



## **Improving access to assistive technology**

### **Executive summary**

1. Assistive technology, a subset of health technology, refers to assistive products and related systems and services for people to maintain or improve functioning thereby promoting well-being. Assistive products are essential tools to compensate for impairment or a loss of intrinsic capacity, reduce the consequences of gradual functional decline, reduce the need for caregivers, prevent further progression and help rationalize health and welfare costs.
2. The United Nations Convention on the Rights of Persons with Disabilities obliges signatories to ensure access to assistive technology at an affordable cost. Access to assistive technology is a component of universal health coverage and needs to be integrated into efforts to attain target 3.8 of the Sustainable Development Goals (SDGs). Within this context, WHO established the Global Cooperation on Assistive Technology (GATE), to improve access to high-quality assistive products.
3. Member States bear the responsibility of meeting their global commitments. In view of the evolving needs of populations, access to assistive technology is as important as access to other technologies. National efforts are needed to increase such access through public services, including allocating adequate financial resources.
4. Current gaps in knowledge and specific data make it difficult to assess the regional situation of access to assistive technology for those in need. However, several studies and reports on disabilities, visual and hearing impairments, ageing populations and the burden of noncommunicable diseases, mental health conditions and injuries as well as data from emergency contexts show limited access to appropriate, affordable and quality products. Key regional challenges include lack of national policies, programmes and financial resources; inadequate needs assessment; data limitations including lack of uniform definition and standardized methodology; and unavailability of appropriate services and trained human resources. In addition, crisis and conflict can result in dismantling and fragmenting health systems curbing their capacity to deliver required care, including assistive technology.
5. Member States are urged to take action under a number of strategic directions to increase access to assistive technology and ensure its integration in universal health coverage: developing appropriate policy and financing frameworks; setting up single-window service provision based on adequate needs assessment; establishing national priority assistive products list with quality and safety standards and equitable access; and strengthening the capacity of personnel. These actions should be informed by reliable data based on standardized best practices. Addressing related pre-existing and emerging needs in emergency contexts will entail including assistive technology in preparedness and response efforts. WHO can provide the technical assistance required to realize these strategic actions at country level.

### **1. Introduction**

6. Assistive technology, a subset of health technology, refers to assistive products and related systems and services for people to maintain or improve functioning, thereby promoting well-being. It enables people with functioning difficulties to lead healthy, productive, independent and dignified lives, participating in education, labour market and social life.
7. Assistive products include any external product whose primary purpose is to maintain or improve an individual's functioning and independence and thereby promote their well-being. They include wheelchairs, hearing aids, spectacles, pill organizers and artificial legs, as well as assistive information and communication technology such as memory aids, specialized computer hardware and software and

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customized telephones. Assistive products are essential tools to compensate for impairment or a loss of intrinsic capacity, reduce the consequences of gradual functional decline, reduce the need for caregivers, prevent further progression and help rationalize health and welfare costs.

8. Assistive technology is required by a wide spectrum of the population including people with disabilities, the elderly and persons with chronic health conditions, as well as the broader population, all of whom will experience some form of temporary or permanent impairment or functional decline during the life course. With the rise in injuries and noncommunicable diseases as well as ageing populations, the demand for rehabilitation services and assistive technology is increasing. Assistive services need to be available alongside promotive, preventive, curative, rehabilitative and palliative services.

9. Without assistive technology, people in need are often excluded, isolated and locked into poverty, and the burden of morbidity and disability increases. In addition to its positive impact on individual health and well-being, assistive technology is a cost-effective strategy which leads to reduced health and social welfare costs and enables people with difficulties in functioning to work and to contribute to national economies and development agendas.

10. The number of people worldwide that could benefit from assistive technology is estimated at over a billion (1). This number is projected to rise above two billion by 2050. These figures are considered underestimates as they do not include people with milder levels of disability, who could also benefit from access to assistive technology (2). For example, it has been estimated that one billion people need glasses for blurred near vision associated with ageing (presbyopia) alone (3). Worldwide, 70 million people need a wheelchair and only 5% to 15% of those in need have access to one. Hearing aid production meets only 10% of the global need and 3% of the need in low-income countries. Moreover, 200 million people with low vision do not have access to glasses or other low-vision devices (1). Conflict, violence and natural disasters cause injury and disability and increase the vulnerability of older people and people with pre-existing disability (1).

