الجمعية السعودية لهشاشة العظام
Saudi Osteoporosis Society

Osteoporosis: Fracture Risk Stratification and Management Guidelines

Content Summary

Initial Evaluation

History and physical Examination to assess risk factors.

- Previous fracture, after age 40 years.
- Glucocorticoids (> 3 mo in the last year
- Falls, ≥ 2 in the last year
- In a Parent with hip fracture
- Body mass index < 20 kg/m^2
- Secondary osteoporosis
- Current smoking

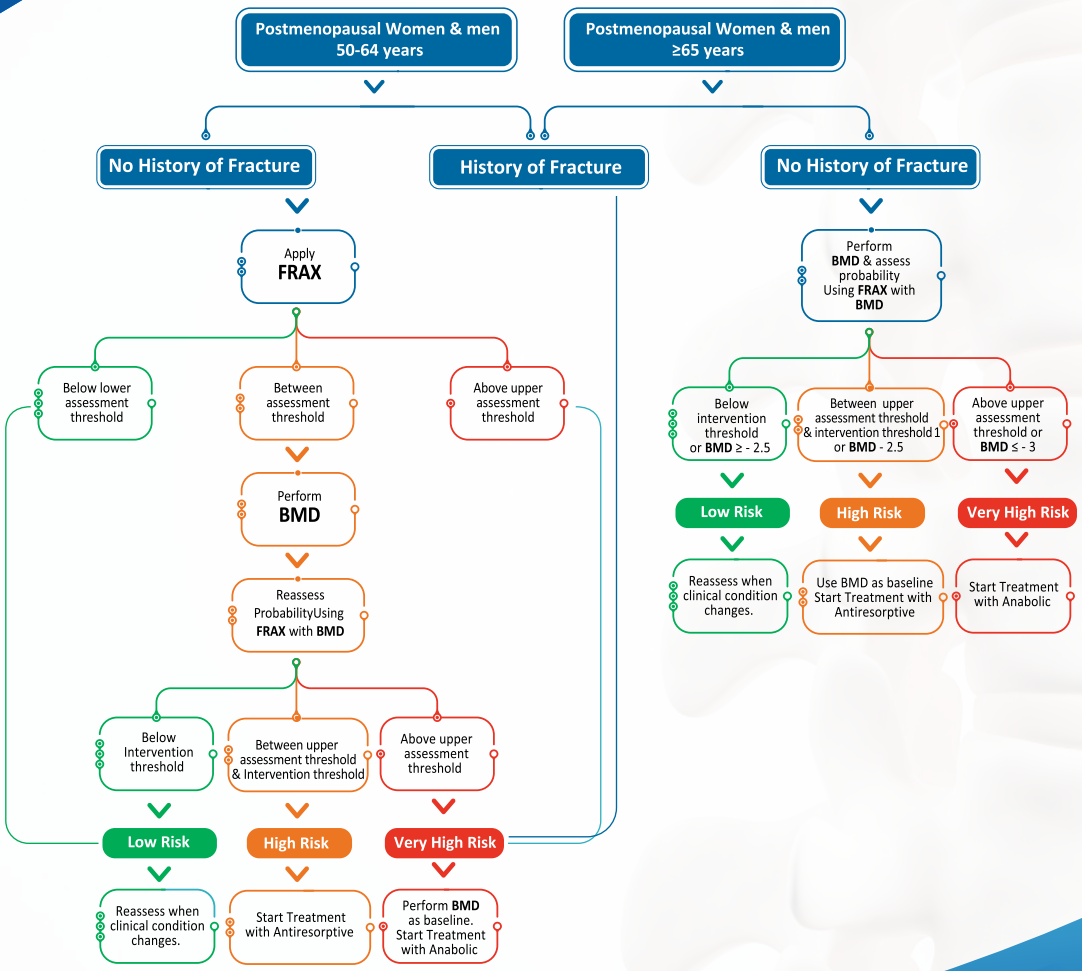
Initial Lab to evaluate for secondary causes:

Complete blood picture
Renal function test
Liver function test
Bone profile
25 Hydroxyvitamin D
Urine Calcium/Creatinine
Additional tests as indicated by clinical scenario
(PTH, Gonadal hormone, Celiac panel, Protein electrophoresis, genetics)

Spine X ray or VFA

- Women age ≥ 70 years or men age > 80 years
- Historical height loss ≥ 4 cm (≥ 1.5 inches)
- Self-reported but undocumented prior vertebral fracture
- Glucocorticoid therapy equivalent to ≥ 5 mg of prednisone or equivalent per day for ≥ 3 months

