Fracture liaison service in Africa: an integral strategy to improve post osteoporotic fracture care

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Africa and particularly sub-Saharan African (SSA) has a rapidly ageing population. Whilst multiple strategies compete to support healthy ageing, addressing bone health is crucial to ensure mobility, functionality, and independence for older persons. Poor bone health includes a spectrum of diseases but is commonly quantified by examining the cumulative burden of osteoporosis and osteoporosis-related fractures. Traditionally osteoporosis and their subsequent fractures were thought to be rare in Africa, however recent studies from South Africa (SA), Morocco and Nigeria amongst others show increasing rates of osteoporotic fractures. Hip Fractures (HFs) are expected to double in SA between 2020 to 2050 and similar trends are expected for the rest of Africa[1,2]. The World Health Organization in 2015 called for action to prevent and manage fragility fractures in SSA in the coming decades.

A minimal trauma (osteoporotic or fragility) fracture is associated with significant morbidity and mortality, and with an increased risk for a secondary fracture (refracture). The risk of a secondary fracture, also recently termed "imminent fracture risk" is highest in the first 12 to 24 months after a fracture and is associated with increased mortality[3]. Despite the existence of well-established treatment guidelines and studies confirming the efficacy of anti-osteoporosis drugs (up to a 70% reduction in vertebral fractures, 50% for HF and up to 30% for other fracture risk), less than 20% of patients with osteoporotic fractures receive appropriate therapy[4]. To address this important care gap, the International Osteoporosis Foundation developed the Capture the Fracture®; a global program to improve post fracture care. Fracture Liaison Service (FLS) a coordinated multi-disciplinary approach for secondary fracture prevention was developed in the early 2000's and has been shown to directly improve patient care and reduce fracture related costs[5]. The model incorporates the three 'i's' of identification, investigation and initiation of osteoporosis therapy including calcium and vitamin D supplementation and decreasing fall risk. Fracture liaison models vary from simple patient education to comprehensive multi-disciplinary post fracture care and long-term follow-up[6]. Compared to standard care, even the simplest FLS model has been shown to result in higher osteoporosis treatment initiation and lower refracture rates. Li *et al*[7] in systematic review found a 30% relative reduction in the risk of further fractures with FLS care vs. non-FLS care after a median follow-up of two years. Despite the multiple benefits of FLS including registry development the long-term outcome measures from FLS are not as clear due to heterogeneity in reporting[5,6].

Globally in 2024, there are 946 FLS programs in 57 countries and a growing recognition for the need for such services in regions like Africa and Asia, where osteoporosis and fragility fractures are becoming significant health concerns[8]. Currently there are limited FLS available in SA and Egypt with varying degrees of FLS being available in Morocco, Tunisia, Nigeria, and Kenya. A global survey of 131 FLS in 2020 found only one FLS from SA was operational across the West, East, and Southern African regions[9]. Despite the lack of formal FLS in Africa, several countries have made attempts at addressing osteoporosis and fracture prevention through various initiatives that adapt FLS principles. This includes development of education, screening, and treatment programs like FLS, however the extent of their coverage and effectiveness varies. One of the major challenges in introducing FLS in Africa is a lack of awareness among healthcare professionals and the public about osteoporosis and fracture prevention. This may result in under-recognition of fragility fractures, especially vertebral fractures, and delays in seeking appropriate care. Competing health care priorities with limited healthcare resources and lack of diagnostic tools (DXA machines), treatment options, specialist care and infrastructure constraints are further hindrances. Disparities in the availability

and access to healthcare in Africa are well described and reasons include varying gross domestic products, transportation costs, health care funding systems, cultural beliefs, and use of traditional healers (bone setters) which are all potential impediments to FLS implementation[10].

Effective programs require robust systems for data collection, monitoring, and evaluation to assess the impact of FLS and to identify areas for improvement[4]. Due to lack of awareness, limited resources and competing priorities most African countries do not have fracture registries and in addition face challenges related to health information systems, data management, and monitoring frameworks[10]. Initiatives to adapt FLS models to the African context requires a multi-faceted approach including partnerships between local healthcare providers, international organizations, and research institutions to develop tailored FLS programs. These must include screening protocols, treatment guidelines, and community and patient education materials which accommodate cultural, socioeconomic, and healthcare system factors according to the specific needs and resources of the country. Early identification of at-risk individuals, improving access to diagnostic tools and treatments, and establishing networks for ongoing care and support are critical[6]. Training and capacity-building initiatives led by FLS coordinators have been shown to be successful in equipping healthcare providers with the knowledge and skills to effectively implement FLS[11]. The use of digital technology, for example telemedicine and mobile health applications can allow for the implementation of FLS programs in remote rural underserviced regions.

The implementation of even basic models of FLS in Africa have the potential to improve bone health and reduce the burden of osteoporotic fractures by contributing to knowledge on osteoporosis epidemiology, fracture risk assessment, and fracture prevention strategies. This information will help to inform clinical practice guidelines, policy decisions, and guidelines for osteoporosis management across Africa. Collaborative efforts between governments, healthcare professionals and community organizations will ensure successful implementation and sustainability of FLS which is a cost-effective strategy to reduce the economic burden associated with osteoporotic fracture, while improving outcomes in older persons.

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