11. Despite this vast and growing need, today it is estimated only 1 in 10 people have access to assistive technology (4). This situation is attributed to lack of financing, availability, awareness and trained personnel, and high costs. In the Eastern Mediterranean Region, there is an even greater demand for assistive technology fueled not only by high growth rates of ageing populations and rising prevalence of noncommunicable diseases but also by conflicts and complex emergencies affecting, directly or indirectly, the majority of its countries.

12. As of June 2016, 18 Member States in the Region have ratified the United Nations Convention on the Rights of Persons with Disabilities, which obliges the Member States to ensure access to assistive technology at an affordable cost and to foster international cooperation in order to achieve this. Assistive products are key mediators for many persons with disabilities to realize the rights enshrined in the Convention including personal mobility, access to education and jobs, living independently and participation in society. In 2013, WHO was mandated at a High-level Meeting of the General Assembly on Disability and Development to develop and coordinate a global initiative to support Member States in realizing their obligations in the Convention towards increasing access to assistive technology.

13. As assistive products address difficulties in functioning, they have a key role in the achievement of targets related to Sustainable Development Goal (SDG) 3, in particular target 3.8 universal health coverage. It is therefore essential that quality affordable assistive products become an integral component of universal health coverage, alongside essential medicines and vaccines. Many children, adults and older people also need assistive technology in order to achieve other SDGs. Assistive technology is a crucial enabling factor and a prerequisite for integration and inclusion.

14. The health sector is best placed for ensuring the availability of assistive products. Many assistive products are provided and fitted by health professionals. While other ministries may be involved,

ministries of health are responsible for ensuring the health and well-being of their populations. They are also in possession of the infrastructure for integrated service provision, including at primary health care levels, that can be used for wide-scale provision of assistive products. Even in countries where other sectors (such as social welfare) carry the main responsibility for assistive technology, ministries of health should also have an assistive technology programme to ensure that such technology is accessible to the whole population.

15. This paper reviews assistive technology in the current regional context and summarizes, based on available evidence, current challenges and emerging opportunities to move forward in improving access to assistive technology in the Region. It also identifies priorities and associated options to accelerate progress, emphasizing the roles and responsibilities of both Member States and WHO in achieving this common goal.

## 2. Overview of assistive technology

16. Information on the prevalence of disability and functional health decline and corresponding rehabilitation needs, including for assistive technology, is scarce globally and in the Region. Estimates of disability-adjusted life years (DALYs) provide some indication of the regional burden of disability related to key health conditions associated with a need for assistive technology. Table 1 shows estimated DALYs due to related health conditions in the Region based on WHO Global Health Estimates, 2012.

**Table 1. Regional estimates of cause-specific DALYs, 2012**

Indicator	DALYs (000s)	% DALYs
Total regional DALYs, all causes, both sexes, all ages	249 716 551	
Noncommunicable diseases	115 919 149	46.4
Injuries	33 104 737	13.3
Congenital anomalies	6 840 921	2.7
Visual impairment	3 146 505	1.3
Hearing impairment	1 744 466	0.7
Alzheimer's and other dementias	545 579	0.2

17. People most in need of assistive technology include persons with disability, older people, people with noncommunicable diseases, people with mental health conditions including dementia and autism, and people with gradual functional decline. Assistive products are essential tools to compensate for impairment or loss of intrinsic capacity, to reduce the consequences of gradual functional decline, to reduce the need for caregivers and to help rationalize health and welfare costs (5) (6).

