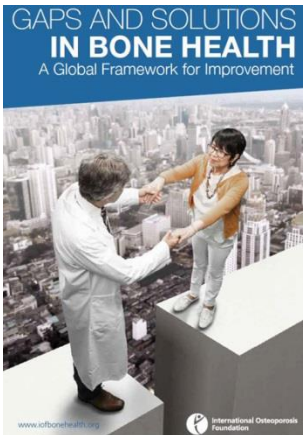




Gaps and Solutions in Bone Health

A Global Framework for Improvement

This report, available in multiple languages at <http://worldosteoporosisday.org/2016-thematic-report> has been published by IOF for World Osteoporosis Day 2016. It identifies 10 major care gaps and solutions to the global healthcare crisis arising from fragility fractures.



Key messages of the report

Despite the global threat posed by fragility fractures, and the availability of safe and cost-effective therapies that could reduce the number of fractures, GAPS in CARE are preventing millions of at-risk individuals from being diagnosed and treated worldwide.

The world's population is ageing, which means that the burden of fractures will increase dramatically, placing severe strains on the capacity and finances of healthcare systems worldwide.

The care gaps described in the report (grouped into 4 major themes), together with their associated solutions, outline a **Global Framework** for tackling the devastating burden of osteoporotic fractures around the world.

Poor case finding and management

CARE GAP 1: Secondary fracture prevention

- Approximately 50% of people with one osteoporotic fracture will suffer another, with risk rising exponentially with each new fracture;
- Hip fractures are the most serious, and place the greatest burden on sufferers: fewer than half of people who survive a hip fracture will walk unaided again; mortality after 5 years is about 20% in excess of that expected; between 10-20% will become residents of care homes in the year following a hip fracture;
- Highly effective osteoporosis treatments substantially reduce fracture risk, but are often not routinely offered to fragility fracture sufferers;
- Fracture Liaison Services (FLS) and Orthogeriatric Service models of care have been successfully developed and are increasingly included in clinical guidelines. However, their implementation must be expanded globally. Capture the Fracture® is a programme to promote FLS implementation and best-practice which is gaining momentum.

CARE GAP 2: Osteoporosis induced by medicines

- Many widely used medicines have been associated with decreases in bone mineral density and/or increased fracture incidence. Three of the more commonly used agents which significantly affect bone health are **glucocorticoids** (GC) for the treatment of a range of conditions, **androgen deprivation therapy** (ADT) for treatment of prostate cancer in men, and **aromatase inhibitors** (AIs) for treatment of hormone receptor-positive breast cancer in women;
- GC-induced osteoporosis is the leading cause of secondary osteoporosis: up to 30-50% of patients receiving chronic glucocorticoid therapy experience fragility fractures and/or asymptomatic vertebral fractures. Despite widely available guidelines, the majority of studies (>80%) identified that less than 40% of chronic oral GC users underwent BMD testing or osteoporosis treatment;

- Approximately half of men diagnosed with prostate cancer will receive ADT after diagnosis. A meta-analysis reported that between 9% and 53% of survivors had osteoporosis. Local studies have shown that the rates of BMD testing and/or osteoporosis treatment in ADT treatment men varied from 9-59%, with an average of less than one-quarter of ADT treated men receiving appropriate care;
- A comparison of fracture rates between breast cancer survivors and women with no history of breast cancer showed 15% increased risk for all fractures among women who had survived breast cancer. Yet a study shows that majority of women on AI failed to have timely BMD testing.

CARE GAP 3: Diseases associated with osteoporosis

- There are many health disorders which can increase the risk of osteoporosis and fragility fractures. Six of the more common disorders which impact bone health are chronic obstructive pulmonary disease (COPD), diseases of malabsorption, rheumatoid arthritis (RA), primary or secondary hypogonadism, dementia and diabetes.
- The incidence of fractures reported in a large study of celiac sufferers is elevated compared to non-sufferers, with increases of 90% and almost 80% for hip and wrist fractures, respectively.
- A study has shown that compared to a control group, RA sufferers' risk of hip fracture and vertebral fracture is increased 2-fold and 2.4 fold, respectively. However, numerous international studies have reported sub-optimal assessment and/or treatment of osteoporosis in RA sufferers.
- Although persons with dementia suffer more falls, more fractures and higher post-fracture mortality than those without dementia, they are under-assessed for falls risk factors and are less likely to receive treatment for osteoporosis.
- People with type 2 diabetes have increased fracture risk: up to three times greater than that of non-diabetics for hip and other non-vertebral fractures. Given the staggering number of individuals affected, guidelines for the management of osteoporosis in type 2 diabetes must be drafted and implemented as soon as possible.

CARE GAP 4: primary fracture prevention for individuals at high risk of fracture

- Although secondary prevention is the single most important, immediate mechanism to directly improve patient care and reduce fracture related healthcare costs, the ultimate goal in the longer term is the prevention of the first fracture.
- Major studies have all reported significant reductions in health-related quality of life among individuals who have suffered fragility fractures at all skeletal sites. Accordingly a robust clinical case exists for primary prevention of all major osteoporosis fractures (hip, clinical vertebral, wrist or proximal humerus).
- Pragmatic approaches to first fracture prevention include systematic case-finding of individuals at risk of osteoporosis and fractures based on the medicines they take (Gap 2) or due to diseases associated with osteoporosis (Gap 3), as well as the systematic application of tools such as FRAX® to calculate absolute fracture risk in individuals.
- Several health systems have implemented systematic approaches to primary fracture prevention targeted at high risk individuals in parallel to secondary prevention. More healthy systems need to follow these examples.

