## Health Workforce & Training

### The health workforce status in the WHO African Region: findings of a cross-sectional study.

A survey conducted by the WHO Regional Office for Africa assessed the health workforce (HWF) across 47 countries in the region to establish a baseline for implementing the Global Strategy for HWF by 2030. Using a cross-sectional survey and data collection from January 2018 to April 2019, the study identified approximately 3.6 million health workers, with 37% being nurses and midwives, 9% doctors, and 14% community health workers. The findings highlighted a significant imbalance in the distribution of health workers, with most (85%) employed in the public sector. Regional densities of physicians, nurses, and midwives were low, averaging 1.55 per 1,000 people, with only four countries surpassing the benchmark of 4.45 per 1,000. The study underscored persistent challenges, including workforce shortages and uneven distribution, which hinder progress toward universal health coverage. It emphasized the need for increased investment in the health workforce, guided by evidence-based planning to address current and future healthcare demands.

#### Reference

Ahmat A, Okoroafor SC, Kazanga I, et alThe health workforce status in the WHO African Region: findings of a cross-sectional studyBMJ Global Health 2022;7:e008317.

### Educational interventions and their effects on healthcare professionals' digital competence development: A systematic review

The digitalization of healthcare necessitates that professionals possess adequate digital competencies, supported by continuing education. This systematic review aimed to assess educational interventions designed to enhance digital skills among healthcare professionals. A comprehensive search across five databases identified 20 studies, with participants mainly being nurses. The interventions varied in duration, ranging from brief sessions to six-month programs, and were delivered through traditional, blended-learning, and videoconferencing methods. Educational methods included lectures, group work, case studies, discussions, and practical exercises, with a focus on building knowledge, skills, and confidence.

The review found that these interventions effectively improved digital competence, including knowledge, skills, attitudes, self-efficacy, and output quality. Results emphasized the benefits of a multi-method approach combining traditional teaching with hands-on practice and peer interaction. The findings suggest that digital competence training should be accompanied by organizational support, tailored guidance, and opportunities for practical application. This approach can enhance the digital readiness of healthcare professionals, enabling them to deliver high-quality, technology-integrated care.

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E. Kulju, E. Jarva, A. Oikarinen, M. Hammarén, O. Kanste, K. Mikkonen, Educational interventions and their effects on healthcare professionals' digital competence development: A systematic review, International Journal of Medical Informatics, Volume 185, 2024, 105396, ISSN 1386-5056, https://doi.org/10.1016/j.ijmedinf.2024.105396.

### Mentorship in health research institutions in Africa: A systematic review of approaches, benefits, successes, gaps and challenges

In Africa, the shortage of skilled researchers, limited funding, and scarce mentorship opportunities have contributed to a gap in research output. This review explored existing mentorship approaches in health research across the continent, identifying challenges, successes, and gaps to provide insights for enhancing mentorship programs.

The systematic review, registered under CRD42021285018, searched six databases and additional resources, ultimately including 21 studies focusing on mentorship programs for health researchers across 12 African countries. Most programs targeted early-career researchers, with some including mid-career and senior professionals. Programs were categorized into three types: international collaborations, regional or in-country partnerships, and specialized capacity-building initiatives.

The review highlighted several benefits, including stronger collaborations, enhanced research capacity, improved skills and confidence, increased publications, and successful grant applications. However, gaps included limited funding, a lack of established mentorship culture, negative perceptions toward research careers, and insufficient prioritization of mentorship.

The findings emphasize the need for locally driven mentorship initiatives to strengthen health research capacity across Africa, moving away from dependence on external support to more sustainable, regional models that can address unique local challenges.