Risk stratification
(Probability Based assessment of Fracture)



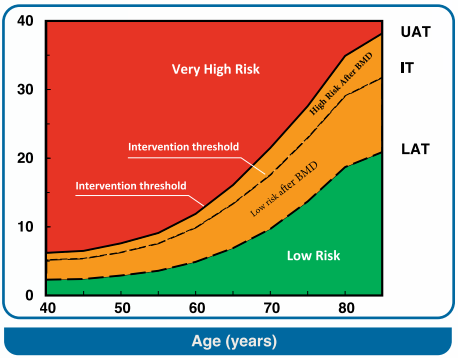
FRAX Website

FRAX Stratification

Age (years)	Intervention thresholds [a] (%)		Assessment threshold			
			Lower [b] (%)		Upper [c] (%)	
	MOF	HF	MOF	HF	MOF	HF
40	0.48	0.05	0.21	0.01	0.58	0.06
45	0.97	0.13	0.43	0.03	1.16	0.16
50	1.97	0.32	0.89	0.08	2.36	0.38
55	3.88	0.66	1.81	0.19	4.66	0.79
60	5.86	1.08	2.84	0.37	7.03	1.30
65	7.00	1.54	3.51	0.62	8.40	1.85
70	7.58	2.10	3.96	0.99	9.10	2.52
75	7.25	2.36	4.01	1.30	8.70	2.83
80	5.90	2.13	3.49	1.37	7.08	2.56
85	4.50	1.93	2.68	1.24	5.40	2.32
90	3.00	1.51	1.80	0.97	3.60	1.81

Thresholds presented in percentages (%). [a]The threshold is the probability of a MOF for a woman with BMI 30 kg/m^2 and a previous fracture and no other clinical risk factors without BMD. [b]The lower assessment is the probability of a MOF for a woman with BMI 30 kg/m^2 and no clinical risk factors without BMD. [c]The upper assessment was set at 1.2 times the intervention threshold [1]

1- Al-Daghri, N.M.,Arch Osteoporos 16, 166 (2021).



FRAX Score Enhancers (If FRAX plus is not available)

