



Osteoporosis strategic plan for the Middle East and North Africa region

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Abstract

Summary The first step to achieve a world without fragility fractures is to devise a strategic plan to improve research and planning, and assisting member states to acquire the required financial, technical, and other resources. This article aims to outline the first strategic plan devised for the Middle East and North Africa region proposed by the International Osteoporosis Foundation's (IOF) Middle East and North Africa (MENA) Regional Advisory Council (RAC).

Purpose Osteoporosis is no exception in this rising tide of non-communicable diseases, not only sharing common risk factors but also contributing substantially to a heavy social and economic burden on society. During the past decade and after the establishment of the International Osteoporosis Foundation (IOF), a goal-directed movement has started to achieve a world without fragility fractures. In order to achieve this goal, regional councils were formed to maximize the effectiveness of national osteoporosis societies in raising awareness of effective prevention, diagnosis, and treatment strategies.

Methods and results The first step to achieve this goal is to devise a strategic plan to improve the research and planning, assisting all member states to acquire the financial, technical, and other resources needed in order to achieve a world-class program in the fight against osteoporosis.

Conclusion This article therefore aims to outline the first strategic plan devised by the IOF's MENA RAC for the Middle East and North Africa region.

Keywords Osteoporosis · Middle East and North Africa region · Fragility fracture

Introduction

Non-communicable diseases (NCDs) refer to a series of ailments, which are not originated by an acute infection; these diseases have long-term impact on health, and thus generally need enduring treatment and care. They impose a heavy burden on societies around the world [1].

In its 2010 Global Status Report on NCDs, the World Health Organization (WHO) identified NCDs as the leading cause of death, accounting for 2/3 of all causes of deaths worldwide [2]. The impact of NCDs is projected to further increase due to global urbanization, sedentary lifestyle, obesity epidemic, and an increase in life expectancy in populations across the globe.

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Osteoporosis, an emerging challenge of the twenty-first century

Osteoporosis is no exception in this rising tide of NCDs, not only sharing common risk factors but also contributing substantially to a heavy social and economic burden on society [3]. Osteoporosis risk factors include unhealthy diet, sedentary lifestyle, smoking, alcohol consumption, and air pollution all of which are modifiable but quite common in the Middle East and North Africa (MENA) region and thus, addressing these risk factors play an important role in preventing osteoporosis and related risk factors [4–6]. Vitamin D deficiency, a major

risk factor for osteoporosis, is also a concern in the region [4, 7–9].

Improving public awareness and changing the lifestyle habits could play an important role in reducing the risk of developing osteoporosis and its complications [10, 11]. However, the important role of interventions such as activities related to the promotion of public awareness and changing attitudes towards risk factors should never be neglected [12, 13].

During the past decade and after the establishment of the International Osteoporosis Foundation (IOF), a goal-directed movement has started to achieve a world without fragility fractures. The mission was to promote bone and musculoskeletal health as a worldwide priority. In order to achieve this goal, regional councils (RAC) were formed to maximize the effectiveness of national osteoporosis societies in raising awareness of effective prevention, diagnosis, and treatment strategies.

Another goal of these councils was to strengthen communication between member states to create an effective synergy among them, providing the region with a cohesive governance and management structure. Considering the similarities in the region, it is believed that the member states could learn from the experiences and findings of their neighboring countries and attain more efficient results using limited resources. This is especially important as reports show that a large amount of research is performed on osteoporosis in the region [14]. The first step to achieve this goal is to devise a strategic plan to improve the research and planning, assisting all member states to acquire the financial, technical and other resources needed in order to achieve a world-class program in the fight against osteoporosis. Until now, however, no strategic plan has been devised for the Middle East and North Africa region.

Why act now?

Considering the aging population, the number of osteoporosis sufferers is increasing worldwide and especially in our region [4]. This coupled with the widespread prevalence of vitamin D deficiency is associated with a surge in the number of fragility fractures and thus the burden it imposes on the society [15–17]. Considering a predicted demographic explosion in the number of people aged over 50, a major increase in fractures is predicted for the region as a whole. By 2050, it is expected that 40% of the population will be over the age of 50 and so the number of hip fractures is projected to quadruple in some member states in the same interval [4].

