West Moreton Health

Osteoporosis Update

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Overview

- Diagnosis
- Australian prevalence data
- Who gets a BMD before 70years?
- What's in a secondary screen?
- Who gets treatment?
- What treatment options are available?
  - MHT vs bone specific therapy
  - When should we consider anabolic agents?
  - Who is appropriate for denosumab, how to switch from denosumab?
- When to refer to Endocrinology?

Osteoporosis

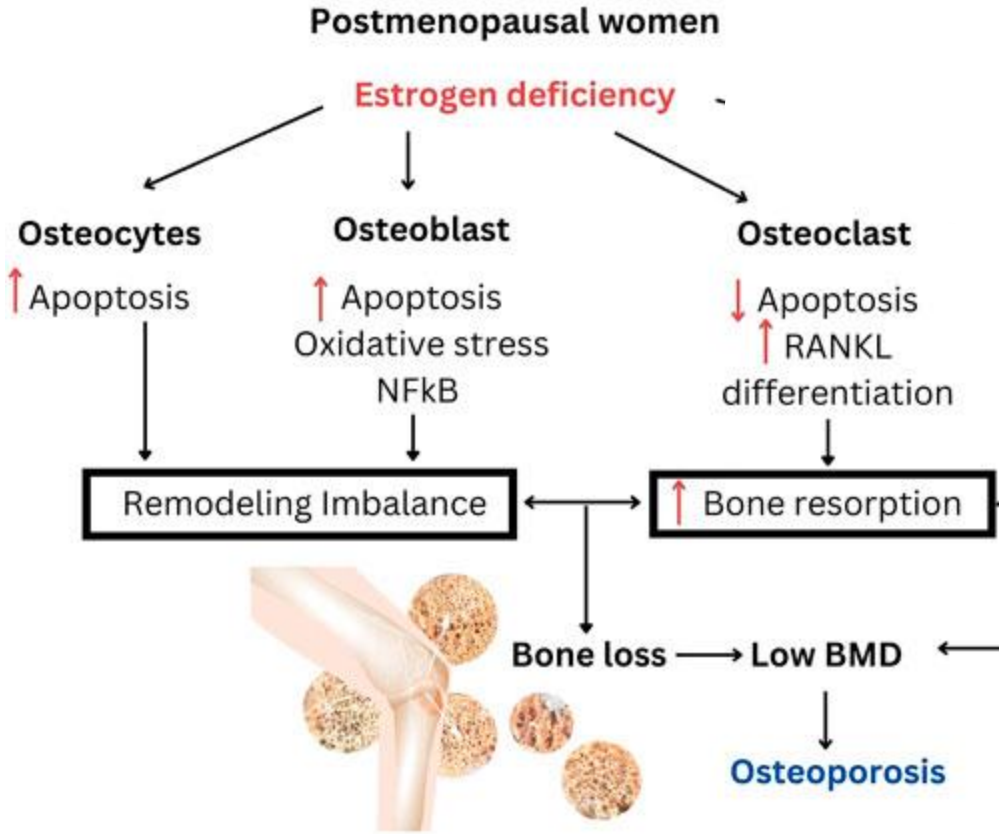
Post-menopausal women and men >50years

- T score ≤ -2.5 at hip or spine
- Minimal trauma fracture at OP site
  - Hip, spine, forearm, humerus, pelvis

Osteopenia - T scores between -1 and -2.5

Oestrogen is integral to maintaining bone health

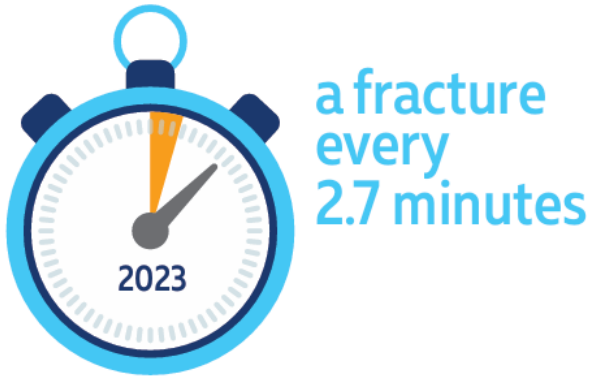
- Oestrogen deficiency → accelerated bone loss
- Avg. ↓ 10% of bone mass in first 5years post menopause

