant WASH provisions into a new IPC rulebook (a regulatory document). In addition, the formulation of advanced WASH service level indicators was initiated which will be integrated into routine surveillance and monitoring of WASH and for reporting progress towards implementation of SDG 6.

Based on the emerging evidence on menstrual poverty and non-equitable access to menstrual hygiene in the country (reported in Chapter 4), in 2019, National Health Service in England committed to providing free sanitary products to women and girls in all hospitals⁷². In 2022, the Scottish government adopted the period product act, which sets the legal right for free access to menstrual products to be ensured by local health authorities and public service bodies, which may include health care facilities.⁷³

Financial investments in health care delivery and outbreak preparedness addressing WASH in health care facilities have the potential to yield a high return and increase sustainability

In the Region, the observed low funding and lack of dedicate budget lines highlights the vulnerability and dependence of WASH services when no secure funding is available. However, WASH improvements represent a great opportunity for health care facilities and the health care sector to ensure the sustainability of quality service delivery, reduce costs, and to bring together different resources available from different sectors and departments. The finance sector shares a great part of the responsibility for ensuring good WASH services in health care facilities and can have a positive impact.

Clearer budget lines, improved and more regular assessments, and raised awareness on the strong value of investment for WASH services could raise the interest of the financial sector. This would in turn lead to possibly higher capital investments (also finding innovative streams) and fairer, longer-term planning of budgets which would contribute to sustainability of improvements, incentivize sector performance, promote better sector planning and management to maximize value from existing public funding.⁷⁴ The number of political commitments for which WASH provisions are preconditions and the solid scientific evidence on the importance and cost-efficiency of WASH interventions, as a critical component of IPC (Fig. 18), can be used as an argument to advocate and justify increasing and long-term planning of investments, possibly using multiple financial resources from the different sectors involved.

⁷² Press release [NHS England » The NHS in England will offer free tampons and other sanitary products to every hospital patient who needs them](#) 12 March 2019

⁷³ Period Products (Free Provision) (Scotland) Act 2021
<https://www.legislation.gov.uk/asp/2021/1/enacted#:~:text=An%20Act%20of%20the%20Scottish%20Parliament%20to%20secure,by%20all%20persons%20who%20need%20to%20use%20them.>

⁷⁴ Water & sanitation: how to make public investment work. A handbook for finance ministers. New York: Sanitation and Water for All (SWA); 2020 [financial_handbook_en.pdf \(globalwaters.org\)](#)

Fig. 18 Reasons for investing in IPC



Source:⁷⁵

Improving WASH services include numerous low-cost interventions with proven high cost-efficiency, such as point-of-use water treatment, supplying hand washing facilities with soap or ensuring regular cleaning and disinfection. There is sufficient evidence to say that the consequences of non-intervention, however, are very costly.

⁷⁵ Global report on infection prevention and control. Geneva: World Health Organization; 2022. <https://www.who.int/publications/i/item/9789240051164>

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Annex

Annex 1 Goals and countries commitments at the global and regional levels for WASH in health care settings

Call/Comittment	Targets and actions
Global	
Sustainable Development Goals (SDGs) SDG 3 Ensure healthy lives and promote well-being for all at all ages	Target(s) 3.8 Achieve universal health coverage, including ... access to quality essential health-care services...
SDG 6 Ensure availability and sustainable management of water and sanitation for all	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all ... paying special attention to the needs of women and girls and those in vulnerable situations
World Water Day 2018, the United Nations Secretary-General made a global call for action for WASH in all health care facilities Secretary-General, at launch of International Decade for Action, supports new approaches for better managing fresh water scarcity [Internet]. UN Press Release: 22 March 2018 [cited 25 February 2019]. -	Global Call to Action to elevate the importance of and prioritize action on WASH in all health care facilities, including primary, secondary and tertiary facilities in both the public and private sectors. The call recognises the important role WASH plays in preventing infections, saving lives, and improving quality of care. As such, all UN agencies, Member States, and partners are now being asked to invest more in this critical component for health and wellbeing.
Water, sanitation and hygiene in health care facilities. Geneva: World Health Organization; 2019 World Health Assembly (WHA) resolution on WASH in health care facilities adopted at its 72nd session.	The resolution stresses the fundamental importance of adequate WASH services in achieving universal health coverage (UHC) and re-emphasizes attainment of the WASH related commitments, such as expressed by SDGs 3 and 6. The resolution calls upon Member States to improve WASH in health care facilities through conducting, among others, comprehensive assessments of the WASH conditions according to the