Despite the high prevalence of osteoporosis and osteoporotic fracture in the MENA region, limited reports on its prevalence and risk factors along with low awareness of the disease among these populations and lack of national guidelines for prevention and management in some member states have

limited the development of necessary action plans [11]. For instance, a national action plan for prevention and control of NCDs and related risk factors in Islamic Republic of Iran for 2015–2025 has recently been developed and approved by the WHO [18]. This package has covered a large number of NCDs, but data on osteoporosis is missing.

We believe, through a collaborative relationship between the member states, we could commence the development and implementation of a coordinated region-wide strategy to manage the increasing number of older individuals at risk of fragility fractures. This includes educating the public on how to delay the condition and so prevent fractures as much as possible.

The role of IOF's RAC would therefore be as a catalyst and coordinator, providing incentives and support to patients, clinicians, healthcare providers, and researchers in different member states, who are at the forefront of the fight against osteoporosis. The office also coordinates regional policies, investments, and activities to advance this goal.

On the other hand, the RAC members are aware of the challenges in their home countries and thus, the strategic and action plan devised by them would reflect the main regional challenges, and a feasible and applicable solution for these countries. It should be noted that a plan proposed and endorsed by this council gets a more reliable guarantee to be implemented.

According to the latest MENA RAC meetings, education, awareness, and vitamin D are the main priorities in the region and lack of population-based studies, especially studies in different at risk groups, hinder the development of region-specific guidelines to solve this issue [19]. Moreover, the surge noted in the number of fragility fractures in the region along with the burden they impose on the member states calls for an urgent need for action to reduce the projected impact and socioeconomic costs of osteoporosis and its complications [20–24]. As a result, the action plan should enable the RAC members to focus on these topics. A “Three A's” strategy could help fulfill this goal and empower people to improve their health and health care. The three prongs of the strategy are:

- Improve Awareness through increasing access to information on different aspects of osteoporosis and vitamin D deficiency both for public and professionals.
- Shift Attitudes so that everyone regardless of their age become involved in the fight against osteoporosis and fracture through adopting necessary preventive measures.
- Enable member states to take a more efficient Action against the disease through experience and information sharing. This initiative supports the development of an ecosystem of tools and services (Hip Registry, guidelines) that help policy makers and clinicians take the necessary action (Fracture Liaison Services (FLS)).

These three elements of the strategy are interdependent.

This strategic plan will also address the clinical management of fractures and the prevention of ongoing osteoporotic fractures as well as raising public awareness to prevent fractures in the first place for six main populations (Fig. 1). The main objectives of this plan are as follows.

Strategic goal 1: establish an international network to facilitate education and research in the field

- Many studies have suggested that having a good knowledge towards osteoporosis and its risk factors is an important contributor to a preventive attitude and practice against the disease. This is while reports from the MENA region highlight the low and in some cases even lack of knowledge of different groups, even the physicians and healthcare providers in different member states, about the disease [25–31]. As a result, improving awareness could help reduce the problem to some extent. Develop an information technology (IT) strategy that enables clinicians and general public to keep pace with recent updates in the field.
- Develop the capabilities, systems, and infrastructure to take advantage of the growth of the internet and other electronic media as a means of raising awareness, providing guidance, fundraising, and reaching new audience.
- Recruit a network of additional support staff who will support health professionals to improve access to, and availability of, local services.
- An advisory service for professional audiences.
- An information hub to support volunteers.
- Promote evidence-based practice through generating uniform standards regarding osteoporosis management.

