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## Understanding Osteoporosis-Related Bone Fractures

### Announcer Introduction:

You're listening to ReachMD and this is "Boning Up on Osteoporosis" sponsored by the National Osteoporosis Foundation. Here's your host, Dr. Shira Johnson.

### Dr. Johnson:

Did you know that osteoporosis-related bone fractures account for more hospitalizations than heart attacks, strokes, and breast cancer combined? It's a staggering statistic that underscores the need for us to address this health threat with our patients head on. But what else do we need to know about the impacts of osteoporosis in terms of patient quality of life, economic drivers, and the healthcare system as a whole?

Welcome to Boning Up on Osteoporosis. I'm Dr. Shira Johnson and joining me to discuss these and other highlights from a recent report commissioned by the National Osteoporosis Foundation is Dr. Andrea Singer, associate professor and chief division of women's primary care and director of bone densitometry in the Department of Obstetrics and Gynecology at Medstar Georgetown University Hospital. Dr. Singer, welcome to the program.

### Dr. Singer:

Thanks so much, it's a pleasure to be here.

### Dr. Johnson:

To start us off, Dr. Singer, can you give us a brief overview of osteoporosis in its current prevalence?

### Dr. Singer:

In the United States, there are about 54 million adults 50 years of age or older who have either osteoporosis – that's about 10 million or so – or low bone mass or what we used to call osteopenia – it's between 43 and 44 million, placing them at increased risk for fracture. When we think about osteoporosis, it's really the sequelae of fractures or broken bones that we're trying to prevent, because a fracture can be a life altering event. In 2018, it was estimated that there were about two million fractures in the United States at a cost of about 57 billion dollars to the U.S. healthcare system. Based on a microsimulation or projection model that I and colleagues published, it's projected that by 2040 there'll be about three million fractures annually in the U.S. That's about a 68% increase with a projected cost of more than 95 billion dollars. Those are staggering numbers and obviously both from a fracture number as well as a financial aspect, those are things that we need to change.

### Dr. Johnson:

And if we turn our attention to the recent report titled "Medicare Cost of Osteoporotic Fractures," which I understand was partnered with an actuarial firm, what was the National Osteoporosis Foundation trying to understand here?

### Dr. Singer:

Well, the objective of the report was really to help provide insight into both the economic and health impact of osteoporotic fractures, specifically on the Medicare system and Medicare fee for service beneficiaries. We were really looking at not only the economic toll but the human toll on patients and caregivers and trying to put some data around what we all know has become a silent epidemic and can really affect people's quality of life and wellbeing as well as their longevity.

### Dr. Johnson:

So, let's dig into some of the findings starting with the incidence of osteoporotic fractures among Medicare FFS beneficiaries. What can you tell us about that, Dr. Singer?

Dr. Singer:

Well, in 2015, which was the year that was studied in the Milliman analysis, there were 2 million Medicare patients who suffered 2.3 million fractures. Rates were about 79% higher for women than for men. We know that this is predominantly a female disease, although men are not excluded and certainly the consequences of fracture are significant for both genders. 90% of patients who have a hip fracture are hospitalized within 7 days of the fracture and over 40% of Medicare fee for service beneficiaries who had a new osteoporotic fracture were actually hospitalized, so when you think about cost, hospitalization, and perhaps surgery that is needed, those are some of largest drivers of cost. When we think about consequences, there are a number of things to consider. What was shown in this study is that almost 20% of patients who had a fracture died within the first year following their fracture. 30% of hip fracture patients died within just a year, so if people don't think that fractures are significant, clearly some of this data should change that impression; 19% of patients developed pressure sores, 15% of patients suffer one or more additional bone breaks in the two to three years following that fracture, so that old adage of fracture begets fracture in a cascade really was shown to hold true here, and the cost of subsequent fracture is quite significant. We're talking about an incremental annual medical cost of a new fracture over 21,800 dollars and these are really just looking at direct costs, which are primarily driven by both hospital costs and then the need for institutionalization or skilled nursing facilities. Doesn't take into account the indirect costs – costs to caregivers, time off from work, all of those other things. This is really just the tip of the iceberg, but again, a way for us to define what impact fractures have, specifically on the Medicare population.

