

Compendium of WHO and other UN guidance on health and environment

2024 update



Chapter 12. Priority settings for action



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12. Priority settings for action

12.1 Cities and other settlements



Cities and other settlements can bring many opportunities for better health, a cleaner environment and climate action. Strong urban policies must match these goals since health is essential for fostering good urban livelihoods; building a productive workforce; creating sustainable, resilient and vibrant communities; enabling physical mobility; promoting social interactions; and protecting vulnerable populations. The health and well-being of citizens are the most important assets of a city or other settlement.

This section addresses the main principles of and actions for ensuring better integration of health into the built environment and decisions about spatial planning in cities and other types of settlements. The agenda for mutual and cross-cutting support among the built environment, planning and health is long and opportunities are great. It encompasses multiple levels (e.g. local, regional), numerous stakeholders and many sectors (e.g. transport, housing, land use).

Cities and other settlements should also make use of the opportunity presented by a city mayor who is empowered to take cross-sectoral decisions at the local level, for example about urban planning; transportation systems; purchasing; the supply of energy, water and sanitation; and waste management. Strategic urban planning, management and renewal will be the keys to creating supportive and enabling environments for health, and ensuring that health and equity considerations are integrated throughout the planning process and investment period.

Comprehensive guidance on this topic beyond health and the environment can be found elsewhere.¹



Overview

Urbanization is one of the leading global trends of the 21st century and it has a significant impact on health. More than 57% of the world's population lives in urban areas (1), a proportion that is expected to increase to 68% by 2050 (2). As most future urban growth will take place in developing cities (3), this provides policy-makers with a unique opportunity to guide urbanization and other major urban development trends in a way that protects and promotes health.

¹ For additional information, see WHO's guidance on urban health (<https://www.who.int/health-topics/urban-health>).








How do we assess whether a city is healthy?





















A healthy city embodies a dynamic process rather than a fixed outcome, displaying a conscious and continual commitment to the well-being of its inhabitants. A healthy city places people at the centre, investing in human and social capital while promoting inclusivity, trust and ethical values. Balancing the needs of people and the planet, a healthy city prioritizes holistic well-being, weaving health considerations into every facet of policy and governance.



















There exist different indicators that support assessments about whether cities or other settlements are healthy (4–6). However, none of them provides a comprehensive assessment, and using a combination of different indicators should be considered. Despite this, the progress made by cities towards becoming healthier environments can be measured with key Sustainable Development Goals (SDGs) (7) (e.g. SDG 11, Make cities and human settlements inclusive, safe, resilient and sustainable); however, most of the data for the indicators are collected at a national scale and, therefore, provide only an overview of the cities in a particular country, not an individual assessment for each city.

Nonetheless, national governments and the international community should be supportive of efforts to localize indicators and should incentivize plans and initiatives to build healthy and resilient cities through empowerment and financing (e.g. by encouraging peer learning and exchanges among cities to collectively address the issues faced by this process or by strengthening financial support for assessing urban indicators of resilience and health). Indicators should better reflect urban realities, cover gaps and promote action (4).

The Guidance table provides an overview of the most relevant advice from WHO and other UN organizations. The guidance is further classified according to principally involved sectors, level of implementation, instruments and evidence category.

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
1. Create economically and socially viable local communities with accessible and well-connected local amenities. This includes citywide access to safer walking, biking, nature and public spaces, with public transport that supports mobility, recreation, access to services and social interactions, all of which reduce the use of energy and resources (8–11).	 Land use planning	Community; national	Infrastructure, technology and built environment	B
2. Create variety in spatial planning – such as in land parcel size, forms of land tenure and size of housing – to facilitate more socially inclusive public places and green and blue natural spaces (8, 10–12), while considering different population groups (13–15).	 Land use planning	Community; national	Infrastructure, technology and built environment	B, C

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>3. Plan places that are more resilient to climate change and disasters: create well-designed and accessible green and blue spaces that also act as buffer zones and functional landscapes; use preventive and risk-informed approaches in land-use planning to reduce risk exposure; promote compactness, land-use mix and connectivity throughout the city to help create more healthy and equitable proximity lifestyles and reduced dependencies (8, 16, 17).</p> <p>Urban compactness promotes relatively high density in urban settlements (i.e. the opposite of urban sprawl) through mixed-use developments. This should be accompanied by the promotion of public transport and the provision of services and facilities (e.g. hospitals, schools, parks) nearby that are easily accessible by all residents. This model is related to reductions in car-dependency and energy consumption, which directly support action against climate change. It also promotes economically and socially viable local communities, which increase the quality of life of residents.</p>	 Land use planning	Community; national	Infrastructure, technology and built environment	B
<p>4. Design human settlements that are less demanding of resources: protect and restore urban ecosystems; use nature-based solutions, innovative solutions and good practices in production, consumption, waste reduction and disposal to promote health, protect the environment and improve resilience to climate change (8, 10, 12).</p>	 Land use planning  Industry  Environment  Multiple sectors	Community; national	Infrastructure, technology and built environment; other management and control	B
<p>5. Implement interventions in polluting sectors, such as in transport, energy, production and waste management, and promote cleaner indoor air through access to cleaner fuels and technologies for cooking, heating and lighting (9); see also Chapter 2. Air pollution.</p>	 Transport  Industry  Energy  Multiple sectors	Community; national	Other management and control	B
<p>6. Provide well-managed WASH facilities, adequate waste disposal and housing, and access to healthy food (10) (see relevant sections in this Compendium, such as Chapter 3. WASH, Chapter 4. Solid waste, Chapter 12.2 Housing and Chapter 10. Safe and healthy food).</p>	 Water/sanitation  Waste  Housing  Food	Community; national	Infrastructure, technology and built environment	B
<p>7. Redevelop contaminated sites in urban areas to promote healthier environments, and enable vacant land to be used for sustainable urban development (18); see also Chapter 4. Solid waste.</p>	 Waste  Land use planning	Community; national	Infrastructure, technology and built environment	B

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>8. Strengthen institutions to provide integrated urban and territorial planning; increase capacity for integration and participation, and inform and integrate decision-making processes for urban policies with other relevant sectorial policies and interventions, including through the Health in All Policies (or HiAP) framework (8, 10, 19, 20).</p>	 Land use planning  Health	Community; national	Governance	B
<p>9. Perform health and economic impact assessments for urban policies, including health equity assessments, and link these to social and environmental impact assessments; involve communities in the assessment of impacts of local interest (8, 10).</p>	 Land use planning  Health	Community; national Universal health coverage	Assessment and surveillance	B
<p>10. Allocate resources across sectors to account for the expected health impacts of sector-based policies. Use fiscal and other financial mechanisms to influence the urban determinants of health through investments in health-enhancing policies as well as taxation of unhealthy products and practices (8, 10).</p>	 Finance  Health  Environment	Community; national	Taxes and subsidies	B
<p>11. Monitor and track risks to health and well-being for different population groups; monitor the adoption of policies and investments that address these health risks by introducing corrective measures, if necessary; and assess cities' health performance using timely data and targeted indicators (4, 10, 20, 21). To the extent possible, disaggregate the data to identify inequalities between population groups and enable targeted policies (22).</p>	 Health  Environment	Community; national Universal health coverage	Assessment and surveillance	B
<p>12. Develop the necessary capacity, skills, standard operating procedures, training procedures and job functions to enable the public health system to integrate health into urban development and deliver on the New Urban Agenda (8, 10).</p>	 Health  Land use planning	National; community Universal health coverage	Information, education and communication	B
<p>13. Develop a common vision for social cohesion and health equity by adopting a person-centred right-to-health framework that includes the right to access, use and sustainably transform urban environments (8, 10, 20, 23).</p>	 Health  Land use planning	National; community Universal health coverage	Other management and control	B

A – WHO guideline, B – WHO best practice/strategy, C – other UN best practice/strategy
 WASH: water, sanitation and hygiene.

Selected resources for the Guidance table

Please note that only selected references are listed here. Please consult the reference section for all cited resources.

[WHO 2023: Tracking urban health policies: a conceptual framework with special focus on air pollution in African cities \(21\)](#) – This report from the Urban Health Initiative proposes a framework for tracking urban health policies, with a special focus on the impacts of air quality and energy access on human health and well-being in African countries.

[WHO 2023: National programmes for age-friendly cities and communities: a guide \(13\)](#) – This guide, aimed at national authorities and stakeholders, provides suggestions for developing age-friendly cities and communities.

[WHO Regional Office for Europe 2023: Promoting environment and health policies at local level: a policy brief for decision-makers and practitioners \(20\)](#) – This brief summarizes messages from and lessons learned by local authorities across Europe about how to establish effective policies and interventions to provide healthy, sustainable environments for their citizens.