Many countries have their own guidelines for osteoporosis and fracture care, whereas others follow those of other countries. Some of the well-known ones include the UK NICE Clinical Guideline 124¹ and associated NIC Quality Standard 16,² and the Australian and New Zealand (ANZ) Guideline on Hip Fracture Care³ and associated ANZ Clinical Care Standard for Hip Fracture Care.⁴ In the MENA region, Iran is one of the few countries with a national guideline. As a result, in order to

¹ <https://www.nice.org.uk/guidance/cg124>

² <https://www.nice.org.uk/guidance/qs16>

³ <http://anzhfr.org/guidelines-and-standards/>

⁴ <https://www.safetyandquality.gov.au/our-work/clinical-care-standards/hip-fracture-care-clinical-care-standard/>

adopt this guideline for the region or develop a new one, following steps should be taken:

- Study the gap between evidence and practice in the region.
- Advocate for standardization of standards in the region and generate authoritative standardized best practice clinical guidelines for the region and future development of the quality and outcomes framework, endorsed by the MENA RAC members.
- Advocate for the implementation of evidence-based guidelines for the diagnosis and treatment of osteoporosis as well as osteoporotic fracture.
- Support the utilization of uniform standards regarding BMD measurements and interpretation of results in different populations
- Provide trainings (CME and CE programs) and resources to allied health professionals on current guidelines.
- Integrate osteoporosis education into other training programs.
- Develop private and public partnerships to increase promotion of guidelines.
- Use media advocacy to promote guidelines.
- Improve osteoporosis management through detecting osteoporosis early and reducing under-diagnosis rate.\
- Development of Fracture Risk Assessment Tool (FRAX) for every member state.
- Improve access to osteoporosis services.
- Improve access to BMD Testing.
- Implement FLS/Coordinated Based Clinics.
- Implement a uniform registry system for the region to reduce under treatment and under diagnosis.0
- Provide evidence-based treatment
- Study the new drugs based on the availability in the region.
- Study the cost and cost-effectiveness of existing osteoporosis treatment options in the region.
- Study the relationship between recommended treatments and reimbursement policies in the region.
- Generate strategies to improve osteoporosis treatment.
- Integrate fracture care, rehabilitation and osteoporosis management.
- Promote post-fracture care and support in local communities.

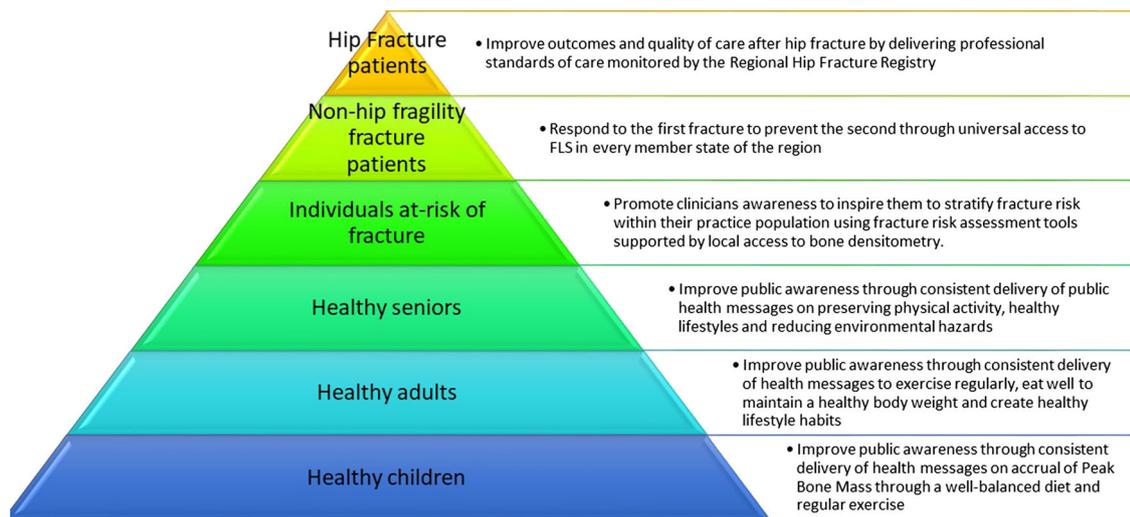


Fig. 1 Six main populations to be addressed in osteoporosis- and osteoporotic fracture-related studies