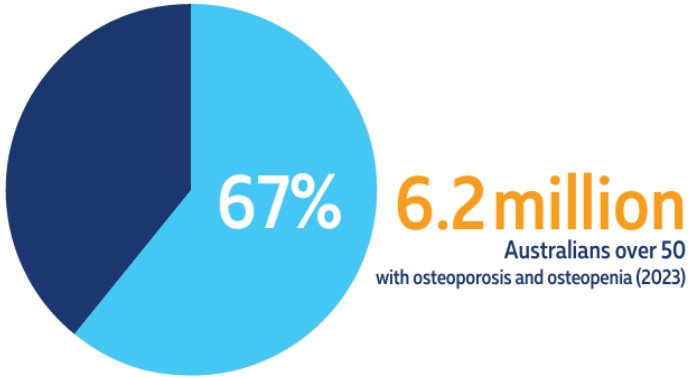


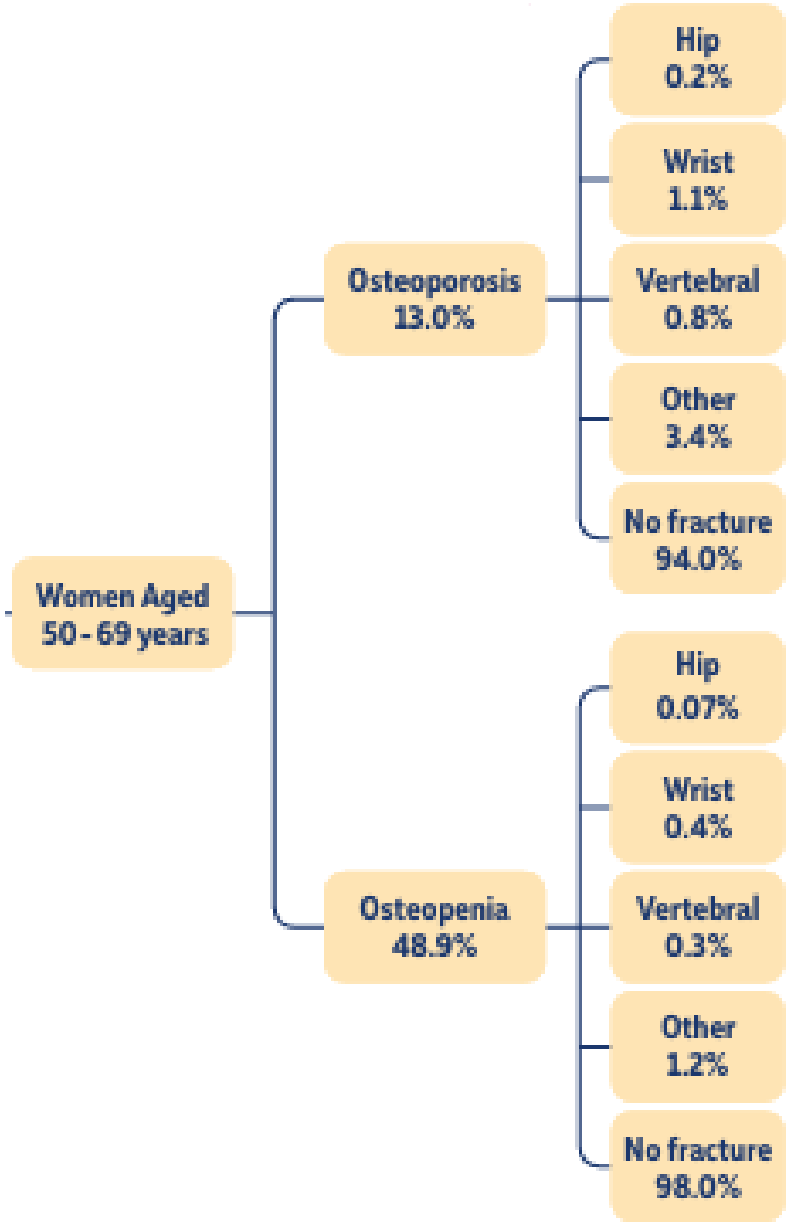
RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Osteoporosis/osteopenia
Australian Data

