

# Compendium of WHO and other UN guidance on health and environment

2024 update



## Chapter 9. Safe environments and mobility



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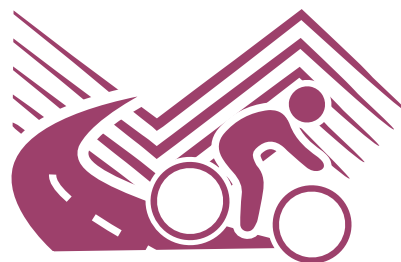
## 9. Safe environments and mobility

### 9.1 Introduction

Sustainable transport and mobility systems in this section refer to systems that are multi-modal which support walking, cycling, other forms of active transport and mobility (e.g. such as skating, wheelchairs), as well as public transport in addition to private vehicles.

Interventions towards sustainable transport and mobility systems are aimed at reducing road traffic fatalities and injuries while at the same time improving people’s health and well-being, protecting the environment and address climate change. They often have broad impacts, and would therefore be relevant for other sections of this compendium as well.

## 9.2 Environments for safe and sustainable transport, active mobility and physical activity



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



### Overview

Systems of mobility that include public transport and infrastructure for cycling and walking can contribute to increasing levels of physical activity. Regular physical activity has significant health benefits for hearts, bodies and minds. These include improved muscular and cardiorespiratory fitness, improved bone and functional health, and weight control, and reduced risks for noncommunicable diseases, such as cardiovascular diseases, cancer and diabetes, and falls and fractures. Regular physical activity also improves mental and cognitive health and is recommended for people of all ages and abilities (1). Encouraging and enabling regular physical activity requires adequate provision of, and equitable access to, supportive environments that encourage participation in walking, cycling, sports, active recreation and play by people of all abilities (2).

Transport can also affect health and health equity by enabling and facilitating access to education, decent jobs, health care, leisure activities and clean water. Road infrastructure and urban design can affect social interactions within neighbourhoods while also discouraging motorized transport and slowing the impact of climate change (3).

Road traffic accidents kill around 1.2 million people per year (2021 data); pedestrians, cyclists and motorcyclists in low- and middle-income countries are disproportionately affected (4–6). More cycling and walking tend to lead to fewer road traffic accidents as motorists become sensitized to the presence of non-motorized traffic and to sharing the road. Increased road safety and the provision of public and green spaces can enable and motivate people to walk and cycle more, especially for short trips. Less motorized traffic also reduces air pollution, noise and carbon emissions (3).

As the majority of the world's population is living in urban areas (7), cities have a particular responsibility and opportunity to improve urban design and transport systems to support increasing levels of walking and cycling. Affordable and accessible transport systems and the development of sustainable community infrastructure are, however, equally relevant for periurban and rural areas.

<sup>1</sup> For additional information, see WHO's guidance on physical activity (<https://www.who.int/health-topics/physical-activity>), road traffic injuries (<https://www.who.int/health-topics/road-safety>) and urban health (<https://www.who.int/health-topics/urban-health>).

How do we assess safe environments for, and levels of, physical activity in my country?

For country assessment of population levels of physical activity in adults, the WHO STEPS approach (8) includes the Global Physical Activity Questionnaire (9). This collects data about physical activity undertaken across three domains during the past week: transport (which is defined as walking and cycling), work (paid and unpaid, and household chores), and recreation, leisure or sport. The Global Physical Activity Questionnaire provides measures of the prevalence of, and time spent, walking and cycling during the past week.

Countries may have their own similar health surveillance system with questions about physical activity; however, these do not always separate measures of walking and cycling from total physical activity or may not include walking and cycling for transport. For example, some countries assess only “sports participation”.

For children, there are school-based instruments that collect data about physical activity, and these can also include questions about travel to and from school by walking and cycling. The Global School-based Student Health Survey (10) and the Health Behaviour in School-aged Children study (11) are two widely used instruments and protocols.

Personal transportation surveys, usually conducted by ministries of transport or similar agencies, can also collect data about walking and cycling trips. The questions and data reporting vary between countries, and there is no global standardized reporting available. Nonetheless, usually data are presented as the proportion of trips by mode of travel that can be tracked over time and assessed by setting (e.g. urban, rural) and by categories of trip length.

Urban design for safe walking and cycling can be assessed using the road safety assessments and criteria set for roads achieving at least a 3-star rating (of a 5-star maximum) (12) for each road user (i.e. for pedestrians, cyclists and users of public transit). New roads and urban infrastructure can be assessed during the approval process for a development plan. Both approaches are recommended as part of the Decade of Action for Road Safety 2021–2030, the Global Action Plan on Physical Activity 2018–2030 and the WHO ACTIVE technical guidance toolkit to increase physical activity (2, 13, 14).

Countries can monitor their progress towards key Sustainable Development Goals (SDGs) to which active mobility and physical activity contribute (15). These include the following.

SDG 3: Ensure healthy lives and promote well-being for all at all ages.

- Indicator 3.4.1: mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease.
- Indicator 3.6.1: death rate due to road traffic injuries.

SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

- Indicator 11.2.1: proportion of population that has convenient access to public transport, by sex, age and persons with disabilities.
- Indicator 11.7.1: average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities.

