Medical Imaging Center

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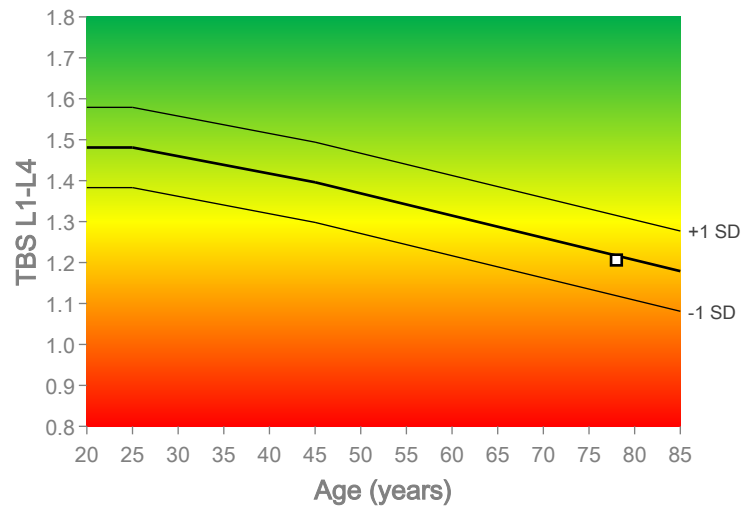|			
Patient:	Jane, Doe		
Patient ID:	1	Date of birth - Age:	01/07/1942 - 78 years
Height - Weight - BMI:	150.7 cm - 58.3 kg - 25.7 kg/m²	Gender - Ethnicity:	Female - White
Referring physician:	Dr. Strangelove	Acquisition date:	12/01/2021

BONE HEALTH REPORT

1 TBS Mapping
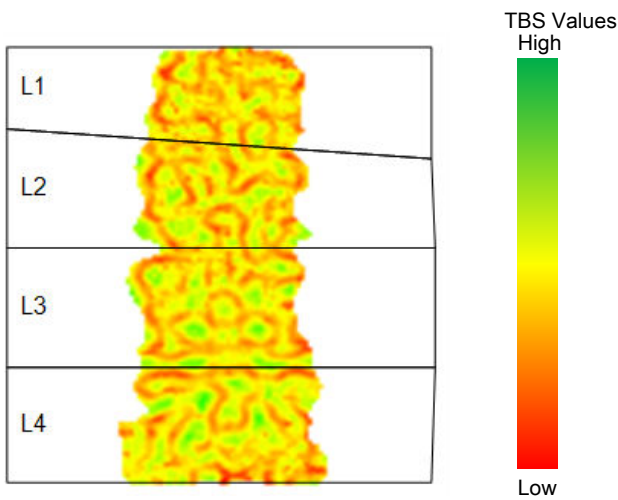
Non-diagnostic image

2 TBS Spine Results

TBS L1-L4 = 1.206 - Degraded microarchitecture

Reference population: USA (NHANES / Medimaps) - White

3 Skeletal Status Assessment

Osteoporosis is a systemic skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture.[1]

The TBS is derived from the texture of the DXA image and has been shown to be related to bone microarchitecture and fracture risk. It provides information independent of BMD.

For purpose of clarity, "Bone Resilience Index" is defined as the combination of BMD T-score and TBS categories. The Bone Resilience Index zones are established based upon level of fracture risk.[2]

		BMD T-score*		
		Normal	Osteopenia	Osteoporosis
TBS**	Normal			
	Partially degraded			
	Degraded		☐	

* BMD T-score is the min value of spine, total hip and femoral neck
** Spine TBS L1-L4 Normal microarchitecture > 1.31; Degraded ≤ 1.23

Normal	Moderate	Low	Severely low

Color coded Bone Resilience Index zones based on Fracture Risk[2]

4 Therapeutic Decision Tools

The FRAX® 10-year probability of fracture:

Type of Fracture	Risk	Risk adjusted for TBS*
Major Osteoporotic	22 %	26 %
Hip	7.5 %	8.9 %

* Validated only for Caucasian and Asian women and men [3]. Refer to local guidelines before using these values.