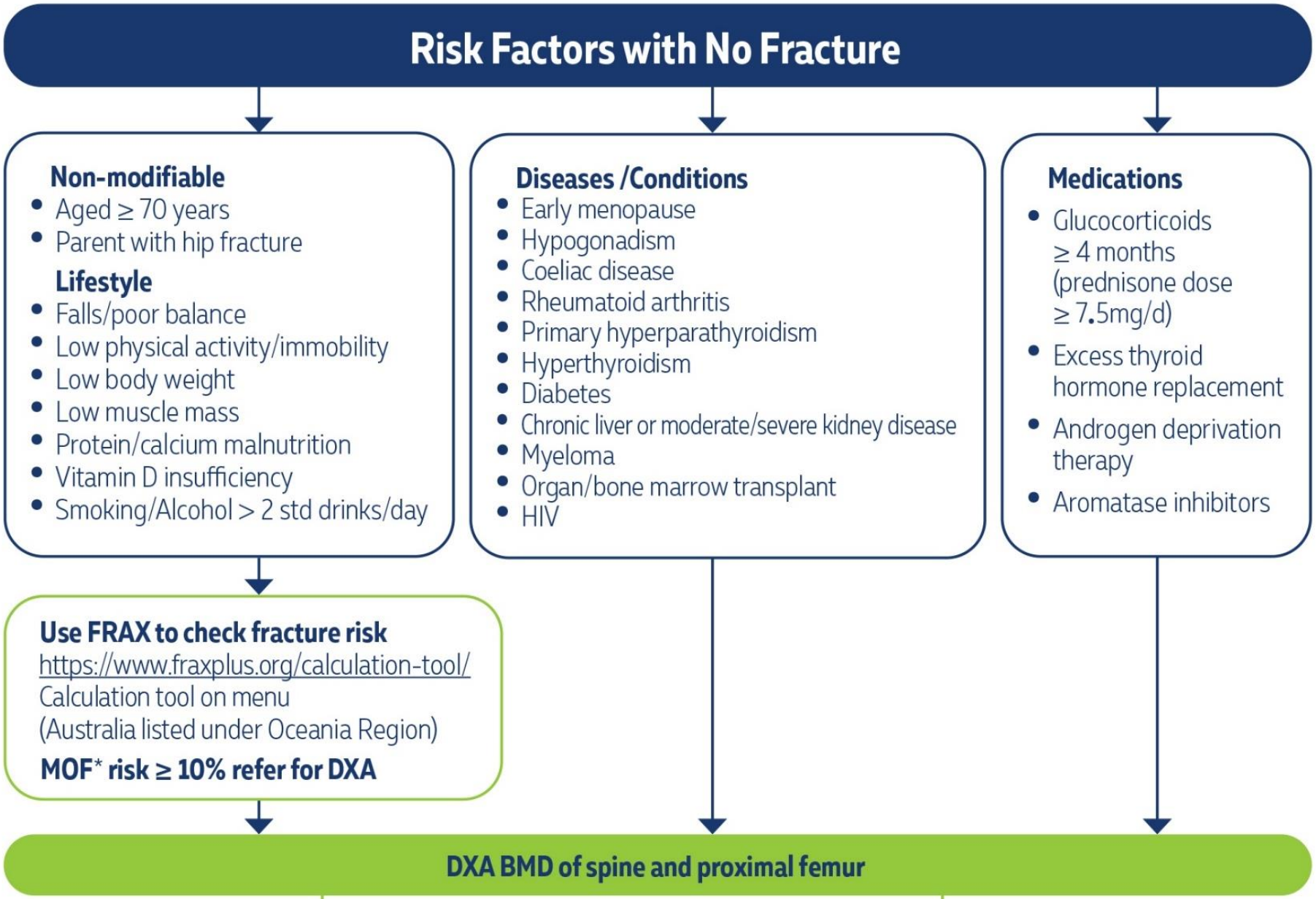
1. In 2023 6.2mil Aus over 50 were living with OP
2. 1/3 women >50years will experience a fracture in their lifetime
3. 1 fracture every 2.7mins in Aus in 2023
4. Fractures → morbidity and ↓QOL







RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age



RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Who to send for a DXA scan

Patients over 50 with risk factors	MBS item
Family history – parent with hip fracture	No rebate
Early menopause	12312
Hypogonadism	12312
Anticipated glucocorticoids ≥4 months ≥7.5mg/day	12312
Coeliac disease/malabsorption disorders	12315
Rheumatoid arthritis	12315
Primary hyperparathyroidism	12315
Hyperthyroidism	12315
Chronic kidney or liver disease	12315
Androgen deprivation therapy	12312
Recurrent falls	No rebate
Breast cancer on aromatase inhibitors	No rebate
Treatment with antiepileptic medications	No rebate
Low body weight	No rebate
HIV and its treatment	No rebate
Major depression/ SSRI treatment	No rebate
Type 1 and type 2 diabetes mellitus	No rebate
Multiple myeloma/monoclonal gammopathy	No rebate
Organ or bone marrow transplant (item 12312 applies if treated with glucocorticoids or if kidney disease present)	No rebate