#### Reference

Ng'oda M, Gatheru PM, Oyeyemi O, Busienei P, Karugu CH, Mugo S, et al. (2024) Mentorship in health research institutions in Africa: A systematic review of approaches, benefits, successes, gaps and challenges. PLOS Glob Public Health 4(9): e0003314. https://doi.org/10.1371/journal.pgph.0003314

### The prevalence of mental health problems in sub-Saharan adolescents: A systematic review

Most research regarding child and adolescent mental health prevention and promotion in low-and middle-income countries is undertaken in high-income countries. This systematic review set out to synthesise findings from epidemiological studies, published between 2008 and 2020, documenting the prevalence of mental health problems in adolescents from across sub-Saharan Africa. A systematic search of multiple databases (MEDLINE, PsycINFO, Scopus) and Google Scholar was conducted guided by the Joanna Briggs Institute (JBI) Reviewer's manual for systematic reviews of observational epidemiological studies. Studies included reported prevalence outcomes for adolescents aged 10–19 using

either clinical interviews or standardized questionnaires to assess psychopathology. Clinical samples were excluded.

The search yielded 1 549 records of which 316 studies were assessed for eligibility and 51 met the inclusion criteria. We present a qualitative synthesis of 37 of these 51 included articles. The other 14 studies reporting prevalence rates for adolescents living with HIV are published elsewhere. The prevalence of depression, anxiety disorders, emotional and behavioural difficulties, posttraumatic stress and suicidal behaviour in the general adolescent population and selected at-risk groups in 16 sub-Saharan countries (with a total population of 97 616 adolescents) are reported.

This systematic review draws attention to the gaps that remain in knowledge regarding the burden of mental disorders among youth in sub-Saharan Africa. Although there is wide variation in estimates of common mental disorders and symptoms in youth on the continent, it is evident that rates are high with and require concerted attention at both clinical and policy level.

### Reference

Jörns-Presentati A, Napp A-K, Dessauvagie AS, Stein DJ, Jonker D, Breet E, et al. (2021) The prevalence of mental health problems in sub-Saharan adolescents: A systematic review. PLoS ONE 16(5): e0251689. https://doi.org/10.1371/journal.pone.0251689

## DH&TI

### Expanding telemedicine to reduce the burden on the healthcare systems and poverty in Africa for a post-coronavirus disease 2019 (COVID-19) pandemic reformation

The coronavirus disease 2019 (COVID-19) global public health emergency, has exposed the fragility of health systems. Access to healthcare became a scarce commodity as healthcare providers and resource-poor populations became victims of the novel corona virus. Therefore, this study focuses on Africa's readiness to integrate telemedicine into the weak health systems and its adoption may help alleviate poor healthcare and poverty after COVID-19. We conducted a narrative review through different search strategies in Scopus on January 20, 2021, to identify available literature reporting implementation of various telemedicine modes in Africa from January 1, 2011 to December 31, 2020. We summarized 54 studies according to geographies, field, and implementation methods. The results show a willingness to adopt telemedicine in the resource-poor settings and hard-to-reach populations, which will bring relief to the inadequate healthcare systems and alleviate poverty of those who feel the burden of healthcare cost the most. With adequate government financing, telemedicine promises to enhance the treating of communicable and non-communicable diseases as well as support health infrastructure. It can also alleviate poverty among vulnerable groups and hard-to-reach communities in Africa with adequate government financing. However, given the lack of funding in Africa, the challenges in implementing telemedicine require global and national strategies before it can yield promising results. This is especially true in regards to alleviating the multidimensionality of poverty in post-COVID-19 Africa.

### Reference

Akintunde TY, Akintunde OD, Musa TH, Sayibu M, Tassang AE, Reed LM, Chen S. Expanding telemedicine to reduce the burden on the healthcare systems and poverty in Africa for a post-coronavirus disease 2019 (COVID-19) pandemic reformation. Glob Health J. 2021 Sep;5(3):128-134. doi: 10.1016/j.glohj.2021.07.006. Epub 2021 Jul 24. PMID: 36338822; PMCID: PMC9625850.