Other SDGs that are directly or indirectly transport-related include, for example, SDG 7, Ensure access to affordable, reliable, sustainable and modern energy for all; SDG 9, Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; and SDG 13, Take urgent action to combat climate change and its impacts. In addition, SDG indicator 3.9.1 monitors mortality due to air pollution.

### What do we want to achieve?

Shift more passenger and freight travel to more environmentally friendly and active modes (e.g. walking, cycling and clean public and freight transport) together with improving the energy efficiency of all motorized transport (private and public) through the use of low-carbon fuel and vehicle technologies (3, 16).

Reduce both passenger trips and freight movement by motorized transport by redesigning regional development policies, integrating transport and spatial planning, and implementing travel demand management (17, 18).










Investing in transport and mobility systems that take into consideration the underlying social and environmental determinants of health can also help to ensure equitable access to mobility and reduce disparities. For instance, improving mobility for women, children, older people and people with limited financial resources also enhances health equity (3, 16, 17).





















People of all ages and abilities need equitable access to safe and appropriate places and spaces in their cities and communities in which they can engage in regular physical activity. In addition, people need to know and understand the multiple benefits of regular physical activity, and these can be communicated through regular community-wide campaigns and education (2).



















WHO recommends that all children and adolescents achieve at least 60 minutes of moderate- to vigorous-intensity physical activity at least 3 days a week. Adults should do at least 150 minutes of moderate-intensity physical activity or do at least 75 minutes of vigorous-intensity physical activity throughout the week. Both age groups should reduce the amount of time they are sedentary, and doing some physical activity is better than doing none. More detailed recommendations about physical activity are provided in the *WHO guidelines on physical activity and sedentary behaviour* (19).






















Road traffic crashes and road injuries and fatalities can be reduced, for example by developing, implementing and enforcing a safe systems approach that places the focus on the design of the system rather than on the behaviour of road users. Special attention needs to be paid to how systems that are poorly designed put road users such as walkers and cyclists in positions of vulnerability and the ways in which they can be amended (14).

The Guidance table provides an overview of the most relevant advice from WHO or 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 |
|---|---|--|---|--|
| <b>Governance: policies and actions</b>   |   |  |   |  |
| 1. Strengthen and support implementation of the Health in All Policies (or HiAP) approach at the national and subnational levels (2, 20, 21) (see also <a href="#">Section 13.2 Health in All Policies</a> ). |  Health<br> Multiple sectors  | National   | Governance  | B  |
| 2. Build partnerships between the health sector and other relevant sectors, such as transport and urban planning (2, 17).   |  Health<br> Transport<br> Multiple sectors | National   | Governance  | B, C   |

| <br>Guidance   | <br>Sector principally involved in planning/implementation  | <br>Level of implementation | <br>Instruments | <br>Category of evidence |
|--|--|---|--|---|
| <p>3. Support the effective engagement and direct participation of communities in planning and policy development (2, 17).</p>   |  Health<br> Multiple sectors   | <p>Community; national</p> <p>Universal health coverage</p>   | <p>Governance</p>  | <p>B, C</p>   |
| <p>4. Conduct health, economic and environmental assessments of future and existing policies and interventions (2, 22–24).</p>   |  Health<br> Environment<br> Finance<br> Multiple sectors | <p>National; community</p> <p>Universal health coverage</p>   | <p>Assessment and surveillance</p>   | <p>B</p>  |
| <b>Road safety: policies and actions</b>   |  |   |  |   |
| <p>5. Develop or update national strategies, policies and actions to improve road safety, especially the safety of pedestrians and cyclists and other vulnerable groups, such as children and older people (2, 14).</p>  |  Transport<br> Health<br> Multiple sectors   | <p>National</p>   | <p>Regulation</p>  | <p>B</p>  |
| <p>6. Establish a lead agency for road safety (14).</p>  |  Transport<br> Health  | <p>National</p>   | <p>Governance</p>  | <p>B</p>  |
| <p>7. Monitor road traffic deaths, injuries and crashes; risks, such as alcohol or drug intake of drivers; and protective factors, such as average speed, rates of helmet and seat-belt use and use of child restraint systems (14).</p>   |  Transport<br> Health  | <p>National; community</p> <p>Universal health coverage</p>   | <p>Assessment and surveillance</p>   | <p>B</p>  |
| <p>8. Implement interventions to improve road safety with particular focus on pedestrians and cyclists (2, 3, 25).</p> <p>Selected key interventions include the following.</p> <ul style="list-style-type: none"> <li>• Provide sidewalks and dedicated cycle lanes to separate pedestrians and cyclists from motor traffic.</li> <li>• Provide crossing enhancements for pedestrians and cyclists.</li> <li>• Improve walking and cycling infrastructure around educational facilities, public open and green spaces, sports and leisure facilities, and public transport hubs.</li> <li>• Implement and enforce traffic speed limits and other traffic-calming interventions, such as road-narrowing measures.</li> <li>• Implement regulations to redistribute the impact of motorized vehicles, such as car-free zones; identify hazardous road locations and take corrective measures.</li> </ul> <p>These engineering interventions need to be accompanied by education and enforcement of, for example, traffic laws and vehicle safety standards.</p> |  Transport<br> Health  | <p>National; community</p> <p>Universal health coverage</p>   | <p>Infrastructure, technology and built environment; other management and control</p>              | <p>B</p>  |