[WHO Regional Office for Europe 2022: Urban planning for resilience and health: key messages – summary report on protecting environments and health by building urban resilience \(16\)](#) – The Protecting environments and health by building urban resilience project aims to support local authorities to establish safe, healthy and sustainable cities; this report summarizes key findings and messages about how to apply environmental and infrastructural planning as important pathways towards building urban resilience.

[UN-Habitat, WHO 2020: Integrating health in urban and territorial planning: a sourcebook \(8\)](#) – This sourcebook identifies a comprehensive selection of resources and tools to help incorporate health into urban and territorial planning.

Additional selected tools and further resources

This list contains additional selected material that is not cited in the Guidance table.

[WHO, UNICEF, UN-Habitat 2024: A guide to creating public space for urban children \(24\)](#)

[Food and Agriculture Organization of the United Nations \(FAO\) 2023: City region food systems programme \[website\] \(25\)](#) – The FAO provides a suite of online guidance, tools and information that offers concrete policy and programme opportunities to support the assessment and improvement of city region food systems to help achieve better economic, social and environmental conditions in both urban and nearby rural areas.

[UN-Habitat, WHO 2022: Integrating health in urban and territorial planning: directory of resources for planning healthy environments \[online database\] \(26\)](#) – This online repository of more than 100 open access resources and tools provides information about the importance of planning and designing urban areas from a health perspective, as well as concrete guidance about how to do this.

[WHO 2022: Strengthening health emergency preparedness in cities and urban settings: guidance for national and local authorities \(27\)](#) – This guidance document is an operational complement to the WHO Framework for Strengthening Health Emergency Preparedness in Cities and Urban Settings (28) and offers adaptable approaches and actions to support national and local policy-makers working across all sectors relevant to health emergency preparedness at the city or urban level.

[WHO 2021: Framework for strengthening health emergency preparedness in cities and urban settings \(28\)](#) – This framework aims to provide an overview of, and insight into, the key areas that national and subnational authorities might consider focusing on to strengthen health emergency preparedness at the urban level and to guide and support the development of policies and capacity-building activities at both the national and subnational levels to strengthen health emergency preparedness in cities and urban settings, based on the prioritization of risks and addressing existing gaps.

[WHO 2021: Local action for health: a repository of WHO resources \[online database\] \(29\)](#) – The database is a repository of WHO-generated resources to enhance action on urban health. It includes tools that provide technical support and build capacity, strategic reports and guidelines, Health Impact Assessment tools and other products relevant to urban health and cities. The repository is a living resource, open to modifications and additions, and is automatically updated each time new products become available.

[WHO 2020: Urban Health Initiative: improving air quality and health in cities. A model process for catalysing change](#) [website] (30) – The Initiative presents a step-wise approach that can help urban leaders to create demand for action for healthier and more climate-friendly cities by making the best use of local data, knowledge, competencies and processes to include health in the development equation.

[WHO 2019: Healthy environments for healthier populations: why do they matter, and what can we do?](#) (31) – This document presents an overview of sectoral actions that can be taken by various actors and the support that is being offered by WHO to create healthier environments, including in priority settings such as workplaces, cities, dwellings, health care facilities and emergency settings. Key risk areas are addressed, such as air pollution; water, sanitation and hygiene (or WASH); chemical safety and radiation; and climate change.

[UNICEF 2018: Advantage or paradox? The challenge for children and young people of growing up urban](#) (32) – This report supports the scaling up of urban programming for children to foster equitable and sustainable development.

[WHO Regional Office for Europe 2017: Urban green spaces: a brief for action](#) (33) – This briefing presents the key findings of a review of research evidence and practical case studies of urban green space interventions; it also assesses implications for practice.

[WHO 2016: Global report on urban health: equitable healthier cities for sustainable development](#) (34) – This report presents evidence that in cities, making progress in health depends on shaping urban environments, and it presents examples of effective actions by cities and nations around the world and their subsequent successes.

[WHO 2015: Measuring the age-friendliness of cities: a guide to using core indicators](#) (35) – This guide provides technical information about developing age-friendly cities by selecting and using core indicators to establish baselines, set goals and targets, and monitor and evaluate initiatives.

[WHO Regional Office for the Western Pacific 2015: Healthy cities: good health is good politics. Toolkit for local governments to support healthy urban development](#) (36) – This provides tools to support and strengthen the efforts of local leaders in applying the Healthy Cities approach.

[UN-Habitat: Global Land Tool Network](#) [website] (37) – The Global Land Tool Network is an alliance of international partners committed to increasing access to land and tenure security for all, with a particular focus on people with limited financial resources and women. It uses a rights-based approach. The network's partners include international civil society organizations, research and training institutions, bilateral and multilateral organizations, and international professional bodies.

12.2 Housing



Improved housing conditions can save lives, prevent disease, increase quality of life, reduce poverty and help mitigate climate change. Housing is becoming increasingly important to health in light of urban growth, ageing populations and climate change.














This section addresses the main principles and areas for action to improve housing conditions and provide healthy and sustainable housing for all. Multiple co-benefits for health, the environment and social equality arise from addressing the key health risks associated with housing. For example, installing adequate thermal insulation and energy efficient heating can improve indoor temperatures that support health, while also lowering expenditure on energy and reducing carbon emissions.

























Successful implementation of housing improvements requires the government to work together across the local, regional and national level as well as across different sectors including health, housing and energy. As many interventions need to be realized by homeowners and through the support of the private sector, civil society engagement and collaboration with implementing actors – such as housing managers, architects, urban planners, social housing services, consumer protecting agencies, and the building industry – is crucial.





























Overview

According to UN-Habitat estimates, about 3 billion people – or 40% of the world's population – will need access to adequate housing by 2030 (38). This creates a need for 96 000 new, affordable and accessible housing units every day. Access to safe and healthy housing is a human right and one mechanism through which social and economic inequalities translate into health inequality.

 Guidance	 Sector principally involved in planning/ implementation	 Level of implementation	 Instruments
1. Develop or update strategies to prevent and reduce household crowding (39).	 Housing  Construction  Land use planning	National; community	Regulation
2. Ensure sufficient indoor housing temperatures to protect residents from the harmful health effects of cold. For countries with temperate or colder climates, 18°C has been proposed as a safe and well-balanced indoor temperature to protect the health of general populations during cold seasons (39).	 Housing  Health  Energy	National; community	Regulation
3. In climate zones with a cold season, install efficient and safe thermal insulation in new housing and retrofit it into existing housing (39).	 Housing  Construction  Energy	National; community	Infrastructure, technology and built environment

 Guidance	 Sector principally involved in planning/ implementation	 Level of implementation	 Instruments
<p>4. In populations exposed to high ambient temperatures, develop or update strategies to protect populations from excess indoor heat (39).</p>	 Housing  Health  Energy	National; community	Regulation
<p>5. Equip housing with safety devices (such as smoke and carbon monoxide alarms, stair gates and window guards) and take measures to reduce hazards that lead to unintentional injuries (39).</p>	 Housing  Health  Construction	National; community	Infrastructure, technology and built environment
<p>6. Make an adequate proportion of the housing stock accessible to people with functional impairments, based on the current and projected national prevalence of populations with functional impairments and considering trends of ageing (39).</p>	 Housing  Construction  Health	National; community	Regulation; governance
<p>7. Fit ceilings, reduce cracks, screen windows, eaves and doors, and reduce aquatic habitats and breeding sources around houses to hinder vectors from entering the house and reduce vector-borne diseases like malaria, dengue or Chagas disease (40).</p>	 Housing  Health  Construction	National; community Universal health coverage	Infrastructure, technology and built environment
<p>8. Access to healthy housing and tenure security (41):</p> <ul style="list-style-type: none"> Promote secure tenure and the availability of housing options, including the neutral treatment of tenure options (such as ownership or renting), in order to encourage the development of adequate supplies of affordable housing. Promote transparent and fair rental markets with a balance of rights and duties between landlords and tenants through adequate legislation and conflict resolution mechanisms in order to facilitate residential and labour mobility. Contribute to well-functioning, efficient, equitable and transparent housing markets and land markets, which respond to different types of housing demand as well as favouring credit access for socially and economically vulnerable population groups, including through alternative forms of funding, such as housing microfinance. 	 Housing  Finance  Land use planning	National; community	Regulation; governance
<p>9. Introduce loans and subsidies to support homeowners in implementing housing improvement interventions (39).</p>	 Housing  Finance	National; community	Taxes and subsidies
<p>10. Develop or update legislative and regulatory codes to control the design and construction of new dwellings to ensure that the necessary and appropriate precautions and sustainability measures are incorporated to protect against the identified potential threats to health and safety (42).</p>	 Housing  Construction  Health	National; community	Regulation