Patients with a minimal trauma fracture	MBS item
DXA is recommended to establish a baseline BMD for treatment	12306

Suspected vertebral fracture	MBS item
Refer for spinal X-ray when: – Height loss of 3cm or more – Thoracic kyphosis – New onset back pain suggestive of fracture	
If fracture confirmed, therapy indicated, refer for DXA	12306

Vertebral fracture assessment (VFA), also known as Lateral vertebral assessment (LVA) is offered with some DXA scans. VFA may be a useful screen for fractures in people with height loss. MBS rebate not available for VFA.

Patients with osteoporosis	MBS item
T-score equal to or less than -2.5 eligible for one scan every two years	12306

Patients over 70 years of age	MBS item
For men and women over 70 years, MBS rebate applies (regardless of other risk factors)	12320
Patients with a normal result or mild osteopenia (measured by a T-score down to -1.5) eligible for one scan every 5 years	12320
Patients with moderate to marked osteopenia (as measured by a T-score less than -1.5 and above -2.5) will be eligible for one scan every two years	12322

$120
out of pocket

RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Secondary screen in everyone with OP, pre-treatment

ALWAYS

-E/LFTs – phos, calcium, ALP, protein, eGFR

-Vitamin D

-PTH

-Coeliac serology

-SEPP + SFLC

-TFT

-Testosterone, early morning/fasting (males)