| <br><b>Guidance</b>  | <br><b>Sector principally involved in planning/implementation</b>   | <br><b>Level of implementation</b> | <br><b>Instruments</b> | <br><b>Category of evidence</b> |
|--|--|--|---|--|
| <b>Infrastructure development, transport and mobility: policies and actions</b>  |  |  |   |  |
| <p>9. Develop or update policies and actions that promote walking, cycling and non-motorized transport (2, 13, 17).</p>  | <br>Transport<br><br>Land use planning   | National; community  | Governance  | B, C   |
| <p>10. Prioritize active and sustainable mobility as the preferred mode of travel in relevant transport, spatial and urban planning policies (2, 17).</p>  | <br>Transport<br><br>Land use planning   | National; community  | Governance  | B, C   |
| <p>11. Ensure transport and urban planning policies are integrated and deliver highly connected, mixed-use and compact neighbourhoods that promote and prioritize active mobility (2, 3, 16).</p> <p>This integration includes street design and urban development regulations that promote neighbourhoods offering pedestrian and bicycle access to shops and services, green areas, and health care and educational facilities. It also includes trip-end facilities (e.g. safe parking for bikes or facilities for changing clothes and showering at workplaces) that encourage active mobility.</p>  | <br>Transport<br><br>Land use planning<br><br>Multiple sectors | National; community  | Governance  | B  |
| <p>12. Ensure the provision of walking and cycling infrastructure on all streets designed for use by pedestrians and cyclists, according to best practice street design standards and guidelines (2, 3).</p> <p>This infrastructure may include adequate sidewalk widths and bike lanes (which should be highly connected, direct, safe and comfortable), adequate physical separation between the different transport modes, and the provision of enough space for pedestrians and cyclists, who should be prioritized. Also, the speed of vehicles should be reduced when the physical separation of transportation modes is not possible. Tactical urbanism – which uses a broad range of temporary and typically low-cost ad-hoc measures for changing the urban built environment – could also be used to calm traffic and make road space more liveable (3).</p> | <br>Transport<br><br>Land use planning   | National; community  | Infrastructure, technology and built environment  | B, C   |
| <p>13. Redistribute space from private motorized transport to support active and more sustainable modes of transport (2, 3).</p>   | <br>Transport<br><br>Land use planning   | National; community  | Infrastructure, technology and built environment  | B  |
| <p>14. Restrict car parking options for private vehicles to provide more public open and green spaces (2, 3).</p>  | <br>Transport<br><br>Land use planning   | National; community  | Infrastructure, technology and built environment  | B  |

| <br>Guidance   | <br>Sector principally involved in planning/implementation  | <br>Level of implementation | <br>Instruments | <br>Category of evidence |
|--|--|---|--|---|
| <p>15. Implement proactive urban planning policies, building design and crime prevention strategies to increase access to and use of green infrastructure and safe public spaces, and to increase active and sustainable mobility (3, 17, 26).</p>   |  Transport<br> Land use planning<br> Housing<br> Construction    | National; community   | Infrastructure, technology and built environment   | B, C  |
| <p>16. Ensure access to good-quality public and green open spaces for people of all ages and abilities that include safe play areas and sports and recreational spaces for children and young people (2, 26, 27).</p>  |  Land use planning<br> Sports and leisure  | National; community   | Infrastructure, technology and built environment   | B   |
| <p>17. Support people to be physically active through implementing appropriate building design and standards, particularly for all public buildings, and for education and day care facilities (2).</p> <p>Selected proposed actions include:</p> <ul style="list-style-type: none"> <li>ensuring prioritized building access for pedestrians, cyclists and those arriving by public transport;</li> <li>providing clean, accessible and safe stairways;</li> <li>providing access to public open space;</li> <li>limiting car parking options;</li> <li>ensuring adequate provision of end-of-trip facilities, such as secure bicycle parking, locker facilities and showers and changing rooms.</li> </ul> |  Construction   | National; community   | Infrastructure, technology and built environment   | B   |
| <p>18. Promote walking and cycling through free and accessible public events that foster the use of active mobility and green spaces, such as by regularly closing road networks to motorized vehicles and implementing walk or cycle to school or work programmes (2, 3, 13).</p>   |  Health<br> Environment<br> Land use planning   | Community<br><br>Universal health coverage  | Other management and control   | B   |
| <p>19. Conduct economic assessments of walking and cycling infrastructure and all developments using the Health Economic Assessment Tool (known as HEAT) (23).</p>   |  Health<br> Environment<br> Finance<br> Multiple sectors | National; community<br><br>Universal health coverage  | Assessment and surveillance  | B   |
| <b>Awareness-raising and capacity-building</b>   |  |   |  |   |
| <p>20. Conduct public campaigns to increase safe behaviours by road users, such as the use of seat belts and helmets, and to reduce risky behaviours, such as speeding, drink-driving and the use of mobile devices (2, 25, 28).</p>   |  Health<br> Transport  | Community; national<br><br>Universal health coverage  | Information, education and communication   | B, C  |



| <br><b>Guidance</b>   | <br><b>Sector principally involved in planning/implementation</b>  | <br><b>Level of implementation</b> | <br><b>Instruments</b> | <br><b>Category of evidence</b> |
|---|---|--|---|--|
| 21. Raise awareness about the health benefits and the social, economic and environmental co-benefits of increased walking, cycling and other forms of active mobility (2, 19, 23).  |  Health<br> Environment | Community; national<br><br>Universal health coverage   | Information, education and communication  | A, B   |
| 22. Train professionals from different sectors, such as health, education, transport and urban planning, about the health, social, economic and environmental co-benefits of physical activity, and particularly of more walking, cycling and other forms of active mobility (2). |  Health<br> Environment | Community; national<br><br>Universal health coverage   | Information, education and communication  | B  |
| 23. Conduct community surveys about perceptions of road safety, walking and cycling to raise awareness of potential obstacles to making changes and promote community discussion to determine solutions (13).   |  Health<br> Environment | Community; national<br><br>Universal health coverage   | Information, education and communication; assessment and surveillance                                     | B  |