Dr. Johnson:

For those just tuning in, you're listening to ReachMD and this is *Boning Up on Osteoporosis*. I'm Dr. Shira Johnson, and today I'm speaking with Dr. Andrea Singer about a report commissioned by the National Osteoporosis Foundation to better understand the human and economic burdens of osteoporotic fractures.

So, now that we've covered the key findings from this report, Dr. Singer, let's switch gears and talk about preventive measures that can make a positive impact. Starting with screening, what programs are currently available to identify individuals at higher risk?

Dr. Singer:

Well, that's a great question because the picture that I painted a little while ago was somewhat dismal. The upside, which is always a better note to sort of end on, is that we can do something about this, and that really starts with screening. Just a quick word, in the Milliman analysis, what was found is that of the women who were candidates for osteoporosis screening with a bone density test, those who had fractures, so they were, by definition, high risk, only 9% received a bone mineral density test in the six months following their fracture. That's really abysmal if we think about those screening rates. Let's sort of talk about the general population and hopefully what we can do to identify people at high risk before they have had that first fracture. So, you asked about screening. That includes evaluating bone mineral density. The gold standard test right now is a central DEXA scan that tends to look at bone density in the lumbar spine and the hip, but there are other ways to assess risk in addition to looking at bone mineral density. We can assess patients for clinical risk factors: what is in their history, either in terms of underlying medical problems, medications they might take, lifestyle or habits, family history, that put them at risk for fracture. One of the most significant risk factors is having had a prior fracture. That's probably the single most important risk factor, and a prior fracture should be considered a sentinel event. We can also use absolute risk calculators, like FRAX, which was developed in the UK to help assess 10-year risk of having a fracture based on the combination of bone mineral density and clinical risk factors. So, many different ways by either using measurements, tools, or just kind of our clinical impression based on risk factors of who might be at risk for a fracture down the line.

Dr. Johnson:

Now, Dr. Singer, once these patients are identified, what kinds of strategies are available to prevent osteoporotic fractures?

Dr. Singer:

Strategies really fall under two different umbrellas in terms of prevention of fractures. One includes nonpharmacologic approaches, so that's making sure that people have a well-balanced diet, that they are getting in adequate calcium and vitamin D, what we think about as some of the building blocks that are necessary for bone remodeling and new bone formation, weightbearing muscle strengthening exercise, because that helps to stimulate bone remodeling as well as improve muscle strength, and reduce the risk for frailty and falling, and then certainly fall prevention. But for someone who has established osteoporosis or the person who has had a fracture, those measures alone are not often enough, and that's where pharmacologic treatment or the use of medications really comes into play. We have a number of different medications in the armamentarium. They fall into two large buckets: our anabolic or bone-building medications that essentially increase rates of bone formation, improve strength, and importantly reduce the risk for future fracture, and the other bucket are antiresorptive medications which work primarily to slow bone breakdown and help to stabilize and preserve the amount of bone that's there, and also, importantly, reduce the risk for future fractures. So, there are many things that we can do and individualizing treatment strategies and choice of medication based on the individual patient, their baseline level of risk, and their desires, what the goals of treatment are, is really where this becomes an art in addition to the science background.

Dr. Johnson:

I can see that it would be an art and a science. Lastly, Dr. Singer, for any of our listeners interested in learning more about these findings from the Milliman report, or about osteoporosis care in general, where can they access this data?

Dr. Singer:

There are a number of great resources out there. I would direct them to the National Osteoporosis Foundation website which is [www.nof.org](http://www.nof.org), specifically for the full Milliman report, which is somewhat lengthy but there is a nice executive summary at the beginning if you want the highlights, and then it is filled with all kinds of additional information. They can go to [bonehealthpolicyinstitute.org/full-Milliman-report](http://bonehealthpolicyinstitute.org/full-Milliman-report).

Dr. Johnson:

Well, with that call to action in mind, I'd like to thank my guest, Dr. Singer, for joining me to share highlights from this report and for catching us up to speed on the widespread burden of osteoporosis. Dr. Singer, it was great having you on the program.

Dr. Singer:

It was a pleasure to be here and thank you so much for the opportunity to talk about this important disease.

Announcer Close:

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