18. The impact of assistive technology goes far beyond the benefits of health and well-being to individual users and their families. It also has significant socioeconomic benefits: reducing direct health and support services costs, such as hospital admissions or state benefits; and enabling a more productive workforce, contributing to positive economic growth. For example:

- proper use of hearing aids by young children leads to improved language skills, without which hearing loss severely constrains education and employment opportunities (7);
- costs of providing assistive products to students are recovered on their entry to job markets (8);
- appropriate wheelchairs increase access to education and employment and reduce health care costs due to decreased risk of pressure sores and contractures (9);
- assistive technology can enable older people to continue to live at home and delay or prevent the need for long-term institutional care (10);
- assistive technology decreases the risk of falls in older people through addressing the decline in functional capacities related to compromised vision, hearing and mobility (11);

- glasses for presbyopia (blurred near vision associated with ageing) enable older people to engage in different activities and thus continue their independence and supportive family roles (12).

19. The socioeconomic burden of caregiving is also a consideration although it remains largely unquantified in most countries. Inadequate or inaccessible health services and limited government funding lead to great burdens for caregivers and families, especially in low-income and middle-income countries (13). Assistive technology can reduce the stress and workload of caregivers by aiding in activities of daily living and increasing safety, mobility and independence (14).

### **3. Global access to rehabilitation services and assistive products**

20. The *World report on disability* (2011) provides evidence of the unmet need globally for assistive technology of all varieties (1). Many people across the world have little or no access to basic assistive products such as hearing aids, even in some high-income countries. In many countries, access to assistive products in the public sector is poor or non-existent, leading to high out-of-pocket payments (8). In emergency situations, the need is high but often neglected, resulting in no or patchy provision of inappropriate low-quality products, which can lead to secondary health complications and even premature death. This may be exacerbated by the disruption of health and other systems. Lack of awareness by potential users of the benefits of assistive products also contributes to access and utilization issues. Insufficient specific data on needs, met and unmet, is a further challenge.

21. The main challenges faced in adequately accessing assistive technology for those in need are in the areas of policy and financing, service provision, personnel and products.

#### *Policy and financing*

22. Few countries have a national policy or programme on assistive technology. The 2005 Global survey on government action on the implementation of the Standard Rules on the Equalization of Opportunities for Persons with Disabilities, conducted in 114 countries including 18 countries of the Region, found that 50% of responding countries had not passed legislation on assistive technology and 48% did not have policies on assistive technology provision (15). Affordable access to assistive technology needs governmental commitment to adequate and sustained financing and efficient procurement of appropriate assistive products and delivery systems. Major barriers to access include not only the initial cost, but also the need for maintenance and replacement of products, clear instruction and practice on proper use, and associated services and travel costs. The global survey found that over 50% of users bought assistive products directly, and another study found that lack of affordability was a major reason people in need do not possess assistive products (16).

#### *Service provision*

23. Current service provision is not equitable. Disparities occur not only across and within countries, but also across economic circumstances, and between people with different disabilities (15). The global survey found that 53% of the responding countries did not have programmes for assistive product service provision.

#### *Personnel*

24. Appropriately trained health personnel are essential for the proper prescription, fitting, user training and follow-up of assistive products. Without these key activities, assistive products may have no benefit, be abandoned or even cause physical harm, with negative implications for the user as well as extra health care costs. However, there is a lack of trained personnel in most countries. For example, over 75% of developing countries do not have prosthetic and orthotics training programmes (17). Countries with

the highest prevalence of disability-related health conditions are often those with the lowest supply of health workers skilled in the provision of assistive products. This ratio can be as low as two professionals per 10 000 population (18).

### *Products*

25. The assistive products industry is currently limited and specialized, primarily serving high-income markets. Lack of state funding, user-centred research and development, systems of procurement, quality and safety standards, and context-appropriate product design are all negative factors. Many countries do not produce assistive products or have small-scale production in terms of both quantity and variety of product. Lack of access to required materials and equipment, and associated high duty and import taxes are barriers to local production.

## **4. Regional situation and challenges**

26. Given the gaps in knowledge and scarcity of specific regional data, it is difficult to assess the situation in the Region regarding access to assistive technology for those in need. However, several studies and reports present data on the prevalence of health conditions that may affect functional capacity, and could thus help draw the regional context underlying the need for assistive technology.

