SUPPLEMENTARY DIGITAL MATERIAL 2

Supplementary Table II.—Barriers & facilitators for expanding rehabilitation services in low- and middle-income countries – a systematic review.[10-51]

Article no.	Authors	Summary
10.	Allen et al, 2020[10]	Authors looked at access and provision of rehabilitation after lower limb amputation in Sierra Leone. **Barriers:** Lack of transport and high cost, lack of mobility aids and physiotherapy, prosthetic services limited, belief in traditional healers and heavy stigma on amputees, lack of available resources, lack of specialist education and training programs, lack of funding and government support. **Facilitators:** Introduction of physiotherapy degree in Sierra Leone to tackle shortage of physiotherapists, occasional donations of equipment and mobility aids for patients.
11.	Anwar et al, 2018[11]	Authors highlighted gaps in cancer rehabilitation services and opportunities to improve quality of cancer care in LMICs. **Obstacles:** Lack of leadership and governance, lack of financing to rehab services, low number & standard of skilled health-related professional, lack of medical products, insufficient technology, limited access to information and lack of research capacities, low standard service delivery and infrastructure of rehab services. **Facilitators:** Rehabilitation services implemented in almost all hospitals and primary care since 2008, albeit not specific for cancer rehab. International collaboration for cancer rehab through modern electronic media for teaching and training of healthcare professionals.
12.	Baatiema et al, 2020[12]	Authors reported on stroke patients from 3 major hospitals in Northern Ghana on their experiences at onset, barriers accessing rehabilitation care in outpatient settings, coping strategies and perspectives on strategies to improve stroke rehab care. **Obstacles:** High cost of medications, transportation constraints, low waiting time, limited education/ info about rehab, lack of community/ social support, ineffective communication with healthcare providers. **Facilitators:** Coping strategies significantly higher among women than men. Other coping strategies include engaging in physical activity, watching tv, listening to music, prayer, reading, counselling and crying. Subscription to National Health Insurance Scheme (NHIS) as potential determinant of medication adherence.

13.	Baatiema et al, 2017[13]	Authors looked at barriers perceived by stroke care professionals on provision of acute care and across the continuum of stroke care. **Obstacles:** Four main themes: 1) Patient level – financial constraint, lack of awareness, sociocultural or religious beliefs and practices, discharge against medical advice; 2) Hospital or health system level – shortage of medical facilities, lack of protocol for acute stroke care, limited staff and professional development opportunities; 3) Healthcare providers' factor – inadequate knowledge, lack team collaboration and communication, physician-driven stroke care; 4) National policy context factor – lack of political will **Facilitators:** Ghana National Health Insurance Policy offers limited financial risk protection for stroke care.
14.	Bright et al, 2008[14]	Authors reported on 77 studies included in their systematic review of access to rehabilitation for people with disabilities in LMIC. **Obstacles:** Logistics (distance, transport), affordability of services & treatment, lack of insurance, lack of knowledge and attitudinal factors; disability-related barriers include discrimination from healthcare providers, provider lacking skills, communication barriers and lack of affordability enhanced in PWD. **Facilitators:** Study did not focus on facilitators for acces to services
15.	Sunil Deepak, 2003[15]	Deepak discussed strategies for answering rehab needs of persons with leprosy related disabilities in integrated settings through primary healthcare (PHC) services and community-based rehabilitation (CBR) in Indonesia and India. **Obstacles:** Lack of rehab services through PHC include insufficient coverage of PHC services, lack of sufficient staff and structures, lack of training on rehab aspects in training curriculum of PHC workers; lack of sufficient CBR program, lack resources for starting national level or local CBR programs. **Facilitators:** CBR programs in 4 districts in South Sulawesi since 1996, information and awareness campaigns, vocational training courses, creation of self-help groups; CBR-leprosy control initiative in Mandya, India include training healthcare works and inclusion of leprosy affected persons in difference activities in CBR; several leprosy-related organizations available
16.	Ennion, Johannesson, 2017[16]	Authors reported on barriers to patients access to prosthetic services in rural South Africa. **Obstacles:** Three main themes: 1) Poor support from government health system, 2) Poor socioeconomic