 Guidance	 Sector principally involved in planning/ implementation	 Level of implementation	 Instruments
<p>11. Develop or update national and local policies and programmes with defined, prioritized target areas where the most serious conditions in the existing housing stock are likely to be present (42).</p>	 Housing  Construction  Health	<p>National; community</p>	<p>Regulation</p>
<p>12. Raise awareness and educate all those involved in the design, construction, management, maintenance and repair/rehabilitation of housing and building-related equipment about the links between housing conditions and health (42).</p>	 Housing  Construction  Health	<p>National; community</p> <p>Universal health coverage</p>	<p>Information, education and communication</p>
<p>13. Conduct public awareness campaigns to enable householders to make informed decisions such as about adequate room temperatures, by informing them of dangers (such as carbon monoxide and the threats to others from second-hand tobacco smoke) and of important precautions (such as effective ventilation). Householders should also be made aware of any subsidies that may be available, such as financial assistance towards energy efficiency improvements (42).</p>	 Housing  Health  Energy	<p>National; community</p> <p>Universal health coverage</p>	<p>Information, education and communication</p>
<p>14. Increase involvement of the health sector in the development and implementation of policies and programmes directed at dealing with inadequate housing. Systems should be put in place that enable health professionals to refer patients for housing advice where they present with health conditions and injuries that could be related to housing conditions (42).</p>	 Health	<p>National; community</p> <p>Universal health coverage</p>	<p>Information, education and communication</p>
<p>15. Use integrated slum upgrading strategies to improve the health and well-being of householders in slums, providing them with access to basic services and infrastructure and including them in decision-making processes (43).</p>	 Housing  Construction  Land use planning  Health	<p>National; community</p> <p>Universal health coverage</p>	<p>Infrastructure, technology and built environment</p>
<p>16. Ensure that housing strategies include land use and transport planning for walking, cycling and rapid transit/public transport, as well as access to green areas to enhance health and climate benefits and reduce risks (e.g. urban heat island effect) (42).</p>	 Housing  Construction  Land use planning  Health  Transport	<p>National; community</p> <p>Universal health coverage</p>	<p>Infrastructure, technology and built environment; governance</p>
<p>17. Integrate planning and construction of houses into urban development strategies (10).</p>	 Housing  Construction  Land use planning	<p>National; community</p>	<p>Governance</p>

Selected tools

WHO 2020: *Repository and review of policies, regulations and legislation to promote healthy housing* (44) – The repository provides an overview of policies, regulations and legislation from all six WHO regions to improve housing-related health risks such as crowding, indoor air quality, indoor temperature and building materials. The related review analyses implementation barriers and facilitators of example policies and describes case studies of multisectoral implementation projects.

SHERPA for sustainable housing projects (45) – SHERPA is a self-evaluation tool for project managers, communities and other stakeholders involved in the planning, design, construction and assessment of housing projects.

WHO 2018: *WHO housing and health guidelines* (39) – The WHO housing and health guidelines provide evidence-based and practical recommendations on how to reduce health risks from poor housing conditions. The guidelines summarize all WHO guidance relevant to housing and provide practical implementation considerations such as a list of existing crowding measures or case studies on home modification programmes simultaneously addressing several housing risks.

UN-Habitat 2018: *Alternative solutions to forced evictions and slum demolitions* (46) – Using four real-life cases, this publication prescribes short-term, medium-term and long-term guidance that has prevented forced evictions and mitigated the risks of evictions that have taken place.

UN-Habitat 2017: *The human rights-based approach to housing and slum upgrading* (47) – This handbook is a guide for practitioners upgrading housing and slums in using the human rights-based approach in their interventions by applying methods such as causality analysis, role pattern analysis and capacity gap analysis.

UN-Habitat 2014: *Accessibility of housing. A handbook of inclusive affordable housing for persons with disabilities and older persons* (48) – This handbook aims to bridge the existing gap between the needs and rights of persons with disabilities and older persons through slum upgrading, reconstruction, and large-scale affordable and social housing programmes. Through the provision of concepts, major policy approaches, practical information and technical tools, the handbook intends to build capacity to increase accessibility (such as through design and implementation) in identified contexts. Likewise, it brings to light the implications and the global importance of developing accessibility of sustainable human settlements.

UN-Habitat 2013: *Housing and slum upgrading: gender issue guide* (49) – This guide's objectives are to: i) increase understanding of gender concerns and needs in housing and slum upgrading; ii) develop capacity to address gender issues in this area; iii) encourage the integration of a gender perspective into policies, projects, and programmes for sustainable urban development; and iv) support the institutionalization of the culture of gender mainstreaming and gender equality, the implementation of gender-sensitive projects and programmes, and the monitoring of gender-mainstreaming progress.

UN-Habitat 2010: *A practical guide for conducting housing profiles – revised version* (50) – A practical guide to conducting comprehensive national housing profiles with a direct objective of understanding the housing sector, while offering evidence-based data to inform policy reform. The housing profile process also aims to be highly participatory and engage multi-stakeholder groups that influence and are influenced by the housing sector.

12.3 Workplaces



Overview

More than 1.2 million deaths annually (2015 data) are estimated to be caused by occupational risks (51). Large gaps persist with regard to the health status of workers and their exposure to occupational risks. In addition, only a small minority of the global workforce has access to occupational health services. Nevertheless, effective interventions to prevent occupational hazards and to protect and promote health at the workplace are available (52).

Assessment of national occupational health and safety

Workers' health is determined not only by workplace hazards but also by social and individual factors and access to health services (52).

The following SDG indicators are important for national assessment and monitoring of occupational health and safety.

- Indicator 8.8.1: Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status.
- Indicator 8.8.2: Level of national compliance with labour rights (freedom of association and collective bargaining) based on ILO textual sources and national legislation, by sex and migrant status.
- Indicator 1.3.1: Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable.

In addition, there are SDG targets for monitoring the proportion of informal employment, average hourly earnings, unemployment rates, proportion of youth not in education, employment or training and proportion and number of children aged 5–17 years engaged in hazardous child labour.

Workplaces with a high risk for work-related disease and injury include mining, construction, agriculture and manufacturing. Other occupational groups, such as office- or health care workers, are at risk of specific health conditions such as stress and musculoskeletal diseases or overexertion and infections (51).

Special attention needs to be paid to the approximately 2 billion people (61% of the world's employed population) working in the informal economy. The informal economy involves vulnerable groups such as children, pregnant women, older persons and migrant workers. Informal work has usually harmful effects on workers' rights, social protection and working conditions, thus placing informal workers at greater risk of work-related deaths and disease (53).










What is the level of occupational health and safety we want to achieve?
















SDG 8 focuses on sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (60). Relevant targets include the following.












- Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.
- Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
- Target 8.6: By 2020, substantially reduce the proportion of youth not in employment, education or training.
- Target 8.7: Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.
- Target 8.8: Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.







The WHO Global Plan of Action on Workers' Health 2008–2017 (52) underlines the importance of:








- all workers being able to enjoy the highest attainable standard of physical and mental health;
- favourable working conditions for all workers;
- the workplace not threatening health and well-being;
- primary prevention of occupational health hazards;
- all components of health systems to be involved in an integrated response to the specific health needs of working populations.

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments
Policies and actions			
1. Develop or update national policies and action plans on occupational safety and health (52, 55, 56).	 Labour  Health  Other sectors	National	Regulation
2. Support implementation of essential occupational health interventions for primary prevention of occupational and work-related diseases and injuries (52). Such measures might include: <ul style="list-style-type: none"> • integrated chemical management; • elimination of second-hand tobacco smoke; • improved occupational safety; • health impact assessment of new technologies, work processes and products at the design stage; • regular assessment of workplace risks and the effectiveness of their control. 	 Labour  Health	Workplace Universal health coverage	Other management and control; assessment and surveillance

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments
<p>3. Enforce a basic set of occupational health standards to ensure that all workplaces comply with minimum requirements for health and safety protection (52).</p> <p>This includes enacting regulations, workplace health inspections and collaboration between regulatory agencies.</p>	 Labour  Health	National	Regulation; assessment and surveillance
<p>4. Increase the capacity of the health sector; develop human resources for workers' health (52).</p> <p>This may be achieved through the following actions:</p> <ul style="list-style-type: none"> • extend postgraduate training in relevant disciplines; • build capacity for basic occupational health services; • incorporate workers' health in the training of primary health care practitioners and other health professionals; • create incentives for attracting and retaining human resources for workers' health; • encourage the establishment of networks of services and professional associations. 	 Labour  Health	Health care; workplace Universal health coverage	Information, education and communication
<p>5. Promote inclusion of workers' health in other sectors' policies (52).</p>	 Health	National	Governance
At the workplace			
<p>6. Ensure that workplaces, machinery, equipment and processes are safe and without risks to health (55).</p>	 Health  Other sectors	Workplace Universal health coverage	Other management and control
<p>7. Provide appropriate measures of protection, such as protective clothing, when handling chemical, physical and biological substances and agents that pose risks to health (55).</p>	 Health  Other sectors	Workplace Universal health coverage	Infrastructure, technology and built environment
<p>8. Provide measures to deal with emergencies and accidents in the workplace, including adequate first-aid arrangements, such as cardiopulmonary resuscitation (CPR) (55).</p>	 Health	Workplace Universal health coverage	Other management and control
<p>9. Strengthen primary prevention of occupational hazards, diseases and injuries through increased resources, training of workers and employers, introduction of healthy work practices, work organization and a health-promoting culture at the workplace (52).</p>	 Health	Workplace Universal health coverage	Information, education and communication; other management and control