A – WHO guideline, B – WHO best practice/strategy, C – other UN best practice/strategy

#### 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: Pedestrian safety: a road safety manual for decision-makers and practitioners, second edition (25)** – This manual provides information about the magnitude of pedestrian deaths and injuries; key risk factors for injuries and deaths; how to assess pedestrian safety in a country or area and prepare an action plan; and how to select, design, implement and evaluate effective interventions.

**WHO Regional Office for Europe 2022: Walking and cycling: latest evidence to support policy-making and practice (3)** – This publication presents a comprehensive case for why and how to promote walking and cycling, based on the latest evidence from scientific research and planning practice.

**WHO 2021: Global Plan for the Decade of Action for Road Safety 2021–2030 (14)** – This guidance document supports the implementation of the Decade of Action 2021–2030 and its objectives.

**WHO 2020: WHO Guidelines on physical activity and sedentary behaviour (19)** – These guidelines provide evidence-based public health recommendations for children, adolescents, adults and older adults about the amount of physical activity (e.g. frequency, intensity and duration) required to obtain significant health benefits and mitigate health risks.

**WHO 2018: Global Action Plan on Physical Activity 2018–2030: more active people for a healthier world (2)** – This Global Action Plan responds to the requests made by countries for updated guidance and a framework for effective and feasible policy actions to increase physical activity at all levels.

#### Additional selected tools and further resources

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

**WHO 2022: The PEP: building forward better by transforming to new, clean, safe, healthy and inclusive mobility and transport (29)** – The PEP – the Transport, Health and Environment Pan-European Programme – is the first and only international programme designed to integrate environmental and health considerations into transport, mobility and urban planning policies.

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[WHO 2022: Global status report on physical activity 2022 \(30\)](#) – This first global status report on physical activity charts progress made by countries in implementing recommendations from WHO’s Global Action Plan on Physical Activity 2018–2030, which aims to achieve the global target of a 15% relative reduction in the prevalence of physical inactivity by 2030.

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[UN-Habitat 2022: Why infrastructure matters: active mobility, public transport, and economic growth in African cities \(31\)](#) – This study explores the benefits that can accrue when cities prioritize active mobility and public transport. It quantifies the benefits of walking, cycling and public transport in Africa, comparing alternative investment scenarios for the 188 largest African cities.

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[UN-Habitat and UN Environment Programme 2022: Walking and cycling in Africa: evidence and good practice to inspire action \(32\)](#) – This report emphasizes the importance of prioritizing the safety, health and comfort of people who walk and cycle in African countries and sets out recommendations for governments and other stakeholders for retaining, enabling and protecting those who are already moving in the most sustainable way.

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[WHO 2020: WHO manifesto for a healthy recovery from COVID-19 \(33\)](#) – The manifesto describes practical steps that can be taken and that aim at creating a healthier, fairer and greener world while encouraging investment to maintain and resuscitate economies affected by the COVID-19 pandemic.

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[WHO 2019: The power of cities: tackling noncommunicable diseases and road traffic injuries \(34\)](#) – This report describes specific areas for interventions to address noncommunicable diseases and road traffic injuries in cities, assesses internal and external drivers for tackling these issues, and discusses common challenges facing urban environments. The report is accompanied by multiple case studies.

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[WHO Regional Office for Europe 2017: Towards more physical activity in cities: transforming public spaces to promote physical activity – a key contributor to achieving the Sustainable Development Goals in Europe \(35\)](#) – This publication provides inspiration and guidance about how different cities, in different contexts and at different stages of development, can use urban planning to encourage more physically active lifestyles for their residents.

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# 9.3 Safe environments to prevent drownings, falls and burns



Comprehensive guidance on this topic beyond health and environment can be found elsewhere.<sup>2</sup>

## 9.3.1 Drownings



### Overview







Drowning is a leading cause of unintentional injury and deaths worldwide and about 90% of unintentional drowning deaths occur in low- and middle-income countries (6, 36). In 2019, an estimated 236 000 people died from drowning, making drowning a major public health problem worldwide (6). Children are at increased risk of drowning and 35% of drowning deaths occurred in children aged under 15 years.

How prevalent are drownings in my country?






















National reporting systems may capture statistics on drownings and other injuries.

Injury surveillance guidelines are available to assess data on injuries (37).

