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

The release of the new *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 men age 50 and older for the first time.

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 over 432,000 hospital admissions, almost 2.5 million medical office visits and about 180,000 nursing home admissions.

NOF's new *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 Guide provides evidenced-based recommendations to help healthcare providers better identify people at high risk for developing osteoporosis and fractures and assure 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 new *Clinician's Guide* applies the recently released algorithm on absolute fracture risk called FRAX® by the World Health Organization (WHO). FRAX® is also called 10-year fracture risk model and 10-year fracture probability. 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.

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 many of the questions 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 were advised in the past to treat people with osteoporosis, there was much uncertainty about what to do for people with osteopenia. This is important because many more people have low bone density or osteopenia compared to the number of people with osteoporosis. Now these individuals and their clinicians have information from absolute fracture risk methodology to determine when it is medically appropriate to treat and when it is not necessary to treat based on the likelihood of fracture in that patient.

The WHO algorithm takes into account not only bone mineral density (BMD) at the hip but also nine specific clinical risk factors for osteoporosis and related fractures. NOF has adapted this algorithm 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.

In this new Clinician's Guide NOF states that postmenopausal women or men over 50 with a T-score of -2.5 or lower at the hip or spine or 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, total hip or spine) should be treated when there is a 10-year probability of hip fracture that is ≥3% or a 10-year probability of a major osteoporosis-related fracture that is ≥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.

In the near future, some central DXA (dual-energy x-ray absorptiometry) machines that test the bone mineral density of the hip and spine should 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 computer. Alternatively, clinicians can also enter a patient's bone mineral density hip T-score and other risk factor information in a simple web-based version of the algorithm in the doctor's office 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 new *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 daily recommended amounts of calcium and vitamin D.
2. Engage in regular weight-bearing and muscle-strengthening exercise.
3. Avoid smoking and excessive alcohol.
4. Talk to your healthcare provider about bone health.
5. Have a bone density test and take medication when appropriate.

The new *Clinician's Guide* recommends that adults over age 50 get 1,200 mg of calcium and 800-1,000 IU of vitamin D_3 daily. Vitamin D_3 is the form of vitamin D that best supports bone health. It is also called cholecalciferol.

The *Clinician's Guide* was developed by an expert committee of NOF 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*.

National Osteoporosis Foundation