		circumstances of patients, 3) Cultural factors affecting rehabilitation services such as health beliefs and racial prejudice. Challenges related to prosthetic rehab: Inaccessibility to healthcare services, lack of trained rehabilitation personnel, difficulty attracting and retaining staff, lack of appropriate assistive technology **Facilitators:** Mid-level therapists are being trained in a number of developing countries, recruitment of students from rural areas into health programs at tertiary level, all health professional in SA have to undergo community service program to address staff shortages in rural area.
17.	Harkins, et al, 2012[17]	Authors reported on models of best practice in prosthetic and orthotic services in low-income countries. **Obstacles:** Action triggers include social equality and awareness of disability, political equality of the disabled, sufficient demand for services, moral imperative towards rehabilitation. Demographics and region-specific issues include large rural populations, lower life expectancy, and political instability. Types of service provision issues include variable models of service delivery with issues surrounding each service model, not easy to place P&O service into CBR model due to their specialized nature and complex technology, lack of evidence for service provision and no consensus on what constitutes appropriate technology, poor surgical techniques and rehabilitation treatment. **Facilitators:** Foreign organizations take cases and impressions and send P&O home for fabrications, CAD-CAM introduced to increase production levels, CBR being utilized to reach the rural poor, indigenous education and training programs being implemented, programs set up by NGOs have goal of handing over to the local authorities
18.	Sofia Hussin, 2011[18]	Hussin explored the needs of children in Cambodia who wear transtibial prostheses and how these assistive devices influence their daily lives. **Obstacles:** Cultural obstacles, discrimination and social stigma, children being bullied, poverty an extra burden. **Facilitators:** Spirit practitioners (Kru Khmer) facilitating medical treatment referrals, partnering with traditional practitioners is a good way of mobilizing locally available resources, and valuable partners for NGOs.
19.	Ibbotson et al, 2021[19]	Authors reported on a model of patient navigation in Nepal to overcome barriers to accessing surgery and rehabilitation in LMICs. **Obstacles:** Socioeconomic – difficulty to obtain financial assistance, medical costs, transportation; neglected district hospital, disjointed services, absence of locally available

		medical infrastructure in remote areas forces people to travel despite dangerous conditions, cultural beliefs impact access to medical care, social marginalization – low social status, illiteracy barriers to access care, significant stima and prejudice surrounding disability **Facilitators:** Sustained funding stream from external charitable organizations, diversification of income sources and projects to strengthen sustainability, integrating patient navigation into national health strategic plan, proactive advocacy and counselling by patient navigators, no refusal policy, staff are PWD demonstrating potential positive future for patients.
20.	Ibikunle et al, 2021[20]	Authors reported on perceived barriers that physiotherapists in Nigeria encounter in implementing evidence-based practice (EBP) in stroke management. **Obstacles:** Insufficient time, lack of information resources, lack of organizational mandate, lack of research skills, poor ability to critically appraise literature, acquisition of further academic qualification plays little or no role in career progression of physiotherapists (PT) in Nigerian clinics. **Facilitators:** EBP uptake higher with higher academic degree, more years of experience in stroke rehab, more participation time in research and teaching, belonging to professional association. PT in teaching hospitals had a better attitude and interest in EBP, EBP already incorporated into the academic curriculum of Nigerian PTs.
21.	Jain RP et al, 2020[21]	Authors reported on the delivery of trauma and rehabilitation interventions for conflict-affected populations including women, children and or/adolescents in 26 countries. **Obstacles:** Evacuation and referral to health facilities – capacity to manage, inefficient first response protocol, distance, transportation delays, condition of roads and safety of routes; lack of availability of skilled or specialised personnel for management of trauma cases, availability of appropriate medical and surgical supplies, capacity for post treatment follow-up patients, no publications reporting on postoperative or post-treatment follow-up of injured patients **Facilitators:** Proximity of hospital and short evacuation time enables effective treatment of severe vascular injuries in Yemen, collaboration with other service providers was key determinant to intervention delivery.
22.	Kamalakanna S, et al, 2016[22]	Authors looked into rehab needs of stroke survivors in India. **Obstacles:** Barriers to access: patient transportation, access to hospitals and treatment during acute phase of stroke,