In addition, the WHO Global Health Estimates provide a comprehensive and comparable assessment of death and disability due to diseases and injuries for all WHO Member States and all WHO regions of the world (6).

| <br>Guidance  | <br>Sector principally involved in planning/ implementation  | <br>Level of implementation | <br>Instruments |
|---|---|--|--|
| <b>Policies and actions</b>   |   |  |  |
| <p>1. Develop or update water safety policies. Among these are safe boating, shipping and ferry regulations, which may include (38, 39):</p> <ul style="list-style-type: none"><li>• establishing systems that ensure vessel safety, availability of flotation devices in boats, avoidance of overcrowding, and appropriate travel routes and rules;</li><li>• laws on alcohol and drug use while boating or swimming;</li><li>• occupational safety measures, such as the wearing of personal flotation devices and guard-rails, for example on commercial fishing vessels.</li></ul> <p>Other water safety policies may include signage and barriers for high-risk locations, risk assessments for recreational water settings (see <a href="#">Section 3.2.2 Recreational water</a>) and water safety lessons for schools.</p> | <p> Transport</p> <p> Other sectors such as health, education, migration, land use planning, construction</p> | National   | Regulation   |

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

| <br><b>Guidance</b>   | <br><b>Sector principally involved in planning/ implementation</b>   | <br><b>Level of implementation</b> | <br><b>Instruments</b> |
|---|---|---|---|
| 2. Develop or update national water safety plans (WSPs) to build resilience and manage flood risks and other hazards (38, 39).  | <br>Water/sanitation<br><br>Environment | National  | Regulation  |
| 3. Provide safe places away from water for preschool children, including (the journey to) schools, child-care settings and recreation and leisure settings (39).  | <br>Education  | Schools/child-care settings   | Infrastructure, technology and built environment  |
| 4. Support safe water systems, such as drainage systems and flood control (38).   | <br>Water/sanitation<br><br>Environment | National; community   | Infrastructure, technology and built environment  |
| 5. Install barriers or fencing that control access to water, such as lids or mesh covers for open wells, playpens, doorway barriers and pool fencing in the form of four-sided, child-resistant fences and self-closing gates with safety latches (39). | <br>Housing<br><br>Construction         | National; community   | Infrastructure, technology and built environment  |
| 6. Create and maintain safe water zones for recreation (38).  | <br>Land use planning   | National; community   | Infrastructure, technology and built environment  |
| 7. Establish supervised child-care programmes (38).   | <br>Education  | Schools/child-care settings   | Other management and control  |
| <b>Awareness-raising and capacity building</b>  |   |   |   |
| 8. Raise awareness of drowning to highlight the particular risks of children, as well as to signpost dangerous areas and pre-position rescue equipment (38).  | <br>Health<br><br>Environment       | Community; national<br><br>Universal health coverage  | Information, education and communication  |
| 9. Implement individual and community education programmes on drowning risks and safety regulations (38).   | <br>Health<br><br>Education         | Community; national<br><br>Universal health coverage  | Information, education and communication  |
| 10. Implement training on basic swimming and water safety skills for school-age children (39).  | <br>Education  | Community; national   | Information, education and communication  |
| 11. Train the public in safe rescue and resuscitation (38).   | <br>Education<br><br>Health         | Community; national<br><br>Universal health coverage  | Information, education and communication  |
| 12. Raise awareness about the importance of emptying or covering standing water and containers such as wells, tanks, cisterns and baths (38).   | <br>Health   | Community; national<br><br>Universal health coverage  | Information, education and communication  |

| Selected tools  |
|---|
| WHO 2017: <i>Preventing drowning: an implementation guide</i> (39) includes a situational assessment tool.  |
| WHO/CDC 2001: <i>Injury surveillance guidelines</i> (37)<br>Guidelines to assess data on injuries that will help to develop effective prevention strategies in countries. |

## 9.3.2 Falls



### Overview

Falls are the second leading cause of accidental or unintentional injury or deaths worldwide. Each year an estimated 684 000 individuals die from falls globally, the majority of which occur in low- and middle-income countries (6) (2019 data). Environmental risk factors for falls include aspects of the built environment such as poor building design, slippery floors and stairs and insufficient lighting (40).

How prevalent are falls in my country?





















National reporting systems may capture statistics on falls and other injuries.











Injury surveillance guidelines are available to assess data on injuries (37).

In addition, the WHO Global Health Estimates provide a comprehensive and comparable assessment of death and disability due to diseases and injuries for all WHO Member States and all WHO regions of the world (6).

While all people who fall are at risk of injury, the age, sex and health of the individual can affect the type and severity of injury. Children and adults older than 65 years of age are among the high-risk groups, while the latter have the highest risk of death or serious injury arising from a fall, with the risk increasing with age (40).