Reported Risk factors beside BMD: glucocorticoids

The BMD T-score:

Bone Site	BMD T-score	BMD T-score adjusted for TBS*
Spine	-2.3	-2.5
Femoral Neck •>	-2.2	-2.3
Total Hip •>	-2.2	-2.3

* Validated for Caucasian women only [4]. The greyed cell is the minimum value. The arrow displayed near the hip bone sites represents the hip side of the exam : <• for left hip, •> for right hip.

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5 Detailed Spine Results

Region	TBS	TBS Z-score	BMD (g/cm²)	BMD T-score
L1	1.087	-	0.634	-3.2
L2	1.216	-	0.854	-1.6
L3	1.252	-	0.808	-2.5
L4	1.270	-	0.864	-1.8
L1-L4	1.206	-0.1	0.801	-2.3
L1-L3	1.185	-0.1	0.774	-2.2
L1-L4(L3)	1.191	0.0	0.799	-2.1
L1-L4(L2)	1.203	0.0	0.786	-2.4
L2-L4	1.246	-0.2	0.842	-2.2
L1-L2	1.152	0.1	0.752	-2.1
L1-L3(L2)	1.169	0.0	0.734	-2.5
L1-L4(L2L3)	1.178	0.1	0.774	-2.4
L2-L3	1.234	-0.3	0.829	-2.1
L2-L4(L3)	1.243	-0.1	0.860	-2.0
L3-L4	1.261	-0.2	0.838	-2.4

6 FRAX Curve

2018 Actualization of the French National recommendations
for the treatment of postmenopausal osteoporosis
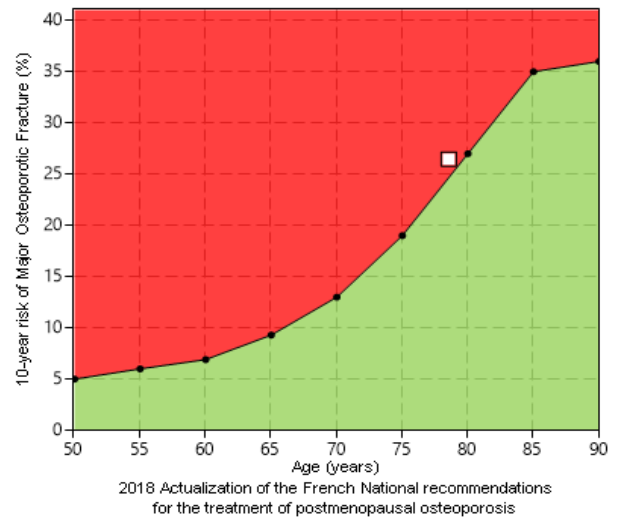
7 Conclusion

The Lumbar spine TBS is 1.206 which suggests a degraded microarchitecture compared to reference population.

The patient's associated BMD and TBS values suggest a Low resilience to fracture.

Furthermore, the minimum BMD T-score (either adjusted or not for TBS), positions the patient in the Osteoporosis category equivalent.

The patient's FRAX results should be interpreted in regard to the intervention thresholds provided by national medical guidelines.

Final decision regarding diagnostic or therapeutic recommendations should include BMD, TBS, additional clinical risk factors as well as the clinical context of the patient.

8 Notes & References

Date of report generation: 13/01/2022 16:56:15
Date of analysis: 12/01/2021 – TBS iNsight version 3.1.2
DXA: QDR 4500 A #0 – File: PA04112A.p05

1. Consensus Development Conference, Am J Med 94, 646-650 (1994)
2. Adapted from J. Bone Miner. Res. 26, 2762–2769 (2011)
3. Calcif Tissue Int. 96, 500-509 (2015)
4. Adapted from Osteoporos Int. 29, 751-758 (2018)

TBS osteo