		access to investigations, access to medicines, access to therapy and rehabilitation services during the postacute phase –professional fees for every specialist, access to appliances and orthotics – not readily available, very few centre producing, prefabricated; access to long-term therapy services after acute stroke, high cost of home visits, CBR not available, no follow-up pathways in hospitals; Information and knowledge barriers; lack of support needs of stroke survivors and caregivers **Facilitators:** Two well-known neurorehabilitation centres in Tamil Nadu, 1 government managed general rehab center for PWD in Chennai, several physiotherapy (unidisciplinary) clinics
23.	Kamenov et al, 2017[23]	Authors looked into needs and unmet needs for rehabilitation services in low, middle and high income countries. **Obstacles**: Non-availability of services, unaffordability of services, resource limitation, inadequate transport, low density of rehabilitation centers per inhabitant, inequities in access to rehab services due to geographical determinants, lack of availability of trained rehab specialists and infrastructure, no state funding for rehab services, lack of availability and consistency of rehab care.
24.	Fary Khan et al, 2017[24]	Authors explored potential barriers and facilitators for implementation of the World Health Organization Global Disability Action Plan (GDAP) in Pakistan with respect to service delivery **Obstacles:** Limited awareness on disability care, lack of infrastructure, funding and disability data, poor transport access and challenging terrain. Corruption, conflicts, natural disasters. Lack of multidisciplinary care and specialised rehabilitation teams. Fragmented healthcare system with no accreditation standards **Facilitators:** Policy approaches to disability have improved. They have a Multitier healthcare system with focus on NCD . Better collaboration between acute and rehabilitation facilities and NGOs
25.	Fary Khan et al, 2018[25]	Authors identify potential barriers and facilitators for implementation of the World Health Organization Global Disability Action Plan (GDAP) in Nigeria when compared to other LMIC (Madagascar, Mongolia, Pakistan) **Obstacles:** No rehabilitation physicians in Nigeria. Other PM&R professionals are mainly in urban areas only. Lack of emergency assistance programmes for PwD. Poor public awareness about PM&R. Self-pay system. Lack of essential assistive devices/technologies. **Facilitators:** Although Nigeria ratified the CRPD in 2007, but constitution doesn't address disability. It has a National Health Insurance Scheme (NHIS) but doesn't cover the

		majority of the population. PWD often receive rehabilitation from family members indicating good family support.
26.	Carl Froilan,2019[26]	Systematic review of challenges faced when doing telerehabilitation in the Philippines. **Obstacles:** Poor acceptance of telehealth among stakeholders. Lack of digital knowledge and skills needed in e-health and concerns of data data privacy. Lack of national e-health policies or laws No guideline on telerehabilitation principles, scope of services, procedure, and regulations that can be applicable across various rehabilitation professional organizations in the country. **Facilitators:** The National Telehealth Service Program of the Department of Health was an important milestone in spreading telehealth awareness in rural areas, as shown by Macrohon and Cristobal
27.	A M Firoz, Rieke H, 2018[27]	This article describes the present condition of physiotherapy in Bangladesh. There is a severe shortage of physiotherapists to serve the huge population of Bangladesh. **Obstacles:** There is no single registration and regulation body. Low national budget for health. There is a lack of coordination between these health and social welfare agencies **Facilitators:** Bangladesh is moving toward universal health coverage. Over 4000 NGOs both national and international provide healthcare services although often underfunded and understaffed.
28.	S. L. MATSEN, 1999[28]	This study was to understand the impact of prosthetic service provision by Prosthetic Outreach Foundation (POF), an international NGO servicing Vietnam in relation to its usefulness and usability by patients in the local community LMIC. **Obstacles:** No universal access to health. Resources channel through local bureaucracy which favours war veterans mainly and not from other causes . Prosthesis provision related issues such as distance travelled and no repair services. **Facilitators:** Prosthetics provided do improve mobility but it remains apparent that functional rehabilitation has not yet advanced to the point where most amputees can resume occupations such as farming
29.	Anna McPherson 2017[29]	Literature review on processes involved in designing hospital information service (HIS) with incorporation of rehabilitation needs which will facilitate the effective collection and use of data for rehabilitation to improve and plan services for people with disabilities . Comparison within various countries