| <br>Guidance | <br>Sector principally involved in planning/ implementation  | <br>Level of implementation | <br>Instruments |
|--|---|--|--|
| Policies and actions   |   |  |  |
| 1. Develop or update housing standards and building regulations (41).                          |  Housing<br> Construction<br> Health | National   | Regulation   |

| <br>Guidance   | <br>Sector principally involved in planning/implementation   | <br>Level of implementation | <br>Instruments |
|--|---|--|--|
| <p>2. Develop or update playground standards, such as for the depth of appropriate surface material, height of equipment and periodic maintenance (42).</p>  |  Construction<br> Health<br> Education       | National   | Regulation   |
| <p>3. Promote policies requiring protective equipment such as helmets during certain sports and leisure activities (42).</p>   |  Health<br> Education<br> Sports and leisure | National   | Regulation   |
| <p>4. Assess and improve safety, if needed, of sports and recreational equipment (41).</p>   |  Industry<br> Health  | National   | Assessment and surveillance; infrastructure, technology and built environment                      |
| <p>5. Support the installation of window guards, bars and child-proof locks for windows in high-rise blocks, stair guards or gates, grab rails, lockable access to balconies and hazard removal (41, 42).</p>  |  Housing<br> Construction  | National; community  | Infrastructure, technology and built environment   |
| <p>6. Consider implementing home visits, assessment of home furniture and environmental modification for people with children or those at an older age/with known risk factors or a history of falling, including stair gates and guard rails (40–42).</p>   |  Health  | National; community<br><br>Universal health coverage   | Assessment and surveillance; infrastructure, technology and built environment                      |
| <p>7. Promote physical activity to prevent falls (2).</p> <p>More guidance to promote physical activity especially though increased levels of walking and cycling is listed in <a href="#">Section 9.2</a> Environments for safe and sustainable transport, active mobility and physical activity.</p> |  Health  | National; Community<br><br>Universal health coverage   |  |
| <b>Awareness raising and capacity building</b>   |   |  |  |
| <p>8. Raise awareness about risks of falls, high-risk groups (children and older people) and available interventions (such as installation of window guards and grab rails, balcony risk and protection, promotion of physical activity, and hazard removal) (40, 41).</p>                             |  Health<br> Housing<br> Construction   | Community; national<br><br>Universal health coverage   | Information, education and communication   |
| <p>9. Give parents information about child fall risks and support them to reduce these risks around the home (42).</p>   |  Health  | Community; national<br><br>Universal health coverage   | Information, education and communication   |

| <br>Guidance                                | <br>Sector principally involved in planning/ implementation   | <br>Level of implementation | <br>Instruments |
|---|--|--|--|
| 10. Provide parenting programmes for low-income and other marginalized families (42).                                       |  Health<br> Education<br> Social welfare and family | Community;<br>national   | Information,<br>education and<br>communication   |
| 11. Provide school-based teaching of martial arts-based fall techniques and exercises (42).                                 |  Education  | Community;<br>national   | Information,<br>education and<br>communication   |
| 12. Make available gait, balance and functional training and Tai Chi classes, the latter particularly to older people (42). |  Health<br> Sports and leisure   | Community;<br>national<br><br>Universal health<br>coverage   | Information,<br>education and<br>communication   |

### Selected tools

WHO 2012: *TEACH-VIP 2 users' manual: the second iteration of Training, Educating and Advancing Collaboration in Health on Violence and Injury Prevention* (43)

This is a comprehensive injury prevention and control curriculum that has been developed through the efforts of WHO and a network of global injury prevention experts.

WHO/CDC 2001: *Injury surveillance guidelines* (37)

Guidelines to assess data on injuries that will help to develop effective prevention strategies in countries.

WHO 2018: *Global action plan on physical activity 2018–2030: more active people for a healthier world* (2)

### 9.3.3 Burns



#### Overview

An estimated 114 000 deaths every year are caused by burns (6) (2019 data), the vast majority of which occur in low- and middle-income countries. Non-fatal burn injuries are a leading cause of morbidity, including prolonged hospitalization, disfigurement and disability, often with resulting stigma and rejection (44).














Burns are preventable and occur mainly in the home and workplace. Women and children are particularly vulnerable to burns, with burns being the fifth most common cause of non-fatal childhood injuries (44). Furthermore, burn victims are often among the poorest and most vulnerable population groups, especially in low- and middle-income countries (45).

#### How prevalent are burns in my country?











National reporting systems may capture statistics on burns and other injuries.

Injury surveillance guidelines are available to assess data on injuries (37).

In addition, the WHO Global Health Estimates provide a comprehensive and comparable assessment of death and disability due to diseases and injuries for all WHO Member States and all WHO regions of the world (6).

| <br><b>Guidance</b>  | <br><b>Sector principally involved in planning/implementation</b>   | <br><b>Level of implementation</b> | <br><b>Instruments</b> |
|--|--|---|---|
| <b>Policies and actions</b>  |  |   |   |
| 1. Develop or update policies on burn prevention, to cover for example the following points (45). <ul style="list-style-type: none"> <li>• The placement of smoke alarms in all buildings.</li> <li>• Setting and enforcing regulations requiring fire-activated sprinklers in residential and non-residential buildings.</li> <li>• A set temperature of hot water for the prevention of scald burns.</li> <li>• The safety of cook-stoves in the domestic environment.</li> <li>• Child resistant lighters and flame-retardant fabrics.</li> </ul> |  Health<br> Housing<br> Other sectors   | National  | Regulation  |
| 2. Develop or update safety regulations to housing design and materials, including fire and electrical codes; develop or update industrial safety regulations (e.g. for products used in homes and other buildings such as schools, child-care settings and recreational facilities) (41, 44, 45).   |  Housing<br> Industry<br> Health<br> Other sectors | National  | Regulation  |
| 3. Increase safety of construction materials, heating and lighting equipment at homes and public buildings such as schools, child-care settings and recreational facilities, and household materials such as upholstered furniture and mattresses (41).  |  Housing<br> Industry  | National; community   | Infrastructure, technology and built environment  |