	national context, on the base of which follow-up actions should be identified and prioritised.
COVID-19 response. Geneva: World Health Organization; 2020 WHA resolution 73.1 on COVID-19	urges countries to take measures to support access to safe WASH, and infection prevention and control, ensuring that adequate attention is paid to the promotion of personal hygienic measures in all settings, including humanitarian settings, and particularly in health facilities
WHO Manifesto for a healthy recovery from COVID-19: Prescriptions for a healthy and green recovery from COVID-19. (26 May 2020) Actionables for a healthy recovery from COVID-19: Actionables to the prescriptions of the WHO Manifesto (23 July 2020)	Invest in essential services, from water and sanitation to clean energy in health care facilities (health care facilities be equipped with water and sanitation services, including the soap and water)
WHO European Region	
Declaration of the Sixth Ministerial Conference on Environment and Health. Copenhagen: WHO Regional Office for Europe; 2017 Annex 1. Compendium of possible actions to advance the implementation of the Ostrava Declaration. In: Declaration of the Sixth Ministerial Conference on Environment and Health. Copenhagen: WHO Regional Office for Europe; 2017	commitment for action on environment and health priorities, In particular, the compendium of possible actions to the Ostrava Declaration defines that ensuring and sustaining the provision of adequate WASH services in schools and health care facilities should be pursued through systematic situation assessments and by setting national targets and action plans towards progressive improvement.
Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Geneva: United Nations Economic Commission for Europe and WHO Regional Office for Europe; 2006	prioritize action on WASH in health care facilities, as expressed by the programmes of work for the periods 2017–2019 and 2020–2022 as the only multilateral agreement in the WASH domain for the Region it is the primary instrument to implement the global and regional goals on water and health, providing a practical platform for policy dialogue and facilitates the development of integrated policies and targets to achieve universal access to WASH in institutions.

Source: Water, sanitation and hygiene in health care facilities. [Webpage] WHO Regional Office for Europe. (accessed 12/2020; <https://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/schools-and-health-facilities/water,-sanitation-and-hygiene-in-health-care-facilities>)

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Annex 2 Outcome of in-depth analysis of the enabling environment in selected countries of the pan-European region

Information extracted from published and unpublished reports on the country work conducted for the situational analysis of WASH in HCF – focus on policies and enabling environment

Dimensions	Indicators	TJK	SRB	HUN	GEO	MNE
Legal framework and political leadership	A legal framework exists	+	+	+	+	+
	Policy and Regulations, containing national service norms, is approved	+	+	+	+	+
	Policy and Regulations are comprehensive of all dimensions of WASH	-	+	+	+	+
	Policy and Regulations include the human right to water and sanitation and are inclusive	O	+	+	O	O
	Requirements are in line with the WHO Essential standards	O	+	+	O	+
	Requirements are legally binding	+	+	+	+	+
	Requirements are in line with emerging issues (e.g. Legionella, AMR, HAIs and sepsis)	O	+	+	+	+
	Targets under the protocol on WASH in HCFs are drafted or approved	+	-	NA	-	+
	Accountability mechanisms are clearly defined	O	+	NA	+	O
	There is an ongoing national or sub-national plan/programme targeted at implementing and improving compliance with the law for WASH in health care facilities	O	O	+	-	O
	WASH is reflected as a component in programmes targeted at quality health care, health care sustainability, etc.	O	O	O	O	O

	Political leaders promote and commit to accelerate improved WASH services	+	O	NA	+	+
	WASH in healthcare facilities are prioritized	O	O	NA	O	+
Institutional arrangements and capacity development for implementation	Institutional roles are clearly defined	+	+	+	+	+
	Coordination and cooperation are in place: Interdepartmental, intergovernmental, and broader (all relevant stakeholders)	O	+	NA	O	O
	Roles are clearly defined at the local level	+	+	+	O	+
	The national authorities oversee the work of the local authorities for WASH in health care facilities	-	+	+	-	+
	Roles are clearly defined at the facility level	O	O	+	+	+
	Enforcement mechanisms are regulated/in place	O	+	NA	O	O
	WASH dimensions are included in the education of medical personnel (doctors and nurses)	NA	O	NA	+	+
	Structured trainings for non-health staff in healthcare facilities are established and comprehensively address WASH	-	-	O	O	O
	Research is conducted to collect in-depth data on the situation and identify best interventions in the local context	-	+	NA	O	O
Sector and service monitoring	Monitoring systems are in place	+	+	+	O	O
	Monitoring is regularly conducted	+	+	NA	+	+

	Monitoring comprehensive of all WASH dimensions	-	+	NA	O	O
	Monitoring is conducted systematically through use of surveillance checklists	-	+	NA	+	O
	Monitoring measures availability and functionality	O	+	NA	O	O
	Monitoring reflects international indicators and definitions (WHO/UNICEF Joint Monitoring)	-	+	NA	-	O
	Monitoring has a national coverage	+	O	NA	O	O
	Monitoring data are used to develop, review and implement policies and targets at the national level	-	o	NA	+	O
	A national overview on WASH in healthcare facilities is available	-	+	NA	O	O
Budgeting & Financing	There is a specific financial plan/budget line for WASH in place	O	-	NA	+	+
	Monitoring of expenditures and needs is conducted systematically and used for planning	-	-	NA	NA	O
	A national overview of annual expenditure for WASH in healthcare facilities is available, including segregated data for urban and rural facilities	-	-	NA	-	O
	Funding allocation matches government priorities	O	+	NA	NA	O
	Funding allocation is sufficient to meet local needs	-	O	NA	-	O
	Donors investments and projects are coordinated at the national level	O	NA	NA	NA	+