### **4.1 Policies and programmes**

27. Government commitment to providing an equal opportunity for people with special needs is crucial to ensure equitable access to assistive products and associated services (8). Nongovernmental organizations rarely have the financial means or capacity to develop country-wide sustainable service delivery systems. With limited geographical coverage, their services often focus on specific types of assistive technology or disability.

28. The countries that participated in the 2005 Global Survey reported that they supplied individuals with assistive products. However, there is no clear information whether this is supported by relevant and appropriate legislation, policies or programmes. In many cases rehabilitation services, particularly in low-income and middle-income countries, are provided by the private sector, nongovernmental organizations, donors and international institutions. All these factors have implications for the universality and equitable coverage of assistive technology provision (15).

### **4.2 Needs among different groups**

29. In general, data are scarce on assistive technology needs among those in need. Nevertheless, available data on disability and related health conditions can be a proxy for estimating the market size of assistive products required to satisfy the needs of populations.

### *Disability*

30. *The World report on disability* estimates that 15% of the world's population lives with some form of disability. Over 97 million persons are estimated to be living with disabilities in the Region. Table 2 shows that the reported prevalence of disability in Member States varies between 0.7% and 4.6% (19). This wide range is an indication of data limitations including lack of uniform definition and standardized methodology. Moreover, these figures are likely underestimated, particularly when compared to the global percentage of 15% of the total population.

### *Visual and hearing impairment*

31. WHO estimates that in 2010, 4.9 million people in the Region were blind, 18.6 million had low vision and 23.5 million were visually impaired, representing 0.8%, 3.2% and 4.1% of the total regional

population, respectively (20). Available regional data also indicate that 10.7 million people aged 15 years and older are living with disabling hearing loss. WHO estimates that the Middle East and North Africa account for about 3% of the world population over 65 years of age with disabling hearing loss (21).

### *Ageing populations*

32. Available data on current and projected ageing populations (60 years and above) in countries of the Region show that their numbers compared to the overall regional population will progressively increase from about 6.6% in 2015 to almost 15% in 2050 (22). The increase in ageing populations has implications for the expected needs for assistive technology given the associated functional decline and increased risk of noncommunicable diseases.

### *Noncommunicable diseases and mental health conditions*

33. Globally noncommunicable diseases account for two out of every three years lived with disability. Noncommunicable diseases can lead to impairments related to amputation, blindness or low vision, mobility, cognition and speech (23). Noncommunicable diseases are on the rise in the Region and the prevalence of the main behavioural risk factors is among the highest in the world (24). The Region has around 43 million people with diabetes and has the highest diabetes prevalence (13.7%) among adults aged 18 years and older in the world. Lower limb amputation rates are 10 to 20 times higher among people with diabetes than among the general population (25).

34. A review of studies on age-adjusted epidemiological data on stroke, another major contributor to disability in the Region, showed that the incidence of stroke in five countries in the Region ranged from 27.5 to 63 per 100 000 population per year, in Kuwait and Libya respectively (26). Dementia, a major cause of disability and dependency among older people worldwide, currently affects more than 2.3 million living in North Africa and the Middle East (27). These figures are expected to rise to 4.4 million by 2030. Most people living with dementia or the effects of stroke will benefit from assistive products to address difficulties in functioning.

### *Polio*

35. Many of the people who contracted and survived poliomyelitis over past decades are now living with disabilities. Today, the only two countries in the world that remain polio endemic are in the Region: Afghanistan and Pakistan. WHO started implementing the Polio Rehabilitation Initiative in Pakistan in 2007. To date more than 800 children have been provided with orthotic devices and approximately 115 of these children have also been supported to start attending mainstream school. These figures provide a proxy indication of the needs still to be addressed.