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments
<p>10. Implement appropriate occupational health services for all workers, including informal, migrant and contractual workers, in consultation with representative employer and worker organizations and groups (57).</p> <p>Functions of occupational health services include the following.</p> <ul style="list-style-type: none"> • Assess occupational risks or hazards. • Monitor worker's health in relation to work. • Monitor factors in the working environment that may affect health such as sanitary installations, canteens and housing. • Advise on healthy work planning/organization including workplace design and work equipment. • Participate in programme development for improving work practices and equipment according to health and safety. • Advise on occupational health, safety and hygiene, on ergonomics and protective equipment. • Contribute to measures of vocational rehabilitation. • Collaborate in providing information, training and education about occupational health/hygiene and ergonomics. • Organize and provide first aid and emergency treatment. • Participate in analysis of occupational accidents and occupational diseases. 	 Health	Workplace Universal health coverage	Assessment and surveillance; information, education and communication; other management and control
<p>11. Inform all workers about health hazards involved in their work and provide information, instruction and training on occupational safety and health (57).</p>	 Health	Workplace Universal health coverage	Information, education and communication
<p>12. Promote health and prevent NCDs at the workplace (52).</p> <p>Action points include the following.</p> <ul style="list-style-type: none"> • Promote a healthy diet. • Introduce balanced working time arrangements. • Support tobacco cessation and ban smoking at the workplace. • Promote physical activity and active workplace arrangements to prevent sedentary work. • Prevent work-related NCDs – occupational cancer and chronic respiratory diseases (asthma, COPD and pneumoconiosis). • Promote mental health at work. 	 Health	Workplace Universal health coverage	Information, education and communication; regulation
<p>13. Implement early detection, surveillance and reporting systems for major occupational risks, occupational accidents and diseases (52).</p>	 Health	Workplace Universal health coverage	Assessment and surveillance
<p>14. Implement strategies to ensure reintegration of sick and injured workers (52).</p>	 Health	Workplace Universal health coverage	Other management and control; regulation
<p>15. Build workplace resilience to public health threats and emergencies, such as chemical and radiological incidents, extreme weather events (heatwaves, floods), periods of severe air pollution and outbreaks of infectious diseases in all economic sectors (58).</p>	 Health  Other sectors	Workplace Universal health coverage	Other management and control

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments
Health care facilities			
<p>16. Establish occupational health policies and programmes in all health care facilities (59, 60).</p> <p>The WHO-ILO Global Framework for National Occupational Health Programmes for Health Workers includes the following building blocks.</p> <ul style="list-style-type: none"> • Identify a responsible person with authority for occupational health at both the national and workplace levels. • Develop a written policy on safety, health and working conditions for health workforce protection at the national and workplace levels. • Ensure access to occupational health services by strengthening the existing, or establishing a new, occupational health programme, and allocate sufficient resources/budget to the programme, occupational health professional services and the procurement of necessary PPE and supplies. • Create joint labour-management health and safety committees, with appropriate worker and management representation. • Provide ongoing (or periodic) education and training that is appropriate to all parties, including occupational health practitioners, senior executives, front-line managers, health and safety committees, front-line workers and their representatives, and the general public. • Identify hazards and hazardous working conditions in order to prevent and control them, and manage risks by applying the occupational health hierarchy of controls, which prioritizes elimination or control at the source. • Provide pre-service and ongoing immunization against hepatitis B and other vaccine-preventable diseases in the workplace at no cost to the employee (this includes all three doses of the hepatitis B vaccine for all workers at risk of blood exposure, including cleaners and waste handlers). • Promote exposure and incident reporting, eliminating barriers to reporting and providing a blame-free environment. • Promote and ensure health worker access to diagnosis, treatment, care and support for HIV/AIDS, tuberculosis and viral hepatitis B and C. • Utilize appropriate information systems to assist in the collection, tracking, analysing, reporting and acting upon data to promote health and safety of the health care workplace and health workforce. • Ensure that health workers are entitled to compensation for work-related disability in accordance with national laws. 	 Health	Workplace; health care Universal health coverage	Regulation
<p>17. Provide adequate infection prevention and control (IPC) and PPE, such as masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies, in sufficient quantities to health care staff and other workers at risk, such as cleaners, that are in contact with potential infectious patients or materials (59–61).</p> <p>Note: Adequate IPC and PPE depend on the procedure performed and on the suspected disease (see Section 12.4 Health care facilities for more information).</p>	 Health	Workplace; health care Universal health coverage	Infrastructure, technology and built environment

 Guidance	 Sector principally involved in planning/ implementation	 Level of implementation	 Instruments
18. Promote hand hygiene and respiratory hygiene as essential preventive measures (61).	 Health	Workplace; health care Universal health coverage	Information, education and communication
19. Ensure single-use of syringes and injection devices if possible by procuring syringes with a sharps injury protection feature (SIP devices) and with a re-use prevention feature (RUP devices). Provide puncture-resistant sharps' containers for safe sharps disposal (61, 62).	 Health	Workplace; Health care Universal health coverage	Infrastructure, technology and built environment
20. Provide information, instruction and training on occupational safety and health including training on IPC, on the correct use of PPE, and on safe patient handling for prevention of back injuries (61).	 Health	Workplace; health care Universal health coverage	Information, education and communication

Selected tools

WHO 2020: *Awareness-raising and educational material on how to hand-wash, how to hand-rub and when and how to perform hand hygiene in health care settings* (63)

WHO 2020: *Immunization of health care workers – summary of WHO Position Papers* (64)

WHO 2020: *How to put on and take off personal protective equipment* (65)

WHO 2019: *WHO guidelines on tuberculosis infection prevention and control – 2019 update* (66)

WHO 2019: *Minimum requirements for infection prevention and control (IPC) programmes* (67)

WHO 2019: *How to implement seasonal influenza vaccination of health workers. An introduction manual for national immunization programme managers and policy makers* (68)

WHO 2018: *Occupational safety and health in public health emergencies: a manual for protecting health workers and responders* (69)

WHO 2017: *Prevention of HIV transmission in health care settings* (70)

WHO 2016: *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level* (61)

WHO 2014: *Guidelines on infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care* (71)

ILO/WHO 2014: *HealthWISE – Work Improvement in Health Services* (72)

WHO/ILO/UNAIDS 2010: *Joint WHO/ILO policy guidelines on improving health worker access to prevention, treatment and care services for HIV and TB* (73)

Pan American Health Organization 2009: *Aide memoire 2009: hepatitis B immunization of health workers* (74)

WHO 2003: *Aide-memoire for a strategy to protect health workers from bloodborne viruses* (75), which includes a checklist

ILO/International Council of Nurses/WHO/Populations Services International 2002: *Framework guidelines for addressing workplace violence in the health sector* (76)

ILO 2018: *Safety and health in opencast mines. Second (revised) edition* (77)

Selected tools

ILO 2013: *Safety and health in the use of machinery* (78)

ILO 2009: *Safety and health in underground coalmines* (79)

ILO 2005: *Code of practice on safety and health in the iron and steel industry* (80)

ILO 2003: *Safety and health in the non-ferrous metals industries* (81)

ILO 2001: *Ambient factors in the workplace* (82)

Factors include radiation, EMF, heat and cold, noise and vibration.

ILO 2001: *Safety in the use of synthetic vitreous fibre insulation wools (glass wool, rock wool, slag wool)* (83)

ILO 2004: *Safety and health in shipbreaking: guidelines for Asian countries and Turkey* (84)

12.4 Health care facilities



Comprehensive guidance for health care facilities beyond health and environment can be found elsewhere.²



Overview

Health care facilities need to be safe, climate resilient and environmentally sustainable to protect people's health in the short and longer term. Access to a reliable supply of energy is a prerequisite for high-quality health care. Safely managed water and sanitation, access to basic hygiene services and adequate waste management are needed to maintain hygienic environments and prevent health care-associated infections and antimicrobial resistance. Eliminating the use of harmful chemicals and ensuring the sound use of radiation in health care contribute to the safety of patients and communities. Occupational health services need to protect health workers to ensure that health care can be delivered. Health care facilities need to continue to be efficient and responsive in an unstable and changing climate.