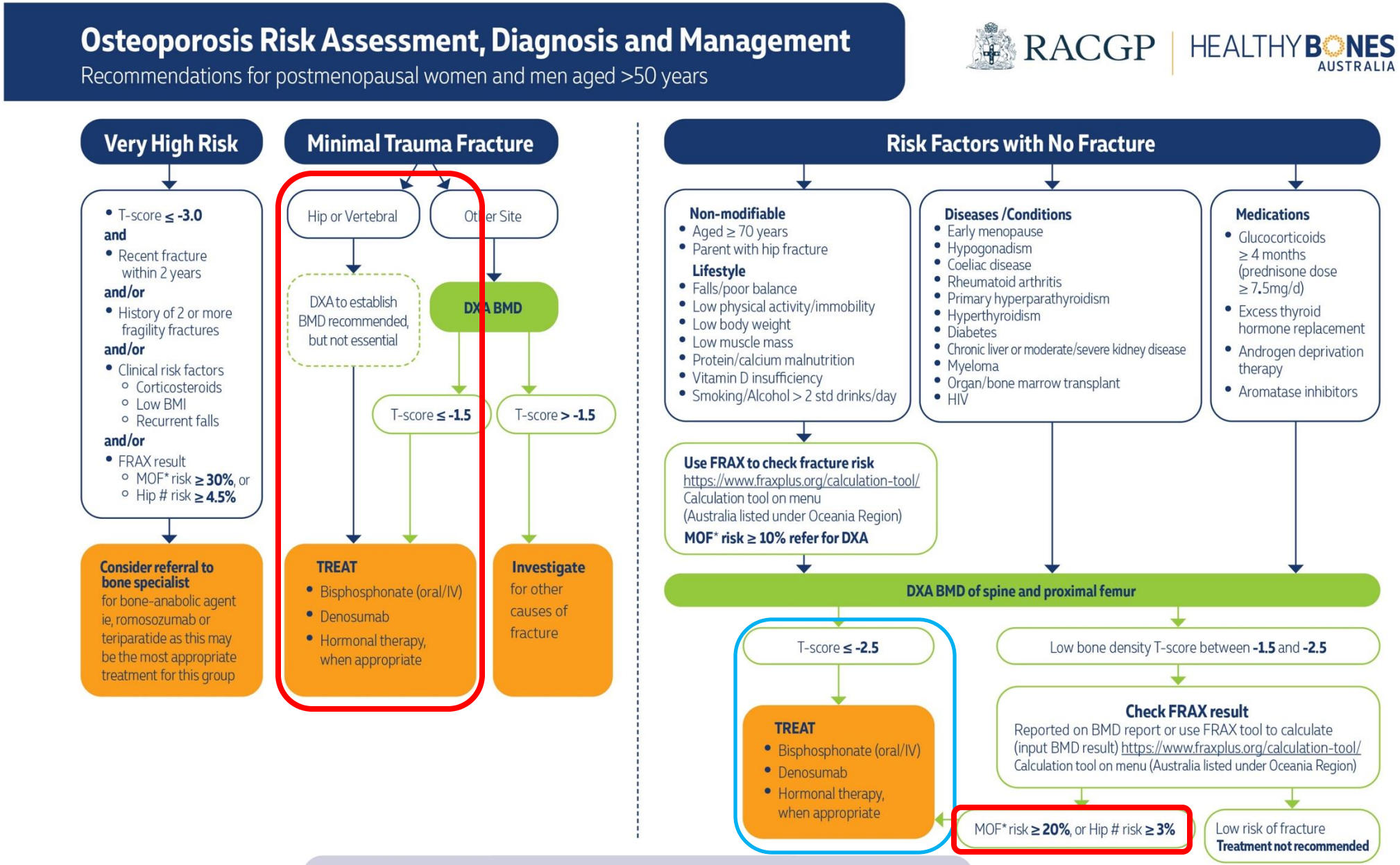
-***X-ray thoracolumbar spine***

SOMETIMES

- CRP/ESR

-1mg DST

-Tryptase



RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Basic Measures

- Vitamin D target **>50nmol/L**, RDI calcium **1200-1300mg/day**
- Alcohol reduction <2 SD/day
- Smoking cessation
- Exercise mainly useful for reducing falls risk
  - **MAY** reduce risk of OP fracture – particularly if it includes progressive resistance training
  - Consider ET/PT referral