| <br><b>Guidance</b>   | <br><b>Sector principally involved in planning/ implementation</b>                                       | <br><b>Level of implementation</b> | <br><b>Instruments</b> |
|---|---|---|---|
| <b>Awareness raising and capacity building</b>  |   |   |   |
| 4. Raise awareness on risks of burning and preventive interventions, especially for parents, and provide fire safety education programmes and training of communities in first aid (45).                            |  Health<br> Education   | Community; national<br><br>Universal health coverage  | Information, education and communication  |
| 5. Discourage storage of flammable substances at home, schools and child-care settings, and promote the use of safe lamps and cook-stoves (41).   |  Environment<br> Health | Community; national<br><br>Universal health coverage  | Information, education and communication  |
| 6. Promote safer cooking practices in the domestic environment by enclosing fires and using safer cook-stoves. This may include installing cook-stove guards, and by separating cooking from living areas (41, 45). |  Health<br> Housing     | Community; national<br><br>Universal health coverage  | Information, education and communication  |

### Selected tools

WHO 2012: *TEACH-VIP 2 users' manual: the second iteration of Training, Educating and Advancing Collaboration in Health on Violence and Injury Prevention* (43)

This is a comprehensive injury prevention and control curriculum that has been developed through the efforts of WHO and a network of global injury prevention experts.

WHO/CDC 2001: *Injury surveillance guidelines* (37)

Guidelines to assess data on injuries that will help to develop effective prevention strategies in countries.

WHO 2020: *Global Burn Registry* (46)

This Registry is based upon a standardized data collection form developed by WHO and a global network of experts. Its aim is an improved, standardized and global data collection system of burns.

## References

- Physical activity: key facts [website]. Geneva: World Health Organization; 2022 (<https://www.who.int/news-room/fact-sheets/detail/physical-activity>, accessed 14 August 2023).
- Global Action Plan on Physical Activity 2018–2030: more active people for a healthier world. Geneva: World Health Organization; 2018 (<https://iris.who.int/handle/10665/272722>, accessed 12 October 2023).
- Walking and cycling: latest evidence to support policy-making and practice. Copenhagen: WHO Regional Office for Europe; 2022 (<https://iris.who.int/handle/10665/354589>, accessed 14 August 2023).
- Road traffic injuries: key facts [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>, accessed 23 May 2024).
- Global status report on road safety 2023. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/350206>, accessed 23 May 2024).
- Global health estimates: life expectancy and leading causes of death and disability. In: WHO Global Health Observatory [online database]. Geneva: World Health Organization; 2019 (<https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates>, accessed 14 August 2023).
- Urban health: key facts. Geneva: World Health Organization; 2021 (<https://www.who.int/news-room/fact-sheets/detail/urban-health>, accessed 14 August 2023).
- STEPwise approach to NCD risk factor surveillance (STEPS) [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/steps>, accessed 14 August 2023).
- Global physical activity questionnaire (GPAQ) [website]. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/m/item/global-physical-activity-questionnaire>, accessed 14 August 2023).