- Promote strategies to encourage more integrated care.
- Promote self-management and fall prevention.
- Provide a nurse-led helpline, answering queries from affected people and their families.
- Develop and transfer new knowledge
 - Agree on regional research priorities and identify appropriate research partners. Ensure research activities to be built around the needs of the region and with the aim of identifying practice gaps.
 - Make the most of research findings in the region by ensuring their translation into wider work and into benefits for people with or at risk of fragility fractures.
 - Implement a uniform registry system for the region to improve data gathering for further research in the region. It should be noted that a new study by Johansen et al. has confirmed that cooperation between national hip registry systems and development of a standardized dataset to support international collaboration in healthcare audit will help illustrate how health care systems of different countries are responding to the same clinical challenge [32]. They went on to report the success of the hip and knee arthroplasty registries in the Nordic Arthroplasty Registry Association and the Fragility Fracture Network (FFN), as an extension of the Standardized Audit of Hip Fracture in Europe (SAHFE) model.⁵

As well mentioned in literature, comparing the osteoporosis and fracture management in the region with the best practice in other countries such as the UK through comparing such registries can help point out the

significant gaps, making it easier for the policy makers to find solutions to improve the quality of care [33].

It could thus be concluded that developing a minimum common dataset (MCD) in the MENA region, similar to that of the FFN could be of great importance.

- Develop a surveillance system to monitor dietary health trends and behaviors in children and adults.
- Undertake a comprehensive analysis of the burden and impact of fragility fractures in the region.
- Study emerging drug treatments, diagnostics, and ways of managing the condition and how best to translate them into practice.
- Improve collaboration for intervention studies in the region.

Strategic goal 2: develop partnership and collaborative working with a range of organizations

- Build alliances with a range of other organizations to maximize the impact on public policy and to fund studies into osteoporosis and bone health and make the best possible use of available resources.
- Since 2012, IOF and the Fragility Fracture Network (FFN) have highlighted the benefits of establishing “National Fragility Fracture Alliances” which bring together all relevant organizations in a particular country to advocate for change with one voice and pool efforts to improve clinical practice and awareness raising activities. Despite promising reports from such alliances in several countries throughout the world

⁵ <https://www.fragilityfracturenetwork.org/6-themes-of-the-ffn/research-and-education/hip-fracture-audit-sig/>

(ex. Falls and Fractures Alliance in the UK,⁶ the National Bone Health Alliance in the United States,⁷ the Live Stronger for Longer alliance in New Zealand⁸ and the SOS Fracture Alliance in Australia⁹), this is still a new collaboration in the MENA region and thus more focus should be shifted towards the formation of such collaborations in these countries.

- Work with a range of partners to reach new audiences.
- Engage stakeholders in key areas of our work.
- Develop lobbying programs, such as parliamentary activity and liaison and working with key officials within governments, working with other policy makers and opinion formers, and commissioning and provision of health and social care services.
- Develop a clear manifesto for osteoporosis and have the policy makers to make it happen.
- Design campaigns to ensure that osteoporosis is high up the political agenda.

Strategic goal 3: Increase funding for educational resources/research programs/establishing FLS clinics

In a study published in 2014, it was reported that the leading country in osteoporosis research was the United States (33.82%), and Iran and Egypt from the MENA region ranked 31st and 41st, respectively [14]. A total of 185 and 426 documents about “osteoporosis” were published from Iran and all the Arab countries all together, which represents 1.4% of the global research output. This suggests an imminent need for focus on related research in the region.

- Assess availability of public and private funding.
- Promote osteoporosis research, both through the allocation of internal funding and by influencing the research funded and undertaken by other organizations.
- Promote research on vitamin D deficiency, which as mentioned earlier is a health concern in the region. More research on the topic can help point out the gaps in the region and ways to solve them.
- Engage with other partners to persuade them to facilitate and fund the research we believe needs to be done, but which is beyond our own resources.
- Develop a funding strategy to obtain grants and other funds to support osteoporosis initiatives.

⁶ <https://nos.org.uk/about-nos/public-affairs/falls-and-fractures-alliance/>

⁷ <http://www.nbha.org/>

⁸ <http://www.livestronger.org.nz/>

⁹ <https://www.sosfracturealliance.org.au/>

In order to fulfill these objectives, following programs could be helpful.