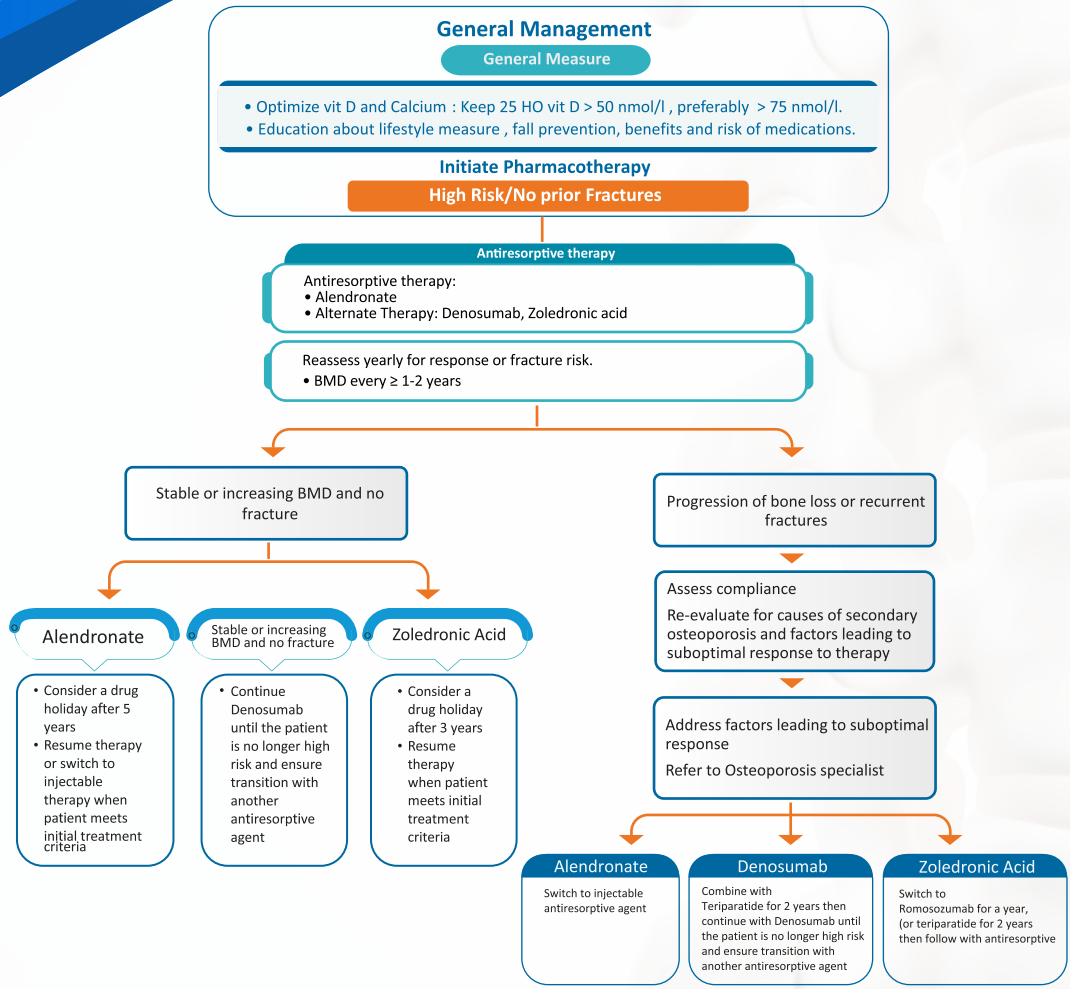
Diabetes Mellitus

- DM1: check secondary Osteopoporosis in the FRAX tool
- DM2: Adjust percentage using **only one** of the following:
  - check Rhumatoid arthritis in the FRAX tool (DM2 carries equivalent risk as Rhumatoid Arthritis)
  - ↓ FN BMD by -0.5
  - ↑age by 10 years

Steroid Treatment (≥ 3 months):
Adjust percentage according to the dose.

Dose	Prednisolone Equivalent (mg/day)	Correcting factor (multiply FRAX by)
Low	< 2.5	0.8
Medium	2.5-7.5	1
High	> 7.5	1.15

FRAX Stratifiction Table


General Management
General Measure
• Optimize vit D and Calcium : Keep 25 HO vit D > 50 nmol/l , preferably > 75 nmol/l.
• Education about lifestyle measure , fall prevention, benefits and risk of medications.
Initiate Pharmacotherapy
High Risk/No prior Fractures
Antiresorptive therapy
Antiresorptive therapy:
• Alendronate
• Alternate Therapy: Denosumab, Zoledronic acid
Reassess yearly for response or fracture risk.
• BMD every ≥ 1-2 years
Stable or increasing BMD and no fracture
Progression of bone loss or recurrent fractures
Alendronate
• Consider a drug holiday after 5 years
• Resume therapy or switch to injectable therapy when patient meets initial treatment criteria
Stable or increasing BMD and no fracture
• Continue Denosumab until the patient is no longer high risk and ensure transition with another antiresorptive agent
Zoledronic Acid
• Consider a drug holiday after 3 years
• Resume therapy when patient meets initial treatment criteria
Assess compliance
Re-evaluate for causes of secondary osteoporosis and factors leading to suboptimal response to therapy
Address factors leading to suboptimal response
Refer to Osteoporosis specialist
Alendronate
Switch to injectable antiresorptive agent
Denosumab
Combine with Teriparatide for 2 years then continue with Denosumab until the patient is no longer high risk and ensure transition with another antiresorptive agent
Zoledronic Acid
Switch to Romosozumab for a year, (or teriparatide for 2 years then follow with antiresorptive

General Management

General Measure

- Optimize vit D and Calcium : Keep 25 HO vit D > 50 nmol/l , preferably > 75 nmol/l.
- Education about lifestyle measure , fall prevention, benefits and risk of medications.

Initiate Pharmacotherapy

Very High Risk / prior Fractures

Refer to Osteoporosis Specialist /FLS Service

Anabolic Therapy:

- Romosozumab: (Contraindicated in high risk for Ischemic heart disease or recent Myocardial Infarction/Cerebrovascular accident within the last 1 year)
- or Teriparatide (Contraindicated in hyperparathyroidism, skeletal malignancy, radiation therapy and Paget's disease)

Alternative: Denosumab, IV Zoledronic acid

- Reassess yearly for response or fracture risk.
- BMD every 1-2 years.

Romosozumab for 1 year

Sequential therapy with oral or injectable antiresorptive agent

Teriparatide for 2 years

Sequential therapy with oral or injectable antiresorptive agent

Denosumab

Continue therapy until the patient is no longer high risk and ensure transition with another antiresorptive agent.

- If progression of bone loss or recurrent fractures, consider switching to Romosozumab for 1 year, or combine with Teriparatide for 2 years then follow with antiresorptive

Zoledronate

If stable, continue therapy for 6 years

- If progression of bone loss or recurrent fractures, consider switching to Romosozumab for 1 year, or Teriparatide for 2 then follow with antiresorptive

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