### The role of digital health in revolutionizing healthcare delivery and improving health outcomes in conflict zones

The provision and planning for healthcare delivery in conflict is a pressing imperative. Healthcare within these environments is naturally complex, given the entanglement of affected populations, militaries and oft-deteriorating public services. The field of digital health, placed at the intersection of healthcare and technology, has the power to revolutionize healthcare delivery and improve health outcomes worldwide. Its impact is particularly significant in conflict zones, where it can address the unique challenges faced by these regions. Violence, damaged infrastructure, restricted mobility, forced migration, and overstretched healthcare facilities are all hallmarks of conflict zones that demand novel approaches to addressing them. Health care delivery is being revolutionized by the introduction of digital health technology in conflict zones, which are improving access, emergency response capacities, health information management, and mental health assistance. Doctors and aid organizations can more easily overcome challenges and reach out to underserved populations in these regions because to digital technological improvements. Recent decades have seen a shift in the nature of conflict, and with it, a corresponding shift in the range of digital health solutions available to address geographical, epidemiological, and clinical gaps. The purpose of this letter is to inquire into the application of digital health in conflict zones and its potential to lessen the pressing healthcare needs of affected communities.

### Reference

Ahmed SK, Hussein S, Chandran D, Islam MR, Dhama K. The role of digital health in revolutionizing healthcare delivery and improving health outcomes in conflict zones. Digit Health. 2023 Nov 30;9:20552076231218158. doi: 10.1177/20552076231218158. PMID: 38047160; PMCID: PMC10693218.

## NCDs

### Non-communicable disease burden among inpatients at a rural district hospital in Malawi

The burden of non-communicable diseases (NCDs) is high in Malawi. However, resources and training for NCD care remain scarce, especially in rural hospitals. Current care for NCDs in the developing world focuses on the WHO's traditional 4×4 set. However, we do not know the full burden of NCDs outside of that scope, like neurological disease, psychiatric illness, sickle cell disease, and trauma. The goal of this study was to

understand the burden of NCDs among inpatients in a rural district hospital in Malawi. We broadened our definition of NCDs beyond the traditional 4×4 set of NCDs, and included neurological disease, psychiatric illness, sickle cell disease, and trauma.

We conducted a retrospective chart review of all inpatients who were admitted to the Neno District Hospital between January 2017 and October 2018. We broke patients down by age, date of admission, type, and number of NCD diagnoses, and HIV status, and constructed multivariate regression models for length of stay and in-hospital mortality.

Of 2239 total visits, 27.5% were patients with NCDs. Patients with NCDs were older (37.6 vs 19.7 years, $p<0.001$) and made up 40.2% of total hospital time. We also found two distinct populations of NCD patients. The first were patients 40 years and older with primary diagnoses of hypertension, heart failure, cancer, and stroke. The second were patients under 40 years old with primary diagnoses of mental health conditions, burns, epilepsy, and asthma. We also found significant trauma burden, accounting for 40% of all NCD visits. In multivariate analysis, carrying a medical NCD diagnosis was associated with longer length of stay (coefficient 5.2, $p<0.001$) and a higher risk of in-hospital mortality (OR 1.9, $p=0.03$). Burn patients also had significantly longer length of stay (coefficient 11.6, $p<0.001$).

There is a significant burden of NCDs in a rural hospital in Malawi, including those outside of the traditional 4×4 set. We also found high rates of NCDs in the younger population (under 40 years of age). Hospitals must be equipped with adequate resources and training to meet this burden of disease.

### Reference

Olds P, Kachimanga C, Talama G, Mailosi B, Ndarama E, Totten J, Musinguzi N, Hangiwa D, Bukhman G, Wroe EB. Non-communicable disease burden among inpatients at a rural district hospital in Malawi. Glob Health Res Policy. 2023 Feb 22;8(1):4. doi: 10.1186/s41256-023-00289-z. PMID: 36810123; PMCID: PMC9945353.