### *Injuries*

36. Some country estimates show that up to 25% of disabilities can be associated with injuries (28). Non-fatal road traffic injuries incurring permanent disability are not well documented in the Region. Figures are available only in four countries of the Region and range from 1.8% to 18% (29). It is estimated that for every road traffic death, 20–50 more persons experience non-fatal injuries with possible permanent disabilities (30). Given that the Region has the second highest road traffic death rate worldwide (29), the number of disabilities due to road traffic injuries can be expected to be high. Road traffic crashes, falls and violence are the three main causes of spinal cord injury. It is estimated that 26 000 to 52 000 persons experience spinal cord injury in the Region every year, resulting in the need for wheelchairs, pressure relief cushions and other assistive products (31).

Table 2. Prevalence, types and causes of disabilities in Member States

Country	Prevalence	Type of disability (%)				Cause of disability (%)						
		Physical/ locomotive	Visual/speech/ hearing	Mental	Other	Conflict/ emergency	Ageing	Accident	Diseases	Hereditary	Birth- related	Other
Afghanistan (2011) <sup>a</sup>	2.9	37.0	26.0	–	–	17.0	–	–	–	–	26.4	–
Bahrain (2010)	2.9	30.7	28.0	14.6	26.7	–	–	8.9	36.1	9.5	29.3	16.2
Egypt (2006)	0.7	33.9	26	22.4	17.7	–	9.4	13.9	13.7	51.9	5.4	–
Iraq (2007)	2.8	44.9	18.4	14.6	22.1	14.3	–	8.4	15.5	–	45.6	16.2
Jordan (2010)	1.9	28.5	37.8	19.4	14.3	–	–	–	–	–	–	–
Kuwait (2011)	1.1	30.8	35.1	17.0	17.1	–	–	10.2	35.9	6.5	39.5	7.9
Lebanon (2004)	2.0	59.9	38.8	22.3	–	7.9	16.5	17.7	17.0	30.7	5.1	5.2
Libya (2007)	2.9	43.3	28.1	22.5	6.1	–	9.8	23.5	19.6	23.4	11.4	12.2
Morocco (2004)	2.3	27.5	24.9	18.8	28.8	–	–	–	–	–	–	–
Oman (2010)	3.2	32.7	41.1	13.9	12.3	–	30.0	6.5	28.0	31.4	–	4.1
Palestine (2007)	4.6	38.9	80.1	14.6	14.7	–	–	–	–	–	–	–
Pakistan (1998) <sup>b</sup>	2.5	19.0	16.0	14.0	43.3	–	–	–	–	–	–	–
Qatar (2010)	0.4	44.5	92.0	29.6	14.5	–	–	–	–	–	–	–
Saudi Arabia (2004)	0.8	23.8	29.9	19.8	26.5	–	–	–	–	–	–	–
Sudan (2008)	4.9	28.5	59.5	24.2	–	–	–	–	–	–	–	–
Syrian Arab Republic (2007)	1.4	43.6	21.9	23.5	10.8	–	9.7	11.6	27.0	49.1	–	2.6
Tunisia (2009)	1.3	36.7	23.5	34.1	5.7	–	3.5	15.3	25.8	–	51.6	4.0
United Arab Emirates (2005)	0.8	15.4	67.5	7.4	9.7	–	–	–	–	–	–	–
Yemen (2004)	1.9	32.5	38.4	14.5	14.6	2.2	28.0	17.8	22.2	26.3	–	3.5

Source: (18) except where otherwise noted

a Source: Strategy for disability and rehabilitation 1390–1393 (Kabul: Ministry of Public Health; 2011)

b Source: 1998 census (<http://www.pbs.gov.pk/sites/default/files/tables/DEMOGRAPHIC%20INDICATORS%20-%201998%20CENSUS.pdf>, accessed 26 June 2016)

– data not available

### **4.3 Rehabilitation services, including skilled personnel and assistive products**

37. In many low-income and middle-income countries, only 5–15% of people requiring assistive products have access to them (15). Reasons include inadequate production, poor quality, and prohibitive costs. The development of a simple instrument to assess population needs to inform national planning and the development of policies to meet the growing needs of people with functioning difficulties (32).

