OSTEOPOROSIS, OUTPATIENT, PATHWAY

Updated: July 1, 2022

Clinical pathway summary

PATIENT POPULATION AND DIAGNOSIS: Females >65 years old, Males > 50 years with 1 or more risk factors, and all other individuals with 2 or more risk factors.

APPLICABLE TO: Primary Care

BRIEF DESCRIPTION: Screening, diagnosis, and treatment of osteoporosis including:

- Screening and Diagnosis
- Fragility Fracture
- Osteopenia Treatment
- Incidental Vertebral Fracture Finding
- Pharmacologic Treatment #1
- Pharmacologic Treatment #2

IMPLEMENTATION DATE: July 1, 2022

LAST REVISED: July 1, 2022
Clinical algorithm:

**Screening and Diagnosis**

Screen any of the following individuals:
- Female ≥ 65 y.o.
- Male ≥ 50 y.o. with 1 or more risk factors
- All other individuals with 2 or more risk factors

Dietary and Lifestyle changes

Obtain DXA & FRAX

T>1.5? Yes

Age>65? Yes

Normal or slightly low result. Recheck DXA in 10yrs**

Normal or slightly low result. Recheck DXA in 5yrs**

Workup secondary causes:
Check: PTH, 25-hydroxy Vit D, CMP, 24hr urine calcium sodium and creatinine, bone turnover markers, testosterone if male. ^

Endocrine disorder or renal failure present? No

Refer to Endocrinology. See Endo table

Lateral spine radiographs to diagnose vertebral fracture

Yes

Hx of Fragility fx? Yes

Diagnosis Osteoporosis

Pharmacological Treatment of Osteoporosis

No

T-1.5 to -2.49? Yes

Diagnosis Osteoporosis

Osteopenia Evaluation & Treatment

No (BMD ≤2.5)

Diagnosis Osteoporosis

Pharmacological Treatment of Osteoporosis

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*Clinical risk factors for osteoporosis
- Menopause not on HRT
- Previous fracture
- Initiating chronic glucocorticoid therapy or on glucocorticoid therapy > 3 months
- Parental history of hip fracture
- BMI <21
- Current cigarette smoking or history of smoking greater than 10 pk years
- Alcohol consumption > 2 units/ day for men and >1 unit/ day for women
- Rheumatoid arthritis
- Other causes of secondary osteoporosis (eg. Hypogonadism, malabsorption, chronic liver disease, IBD)
- Height loss of greater than 4cm
- Radiographic evidence of osteopenia

** AAFP and ACOG guidelines recommend 15 year follow up. Absolute hip fracture risk in 10 years is 0.9% for this cohort. Risk of developing osteoporosis is 10% in the next 15 years. (NEJM article 2012) ISCD recommends every 2 years but does not provide evidence for rationale.

**DXA rechecks: Make concerted effort to obtain on same machine with same rad tech. If not possible use results with discretion.


DXA=Dual-energy X-ray absorptiometry
Fragility Fracture

Workup secondary causes: Check: PTH, 25-hydroxy Vit D, CMP, 24hr urine calcium, SPEP, BTM, UPEP testosterone level if male.

- Fragility Fracture = fracture out of proportion to injury pattern
- SPEP = serum protein electrophoresis
- UPEP = Urine Protein Electrophoresis
- BTM = Bone turnover markers
- SDM = Shared decision making

Evidence of secondary causes of osteoporosis or multiple myeloma?

- Yes → Investigate and treat secondary causes
- No → Back Pain or history of height loss ≥ 4 cm

- Yes → Lateral spine radiographs to diagnose vertebral fracture
- No →

Fracture during bisphosphonate therapy or T< -2.5 with history of fragility fracture?

- Yes → Does patient have contraindications to PTH/PTHrP analog?*
- No →

Was fragility fracture vertebral?

