

New IOF-ISCD review clarifies the use of FRAX in clinical practice

International Osteoporosis Foundation

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Details strengths and limitations of the tool, provides recommendations for using surrogate country models

FRAX® is a computer-based algorithm developed by the World Health Organization Collaborating Centre for Metabolic Bone Diseases to help predict the 10-year risk of fragility fracture. Now with 34 specific country models, FRAX is being used increasingly by physicians around the world to help assess their patients' fracture risk in the course of a clinical assessment.

In a newly published review paper, the International Osteoporosis Foundation (IOF) and the International Society for Clinical Densitometry (ISCD) detail the findings of a joint Task Force that met in November 2011 for the 'ISCD IOF FRAX Initiative' meeting. The objective was to make recommendations on how to improve FRAX and better inform clinicians using the tool.

"FRAX is a widely accepted reference platform that allows physicians to make more informed clinical assessments of their patients. Nevertheless, they should be aware of the tool's limitations and take these into consideration when assessing patients for further testing or pharmacological treatment," said Dr. Didier Hans, co-chair of the FRAX Initiative and immediate past president of the ISCD. "Indeed, although FRAX scores provide empirical evidence to better guide intervention, clinical judgment is paramount."

The review clarifies a number of important questions pertaining to the interpretation and use of FRAX in clinical practice and highlights both perceived strengths and limitations. It provides details on the clinical risk factors currently used and explains the reasons for the exclusion of other risk factors. Several of the key issues discussed include:

Strengths:

- FRAX has been validated in 11 independent cohorts covering in excess of 1 million patient years. The model determines the predictive importance of each clinical risk factor, as well as interactions between them, to optimize the accuracy of fracture probability.
- FRAX models are based on country-specific data. Unlike more simple risk models, the tool integrates mortality as well as age-specific fracture rate

statistics.

- FRAX is appreciated for its simplicity for use in primary care. It is primarily used as a clinical tool to help physicians assess fracture probability as an aid in identifying which individuals may be candidates for reassurance, bone density evaluation or pharmacological treatment. FRAX is also used for guideline development, drug registration and health economic applications.
- The tool is freely accessible online. As well, it is available via iPhone, as a hand held calculator, and is integrated in densitometry technology. It is available in 16 languages and a growing number of country models (currently 40 models for 34 countries).

Limitations:

- FRAX does not take into account all risk variables of which the physician should be aware. These include, for example, the risks associated with falls, markers of bone turnover levels, other bone density assessments, as well as certain secondary causes of osteoporosis.
- For most clinical risk factors, FRAX uses yes/no answers and the average risk is computed. It therefore does not take into account the variation of risks associated with high or low doses of glucocorticoids, the number and type of prior fractures, or the quantity of alcohol or tobacco consumption.
- Other limitations of FRAX are dictated by the current scientific evidence available. FRAX does not take into consideration patients on treatment, younger men and women, variations of fracture rates within countries and changes of country-specific fracture rates over time.

In countries not yet included in FRAX, physicians may use surrogate country models, preferably choosing a surrogate model country which best approximates the fracture risk and death hazard of the index country.

Professor Cyrus Cooper, chair of the IOF Committee of Scientific Advisors and co-chair of the ISCD IOF FRAX Initiative, commented, "FRAX represents a significant advance which has facilitated the assessment of osteoporosis-related fracture risk to aid clinicians in identifying high risk subjects. Given the widespread use and interest in FRAX and its adoption in an increasing number of management guidelines around the world, we must ensure that clinicians worldwide are well informed and aware of best practice in the use of this important new tool."

Interpretation and use of FRAX in clinical practice. Osteoporos Int. 2011.

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