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Providing dermatological care in resource-limited settings: barriers and potential solutions

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Worldwide, skin conditions are the fourth leading cause of nonfatal disease burden and contribute to disability in all age groups.¹ Resource-limited settings (RLS) are characterized by limited access to healthcare providers, fewer healthcare professionals, less developed infrastructure, and reduced availability of medications, supplies and equipment. This article identifies barriers to providing dermatological care in RLS, focusing on low- and middle-income countries (LMICs) and proposes potential solutions to address these barriers.

Firstly, dermatologists in RLS are few in number and generally work in urban areas, rarely travelling to rural communities. Patients living outside of urban areas often have difficulty seeing a specialist because of transportation costs, expensive services and concerns about lost income. Teledermatology can help bridge the access gap by mitigating patients' cost and time concerns. With appropriate infrastructure and support, teledermatology can be implemented within an LMIC health system using in-country teledermatologists,² who are familiar with endemic diseases and local healthcare delivery. Establishing outreach clinics is another way in which dermatologists can improve access in RLS. In Botswana, outreach clinics are led by a dermatologist based out of the capital city and rotate weekly among four rural towns.³ In rural Ethiopia, a mobile dermatology clinic is held twice monthly in two villages and includes a nurse, two community health workers and a dermatologist, who conducts training with local health-centre staff.⁴

Secondly, healthcare professionals do not have sufficient dermatology training. Dermatologists can play a crucial role in training healthcare professionals in LMICs, where task shifting is common due to constrained human health resources.⁵ Community-based programmes that combine training of primary-care providers with teaching clinics have been successful in Mexico⁶ and Patagonia, Argentina,⁷ with the latter also including sun protection workshops for children. Diploma programmes exist at the Preah Kossamak Hospital in Cambodia and the Regional Dermatology Training Center in Tanzania.

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Conflicts of interest

None to declare.

In addition to increased dermatology training of frontline providers, there is ongoing need for dermatology residency and postgraduate programmes in sub-Saharan Africa that train dermatologists with curriculum standards that are modelled after high-income countries but adapted to focus on endemic conditions, locally available resources and local healthcare systems. Such programmes exist through a partnership between Addis Ababa University and the African Leprosy/Tuberculosis Education and Research Center in Ethiopia, the Regional Dermatology Training Center in Tanzania, Mbarara University of Science and Technology in Uganda, and several institutions in South Africa and Nigeria.

Thirdly, dermatopathology capacity is poor. In LMICs, allocation of limited pathology resources to dermatopathology is influenced by the perceived utility of histopathology in the management of skin diseases, which in turn is determined by the ability to sample a representative specimen, proper tissue processing and reliable reports. Each of these aspects represents a potential barrier. Biopsy supplies may be initially supported by grants or philanthropy, but ideally they would be sustained by the healthcare facility, which necessitates support from facility leadership and familiarity with customs regulations. Next, availability of histopathology services is often limited. When available, the quality of tissue processing and staining may be suboptimal, and the linkage of results to other aspects of patient care is haphazard. While special stains, immunohistochemistry, and immunofluorescence are not readily available, a study from Kenya and Tanzania concluded that a proper histopathological diagnosis could be rendered after haematoxylin and eosin staining alone in almost 90% of 386 specimens,⁸ suggesting that limited resources should not prevent the development of dermatopathology capacity. Point-of-care polymerase chain reaction techniques to diagnose skin diseases with infectious aetiology will improve timely diagnoses if reliability and affordability can be achieved. Where local dermatopathology is unavailable, store-and-forward teledermatopathology, real-time robotic teledermatopathology⁹ and virtual slide systems can be utilized, although implementation of the latter two options is dependent on telecommunication and technology infrastructure.

Finally, fundamental dermatological therapies are often not readily accessible in LMICs. Forming a relationship with local pharmacists enables effective advocacy for medications. In western Kenya, a revolving fund pharmacy model allows for steady provision of medications by using revenues generated from sales to restock medications.¹⁰ Furthermore, compounding of essential medicines locally may increase their availability and affordability, although obtaining a consistent supply of raw materials can be a challenge. Additionally, natural sunlight can be used in lieu of phototherapy, although this manner of skin exposure may not always be culturally appropriate. Philanthropy plays an important role, but sustainability is not guaranteed. Importantly, providers in RLS should understand the feasible treatment options for patients, with careful consideration of cost, availability and ability to follow up.

In conclusion, there are multiple barriers that impact the delivery of dermatological care in RLS, ranging from inadequate human health resources to minimal pathology capacity to limited supplies and medications. Potential solutions for overcoming these barriers have been discussed herein, but these are not exhaustive. By investing in dermatology education,

engaging in local healthcare systems and appropriately utilizing technology, we will be well equipped to improve skin health worldwide.

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