HEALTHY BONES AUSTRALIA | Protect Build Support

RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

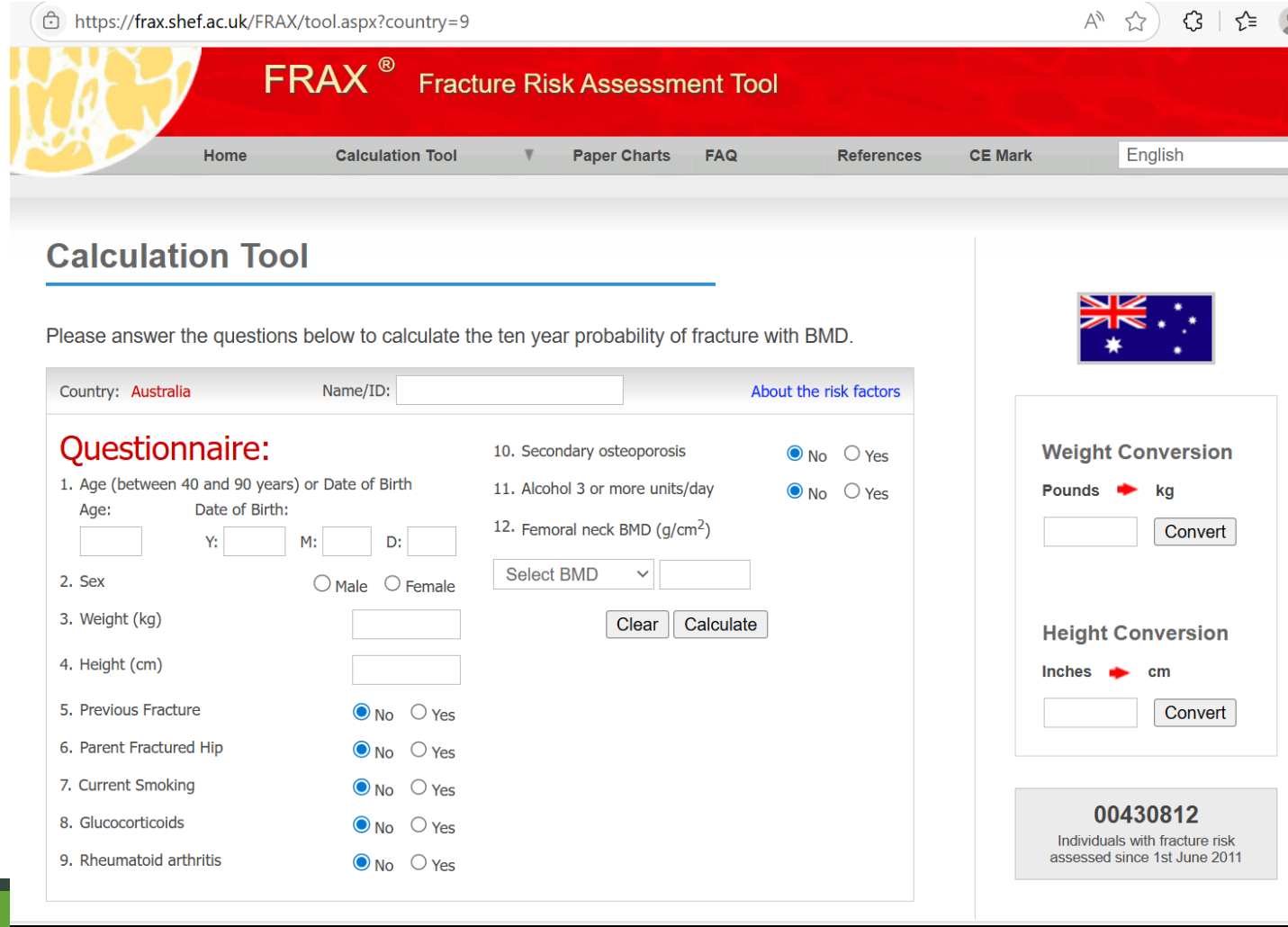
Treatment decisions based on # RISK

- **FRAX calculator** is better at defining who will benefit from tx compared to isolated T-scores

- **Largest benefit**
  - T score ≤2.5 + >70years
  - Low BMD + fragility fracture
  - 10-year risk MOF ≥20% or hip fracture ≥3%

- **Intermediate benefit**
  - T-score ≤2.5 + <70years
  - 10year risk MOF 15-19%
  - Still suggest pharmacotherapy

- RISK factors most strongly associated with #
  - Increasing age, prior #, propensity to fall



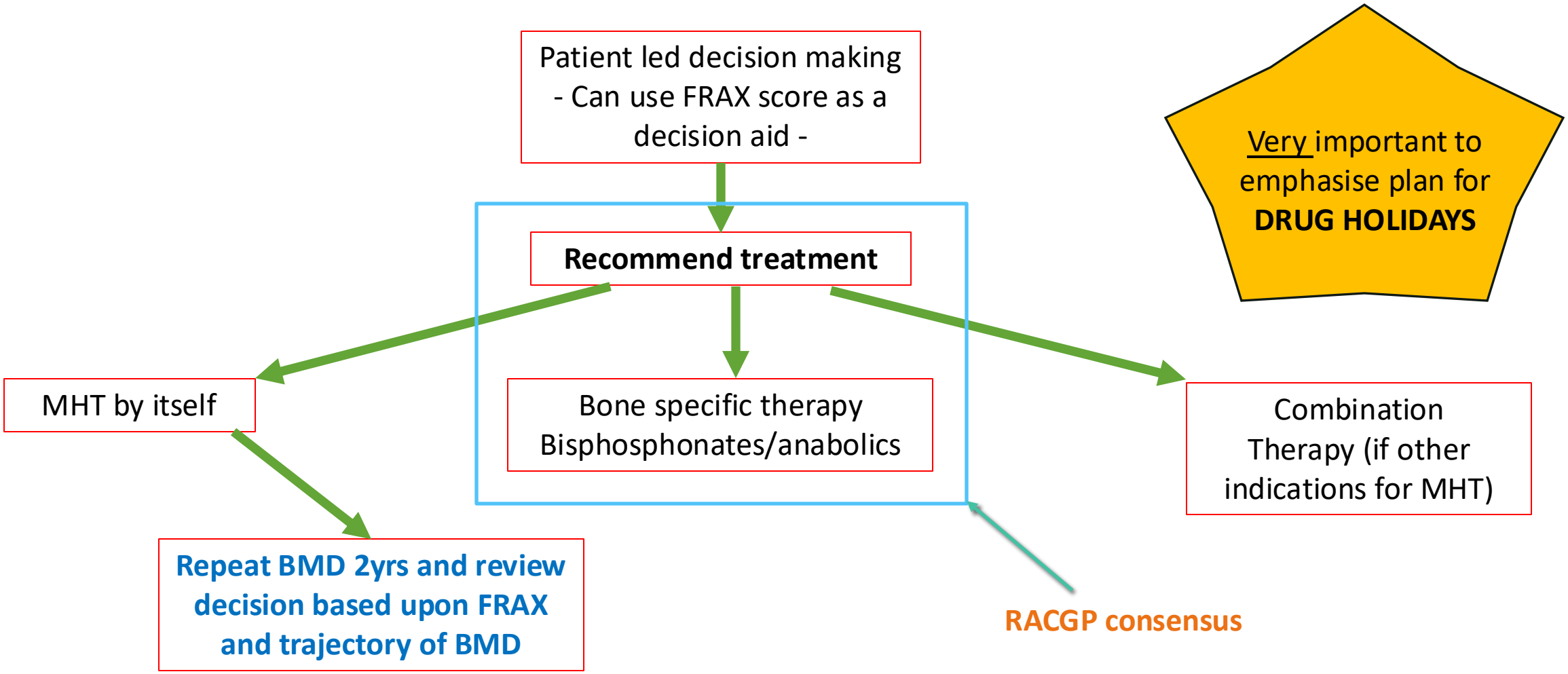
CMAJ 2023, Clinical practice guidelines for Management of osteoporosis and fracture prevention Canada