Yet about 1 billion people are served by health care facilities without electricity or with unreliable access to it and without water, sanitation and hygiene (WASH) services or with inadequate WASH (85). As many as 1 in 5 health care facilities lack access to basic water services, exposing 1.7 billion people to greater risk of infection. In addition, 1 in 3 health care facilities lack hand hygiene stations at points of care; 1 in 4 do not have a system for segregating waste; and 1 in 10 have no sanitation services (86).

At the same time, the health sector is responsible for 5.2% of global greenhouse gas (GHG) emissions (87, 88). To reduce their environmental impact, health systems can adopt a range of environmentally responsible practices when offering health care and preventive services, and help protect and promote health through those practices. Moreover, environmentally responsible practices in health care facilities can have a considerable number of health co-benefits; responsible practices may include the use of natural ventilation as an energy-saving infection control measure, water conservation and rainwater harvesting to sustainably meet the high demand for water in health care facilities, the improved recapture and reuse of anaesthetic gases to protect both health workers and the climate, and the use of well-designed telehealth schemes to reduce travel and improve health care access for vulnerable groups. Environmentally responsible practices can also increase health equity and access to health care, for example when health care facilities are sited along major public transport routes and low-energy or no-energy medical devices are developed and used in remote areas (89).

Some recommendations in the Guidance tables in other sections of this Compendium may be relevant for health care systems and health care facilities, and those are not necessarily repeated here. Those usually include the term health care in the Level of implementation column.

² <https://www.who.int/health-topics/hospitals>

Basic service levels at a health care facility

A basic water service provides water from an improved source on the premises.

Improved water sources include piped water, boreholes or tube wells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

A basic electricity service provides reliable electricity for all of the facility's needs.

A basic sanitation service includes improved sanitation facilities that are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities and at least one toilet accessible to people with limited mobility.

Improved sanitation facilities include flush or pour-flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines); or composting toilets.

A basic hand hygiene service provides functional hand hygiene facilities with water and soap or alcohol-based hand-rub, or a combination of these, at points of care and within 5 m of toilets.

A basic health care waste management service means that waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.

A basic environmental cleaning service means that protocols are established and available, and staff with cleaning responsibilities have all received training in them (86).

Climate resilience and environmental sustainability for health care facilities

Climate-resilient and environmentally sustainable health care facilities anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stresses (90). They do this while minimizing their negative impacts on the environment and by leveraging opportunities to restore and improve it to bring ongoing and sustained health care to their target population and protect the health and well-being of future generations (90).

Occupational health services

These services are entrusted essentially with preventive functions (91). They are responsible for advising employers, staff and their representatives about how to establish and maintain a safe and healthy work environment that will facilitate optimal physical and mental health in relation to work; they are also responsible for adapting work to the capabilities of staff, in the light of their physical and mental health.

Occupational health and safety programmes for health workers










Occupational health and safety programmes for health workers comprise planned and coordinated activities at the national, subnational and health facility levels that include governance, regulations and standards, human resources, financing and services aimed at (92):







- preventing diseases and injuries arising from, linked with or occurring during the course of work;
- building healthier and safer working environments; and
- promoting the health and well-being of health workers.

Health workers

Health workers include all people engaged in work that has the primary intention of improving health. This definition includes not only health service providers – such as doctors, nurses, midwives, public health professionals, laboratory technicians, health technicians, medical and non-medical technicians, personal care workers, community health workers, healers and practitioners of traditional medicine – but also health management and support workers, such as cleaners, drivers, hospital administrators, district health managers and social workers, and other occupational groups in health-related activities as defined by the International Standard Classification of Occupations (known as ISCO-08) (92).




The Guidance table provides an overview of the most relevant advice from WHO and other UN organizations. The guidance is further classified according to principally involved sectors, level of implementation, instruments and evidence category. Because of the cross-cutting nature of the topics addressed in this Guidance table, advice may apply to more than one topic, although it is listed under only one heading.








 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
General				
<p>1. Ensure the whole population has access to safe, climate-resilient and environmentally sustainable health care facilities that provide high-quality care (85, 90, 92, 93).</p> <p>This includes ensuring that facilities:</p> <ul style="list-style-type: none"> • provide access to at least basic WASH services that meet the needs of women and children, people with disabilities and other vulnerable groups; • manage health care waste adequately using environmentally sustainable methods; • have access to reliable electricity services; • use chemicals and radiation safely; • provide a safe and healthy work environment for all staff; • are climate resilient; • are environmentally sustainable and have low carbon emissions. 	 Multiple sectors	National; health care Universal health coverage	Governance; regulation; infrastructure, technology and built environment	A, B
<p>2. Integrate WASH, waste and electricity services; the health and safety of health workers; and climate resilience and environmental sustainability into health planning, programming, financing and monitoring at all levels (85, 90, 92, 93).</p>	 Multiple sectors	National; health care Universal health coverage	Governance; regulation; infrastructure, technology and built environment	A, B
<p>3. Use globally harmonized indicators to monitor and review improvements within the health care facility in access to WASH, waste and electricity services; the health and safety of health workers; and climate resilience and environmental sustainability (85, 90, 92–95).</p>	 Multiple sectors	National; health care Universal health coverage	Assessment and surveillance	A, B
<p>4. Build the capacity of the health workforce to care for their own health and safety; practise good hygiene; manage the health risks of climate change; manage WASH, waste and electricity services; and ensure the environmental sustainability of health care facilities (85, 90, 92, 93).</p>	 Multiple sectors	National; health care Universal health coverage	Information, education and communication	A, B









 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>5. Implement effective IPC programmes (61, 67). The minimum requirements for these programmes include ensuring, among others:</p> <ul style="list-style-type: none"> • there are national IPC guidelines and facility-adapted standard operating procedures; • there is a national IPC training policy and training for all front-line clinical staff and cleaners; • IPC monitoring and surveillance include surveillance for health care-associated infections at the facility level; • there are multimodal strategies for priority IPC interventions, such as to improve hand hygiene, safely deliver injections, decontaminate medical instruments and devices, and for environmental cleaning; • there are sufficient WASH, health care waste management and reliable electricity services to perform all basic IPC measures. 	 Health	National; health care Universal health coverage	Regulation; other management and control	A, B















WASH, waste management and environmental cleaning in health care facilities









While point 6 provides guidance about the whole of WASH, waste management and environmental cleaning, points 7–18 offer specific guidance for each topic separately.








<p>6. Implement at least basic WASH, waste management and environmental cleaning services in all health care facilities, ensuring services are climate resilient, sustainable, safe and accessible to all users (85, 86, 93).</p> <p>Eight practical steps for achieving this include:</p> <ul style="list-style-type: none"> • conducting a country-wide situation analysis and baseline assessment of WASH systems and services, including an assessment of climate risks and environmental sustainability (90); • developing a time-bound national road map with associated budgets and financing for improving WASH services through multisectoral coordination; • establishing and implementing national WASH and waste management standards; • improving and then maintaining WASH and waste infrastructure to meet national standards; • monitoring progress using integrated WASH indicators in national health monitoring information systems and regularly collecting, analysing, reviewing and disseminating data; • providing preservice and inservice training about current WASH and IPC practices to the health workforce; • engaging with communities to gather their input during the development and implementation of WASH policies and quality improvement processes in health care facilities; • generating and disseminating evidence about WASH in health care facilities through operational research, and sharing it at the local, national and global levels. 	 Health  Water/sanitation  Waste	National; health care Universal health coverage	Infrastructure, technology and built environment; regulation	A, B
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 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
WASH in health care facilities				
<p>7. Ensure the availability of and access to safe and sufficient water for drinking, cooking, personal hygiene, medical activities, cleaning and laundry in health care settings (93).</p> <p>A few concrete examples include ensuring that:</p> <ul style="list-style-type: none"> • drinking-water complies with WHO's Guidelines for drinking-water quality (96); • a drinking-water station with safe drinking-water is available and accessible to staff, patients and carers at all times and in main waiting areas or entrances to each ward, or both, and in all rooms where patients stay overnight or receive specialized care; • non-potable water is used only for cleaning, laundry and sanitation and is appropriately labelled; • functional hand hygiene stations (with water and soap or alcohol-based hand-rub) are available at all points of care and in service areas; • handwashing facilities (with water and soap) are available within 5 m of all toilets or latrines, and there is at least one shower or bathing area per 40 inpatients or per ward (whichever has fewer patients) and it is functioning and accessible; • sanitary inspection forms are used to ensure that water poses no risk to public health (97); • a WASH climate risk management plan is implemented (90); • climate hazards are considered during the siting and construction of water and sanitation infrastructure (90). 	 Health  Water/sanitation	National; health care Universal health coverage	Infrastructure, technology and built environment; regulation	A, B
Note: Sufficient water refers to the minimum quantities of water required in the health care setting. Required amounts are available for planning and designing water supply systems. The actual quantities required depend on a number of factors, such as the size of the facility, services offered and number of patients accessing services, the climate, level of care provided and local water use practices.				