- Yes → Obtain DXA and FRAX to establish severity of disease, treat as osteoporosis (BMD< -2.5), follow dietary and lifestyle modification pathways as well.
- No →

Obtain DXA and FRAX

- T score > -1.5 → Follow dietary and lifestyle modification pathways and repeat DXA in 2 years.**
- No → Follow Dietary and Lifestyle pathways. Follow Osteoporosis BMD < -2.5 treatment pathway

*Assess for the following risk factors before prescribing PTH/PTHrP analog:
- Radiation therapy to skeleton
- Cancer of or metastatic to bone
- Paget’s disease of bone
- Nephrolithiasis
- Hypercalcemia
- Metabolic bone disease other than osteoporosis
- hyperparathyroidism
- Pregnancy
- Actively Breast feeding
- Pediatric patient with open Epiphyses

**AAOS recommends 1 year. Choosing Wisely says never repeat sooner than 2.
Osteopenia Treatment

Positive FRAX* No

Dietary and lifestyle changes and repeat DXA in 5 years

Yes

Female < 65yrs post menopausal, not on HRT?

Risk factors for HRT?

Yes

No

Yes

No

Shared decision making for pharmacological treatment

Shared decision making on HRT vs bisphosphonate

Shared decision making on raloxifene vs bisphosphonate

Desires treatment?

No

Yes

Dietary and lifestyle changes. Recheck DXA in 2yrs**

See Osteoporosis BMD<-2.5

HRT=Hormone Replacement Therapy

* Positive FRAX= Overall fracture risk ≥ 20% or hip fracture risk ≥ 3%

** AACE 2022 guidelines
Lifestyle Changes

Shared Decision Making on Calcium, Vitamin D, and Exercise. If willing see dietary changes.

Does patient have breast cancer?

Yes

Determine who manages Osteoporosis

No

Patient has breast cancer?

Yes

Dietary & Lifestyle changes.

No

Does patient smoke?

No

Advise not to use cigarettes, other tobacco products, or e-cigarettes

Assess Readiness to change for tobacco cessation

Recommend stage appropriate lifestyle treatment and supports for smoking cessation

Stage appropriate Multimodal Education on smoking cessation

Does patient have a positive Audit C?

No

Advise to decrease consumption of alcohol due to increased fall and fracture risk

Assess Readiness to change for decreasing alcohol

Recommend stage appropriate lifestyle treatment and supports for smoking cessation

Stage appropriate multimodal education on decreasing alcohol consumption

Yes

Fall risk assessment

High fall risk?

Yes

PT & OT assessment. Dietary & Lifestyle changes.

No

Dietary Changes
Incidental Vertebral Fracture Finding

Known Osteoporosis?

No

DXA & FRAX to establish severity of disease, treat as osteoporosis (BMD<-2.5), follow dietary and lifestyle modification pathways as well.

Endocrine disorder or renal failure present?

Yes

Refer to Bone Health Clinic or Endocrinology. See Endo table

No

Lateral spine radiographs to assess for unstable fractures

Pharmacological Treatment of Osteoporosis

Yes

Workup secondary causes: Check: PTH, 25-hydroxy Vit D, CMP, BTM, 24hr urine calcium sodium and creatinine, testosterone if male.
Pharmacological Treatment Osteoporosis #1

- **GFR < 30?**
  - Yes → Refer to Endo or Bone Health specialist
  - No

- **History of not tolerating PTH Analog**
  - No → Continue PTH Analog to goal → DXA in 1 to 2 years → BMD improved to > 3.5?
  - Yes → Osteoporosis with BMD < -2.5
  - No → Tolerate & compliant?
    - Yes → DXA in 2 yrs
    - No

- **GI disorder? Esophageal disorder? Hx of Roux-En-Y? Can’t sit upright 30+ mins or swallow pill?**
  - No → Start oral bisphosphonate
  - Yes

- **Start zoledronic acid**
  - Yes → Recheck DXA in 1-2 years, consider bone turnover markers
  - No → Shared decision making for Rx of denosumab, or cont. zoledronic acid

- **Stable or improved?**
  - Yes → No drug holiday. Continue treatment and recheck DXA
  - No

- **Patient chooses denosumab?**
  - Yes → Continue for total of 5yrs
  - No → Drug holiday 2yrs and recheck DXA

- **Initial BMD ≤ 3.5?**
  - Yes
  - No → Restart previous treatment. DXA in 2 yrs

- **History of not tolerating PTH Analog**
  - Yes → Continue PTH Analog to goal
  - No
Pathway information

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EXPERT IMPROVEMENT TEAM (EIT): N/A

CLINICAL PRACTICE COUNCIL (CPC): Primary Health

CPC APPROVAL DATE: April 28, 2022

OTHER TEAM(S) IMPACTED: Bone Health, Endocrinology

References


*Overview of the management of osteoporosis in postmenopausal women - UpToDate*