Issues with FRAX

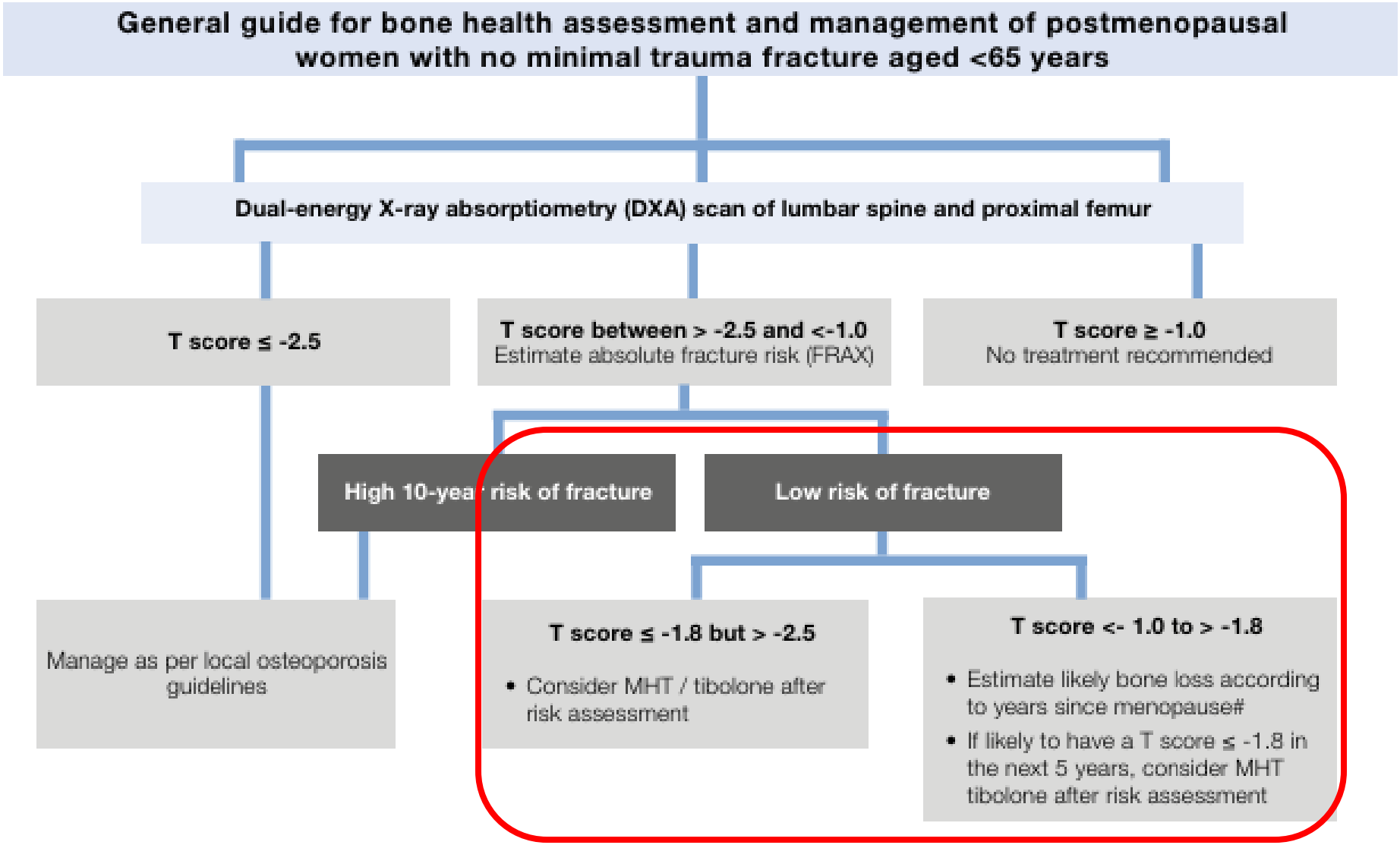
- **FRAX = better fracture risk assessment than BMD alone especially in those with osteopenia**
- FRAX widely validated in large international populations
- Tendency to **underestimate** risk[1]
- Doesn't include falls or some other important risk factors in calculation
- Proposed treatment thresholds based on US health economics data >10years ago
- Lumbar spine not incorporated