Suboptimal communication and low public awareness

CARE GAP 5: the importance of staying on prescribed treatment

- In routine clinical practice, both persistence and compliance with osteoporosis treatment are sub-optimal. Approximately half of patients initiated on osteoporosis treatment do not follow their prescribed treatment regimen and/or discontinue treatment within a year.
- It has been estimated that improved adherence in the USA would reduce fracture rates by 25%, equating to ca. 300,000 fewer fractures per year and generating savings of US\$3 billion.

- Interventions which may improve adherence include: simplification of dosing regimens, electronic prescriptions in combination with verbal counselling, patient decision aids, and patient education.
- FLS improve adherence: Among patients managed by an FLS after fracture, between 74% and 88% remained on treatment at 12 months, and between 64% and 75% at 24 months.

CARE GAP 6: Public awareness of the serious impact of osteoporosis & fracture risk

- Various international studies have shown the following: osteoporosis is perceived as a benign consequence of ageing; patients are reluctant to take medication, and self-perception of risk is poor. For example, in the international GLOW study, only 33% of postmenopausal women with at least 2 risk factors perceived themselves as being at higher risk.
- Efforts to improve communication need to provide clear, evidence-based messages.
- An initial focus of any awareness campaign should be to drive awareness that a first fracture leads to second and subsequent fractures, with a potentially devastating impact on health and quality of life.

CARE GAP 7: Public awareness of the benefits versus the risks of osteoporosis treatment

- In the last decade use of osteoporosis treatments among individuals at high risk of fracture has been significantly impacted by reports relating to rare side effects.
- The risk-benefit calculation for treatment of osteoporosis among individuals who are at high risk of suffering fragility fractures, including life changing and life threatening hip fractures, significantly favours treatment. Nevertheless there has been a failure to counter adverse coverage of rare side effects of osteoporosis treatments across all media platforms.
- Efforts to improve communication are needed: clinicians and patients must objectively discuss and evaluate the risk benefit calculation for the patient's individual circumstances when making collaborative treatment decisions.

Neglect by national governments and healthcare systems

CARE GAP 8: Impeding access and reimbursement to osteoporosis assessment and treatment

- Different regions and countries face different challenges, as shown in the various IOF regional audits published since 2009. Common issues include:
 - only partial reimbursement, or restrictive criteria for reimbursement, of diagnostic testing and drug treatment. In the USA, for example, a major drop in reimbursement for DXA testing in the office setting has led to a drop in the number of providers and more than 1 million fewer DXAs performed;
 - inadequate provision of diagnostic testing, including lack of services in rural areas in some parts of the world;
 - the majority of the population in some countries where reimbursement is not offered cannot afford to pay for testing or treatment, even if available;
 - in some countries or regions within a country, not all osteoporosis drugs are reimbursed, effectively limiting treatment options for individuals in need.

CARE GAP 9: failing to prioritize fragility fracture prevention in national healthcare policy

- In contrast with other common chronic diseases, osteoporosis has not attracted a comparable level of attention from health providers and governments.
- As shown in the various IOF regional audits, osteoporosis and fracture prevention is not seen as a priority health issue in the great majority of countries in the world.
- The IOF-EPFIA Audit 2013 found that the majority of EU member states (18/27) did not recognize osteoporosis or musculoskeletal diseases as a national health priority (NHP). Of those countries which did, the focus was either on nutrition (6), falls prevention (4), or exercise (4) – only 2 focused on the implementation of fracture liaison services.

Lack of data

CARE GAP 10: The burden of osteoporosis in the developing world

- Only 8 of the 14 countries included in the 2012 IOF Latin American Regional Audit, and only 6 of the 17 countries included in the 2011 IOF Middle East and Africa Regional Audit, had published hip fracture incidence data. These are just examples of how, in many areas of the world, epidemiological data is needed at the national level to accurately quantify osteoporosis and fracture prevalence to help inform policy development.
- The need for increased research in Asia-Pacific, Latin America and the Middle East is of special urgency given that projections indicate that the burden of fragility fractures will shift to the developing world over the next four decades.

The Call to Action

The ten care gaps described in the report, together with their associated solutions, provide a new Global Framework for tackling the impending catastrophic burden that will be placed on the world's population and economy by fragility fractures.

- At the national level policymakers, healthcare professionals' organisations and national osteoporosis societies can use this framework to identify local gaps in the provision of best practice for the populations that they serve.
- Where currently absent, development of national strategies to close these gaps can be informed by the numerous international examples of clinical guidelines and quality improvement initiatives which have been highlighted in the report.

It must be emphasised that this document is not an end in itself, but is instead best viewed as a call to action.

The solutions to many of the problems we face have been identified and at least partly implemented, but not yet fully at a sufficient level to impact the approaching fracture tsunami. In the words of Leonardo da Vinci, "Knowing is not enough. We must apply. Being willing is not enough. We must do."

The time for optimal management of bone health is now.

The report 'Gaps and Solutions in Bone Health – a Global Framework for Improvement', including references for the facts outlined in these key messages, is available at www.worldosteoporosisday/2016-report/ and at <https://www.iofbonehealth.org/reports>