 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>8. Provide adequate, accessible and appropriate toilets for patients, staff and caregivers (85, 93, 98).</p> <p>Concrete examples include ensuring:</p> <ul style="list-style-type: none"> • a sufficient number of usable toilets are available, separated by sex and with separate facilities for staff and patients; • toilets are easily accessible, safe to use and are appropriate for local technical, financial, cultural and social conditions; • a functional handwashing facility with soap and water is available within 5 m of the toilets; • toilets are cleaned at least once daily and are adequately maintained and repaired if problems arise; • at least one usable toilet meets menstrual hygiene needs; • at least one toilet can be accessed by those with limited mobility; • excreta and wastewater are safely managed and treated according to WHO's guidelines (98); • toilet siting considers climate hazards to avoid the disruption of services, for example in the case of floods, water scarcity or sea level rise (90). 	 Water/sanitation  Health	National; health care Universal health coverage	Infrastructure, technology and built environment; regulation	A, B
<p>9. Ensure rapid and safe disposal of wastewater, ideally through a safely managed piped sewer system (85, 98, 99).</p> <p>Important aspects to consider include ensuring that:</p> <ul style="list-style-type: none"> • wastewater is safely conveyed from the health care facility to treatment, with minimal leaks and overflows; • wastewater drainage is built and managed to avoid contaminating the health care setting and the broader environment; • a stormwater (i.e. rainwater) and greywater drainage system is in place that diverts water away from the facility into a safe drainage or leach field and does not carry contamination from the health care setting to the surrounding environment; • hazardous chemical and radioactive waste and pharmaceuticals are not discharged into wastewater; • latrines are emptied before flood seasons to avoid overflows (90); • vents on sewers and septic tanks are above expected flood lines (90). 	 Water/sanitation	National; health care Universal health coverage	Infrastructure, technology and built environment; regulation	A, B








 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>10. Educate and train health care facility staff about the crucial moments for performing hand hygiene and the appropriate techniques for handwashing and using an alcohol-based hand-rub (100, 101). Involve other facility staff, patients and visitors in hand hygiene promotion activities.</p> <p>The five moments when hand hygiene should be performed in health care include:</p> <ul style="list-style-type: none"> • before touching a patient • before a clean, or aseptic, procedure • after risk of exposure to body fluid and after glove removal • after touching a patient • after touching a patient's surroundings. <p>More detailed guidance is available in <i>WHO guidelines on hand hygiene in health care (101)</i>.</p>	 Health	Health care Universal health coverage	Information, education and communication	A, B
<p>11. Implement WASH FIT to systematically improve the water, sanitation, hygiene and health care waste practices and electricity services in a health care facility, and to focus on climate resilience (97).</p> <p>WASH FIT is a risk-based improvement tool for health care facilities that covers key aspects of WASH services: water, sanitation, hand hygiene, environmental cleaning, the management of health care waste, as well as selected aspects of energy use, and building and facility management.</p> <p>WASH FIT provides a framework to develop and monitor the implementation of an improvement plan for infrastructure, behaviours, and operations and maintenance, and to prioritize specific WASH actions that are climate resilient, equitable and inclusive.</p> <p>Climate-resilient water safety plans and sanitation safety plans may be used together with WASH FIT to ensure the safety of drinking-water and sanitation services at the health care facility level (96, 97, 102, 103).</p>	 Health  Water/sanitation	National; health care Universal health coverage	Infrastructure, technology and built environment; regulation	B
<p>12. Assess climate change risks and map them to the existing water, sanitation and waste infrastructure of health care facilities to identify where services could be disrupted by climate-related hazards, such as floods, droughts, landslides and sea-level rise (90).</p>	 Health  Water/sanitation	Health care Universal health coverage	Assessment and surveillance	B
<p>13. Conserve water and reduce water usage, and serve healthy and sustainable menu options in health care facilities (90).</p>	 Health  Environment  Water/sanitation  Food	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control	B

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>14. Assess the climate vulnerability and environmental sustainability of health care facilities to inform management of climate-related risks to staff, patients and communities from water and sanitation services, chemicals and health care waste (90).</p> <p>Concrete examples include the following:</p> <ul style="list-style-type: none"> identifying climate-related hazardous events that could lead to significant health risks in terms of the collection, treatment, reuse and disposal of sanitation waste, such as overflowing pit latrines and contaminated water sources; ensuring sufficient water is stored in the health care facility to meet extra demand in case of an extreme weather event; using harvested rainwater or greywater to flush toilets, clean outdoor pavements and water plants, when possible. 	 Health  Water/sanitation  Waste	Health care Universal health coverage	Assessment and surveillance	B

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
Waste management in health care facilities				
<p>15. Ensure safe segregation, collection, transportation, storage, treatment and disposal of health care waste (90, 99, 104).</p> <p>Concrete examples include ensuring that;</p> <ul style="list-style-type: none"> trained waste handlers are available and have sufficient PPE to carry out their duties safely; there are national waste segregation standards that rely on a uniform colour-coding or labelling system and that sharps, infectious and non-infectious waste are separated; general waste and infectious or hazardous waste are collected, transported and stored separately; collection and internal transportation happen at fixed times, and there are fixed waste routes, from the most hygienically sensitive area to the least sensitive area; internal waste storage locations are totally enclosed and well separated from other areas; the storage location for infectious and sharps waste is clearly identifiable, with floors and walls sealed or tiled; external waste storage sites should be fenced, at a minimum; only authorized staff have access to waste storage areas, and waste is not stored for longer than the maximum storage times for infectious waste, which depend on the temperature; in general, health care waste is treated using techniques that minimize the formation and release of chemicals or hazardous emissions, in line with the Stockholm Convention on Persistent Organic Pollutants (105). The management of radioactive waste from nuclear medicine should be in line with the requirements of International Atomic Energy Agency's international basic safety standards (106). Infectious and sharps waste should generally be treated by steam or other non-burn technologies, where these options are locally available and sustainable; the final disposal of waste happens in designated places outside the premises of the health care facility; a functional burial pit or fenced waste dump or municipal pick-up service should be available for the disposal of non-infectious (i.e. non-hazardous or general) waste, and waste disposal areas should be built to withstand climate events and emergencies; pharmaceutical waste is treated and disposed of safely by using an offsite, centrally managed safe treatment and disposal facility; sending it back to the manufacturer; or having it industrially incinerated using a high-temperature kiln. Special provisions should be made for the disposal of radiopharmaceuticals (107). 	 Health  Waste	Health care; national Universal health coverage	Governance; regulation; infrastructure, technology and built environment; other management and control	A, B, C


 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>16. Ensure that the management of health care waste will be safe during climate-related events, including emergencies and disasters (90).</p>	 Health  Waste	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control	B
<p>17. Implement and monitor a waste reduction programme that includes waste management training for all staff (90, 99, 104).</p> <p>Concrete examples include:</p> <ul style="list-style-type: none"> • training and supporting all staff to practice appropriate waste segregation at all points of care using a three-bin system (i.e. non-hazardous recyclable, non-recyclable and hazardous waste); • raising awareness about and training medical staff in clinical and general practices to use and waste fewer materials, by using techniques such as the first in, first out principle (i.e. what has been purchased first should be used first); • incrementally improving the environmental sustainability of waste treatment technologies by focusing on non-burn technologies that comply with the Stockholm Convention on Persistent Organic Pollutants and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (105, 108); • establishing a recycling programme for all types of non-hazardous waste or sending recyclable waste to municipal recycling facilities. 	 Health  Waste	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control	A, B
Environmental cleaning in health care facilities				
<p>18. Ensure that materials needed for cleaning (e.g. detergents, mops, buckets) are available, appropriate and well-maintained (85, 86, 93).</p>	 Health	Health care Universal health coverage	Infrastructure, technology and built environment	A, B
Electricity in health care facilities				
<p>20. Ensure that all health care facilities have access to reliable sources of electricity to ensure basic health care services can be delivered (109, 110).</p> <p>This requires strong financial commitments from different actors, such as governments, donors and the private sector.</p>	 Energy  Health  Finance	National; health care Universal health coverage	Governance; infrastructure, technology and built environment	B, C