38. A 2006 review of stakeholders' views on disability policies and services in Egypt, Jordan and Lebanon, showed that access to adequate health services including assistive products was low despite efforts undertaken (33). The need to increase the required human resources was highlighted. In Morocco, persons with disabilities expressed a need for better access to medication (21.3%), "technical devices" (17.5%), and financial help for basic needs (52.5%) (34).

39. A review of assistive technology for ageing populations in Egypt highlighted the involvement of nongovernmental organizations in the acquisition and manufacture of assistive products as well as in training. The review noted concerns about donated assistive products with regard to appropriateness and quality. In Egypt the Ministry of Health and Population, Ministry of Social Solidarity and other concerned stakeholders also contribute to assistive technology provision including development, production, distribution, maintenance and repair (35).

### **4.4 Assistive technology needs in emergency situations**

40. The Region is facing an unprecedented scale of emergencies requiring humanitarian assistance. More than 62 million people affected across the Region are in need of health care as a result of emergencies. The examples below reflect the magnitude of health needs resulting from emergency situations including the potential need for assistive technology.

41. In the past 20 years large-scale earthquakes in Bam, Islamic Republic of Iran and in Kashmir, Pakistan resulted in huge numbers of deaths and injuries, which led to a considerable increase in disabilities in both countries. Estimates indicated that both earthquakes resulted in approximately 31 000 deaths and 30 000 injuries in the Islamic Republic of Iran (36) and over 73 000 deaths and 128 000 injuries in Pakistan (37).

42. A 2016 humanitarian needs review in the Syrian Arab Republic lists trauma and injuries (including disabilities) as well as noncommunicable diseases as the priority health needs. Around 1.5 million people with disabilities and 600 000 with chronic illness are among populations in need of humanitarian assistance, and have limited access to needed services (38). Almost 88.5% of internally displaced populations in the country indicated that they did not have satisfactory access to rehabilitation services (39).

## **5. WHO response**

### **5.1 The GATE Initiative**

43. At the 2013 High-level Meeting of the General Assembly on Disability and Development, WHO was requested to develop and coordinate a global initiative to support Member States in realizing their obligations in the Convention on the Rights of Persons with Disabilities towards increasing access to assistive technology. The Secretariat thus established the Global Cooperation on Assistive Technology (GATE) in partnership with international organizations, donor agencies, professional organizations, and academia and user groups. GATE reinforces WHO's global strategy on people-centred and integrated health services across the lifespan, and supports action plans on disability, ageing and health, noncommunicable diseases, and mental health.



## **5.2 The ‘four Ps’**

44. GATE has identified four key areas, ‘four Ps’, which need to be addressed in order increase access to assistive technology for everyone, everywhere: policy, personnel, products and provision.

*Policy: assistive technology policy framework.*

45. WHO is working to support Member States to develop national assistive technology programmes. An assistive technology policy framework is being prepared, with best practice examples. The framework will include financing mechanisms to ensure sustainability of service provision and universal access. It will also include guidance on implementation of the priority assistive products list, minimum standards, appropriate training and service provision.

*Products: priority assistive products list*

46. Modelled along the lines of the WHO Model List of Essential Medicines, the developed priority assistive products list will provide guidance for procurement and reimbursement policies, including insurance coverage. Improving Access to Assistive Technology was also agenda item 6.2 of WHO’s 139th Executive Board meeting. The agenda item was proposed by Pakistan who also asked for a draft resolution to be proposed to the 70th Session of the World Health Assembly. The Executive Board agreed for the agenda item to be included on the rolling agenda.

*Personnel: Assistive products training package*

47. WHO is currently working on a training package to support Member States in building the capacity of national health personnel (including those working in rehabilitation, nurses and community health workers) to provide a range of basic assistive products at the primary or community level, including the training of formal and informal carers. WHO will also work with Member States on specialist assistive products training to explore possibilities for increasing local and regional capacity.

