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An overview of assistive technology products and services provided in Malawi

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ABSTRACT

Background: Assistive technology is the products and services used by individuals with functional limitations to enable participation in society and realisation of rights afforded by the United Nations Convention on the Rights of Persons with Disabilities. The Assistive Product List is a comprehensive list of products identified as essential for access through universal health coverage. Key stakeholders, including organisations of persons with disabilities, civil service organisations, academic organisations and government ministries are collaborating to integrate assistive technology into policy and develop a priority assistive products list for Malawi.

Objective: To understand the organisational characteristics of, and assistive products provided by, key stakeholders working in AT in Malawi.

Study Design: Online survey of representatives from key stakeholder organisations.

Methods: We surveyed representatives of key stakeholder organisations to gather information regarding assistive technology product and service provision in Malawi. Responses were analysed using counts for closed-ended questions, and conventional content analysis for open-ended questions.

Results: A total of 36 of the 50 APL products were provided by eight organisations. Related services were provided for 36 of the 50 APL products by twelve organisations. Five organisations reported providing both products and services. Products and services are largely funded by donation and provided free to those who require them.

Conclusion: A range of organisations in Malawi play a role in assistive product delivery and related services. Coordinated AP delivery and service provision is required at a national level which is sustainable and inclusive, and is based on identified needs of the Malawian population.

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► IMPLICATIONS FOR REHABILITATION

- Policies supporting assistive product and service provision must acknowledge the contextual needs of the communities where they are implemented.
- Coordination is required for assistive product and service provision at the national and sub-national level.
- Existing and potential gaps in service provision must be addressed when implementing a national assistive products list.

Background

Assistive technology (AT) is a critical component to the realisation of rights set forth in the UN Convention on the Rights of Persons with Disabilities, and to the achievement of the UN Sustainable Development Goals [1,2]. Assistive technology is an umbrella term which includes systems and services which are relevant to the delivery of assistive products and services [3]. Assistive products are the technologies which “maintain or improve an individual’s functioning and independence, thereby promoting their well-being.” [3]. It is estimated that 1 billion people currently require AT, with 2 billion expected by 2050 [3]. Furthermore, estimates suggest only 1 in 10 have access to the AT they require to participate in daily life [3].

To address this gap between the need for AT and access to AT, the World Health Organisation established the Global Cooperation on Assistive Technology, a global initiative to ensure all who require AT for participation have access to it [4]. The GATE Initiative has since established a list of Priority Assistive Products or Assistive Products List (APL), which identifies the fifty assistive products which should be available to citizens of any nation through universal health coverage [5]. This list was developed through extensive consultation with AT users, providers, organisations of persons with disabilities (OPDs) and other interested parties. Following the release of the APL, the World Health Assembly (WHA) subsequently adopted Resolution 71.8 (WHA71.8) on Improving Access to Assistive Technology, which specifically calls on nations to “develop a national list of priority assistive

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products that are affordable and cost-effective and meet minimum quality and safety standards, drawing on WHO's priority APL" [6]. Furthermore, WHA71.8 calls on countries to "develop, implement, and strengthen policies and programs, as appropriate, to improve access to AT within universal health and/or social services coverage" [6].

Addressing WHA71.8 at the national level requires investment in the development and implementation of effective policies by relevant government ministries. The Assistive Product List Implementation Creating Enablement of Inclusive SGDs (APPLICABLE) Project was developed in response to WHA 71.8 to develop and implement an APL for Malawi, based on current needs and national context, in collaboration with relevant government ministries, Organisations of Persons with Disabilities, Civil Society Organisations and academic institutions. The project has been described in full in a previous publication [7]. One of the aims of APPLICABLE is to understand the state of the AT landscape in Malawi prior to implementation, and to provide evidence from which to support the development of a sustainable, context-specific policy and implementation plan [8]. As part of the work to understand the Malawian AT landscape, the objective of this study was to understand the organisational characteristics of, and assistive products provided by, key stakeholders working in AT in Malawi.

Methods

This research forms part of the larger APPLICABLE project, an action research project aimed at contributing to the development of policies and systems for effective APL implementation in Malawi. Ethical approval for the APPLICABLE project has been granted by Maynooth University (SRESC-2019-2378566) and the University of Malawi Research Ethics Committee (UNIMAREC P.01/20/10)

We conducted a web-based survey of AT organisations in Malawi. Organisations which were invited to participate ($n=29$) were identified by the APPLICABLE Action Research Group as key stakeholders in assistive product or AT service provision, AT advocacy or policy making relevant to AT.