 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>21. Assess the energy needs of each individual health care facility and, when needed, enable the installation of a suitable energy system that is climate resilient and low carbon (90, 109).</p> <p>Electricity is required in health care facilities for key areas, including for:</p> <ul style="list-style-type: none"> • basic medical equipment; • vaccines and cold chain storage; • maternal and newborn care; • communication, lighting, information technology (or IT), telemedicine; • facility operations; • administration and staff facilities; • access to hot and cold water. 	 Energy  Health	Health care Universal health coverage	Assessment and surveillance	B
<p>22. Follow an “install and maintain” approach to the facility’s energy system to ensure the long-term operation and maintenance of the system (109).</p> <p>Points to consider include:</p> <ul style="list-style-type: none"> • ensuring there is a dedicated allocation of funds for long-term operation and maintenance of the facility’s energy system, including to replace components, such as batteries, and for monitoring, as needed; • building the capacity of local energy technicians and health care staff to sustainably use and maintain the facility’s energy system. 	 Energy  Health  Finance	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control	B
<p>23. Invest in efficient and suitable medical devices and equipment as per the needs of the health care facility and ensure their proper long-term operation and maintenance (90, 109).</p> <p>Points to consider include:</p> <ul style="list-style-type: none"> • whether the devices installed or used are energy efficient, compatible with the available energy supply and suitable for harsh conditions, if needed, such as high temperatures and dusty environments; • how to ensure staff have appropriate training. 	 Energy  Health	Health care Universal health coverage	Infrastructure, technology and built environment	B
<p>24. Consider using decentralized, renewable energy, such as solar photovoltaic (or PV) cells coupled with batteries, to power health care facilities, build climate resilience and reduce GHG emissions (109).</p> <p>This solution may be especially helpful in areas not reached by a central power grid or when used as a backup for unreliable or expensive electric supplies.</p>	 Energy  Health	National; health care Universal health coverage	Infrastructure, technology and built environment; taxes and subsidies	B












 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>25. Manage risks associated with the energy supply (90).</p> <p>Concrete examples include the following.</p> <ul style="list-style-type: none"> • Ensure that energy systems can withstand extreme weather events. • Develop a plan for managing intermittent energy supplies or energy system failures, including ensuring there is an adequate backup energy source (e.g. through solar systems coupled with batteries) if the main source fails during an extreme weather event. 	 Energy  Health	Health care Universal health coverage	Infrastructure, technology and built environment	B









Climate change: climate resilience and the environmental sustainability of health care facilities











Several guidance points in the sections on WASH, waste and electricity also address climate resilience and environmental sustainability; please refer to those sections for additional guidance.

<p>26. Ensure health care facilities are climate resilient and environmentally sustainable, including by reducing GHG emissions (90); this can be done by following these five steps.</p> <ul style="list-style-type: none"> • Assemble and train a multisectoral operations team. • Establish a baseline for the current burden of climate-sensitive health outcomes and vulnerabilities to climate change, for instance by conducting a climate change and health vulnerability and adaptation assessment (111) (known as a V&A) to understand the health risks faced by the local population; assess the climate vulnerability of health care facilities; and assess the carbon emissions and the environmental footprint of health care facilities. • Define and prioritize short- and long-term interventions. • Develop and implement an improvement plan. • Monitor and evaluate improvements in climate resilience and environmental sustainability. 	 Health	National; health care Universal health coverage	Governance; infrastructure, technology and built environment; other management and control	B
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 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>27. Ensure climate resilience and environmental sustainability during construction and retrofitting of health care facilities. This can be achieved by adopting new technologies, products and processes with low environmental impact that enhance the sustainability of health care facility operations (90).</p> <p>Concrete examples include the following.</p> <ul style="list-style-type: none"> • When constructing new infrastructure, consider a range of climate-related risk scenarios, such as flood, drought, prolonged rainfall, strong winds and heatwaves. • Ensure that the health care facility is sufficiently ventilated while being protected against disease vectors. • Ensure that the windows are resistant to winds of at least 200–250 km/h, protected from the sun and leak-proof. Install reflective white roofs to reduce heat impact. • Conduct and regularly update assessments of climate hazard vulnerability including, for example, evaluations of the potential impact of extreme weather events on health care infrastructure. 	 Construction  Health	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control; regulation	B
<p>28. Procure new technologies and adopt new processes that can provide climate resilience, environmental sustainability and enhanced health service delivery (90).</p> <p>Concrete examples include the following.</p> <ul style="list-style-type: none"> • Establish climate-informed health surveillance and early warning systems to facilitate early responses to climate hazards. In case of extreme heat, install equipment for monitoring indoor temperatures, cooling buildings and spaces, blocking direct sun and increasing air flow. • Prioritize purchasing equipment and supplies that are sustainable, such as those associated with lower emissions during transport and production, and those that have minimal packaging and are reusable and recyclable; and avoid those containing hazardous chemicals and nondegradable plastics. • Avoid procuring products that are not used (89). 	 Health  Industry	Health care Universal health coverage	Infrastructure, technology and built environment; other management and control; regulation	B
Chemicals				
The subsection on Waste management may include guidance relevant to Chemicals that is not included in this section.				
<p>29. Establish safe procedures for procuring, storing, dispensing and properly disposing of pharmaceuticals (99, 112).</p>	 Health	Health care Universal health coverage	Regulation; other management and control	B
<p>30. Phase out or replace items that contain mercury, complying with the Minamata Convention on Mercury (99, 113).</p>	 Health	Health care Universal health coverage	Regulation	A, B

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>31. Phase out or replace substances with a high potential for ozone depletion or global warming (112).</p> <p>Concrete examples include the following.</p> <ul style="list-style-type: none"> • Buy equipment that uses minimally polluting refrigerants and has a reduced refrigerant charge. • Ensure regular maintenance of equipment containing refrigerants to avoid leakage or release into the atmosphere. • Phase out ozone-depleting substances in fire-suppression systems. 	 Environment  Health	Health care Universal health coverage	Regulation	A, B
<p>32. Train health care facility staff to correctly manage chemicals and health care waste (90, 114).</p>	 Health	Health care Universal health coverage	Information, education and communication	B
Radiation				
<p>33. Implement procedures and guidelines to ensure that justifying the use of radiological imaging becomes an effective, transparent and accountable part of normal radiological practice (107, 115).</p>	 Health	Health care Universal health coverage	Regulation	B, C
<p>34. Ensure that all relevant staff understand and adhere to the principle of the optimization of protection and safety from radiation (107, 115).</p> <p>Concrete examples include the following.</p> <ul style="list-style-type: none"> • Develop and regularly update evidence-based guidelines for imaging referrals, and make them available at the point of care as decision-support tools to enhance the justification for radiological procedures (116, 117). • Establish and use up-to-date diagnostic reference levels for radiological procedures for adult and paediatric patients, and ensure that quality assurance programmes are also up to date (115). • Implement harmonized criteria and develop detailed guidance for the discharge of patients after radionuclide therapy (118). • Apply technological solutions, such as electronic health records, to harmonize the monitoring of exposure to radiation. • Consider the availability of electricity services when selecting imaging devices (e.g. consider portable battery-operated equipment, if necessary) (119). 	 Health	Health care Universal health coverage	Regulation	B, C
<p>35. Ensure that health care staff are appropriately trained in radiation protection. Pay particular attention to training health professionals in the use of new technologies (e.g. digital radiography, artificial intelligence) (107).</p>	 Health	Health care Universal health coverage	Information, education and communication	C

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>36. Prevent medical radiation incidents and accidents (107, 115).</p> <p>Points to consider include:</p> <ul style="list-style-type: none"> integrating content about radiation protection into the curricula of medical and dental schools, and into continuing medical education for health professionals using radiation in health care; creating reporting and learning systems for medical radiation incidents, accidents and near misses; performing root cause analyses and prospective risk assessments to inform preventive actions and enhance safety culture (116); implementing independent safety surveillance and verification, and performing periodic quality and safety assessments in health facilities that use radiation for diagnostic or therapeutic purposes. 	 Health	Health care Universal health coverage	Assessment and surveillance; other management and control	B, C
<p>37. Increase awareness about the benefits and risks of radiation among health care staff and patients. Train health care staff how to communicate radiation risks. Establish an active and informed decision-making process for patients (107, 115, 117).</p>	 Health	Health care Universal health coverage	Information, education and communication	B, C
Health workers				
Health workers include not only health service providers but also health management and support workers (92).				
<p>38. Establish occupational health and safety policies and programmes for health workers in all health care facilities (59, 92).</p> <p>Actions for safe and healthy work environments in health care facilities include:</p> <ul style="list-style-type: none"> developing policies to ensure health and safety at work; appointing a facility focal point for occupational health and safety; conducting regular risk assessments and mitigating occupational hazard; establishing a joint labour-management committee for health and safety at work; providing facilities for staff welfare (e.g. personal hygiene, clothing, rest and dining); developing and implementing a training programme about health and safety at work, including how to protect health and safety during climate-related emergencies; providing occupational health services for the early detection, diagnosis, treatment, care, notification of and support for occupational diseases and injuries; providing no-cost immunizations to health workers to prevent work-related infections; recording, investigating and reporting exposure incidents and cases of occupational injuries and diseases; collecting, analysing, reporting and acting on data to promote health and safety at work. 	 Health	Health care Universal health coverage	Regulation	B