## Can digital health apps provide patients with support to promote structured diabetes education and ongoing self-management? A real-world evaluation of myDiabetes usage

Structured diabetes education has evidenced benefits yet reported uptake rates for those referred to traditional in-person programmes within 12 months of diagnosis were suboptimal. Digital health interventions provide a potential solution to improve diabetes education delivery at population scale, overcoming barriers identified with traditional approaches. myDiabetes is a cloud-based interactive digital health self-management app. This evaluation analysed usage data for people with type 2 diabetes focusing on digital structured diabetes education.

Descriptive quantitative analyses were conducted on existing anonymised user data over 12 months (November 2019–2020) to evaluate whether digital health can provide additional support to deliver diabetes education. Data was divided into two equal 6-month periods. As this overlapped the onset of COVID-19, analyses of its effect on usage were included as a secondary outcome. All data was reported via myDiabetes. Users were prescribed myDiabetes by National Health Service healthcare primary care teams. Those who registered for app use within the study period (n=2783) were assessed for eligibility (n=2512) and included if activated.

Within the study period, n=1245/2512 (49.6%) registered users activated myDiabetes. No statistically significant differences were observed between gender ($p=0.721$), or age ($p=0.072$) for those who activated (59.2 years, SD 12.93) and those who did not activate myDiabetes (57.6 years, SD 13.77). Activated users (n=1119/1245 (89.8%)) viewed 11,572 education videos. No statistically significant differences were observed in education video views across age groups ($p=0.384$), gender ($p=0.400$), diabetes treatment type ($p=0.839$) or smoking status ($p=0.655$). Comparison of usage pre-COVID-19 and post-COVID-19 showed statistically significant increases in app activity ($p\leq0.001$).

Digital health is rapidly evolving in its role of supporting patients to self-manage. Since COVID-19 the benefits of digital technology have become increasingly recognised. There is potential for increasing diabetes education rates by offering patients a digital option in combination with traditional service delivery which should be substantiated through future research.

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Blythin AM, Elkes J, van Lindholm T, et al. Can digital health apps provide patients with support to promote structured diabetes education and ongoing self-management? A real-world evaluation of myDiabetes usage. DIGITAL HEALTH. 2023;9. doi:10.1177/20552076221147109

# MCH

## A realist review of interventions targeting maternal health in low- and middle-income countries

Maternal mortality is disproportionately higher in low- and middle-income countries compared to other parts of the world. International research efforts are reflective of the urgency to improve global maternal outcomes. The existing literature of maternal health interventions in low- and middle-income countries targets a variety of populations and intervention types. However, there is a notable lack of systemic reviews that examine the wider contextual and mechanistic factors that have contributed to the outcomes produced by interventions. This article aims to use realist synthesis design to identify and examine the relationships between the contexts, mechanisms and outcomes of maternal health interventions conducted in low- and middle-income countries. This will inform evidence-based practice for future maternal health interventions. In May 2022, we searched four electronic databases for systematic reviews of maternal health interventions in low- and middle-income countries published in the last 5 years. We used open and axial coding of contexts, mechanisms and outcomes to develop an explanatory framework for intervention effectiveness. After eligibility screening and full-text analysis, 44 papers were included. The majority of effective interventions

reported good healthcare system contexts, especially the importance of infrastructural capacity to implement and sustain the intervention. Most intervention designs used increasing knowledge and awareness at an individual and healthcare-provider level to produce intended outcomes. The majority of outcomes reported related to uptake of healthcare services by women. All mechanism themes had a relationship with this outcome. Health system infrastructure must be considered in interventions to ensure effective implementation and sustainability. Healthcare-seeking behaviours are embedded within social and cultural norms, environmental conditions, family influences and provider attitudes. Therefore, effective engagement with communities and families is important to create new norms surrounding pregnancy and delivery. Future research should explore community mobilization and involvement to enable tailored interventions with optimal contextual fit.