Each surveyed organisation was asked to identify a single individual to respond on behalf of the organisation. The survey included closed and open-ended questions on characteristics of the organisation, population served, assistive products and related services provided (specifically linked to the WHO GATE APL), mechanisms for provision of assistive products (i.e. cost and payment, funding), and challenges encountered during assistive product or service provision.

Data were collected using Qualtrics software [9]. Responses were analysed using simple counts for closed-ended questions. We used conventional content analysis for open ended questions where responses grouped based on similarity of response and assigned categories for reporting [10].

Results

A total of 18 organisations responded representing 3 government ministries, one government ministry affiliated implementation organisation, 6 organisations of persons with disabilities, 1 service provider and 7 international non-governmental organisations.

Table 1. Characteristics of assistive technology-related organisations in Malawi.

Disability focus	Physical	6
	Intellectual	1
	Psychosocial	1
	Developmental	4
	Sensory	3
	All	5
Age of clients served	Children (0–18)	13
	Adults (19–50)	16
	Older adults (50+)	14
Service provided	Assistive technologies	8
	Related services	12
	None	3

Organisation demographics

Organisations were asked to select the categories of disability representing their client population. Organisations represented individuals with physical disabilities ($n=6$), intellectual disabilities ($n=1$), psychosocial disabilities ($n=1$), developmental disabilities ($n=4$) and sensory disabilities ($n=3$). Five organisations reported support for any individual with a disability, regardless of disability type (all). Nearly all organisations ($n=16$) support adults, aged 19–50, while older adults and children were served by 14 and 13 organisations, respectively. Of those organisations surveyed, 8 reports providing assistive technologies directly, while 12 reports providing related services. Three organisations reported no AT provision or related services. Table 1 outlines all characteristics of responding organisations.

People served per month

Five organisations report serving over 1000 individuals per month (one through partner organisations). Three organisations report serving 100 or more. The remaining three organisations who serve individuals directly report between 20 and 60 per month. One organisation providing services did not report a number, as the number varies dependent on enrolment in an educational program.

Assistive products provided and supported

Among those organisations who reported providing assistive products, a total of 36 of the 50 APL products were identified as being provided by eight organisations. Related services were provided for 36 of the 50 products listed on the WHO APL by 12 organisations. Five of these organisations reported providing both products and services. Three organisations who were surveyed reported providing no products or services; these organisations were in a coordinating or support role. Table 2 outlines the number of organisations providing each of the APL products and/or related services in Malawi.

The following products were not provided nor supported by any organisations: fall detectors, GPS locators, hearing loops/fm systems, personal emergency alarm systems, pill organisers, simplified mobile phones, time management products, portable travel aids, video communication devices and talking/touching watches.

Obtaining, procuring, distributing APs

Organisations which indicated they provide APs directly to clients were asked how they obtain those APs. All organisations reported obtaining APs through donation. Additionally, five organisations report purchasing APs for distribution, while three build or create the APs within Malawi (one service provider, two international NGOs).

Table 2. APL products provided or supported.

Assistive product (as listed in APL)	# Organisations	
	Product	Services
Crutches, axillary/elbow	6	3
Wheelchairs, manual for active use	5	3
Canes/sticks	4	3
Club foot braces	4	3
Hand rails/grab bars	4	2
Tricycles	4	2
Walking frames/walkers	4	1
Wheelchairs, manual with postural support	4	2
Braille writing equipment/braille	3	4
Hearing aids and batteries	3	3
Pressure relief cushions	3	1
Spectacles; low vision, short distance, long distance, filters, protection	3	3
Standing frames, adjustable	3	3
Braille displays	2	2
Chairs for shower/bath/toilet	2	1
Communication software	2	3
Magnifiers, optical	2	3
Orthoses, lower limb	2	1
Orthoses, spinal	2	1
Orthoses, upper limb	2	1
Prostheses, lower limb	2	1
Ramps, portable	2	1
Wheelchairs, manual assistant controlled	2	0
White canes	2	3
Closed captioning displays	1	1
Communication boards/books/cards	1	1
Deafblind communicators	1	1
Gesture to voice technology	1	1
Incontinence products, absorbent	1	0
Keyboard and mouse emulation software	1	2
Magnifiers, digital hand-held	1	1
Pressure relief mattresses	1	0
Recorders	1	2
Rollators	1	0
Therapeutic footwear; diabetic, neuropathic, orthopaedic	1	0
Wheelchairs, electrically powered	1	0
Alarm signallers with light/sound/vibration	0	1
Audioplayers with DAISY capability	0	1
Personal digital assistant	0	1
Screen readers	0	1
Other assistive products provided	1 ^a	2 ^b

^aOther assistive products provided included paper-material chairs for children with disabilities.