 Guidance	 Sector principally involved in planning/implementation	 Level of implementation	 Instruments	 Category of evidence
<p>39. Provide adequate IPC measures and PPE – such as masks, gloves, goggles, gowns, hand sanitizer, soap and water and cleaning supplies – in sufficient quantities to health care staff and other workers who are at risk, such as cleaners who are in contact with potentially infectious patients or materials (59, 61, 92).</p> <p>Note: The definitions of adequate IPC measures and PPE depend on the procedure performed and the suspected disease.</p>	 Health	Health care Universal health coverage	Infrastructure, technology and built environment; regulation	A, B
<p>40. Ensure that syringes and injection devices are used only once, if possible, by procuring syringes with a sharps injury protection feature or with a re-use prevention feature. Provide puncture-resistant sharps containers for safe sharps disposal (61, 62).</p>	 Health	Health care Universal health coverage	Infrastructure, technology and built environment	A
<p>41. Provide information, instruction and training about occupational safety and health, including training about IPC, the correct use of PPE, and safe patient handling to prevent back injuries (61).</p>	 Health	Health care Universal health coverage	Information, education and communication	A
<p>42. Ensure that health care facilities have a sufficient number of health workers, healthy and safe working conditions, and the required capacity to deal with health risks from climate change (90).</p>	 Health	Health care Universal health coverage	Other management and control	B
<p>43. Build the capacity of the health workforce to respond to climate risks and minimize within the scope of their responsibilities the environmental impacts that occur due to the operation of the health care facility (90).</p> <p>A few concrete examples include:</p> <ul style="list-style-type: none"> educating and training health care facility staff and the community about the relationship between environmental health and disease prevention; creating awareness among health care facility staff and the community about environmental factors that contribute to disease burden; training health care facility staff and the community about how to assess and select environmentally sustainable products and services; sensitizing health care facility staff to environmentally sustainable practices and ways to reduce carbon emissions from the health care facility. 	 Health	Health care Universal health coverage	Information, education and communication; other management and control	B

A – WHO guideline, B – WHO best practice/strategy, C – other UN best practice/strategy GHG: greenhouse gas; IPC: infection prevention and control; PPE: personal protective equipment; WASH: water, sanitation and hygiene; WASH FIT: Water and Sanitation for Health Facility Improvement Tool.

Selected resources for the Guidance table

Please note that only selected references are listed here. Please consult the reference section for all cited resources.

[WHO, United Nations Children's Fund \(UNICEF\) 2023: Progress on WASH in health care facilities 2000–2021: special focus on WASH and infection prevention and control \(86\)](#) – This report presents updated national, regional and global estimates of the availability of WASH in health care facilities, with a special focus on the linkages between WASH and IPC.

[WHO 2023: Energizing health: accelerating electricity access in health-care facilities \(109\)](#) – This publication provides a comprehensive update on the electrification status of and key actions needed to provide reliable, modern energy services to health care facilities in low- and middle-income countries.

[WHO 2022: WASH FIT: a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities \(97\)](#) – WASH FIT is a risk-based management approach developed by WHO and UNICEF to assist health care facilities in improving their quality of care through improved WASH. The publication includes a set of training materials, fact sheets and templates that can be used to assess and improve facilities.

[WHO, International Labour Organization \(ILO\) 2022: Caring for those who care: guide for the development and implementation of occupational health and safety programmes for health workers \(92\)](#) – This guide provides an overview of the key elements of occupational health and safety programmes for health workers at the national, subnational and facility levels, as well as advice about how to develop and implement such programmes.

[WHO 2020: WHO guidance for climate-resilient and environmentally sustainable health care facilities \(90\)](#) – The aim of this guidance is to enhance the capacity of health care facilities to protect and improve the health of their target communities in an unstable and changing climate, and to empower health care facilities to be environmentally sustainable by optimizing their use of resources and minimizing the release of waste into the environment.

[WHO 2017: Chemicals road map: road map to enhance health sector engagement in the Strategic Approach to International Chemicals Management towards the 2020 goal and beyond \(114\)](#) – The road map identifies concrete actions for which the health sector has either a lead or important supporting role to play in the sound management of chemicals, while also recognizing the need for multisectoral cooperation.

[WHO 2017: Safe management of wastes from health-care activities: a summary \(99\)](#) – This handbook provides comprehensive guidance about safe, efficient and environmentally sound methods for handling and disposing of health care waste under normal conditions and also during emergencies.

Additional selected tools and further resources

This list contains additional selected material that is not cited in the Guidance table.

WASH in health care facilities

[WHO, UNICEF 2023: WASH in health care facilities \[online knowledge portal\] \(120\)](#) – This portal includes global and national guidance and tools, national guidelines, standards and training reports. It also includes the WASH FIT portal, which provides a range of WASH FIT resources and information (121).

[WHO 2023: Core components for IPC \[website\] \(122\)](#) – This website provides various implementation tools and resources for WHO's core IPC components, including guidelines and other key publications, as well as tools for training and monitoring.

[WHO 2022: Environmental cleaning and infection prevention and control in health care facilities in low- and middle-income countries: trainer's guide \(123\)](#) – This trainer's guide takes the user through how to prepare, deliver and sustain effective training for those who clean health care facilities. The accompanying modules and resources provide instructions, definitions, photographs, posters and specific illustrations of recommended practices.

[WHO Regional Office for Europe 2022: Water, sanitation and hygiene in health-care facilities: a practical tool for situation assessment and improvement planning \(124\)](#) – This tool has been developed for health authorities and other stakeholders to support the design and implementation of comprehensive assessments of WASH conditions in health care facilities at the national and subnational levels.

WHO, UNICEF 2021: [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 \(125\)](#) – This document describes one approach to conducting a national situational analysis of WASH as a basis for improving the quality of care.

WHO, UNICEF 2019: [Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access to quality care \(126\)](#) – The purpose of this document is to present eight practical actions that Member States can take at the national and subnational levels to improve WASH in health care facilities.

WHO, UNICEF 2019: [Monitoring water, sanitation and hygiene \(WASH\) and related infection prevention and control \(IPC\) in delivery rooms \(127\)](#) – This document identifies a draft set of indicators and questions for monitoring WASH and IPC measures during childbirth in the delivery room.

Health care waste management

WHO 2019: [Overview of technologies for the treatment of infectious and sharp waste from health care facilities \(128\)](#) – This report provides technical guidance about technologies for the safe management of health care waste.

Electricity in health care facilities

WHO 2023: [Health and Energy Platform of Action: building connections for better health \[website\] \(129\)](#) – This platform aims to strengthen cooperation between the health and energy sectors

Climate change: climate resilience and environmental sustainability in health care facilities

Health Care Without Harm 2023: [Sustainable Health in Procurement Project \[website\] \(130\)](#) – The Sustainable Health in Procurement Project was developed by the United Nations Development Programme in collaboration with Health Care Without Harm, and it aims to reduce the harm to people and the environment caused by the manufacture, use and disposal of medical products and the environmental impact of health programmes.

WHO 2022: [Measuring the climate resilience of health systems \(131\)](#) – This report provides a framework and suggested approach for measuring the climate resilience of health systems.

WHO 2021: [Checklists to assess vulnerabilities in health care facilities in the context of climate change \(132\)](#) – This is a complementary tool to the *WHO guidance for climate-resilient and environmentally sustainable health care facilities (6)*, and the checklists are aimed at helping health care facility managers and other health workers identify and act to address the specific climate risks that a facility may face.

Health workers

WHO 2023: [Occupational hazards in the health sector \[online tool\] \(133\)](#) – This e-tool is intended to be used by people in charge of occupational health and safety for health workers, and it is also for health workers who want to know what WHO and the ILO recommend to protect their own health and safety.

WHO 2022: [Implementation guide for vaccination of health workers \(134\)](#) – This guide will be useful for countries that do not yet have a policy and programme in place to vaccinate health workers, as well as for those seeking to expand or improve their vaccination activities for health workers.

WHO 2020: [Protection of health and safety of health workers: checklist for health care facilities \(135\)](#) – This checklist is the first step in identifying and prioritizing areas of action for improving the health and safety of health workers, in line with WHO–ILO Global Framework for National Occupational Health Programmes for Health Workers (39).

WHO 2020: [COVID-19: how to put on and remove personal protective equipment \(PPE\) \[online course\] \(136\)](#) – This short online course aims to show the type of PPE needed to correctly protect oneself.

WHO 2018: [Occupational safety and health in public health emergencies: a manual for protecting health workers and responders \(137\)](#) – This manual provides an overview of the main occupational safety and health risks faced by emergency responders during disease outbreaks and other emergencies, such as natural disasters, chemical incidents, radiological emergencies and emergencies involving conflicts.

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