10. Global School-based Student Health Survey [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-school-based-student-health-survey>, accessed 14 August 2023).
11. About the Health Behaviour in School-aged Children (HBSC) study [website]. Geneva: World Health Organization; 2023 ([https://www.who.int/europe/initiatives/health-behaviour-in-school-aged-children-\(hbsc\)-study](https://www.who.int/europe/initiatives/health-behaviour-in-school-aged-children-(hbsc)-study), accessed 14 August 2023).
12. Are our roads 3-star or better [website]? London: International Road Assessment Programme; 2021 (<https://irap.org/3-star-or-better/>, accessed 12 October 2023).
13. ACTIVE: a technical package for increasing physical activity. Geneva: World Health Organization; 2018 (<https://iris.who.int/handle/10665/275415>, accessed 19 October 2023).
14. Global Plan for the Decade of Action for Road Safety 2021–2030. Geneva: World Health Organization; 2021(<https://www.who.int/publications/m/item/global-plan-for-the-decade-of-action-for-road-safety-2021-2030>, accessed 14 August 2023).
15. THE 17 Sustainable Development Goals [website]. New York: United Nations Department of Economic and Social Affairs; 2023 (<https://sdgs.un.org/goals>, accessed 12 October 2023).
16. Health in the green economy: Health co-benefits of climate change mitigation – transport sector. Geneva: World Health Organization; 2011 (<https://apps.who.int/iris/handle/10665/70913>, accessed 13 October 2023).
17. Integrating health in urban and territorial planning: a sourcebook. Geneva: UN-Habitat, World Health Organization; 2020 (<https://iris.who.int/handle/10665/331678>, accessed 13 October 2023).
18. Health as the pulse of the new urban agenda: United Nations conference on housing and sustainable urban development, Quito, October 2016. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/250367>, accessed 13 October 2023).
19. WHO guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization; 2020 (<https://iris.who.int/handle/10665/336656>, accessed 14 August 2023).
20. Health in all policies: Helsinki statement. Framework for country action. Geneva: World Health Organization, Finland Ministry of Social Affairs and Health; 2014 (<https://apps.who.int/iris/handle/10665/112636>, accessed 12 October 2023).
21. Health in all policies: training manual. Geneva: World Health Organization; 2015 (<https://apps.who.int/iris/handle/10665/151788>, accessed 13 October 2023).
22. Guidance and tools. In: Urban Health Initiative [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/initiatives/urban-health-initiative/guidance-and-tools>, accessed 13 October 2023).
23. Health Economic Assessment Tool (HEAT) for walking and cycling [website]. Copenhagen: WHO Regional Office for Europe; 2019 (<https://www.heatwalkingcycling.org/#homepage>, accessed 12 October 2023).
24. Kahlmeier S, Götschi T, Cavill N, Castro Fernandez A, Brand C, Rojas Rueda D, et al. Health economic assessment tool (HEAT) for walking and for cycling: methods and user guide on physical activity, air pollution, injuries and carbon impact assessments. Copenhagen: WHO Regional Office for Europe; 2017 (<https://apps.who.int/iris/handle/10665/344136>, accessed 15 August 2023).
25. Pedestrian safety: a road safety manual for decision-makers and practitioners, second edition. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/367419>, accessed 15 August 2023).
26. Urban green spaces and health. Copenhagen: WHO Regional Office for Europe; 2016 (<https://apps.who.int/iris/handle/10665/345751>, accessed 13 October 2023).
27. Urban green spaces: a brief for action. Copenhagen: WHO Regional Office for Europe; 2017 (<https://apps.who.int/iris/handle/10665/344116>, accessed 13 October 2023).
28. The PEP implementation mechanisms and workplan: workshop on safe and healthy walking and cycling in urban areas. Geneva: United Nations Economic Commission for Europe, WHO Regional Office for Europe; 2009 (<https://www.unece.org/fileadmin/DAM/thepep/en/workplan/urban/documents/Pruhonice-Prague/Pruhonice.Report.e.pdf>, accessed 13 October 2023).
29. The PEP: building forward better by transforming to new, clean, safe, healthy and inclusive mobility and transport. Copenhagen: WHO Regional Office for Europe; 2022 (<https://www.who.int/europe/publications/m/item/building-forward-better-by-transforming-to-new-clean-safe-healthy-and-inclusive-mobility-and-transport>, accessed 14 August 2023).
30. Global status report on physical activity 2022. Geneva: World Health Organization; 2022 (<https://iris.who.int/handle/10665/363607>, accessed 23 August 2023).
31. Why infrastructure matters: active mobility, public transport, and economic growth in African cities. Nairobi: UN-Habitat; 2022 (<https://unhabitat.org/why-infrastructure-matters-active-mobility-public-transport-and-economic-growth-in-african-cities>, accessed 18 September 2023).
32. Walking and cycling in Africa: evidence and good practice to inspire action. Nairobi: UN-Habitat and UN Environment Programme; 2022 (<https://unhabitat.org/walking-and-cycling-in-africa-evidence-and-good-practice-to-inspire-action>, accessed 18 September 2023).
33. WHO manifesto for a healthy recovery from COVID-19: prescriptions and actionables for a healthy and green recovery. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/m/item/who-manifesto-for-a-healthy-recovery-from-covid-19>, accessed 13 October 2023).
34. The power of cities: tackling noncommunicable diseases and road traffic injuries. Geneva: World Health Organization; 2019 (<https://iris.who.int/handle/10665/329429>, accessed 23 August 2023).
35. Towards more physical activity in cities: transforming public spaces to promote physical activity – a key contributor to achieving the Sustainable Development Goals in Europe. Copenhagen: WHO Regional Office for Europe; 2017 (<https://iris.who.int/handle/10665/345147>, accessed 23 August 2023).
36. Drowning [website]. Geneva: World Health Organization; 2020 (<https://www.who.int/news-room/fact-sheets/detail/drowning>, accessed 14 May 2020).

37. Injury surveillance guidelines. Geneva/Atlanta (GA): World Health Organization/United States Centers for Disease Control and Prevention; 2001 (<https://apps.who.int/iris/handle/10665/42451>, accessed 15 June 2021).
38. Global report on drowning. Preventing a leading killer. Geneva: World Health Organization; 2014 (<http://apps.who.int/iris/10665/143893>, accessed 29 January 2015).
39. Preventing drowning: an implementation guide. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/255196>, accessed 15 June 2021).
40. Falls [website]. Geneva: World Health Organization; 2018 (<https://www.who.int/news-room/fact-sheets/detail/falls>, accessed 22 May 2020).
41. WHO, UNICEF. World report on child injury prevention. Geneva: World Health Organization; 2008 (<https://apps.who.int/iris/handle/10665/43851>, accessed 15 June 2021).
42. Step safely: strategies for preventing and managing falls across the life-course. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/340962>, accessed 15 June 2021).
43. TEACH-VIP 2. Geneva: World Health Organization; 2012 (<https://www.who.int/publications/i/item/teach-vip-2-user-s-manual>, accessed 15 June 2021).
44. Burns [website]. Geneva: World Health Organization; 2018 (<https://www.who.int/en/news-room/fact-sheets/detail/burns>, accessed 26 May 2020).
45. Burn prevention: success stories, lessons learned. Geneva: World Health Organization.; 2011 (<https://apps.who.int/iris/handle/10665/97938>, accessed 15 June 2021).
46. Global Burn Registry. Geneva: World Health Organization; 2021 (<https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/burns/global-burn-registry>, accessed 15 June 2021).

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