^bOther services provided include services for orbit readers, policy and advocacy support.

Organisations described a high degree of unmet need which they are unable to address with available products. This is due, in part, to a lack of funds for purchase of raw materials, purchase of APs, and costs associated with follow up or monitoring. In particular, there is donor dependency on products which impacts the time required to obtain products and the availability of client specific products. This results in an insufficient availability of products, or products not meeting client needs. Organisations also rely significantly on donors for providing professional training, and identified a lack of qualified technicians for assessment and/or maintenance. Transportation of qualified practitioners for community outreach and transportation of clients to centralised locations are also a challenge. Furthermore, respondents noted challenges with costs associated with freight and taxes on products.

Of those organisations which provide APs directly to clients, all provide technology free to clients. In two cases, clients may pay a portion of the cost according to their ability, and in two cases, clients may pay a fixed cost, however technologies are still largely provided free of charge.

Assistive technology-related services

Organisations which indicated they provided AT-related services were asked to describe those services. These services included

peer support and counselling services (1), assessment and referral, and advocacy and outreach. It is noteworthy that some products are supplied without corresponding support.

Discussion

Mobility aids of all types were the most commonly provided products, from the highest number of organisations, followed by aids for vision and hearing. This supports previous research in Malawi and other African countries on AT provision, as well as census reports which identify physical visual, and hearing disabilities as most common [11,12]. Although other products are provided in Malawi, they are often provided by one or two organisations, with limited reach. Furthermore, there are additional products from the APL which are not provided nor supported at all. It is reasonable to assume these products are nonetheless required by Malawians as they are required by others at a global level, however no current organisation or provision structure is responsible for ensuring these products are available to the public. This supports the expected need for an APL which meets the needs of Malawians and is driven by reliable data related to disability and AP need. The WHO APL serves as a guide for countries to develop a national-level APL relevant to contextual factors, including what

is necessary to meet population needs and feasible within the country's socioeconomic context.

It is striking to note the reliance on donor-driven AP delivery. Donors play a range of roles including paying for products directly through funds for purchase or donation, delivering products, or through financial coverage for services. While donor-driven programs meet the needs of individuals, they are rarely coordinated, and often limited in scope with limited ability to scale at a national level [13]. This results in a limited number and quality of products available, with limited services [14,15]. Furthermore, donor-delivered programs may be limited in their sustainability, resulting in a lack of access to follow-up or maintenance services, or lack of continuous access to APs within a country or region [14,16]. This underscores the need to develop sustainable, funded AP service delivery and support systems, including appropriate implementation pathways, which are delivered broadly at a national level [17]. Previous discussions on this matter have suggested a need for international donors to work collaboratively with governments to ensure these systems are able to reach the necessary scale and the lowest cost, through a sustainable and coordinated system [17–20].

This research also highlights the limited number of services available to those who require APs. Where services are available, those which are provided may not span the range of services required for successful AP implementation. As an example, the WHO has published Guidelines on the Provision of Manual Wheelchairs in Less Resourced settings, which suggests the range of services provided should include referral, assessment, prescription, funding, assembly or production, fitting, user training and follow-up maintenance and repairs [21]. These are similar to the services expected for any APs which may be required. However, we know from similar settings that many of these services are not being provided in lower resourced environments [22]. There are many reasons for this gap in service provision. Chief among them is limited funding and lack of availability of qualified human resources to support AP provision [23]. It is crucial to address this gap through innovative approaches including task shifting and the development of an appropriate skill-mix within countries to achieve the desired outcomes [23].

Finally, our research highlights the range of organisations and actors who are involved in the provision of APs throughout Malawi. This complexity and lack of overall coordination of the various players, contributes to the challenges of limited access to APs for citizens. A systems thinking approach is required which brings together all stakeholders to understand and address AP needs in a systematic way [17]. Policies must be developed which support these systems at the national level, as identified in WHA71.8 [6,24]. Without investing in a systemic approach to AT it is unlikely that efforts to support market shaping to increase access to quality affordable products will be successful [25].

Conclusion

A range of organisations in Malawi play a role in assistive product delivery and related services. There remains a high focus on mobility, vision, and hearing related products, with limited access to products and services to support cognition, psychosocial, or other sensory disabilities. Coordinated AP delivery and service provision are required at a national or sub-national level which are sustainable and inclusive, and based on identified needs of the Malawian population.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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