		(Australia, Thailand laos, sri lanka, ghana, Uganda, Pacific islands, cook islands, Fiji and Tonga) **Obstacles:** In LMIC – reliance on paper based systems. Lack of communication to integrate Govt agencies, NGO and CBR providers. In wealthier nations too, there was a lack of data sharing between public and private hospitals. Need for a national body to govern policy and planning for rehabilitation strategy **Facilitators:** All countries had some form of HIS but had few indicators on rehabilitation and disability. Thailand has strong HIS and also captured detail information from other sources.
30.	Bria Mitchell-Gillespie, Hiba Hashim, Megan Griffin and Rawan AlHeresh, 2020[30]	Review of telehealth as a means to improve training of CBR workers in rehabilitation service delivery for refugees in Jordan **Obstacles:** Sustainable implementation of telehealth systems is obstructed by cost, time inadequate human resources, infrastructure, IT equipment funding, complexity of the intervention. Utilization of telehealth is hampered by patients being hesitance and lack of knowledge and culture and language barriers **Facilitators:** Availability of videoconferencing/ Skype with language translation interface/ internet facility and participants managed to carry out telehealth sessions with help of manual. CBR workers willingness to learn the system and accepting of this method of guidance
31.	Mousavi A, 2019[31]	The aim of the study was to gain an understanding of disaster relief and physical rehabilitation in Iran where in 41 million Iranians inhabitants were affected by natural disasters between 1994 and 2013. **Obstacles:** Absence of rehabilitation services in the national health system plan. The lack of a responsible body. Shortage of specialists and resources. Poor link amongst clinical disciplines. Bias towards surgical disciplines with lesser importance given to rehabilitation. Accessibility problems. Lack of Disaster-related competencies **Facilitators:** Recently more participation from National and International NGOs, social welfare, health ministry and CBR
32.	Naicker A S, 2019[32]	Systematic review by WHO ISPRM working group on capacity building which looked at Facilitators and Barriers to the Rehabilitation Workforce Capacity Building in Low to Middle Income Countries. **Obstacles**: Poor availability of training/service delivery / poor professional recognition, inadequate rehab equipment, poor governmental support.Lack of insurance coverage for staff, lack of leadership for standard care in Rehab.Poor

		awareness about rehabilitation amongst government and health professionals. Cultural barriers and geopolitical instabilities in some nations **Facilitators:** Availability of international organisations along, NGOs collaborations and local government support for educational resources, international exchange programs and clinical service placement. Presence of political commitment to improve care and support for PWD can be perceived.
33.	Ugendrie N and Liezel E, 2019[33]	Authors explored utilisation of Rehabilitation services by persons living with Diabetes/ amputation in rural areas in S Africa. Comprehensive rehabilitation is important for social integration, enhance QOL and essential for prosthetic preparation and fitting **Obstacles:** Environmental factors such as distance travelled, inaccessible transport, lack of information on available physiotherapy services. Financial constraints due to loss of independence. Impoverished community, so all services will need to be paid as a source of income for caregivers. Impairments such as pain, depression and fear of ridicule /stigmatisation prevents seeking therapy services. **Facilitators:** Factors such as availability of Referral system, Positive experience with attending Physiotherapy services,Client motivation and good family support
34.	Joshua A O, 2021[34]	The study aims to look at knowledge and baseline information on the use of assistive technologies (AT) among children with disabilities to increase levels of independence in daily living and promote greater access to learning opportunities for children with disabilities. **Obstacles:** Lack of funds to purchase assistive products. The need for government to include rehabilitation services and ATs in the National Health Insurance Scheme to ease the burden. Need for better transportation and accessible infrastructure,better quality AT products.Products from overseas don't fit local (Ghanian) needs . Stigmatisation of children with disabilities **Facilitators**: Parents acknowledge the usefulness of the AT. Availability of - National Health Insurance Scheme, although it doesn't cover rehabilitation
35.	Matteo P, 2021[35]	To review the evidence on the barriers to evidence-based practice (EBP) reported in physiotherapy in developed and developing countries. **Obstacles:** Lack of time, lack of access to research resources especially for physiotherapists freelance or working in non-academic institutions, education level

