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## **OVERVIEW: *Clinician's Guide to the Prevention and Treatment of Osteoporosis***

The release of the *Clinician's Guide* by the National Osteoporosis Foundation (NOF) represents a major breakthrough in the way healthcare providers evaluate and treat people with low bone mass or osteoporosis and the risk of fractures. NOF has expanded its guidelines beyond Caucasian postmenopausal women to include African-American, Asian, Latina and other postmenopausal women. It also addresses for the first time men age 50 and older.

Today osteoporosis is a major public health problem that has both a medical and economic impact in the U.S. Fractures caused by either osteoporosis or low bone mass can lead to chronic pain, disability and even death, as well as psychological symptoms, including depression. Each year broken bones due to low bone mass or osteoporosis cause more than 432,000 hospital admissions, almost 2.5 million medical office visits and about 180,000 nursing home admissions.

NOF's *Clinician's Guide* dramatically alters the approach to assessing fracture risk and treatment. Fracture risk is now looked at in an entirely new way. The *Clinician's Guide* provides evidenced-based recommendations to help healthcare providers better identify people at high risk for developing osteoporosis and fractures and assuring that those at highest risk are recommended for treatment to lower that risk. It utilizes absolute fracture risk methodology to enhance treatment decisions that are individualized for each patient.

The *Clinician's Guide* applies the recently released algorithm on absolute fracture risk by the World Health Organization (WHO). This algorithm estimates the likelihood of a person to break a bone due to low bone mass or osteoporosis over a period of 10 years. This is also called the WHO algorithm (FRAX<sup>®</sup>), 10-year fracture risk model and 10-year fracture probability.

Absolute fracture risk methodology provides a markedly improved method to assure that people with the highest fracture risk get treated. Those at highest risk include postmenopausal women and older men with a diagnosis of osteoporosis, based on a BMD test T-score of -2.5 or lower, or those with a clinical diagnosis based on having sustained a hip or spine fracture. In addition, absolute fracture risk calculations help to resolve much of the uncertainty about management for people with low bone mass, also called osteopenia. These are people with a T-score between -1.0 and -2.5 on their bone mineral density (BMD) test. While clinicians clearly knew in the past to treat people with osteoporosis, that was not the case for people with osteopenia. This is important because many more people have low bone density or osteopenia compared to people with osteoporosis. Now these people and their clinicians have information from absolute fracture risk methodology to determine when it is medically appropriate to treat, and when it is not, based on the likelihood of breaking a bone.

The WHO algorithm takes into account not only bone mineral density (BMD) at the hip but also 10 specific clinical risk factors for osteoporosis and related fractures. This algorithm has been adapted for the U.S. and incorporates not only fracture outcome and mortality data from U.S. women and men, but also cost effectiveness analysis to determine when it is cost effective to treat a person with an osteoporosis medication to prevent a fracture.

NOF states that postmenopausal women or men age 50 and older with a T-score of -2.5 or lower at the hip or spine or those with a prior hip or spine fracture should be treated. In addition, based on absolute fracture risk calculation, patients with low bone mass (T-score between -1.0 and -2.5 at the femoral neck or spine) should be treated when there is a 10-year probability of hip fracture that is  $\geq 3\%$  or a 10-year probability of any major osteoporosis-related fracture that is  $\geq 20\%$  based on the U.S.-adapted WHO algorithm. It is important to note that the WHO algorithm is for untreated patients to help decide when to treat, and does not apply to patients already taking an osteoporosis medication. It also is not ideally suited to patients with risk factors and low bone density in the spine but normal bone density in the hip.

Some central DXA (dual-energy x-ray absorptiometry) machines that test the bone mineral density of the hip and spine may be able to provide a report that gives information on a person's absolute fracture risk by incorporating the NOF application of the WHO algorithm into the bone density machine's software. Clinicians can also enter a patient's bone mineral density hip T-score and other risk factor information in a simple web-based version into the algorithm to obtain absolute fracture risk in seconds. The information about absolute fracture risk will help both healthcare providers and patients decide whether treatment with an osteoporosis medication is needed.

The *Clinician's Guide* also provides recommendations for clinicians on when to do bone mineral density testing, clinical evaluation, risk factors for falls and universal recommendations for the prevention of osteoporosis. NOF summarizes the universal recommendations in its 5 Steps to Bone Health. These 5 Steps advise people to:

1. Get the calcium and vitamin D you need every day.
2. Do regular weight-bearing and muscle-strengthening exercises.
3. Don't smoke and don't drink too much alcohol.
4. Talk to your healthcare provider about your chance of getting osteoporosis, and ask when you should have a bone mineral density test.
5. Take an osteoporosis medication when it's right for you.

The *Clinician's Guide* recommends that adults age 50 and older need at least 1,200 mg of calcium and 800-1,000 IU of vitamin D daily. The *Clinician's Guide* was developed by an expert NOF committee in collaboration with a multi-specialty council of medical experts in the field of bone health convened by NOF. The *Clinician's Guide* provides recommendations that are intended to serve as a reference for clinical decision making with individual patients. The recommendations are not intended to be rigid standards, limits or rules and should not be interpreted as quality standards. Earlier versions of the updated *Clinician's Guide to Prevention and Treatment of Osteoporosis* were called the *Physician's Guide to Prevention and Treatment of Osteoporosis*.

The last printed version of the *Clinician's Guide* was published in 2008. NOF will periodically make revisions to the online version. Visit our website regularly to see if an updated version is available.