Program 1: develop educational campaigns/programs for the public

The “problem” of an unnecessarily high incidence of osteoporosis is due to a lack of awareness and insufficient focus/understanding of the simple steps that anyone can take to build and maintain healthy bones. This is more pronounced for challenges such as vitamin D deficiency in the region, which is believed to be mainly due to limited sun exposure due to cultural practices, dark skin color, and very hot climate in several countries in the region, along with prolonged breast-feeding without vitamin D supplementation, low calcium content of diets and outdoor activity, obesity, and lack of government regulation for vitamin D fortification of food, in several if not all countries [34].

The member states need to raise funds to support:

- Development and implementation of public awareness campaigns to raise awareness of:
 - Importance of preserving physical activity, healthy lifestyles and reducing environmental hazards in older ages
 - Importance of exercising regularly, eating well to maintain a healthy body weight and creating healthy lifestyle habits
- Development and implementation of awareness campaigns for schools, students, and parents on how to optimize peak bone mass accrual through diet and exercise
 - Distributing fortified milk among students could be an incentive.
- Promotion of worksite wellness programs that include education on osteoporosis, nutrition, and physical activity, as well as access to healthy food rich in calcium and vitamin D for employees
- Development and implementation of awareness campaigns for at risk population and specific preventive measures they should adopt
- Development and distribution of information and resources on different aspects of osteoporosis (fact sheets), bone-healthy behavior, and information on programs for bone health and falls/fracture risk prevention
- Expanding access to evidence-based fall prevention, physical activity, and balance programs for older individuals

- Develop and establish dialog with assisted living and long-term care facilities to increase staff awareness of osteoporosis
- Collaborating with smoking cessation programs to disseminate bone health messages

Program 2: develop clinically effective and cost-effective first fracture prevention programs

Under diagnosis is one of the main concerns in osteoporosis management, and thus, identifying the individuals at risk of fracture could be a strategy in lowering the burden of the disease [35, 36].

- Act as a catalyst to improve osteoporosis education and training of health and social care professionals, either directly or through other providers.
- Develop partnership with medical societies, hospital/health care associations, health insurance companies, and health/aging agencies to promote best practices on osteoporosis prevention, diagnosis, and screening.
- Develop a cohesive regional information service.

Program 3: drive widespread adoption of FLS

Under treatment of underlying osteoporosis especially in fracture patients is another concern, which is commonly associated with a second fracture in the next year [35, 37].

Concerning FLS, IOF has established the Capture the Fracture Program with globally endorsed standards through the Best Practice Framework.¹⁰ Successful implementation of FLS and Capture the Fracture Program, a coordinated service where patients presenting with a fragility fracture receive osteoporosis assessment and treatment where needed, and interventions to reduce falls risk have shown promising results [38]. The outcome of FLS has been a significant reduction in fracture incidence and associated costs. It would ensure equitable access to subsidized treatments for osteoporosis throughout the region.

Until now, the actions towards the implementation of such systems have been limited in the region not because of lack of interest but mainly due to access to limited resources. In some regions, the applicability of this program in the corresponding countries has been endorsed by the RAC team.¹¹ This

¹⁰ <http://www.capture-the-fracture.org/node/20>

¹¹ <http://capturethefracture.org/best-practice-framework-focus-asia-pacific-fls-consensus-meeting-taipei>

endorsement and if needed modification of the program based on the regional standards might improve the feasibility of the implementation of the program. The collaboration thus could solve this issue.

- Promote the widespread adoption of FLS through demonstration projects, web-based and direct education, and national quality.
- Change the behavior of physicians, health care providers, and aging network professionals to be pro-active with regard to osteoporosis.
- Develop services to support and inform people affected by osteoporosis.

Program 4: develop a regional hip fracture registry, which will enable clinicians to benchmark acute care against quality measures derived from professional standards

- Development and implementation of a guidance on best practice for orthogeriatric services based on the capabilities of the region. This guidance should lead to the development and implementation of a national strategy for a systemic approach to hip fracture care and prevention in the region.
- Development of hip fracture registry, which would provide an opportunity to not only benchmark care against professional standards for everyone but also better data for research.

Compliance with ethical standards

Conflicts of interest None.

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