		(language, lack of research and statistical skills),personal behavior (lack of interest) and limits of EBP (lack of generalizability **Facilitators:** To capitalise internet access present within the developing nations to enhance EBM based learning and practise of clinical skills
36.	Maureen R, 2017[36]	This is an overview of the activities and outcomes of the Leadership Institute (LI), a short-term leadership professional development course offered to physiotherapists in a low-resource country. **Obstacles:** Physiotherapists (PT) hold several jobs.This reduces time and resource availability for activities . General expectation of funding from external sources to carry out activities. Poor staffing in district hospitals. Poor documentation and inability to get permission to leave work to carry out these activities **Facilitators:** Outreach work from the LI has led to increase in physiotherapy referrals, increase in professional awareness and provision of needed services and greater involvement of the participants and community members in education and leadership in Rwandan health care.
37.	Periquet AO, 1989[37]	Rehabilitation in the Philippines has in the past been based on the Western model, with an emphasis on hospital departments located in the major cities. This approach is inappropriate for the majority of disabled people in the Republic as 70°/0 of the population live in rural areas. A community-based programme was devised using local volunteers who had simple training. These volunteers can identify and support disabled people in their own villages, avoiding long journeys and expensive institutional care.
38.	Pesah E, 2019[38]	A review of Cardiac rehabilitation (CR) availability, programme characteristics and barriers in low/middle-income countries (LMICs)when compared with high-income countries (HICs) and by CR funding source **Obstacles:** Less CR spots availability.Paid by patients,. **Facilitators:** Guideline indicated patients are included.cardiologists & physiotherapists were common providers. Publicly funded programmes were more likely to have social workers and psychologists on staff
39.	Pienaar E, Stearn NA, Swanepoel DW, 2010[39]	Pienaar and colleagues described the self-reported outcomes of adult hearing aid users. Facilitators: Positive self-reported outcomes resulting in advocacy for more aural rehabilitation services Barriers: Difficulty affording private audiological services, shortage of hearing aids, insufficient number of hearing

		health care professionals, budget constraints therefore limited services offered (only monoaural hearing aid fittings
40.	Prathanee B, 2014[40]	Pranthanee and colleagues determined the effectiveness of the "Khon Kaen Community-Based Speech Therapy Model" in decreasing articulation defects in children with cleft palate and/or lip. Facilitators: Training of nurses, occupational and physical therapists to serve as speech assistants (through a 3-day intensive speech camp) improved access to services, support and supervision by Speech therapists, rapidly expanding internet access for online consultations Barriers: National shortage of speech and language therapists leading to delay in accessing care
41.	Pryor W, Newar P, Retis C, Urseau I, 2019[41]	Authors report the development and implementation of a method to score compliance with consensus-based standards for rehabilitation services in 12 rehabilitation centers across six countries. Results suggest that despite investment in developing standards, even with technical assistance from international NGOs, compliance with standards is poor or average in most of the centers. In low and middle-income countries (LMICs). **Obstacles:** Limitations may be associated with variable funding sources and operating in complex environments, and varied experiences with implementing quality management approaches. **Facilitators:** The new method developed is a useful adjunct to existing management techniques, and might be useful in efforts to strengthen and extend health-related rehabilitation.
42.	Ramstrand N, Maddock A, Johansson M, Felixon L, 2021[42]	Authors explored life experiences of people who use lower-limb prosthetic or orthotic devices in Cambodia, with a view to identifying areas in which developments can be made to improve the life experiences for prosthesis and orthosis users. **Obstacles:** Disability creates social exclusion while assistive devices may facilitate inclusion. Concerns were: financial insecurity, sense of hopelessness and reduced social interactions. Attention should be directed towards improving knowledge of and access to prosthetic and orthotic services, securing a stable income for users and addressing device related problems. **Facilitators:** A more positive outlook with an assistive device. Assistive devices reduce barriers but do not eliminate them
43.	Rathore FA, New PW, Iftikhar A, 2011[43]	Authors presented an overview of Physical Medicine and Rehabilitation (PM&R) in Pakistan, covering its origins, current status, and future directions.

