

## A Lateral Point of View on Bone Mineral Densitometry: A Single Center Retrospective Analysis

Kaitlin M. Zaki-Metias, MD, Christopher C. Zarour, MD, MHA, Mehrvaan Kaur, MD, Jeffrey J. MacLean, MD, Malika Ganguli, Eda B. Olson, Bruce Henderson, MD, Khurram Rashid, MD

Trinity Health Oakland Hospital/Wayne State University School of Medicine, Pontiac, MI

### Introduction:

Osteoporosis is significantly underdiagnosed and undertreated. This may be because traditional frontal lumbar spine protocol for dual-energy x-ray absorptiometry (DEXA) bone density evaluation potentially overestimates bone density due to the presence of superimposed osseous structures and sclerotic degenerative changes. The purpose of this study is to determine if the lateral lumbar spine DEXA is more sensitive than the traditional frontal view in diagnosing osteoporosis.

### Methods:

A retrospective analysis of DEXA scans completed between January 2020 and December 2021 at a single institution was performed. All patients who met the criteria for osteoporosis screening were included. The bone mineral density (BMD) and T-scores were compared between the frontal and lateral lumbar spine, as well as the lateral lumbar spine and femoral neck. Statistical analysis was performed using SPSS statistics software version 25.0.

### Results:

A total of 2733 patients (mean age, 67.3 years  $\pm$  9.2; 2654 (97.1%) female) were included. The T-scores obtained from BMD measurements of the lateral lumbar spine (mean,  $-1.5 \pm 1.7$ ) were significantly lower (paired t-test,  $p < 0.0005$ ) than that of frontal views (mean,  $-0.4 \pm 1.7$ ). This resulted in a more frequent diagnosis of osteoporosis, with 30.7% (838/2733) of patients being diagnosed with osteoporosis based on lateral view, compared to 7.4% (202/2733) on frontal view.

### Conclusion:

Lateral lumbar spine bone mineral densitometry resulted in significantly lower BMD measurements compared to frontal lumbar spine views, leading to more frequent diagnoses of osteoporosis and osteopenia.



Kaitlin Zaki-Metias, MD



Mehrvaan Kaur, MD