*Provision: Single-window assistive products service provision*

48. A network of specialist referral centres connected to the primary health-care infrastructure is needed to ensure universal access and early intervention. WHO is working on developing an assistive products service provision model while ensuring that the package is tailored to Member States specific needs and contexts. This effort is being complemented by a needs assessment tool that is currently also being developed by WHO. The tailored model will improve access to assistive products for all functional needs of a person, preferably from a single point.

## **5.3 Regional and joint interagency initiatives**

49. In several other WHO regions (South-East Asia and Western Pacific), regional meetings on assistive technology are taking place in 2016 to raise awareness and support Member States. The WHO Kobe Centre, Japan, is collaborating with the GATE initiative to support the collection and dissemination of evidence. WHO is also working with UNICEF to improve access to assistive technology for children with disabilities, particularly in areas of emergency and conflict.

## 6. Regional action plan for increasing access to assistive technology in the Eastern Mediterranean Region

50. The Regional Committee is invited to discuss the proposed action plan for the Region as the first step towards improving access to assistive technology in Member States.

### *Policy and financing*

<b>Action by Member States</b>	<b>WHO support</b>
<ul style="list-style-type: none"> <li>• Ensure Ministry of Health assumes a leadership role and coordinates with other Ministries and stakeholders.</li> <li>• Develop an integrated policy that involves all stakeholders to improve national access to assistive technology for different groups</li> <li>• Develop and/or strengthen adequate financing for assistive technology, to avoid significant out-of-pocket payments; for example, inclusive health-financing systems or health/welfare insurance schemes.</li> </ul>	<ul style="list-style-type: none"> <li>• Support Member States in developing national assistive technology policies and programmes based on high quality case studies as well as reliable and adequate data.</li> <li>• Develop practical guidance on an assistive technology policy framework.</li> <li>• Facilitate the exchange of information, experiences and best practices as well as collaboration among Member States in the development and implementation of assistive technology policies and programmes.</li> </ul>

### *Service provision*

<b>Action by Member States</b>	<b>WHO support</b>
<ul style="list-style-type: none"> <li>• Strengthen country data collection through establishment of appropriate tools and systems to measure the unmet need to ensure adequate planning of services.</li> <li>• Develop national priority assistive products lists, according to national need, context and available resources.</li> <li>• Include assistive technology as an essential component of health service delivery systems from tertiary to primary care/community levels.</li> <li>• Include priority assistive products into all stages of emergency preparedness and response to ensure that pre-existing and emerging needs are appropriately met during and after the emergency situation.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide practical guidance to Member States including WHO Priority Assistive Products List, needs assessment tools, and service delivery model, with best practice examples.</li> <li>• Provide technical support in selection of priority assistive products for all stages of emergency preparedness and response.</li> <li>• Promote regional research activities, especially in relation to development of academic and institutional capacities to increase knowledge of cost effectiveness of assistive technology and the impact of its access on families/caregivers of people with disabilities.</li> </ul>

### *Products*

<b>Action by Member States</b>	<b>WHO support</b>
<ul style="list-style-type: none"> <li>• Establish national standards for priority assistive products including minimum quality and safety.</li> <li>• Establish national and regional collaboration and coordination mechanisms for manufacturing a range of priority assistive products.</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitate regional or subregional agreement on minimum standards for priority assistive products.</li> <li>• Provide guidance on the selection of products to be manufactured and facilitate technology transfer to produce high-quality products at an affordable cost.</li> </ul>

### *Personnel*

<b>Action by Member States</b>	<b>WHO support</b>
<ul style="list-style-type: none"> <li>• Develop appropriate and adequate national human resources for provision of priority assistive products at all levels of health service delivery, especially the primary health care level.</li> <li>• Develop national and/or regional capacity to train personnel for specialized assistive technology professions (for example: prosthetics, audiology, optometry, speech and language therapy).</li> </ul>	<ul style="list-style-type: none"> <li>• Support Member States to estimate human resource needs for assistive technology professionals.</li> <li>• Provide guidance on setting minimum standards for training and regulation of assistive technology personnel, across all levels of the health service delivery system, including for primary/community level health personnel.</li> </ul>

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