		Obstacles: barriers to addressing the needs of the disabled include the lack of reliable disability epidemiologic data, inadequate funding and poor health care infrastructure, and workforce shortages. **Facilitators**: Disability allowance and medical compensation for government emplyees, free medical treatment for government employees and their families
44.	Scheffler E, Mash R, 2020[44]	Authors explored perceptions of home-based care of stroke survivors, family caregivers and community health workers in South Africa. **Obstacles:** Poor knowledge and skills among Community Health Workers, limited service capacity, long waiting times for appointments, High transportation costs, Unavailable and inaccessible transportation, Fragmented home-rehab services with delayed referrals and failure to support community health workers(CHW), Poorly defined CHWs rehabilitation role and scope of practice resulting in conflicting expectations from both caregivers and CHWs **Facilitators:** Use of CHWs to extend services to the community
45.	Skempes et al, 2015[45]	Health-related rehabilitation and human rights: analyzing states' obligations under the United Nations Convention on the Rights of Persons with Disabilities. **Obstacles:** Inadequate policies and standards, negative attitudes, absence of high quality evaluative research in rehabilitation, inadequate funding, lack of physical accessibility to buildings and examination rooms, inappropriate technologies and formats for information and communication. **Facilitators:** Progressive realization and international responsibilities in provision of rehabilitation, Active involvement and participation in rehabilitation service planning, Availability, accessibility, acceptability, and quality of rehabilitation services, products, and facilities, Informed decision making in provision of rehabilitation services, Privacy and confidentiality in provision of rehabilitation services and information, Accountability in the provision of rehabilitation services and information
46.	Stuckey et al, 2020[46]	Authors looked at barriers and facilitators to work participation for persons with lower limb amputations in Bangladesh following prosthetic rehabilitation. **Obstacles:**Lack of skill to design prosthetics that fit the built and natural environment, Lack of discussion among clinicians, prosthetic users and employers to adapt the built environment to facilitate participation. Many AT users therefore perform activities without their prosthesis. **Facilitators**: Spirituality facilitate acceptance, grief and

		work participation ;Work participation provide social connection, identity, dignity, pride and independence; cultural stigma associated with unemployment or begging; planning practical strategies and forward thinking for future work involvement; desire to fulfil traditional role as financial provider; financial, practical, social support and availability of mobility devices
47.	Tawiah, Borthwick, Woodhouse, 2018[47]	Authors looked into the potential challenges and barriers to implementation in Ghana. **Obstacles:** Jurisdictional disputes: professional politics-advanced physiotherapy practice will not be accepted by other professions especially doctors, Poor support from hospital managers for physiotherapists to expand their scope of practice, Lack of policies legislating expanded scope of practice, Lack of adequate postgraduate training **Facilitators:** Strong undergraduate training programs to prove capacity to provide service
48.	Tinney et al, 2007[48]	Authors described the state of medical rehabilitation in Ghana. **Obstacles:** Lack of adequate rehabilitation professionals, Lack of adequate rehabilitation service facilities, Outdated rehabilitation equipment and facilities, Cultural beliefs and stigma surrounding disability resulting in poor seeking of services, Lack of awareness on availability of services by disability organisations, No advisory group on disability at the Ministry of Health level **Facilitators:** Establishment of training facilities, Equipment and expertise/skill support from NGOs
49.	Turmusani, Vreede, Wirz, 2002[49]	Authors reported on some ethical issues in community-based rehabilitation initiatives in developing countries. **Obstacles:** No participation of PWDs in everyday decisions of the service, Lack of stakeholder involvement (especially the community) **Facilitators**: Involvement and participation of service users in the evaluation of the service, Utilisation of locally available materials, Funding for purchasing of equipment, vehicles, buildings and paying salaries
50.	Urimubenshi et al, 2018[50]	Authors reported on the state of stroke care in Africa **Obstacles:** Shortage of long-term rehabilitation services, High cost of outpatient physiotherapy services, Lack of direct regional or national health policy to support stroke care, including national stroke policy framework and national stroke clinical guidelines, Lack of finances to attend out-patient rehabilitation, Long distances to rehabilitation facilities, Lack of continuity of care resulting in dissatisfaction, Limited services in community health centres compared to specialized rehabilitation facilities **Facilitators:** Support from NGOs for long-term stroke care

51.	Yao et al, 2020[51]	Authors looked into experience of Filipinos with spinal cord injury in the use of assistive technology. **Obstacles:** Lack of maintenance services for assistive products, Lack of implementation of disability related policies, Disregarding the local context in AT service provision,Lack of occupational therapists involvement in sourcing for support and engaging in policies surrounding AT provision **Facilitators:** Support from NGOs and religious bodies for AT maintenance