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Abraham JM, Melendez-Torres GJ. A realist review of interventions targeting maternal health in low- and middle-income countries. Womens Health (Lond). 2023 Jan-Dec;19:17455057231205687. doi: 10.1177/17455057231205687. PMID: 37899651; PMCID: PMC10617292.

## A global analysis of the determinants of maternal health and transitions in maternal mortality

The reduction of maternal mortality and the promotion of maternal health and wellbeing are complex tasks. This Series paper analyses the distal and proximal determinants of maternal health, as well as the exposures, risk factors, and micro-correlates related to maternal mortality. This paper also examines the relationship between these determinants and the gradual shift over time from a pattern of high maternal mortality to a pattern of low maternal mortality (a phenomenon described as the maternal mortality transition). We conducted two systematic reviews of the literature and we analysed publicly available data on indicators related to the Sustainable Development Goals, specifically, estimates prepared by international organisations, including the UN and the World Bank. We considered 23 frameworks depicting maternal health and wellbeing as a multifactorial process, with superdeterminants that broadly affect women's health and wellbeing before, during, and after pregnancy. We explore the role of social determinants of maternal health, individual characteristics, and health-system features in the production of maternal health and wellbeing. This paper argues that the preventable deaths of millions of women each decade are not solely due to biomedical complications of pregnancy, childbirth, and the postnatal period, but are also tangible manifestations of the prevailing determinants of maternal health and persistent inequities in global health and socioeconomic development. This paper underscores the need for broader, multipronged actions to improve maternal health and wellbeing and accelerate sustainable reductions in maternal mortality. For women who have pregnancy, childbirth, or postpartum complications, the health system provides a crucial opportunity to interrupt the chain of events that can potentially end in maternal death. Ultimately, expanding the health sector ecosystem to mitigate maternal health determinants and tailoring the configuration of health systems to counter the detrimental effects of eco-social forces, including though increased access to quality-assured commodities and services, are essential to improve maternal health and wellbeing and reduce maternal mortality.

A global analysis of the determinants of maternal health and transitions in maternal mortality.

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# Infectious Diseases

## Advancing the use of LongActing Extended Delivery formulations for HIV prevention in subSaharan Africa: challenges, opportunities, and recommendations

The burden of HIV in sub□Saharan Africa (SSA) remains unacceptably high, and disproportionately affects girls and women. While the introduction of oral HIV pre□exposure prophylaxis (PrEP) in 2012 revolutionized HIV prevention, its effectiveness is dependent on user adherence and its implementation in SSA has faced numerous challenges. Patient□level, interpersonal and structural barriers, including, for example, daily pill burden, side effects, lack of partner support, testing and disclosure, and costs have been found to reduce adherence to oral PrEP. Long□acting extended delivery (LAED) formulations for PrEP, such as injectable long□acting cabotegravir (CAB□LA) and dapivirine vaginal ring (DPV□VR) are critical additions to the HIV prevention toolkit and are especially important for populations such as adolescent girls and young women (AGYW) and other key populations who remain at significant risk of HIV acquisition while facing substantial barriers to preventive services. These LAED formulations have been shown to result in better adherence and fewer side effects, with CAB□LA being superior to oral PrEP in reducing the risk of HIV acquisition. They can be used to overcome user burden and adherence challenges. However, the successful rollout of the DPV□VR and CAB□LA may be hampered by issues such as a shortage of healthcare providers (HCPs), inadequate parenteral medication infrastructure, increased workload for HCPs, patient concerns, the price of the medications and the possibility of drug resistance. SSA must develop laboratory capabilities for monitoring patients on LAED formulations and enhance research on developing more non□injectable LAED formulations. There is a need to train and retain more HCPs, implement task shifting, invest in healthcare infrastructure and integrate healthcare services. To reduce costs and improve availability, the region must advocate for patent license waivers for LAED formulations and procure drugs collectively as a region.