1. AJGP 2022, Kanis
RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Females < 65yrs + T-scores ≤-2.5



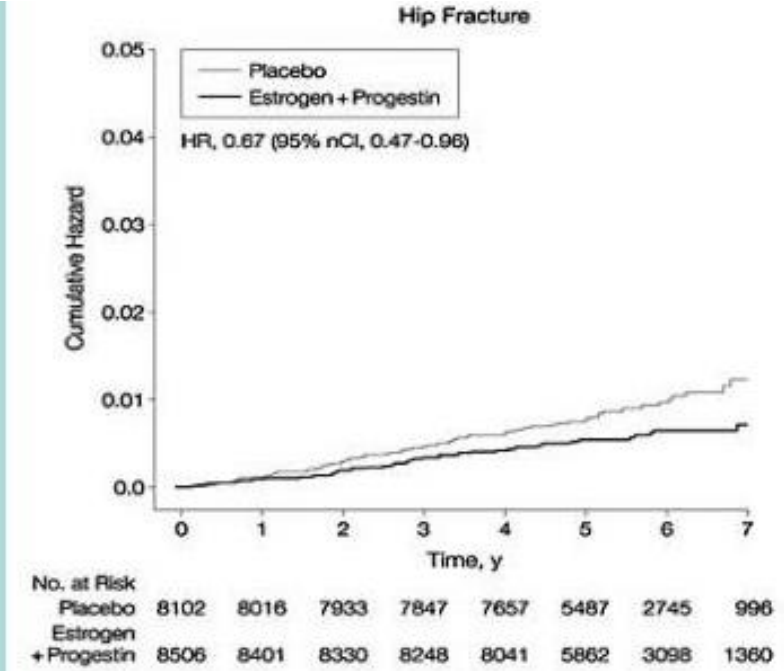
A Practitioner's Toolkit for Managing Menopause

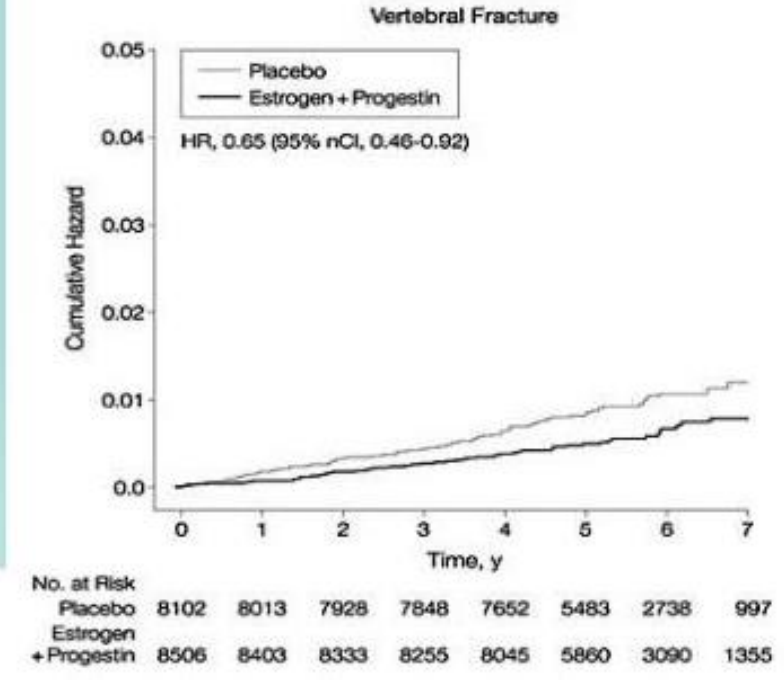


MHT on bone

- Oestrogen → decreases bone resorption and promotes bone formation
- Effectively prevents loss of BMD and reduces fractures when given post menopause
- No minimum effective dose of E on bone loss is established
- WHI clinical trials (n = ~16 000) [1]
  - CEE + MDP for ~ average 5 year f/up
  - **HR 0.66** for both hip and vertebral fractures
  - Limitation = BMD not a criterion for randomisation

- Meta-analysis of 28studies including 33,426 participants [2]
  - HR 0.74 (CI 0.44-0.91) ALL FRACTURES (similar hip/vertebral)

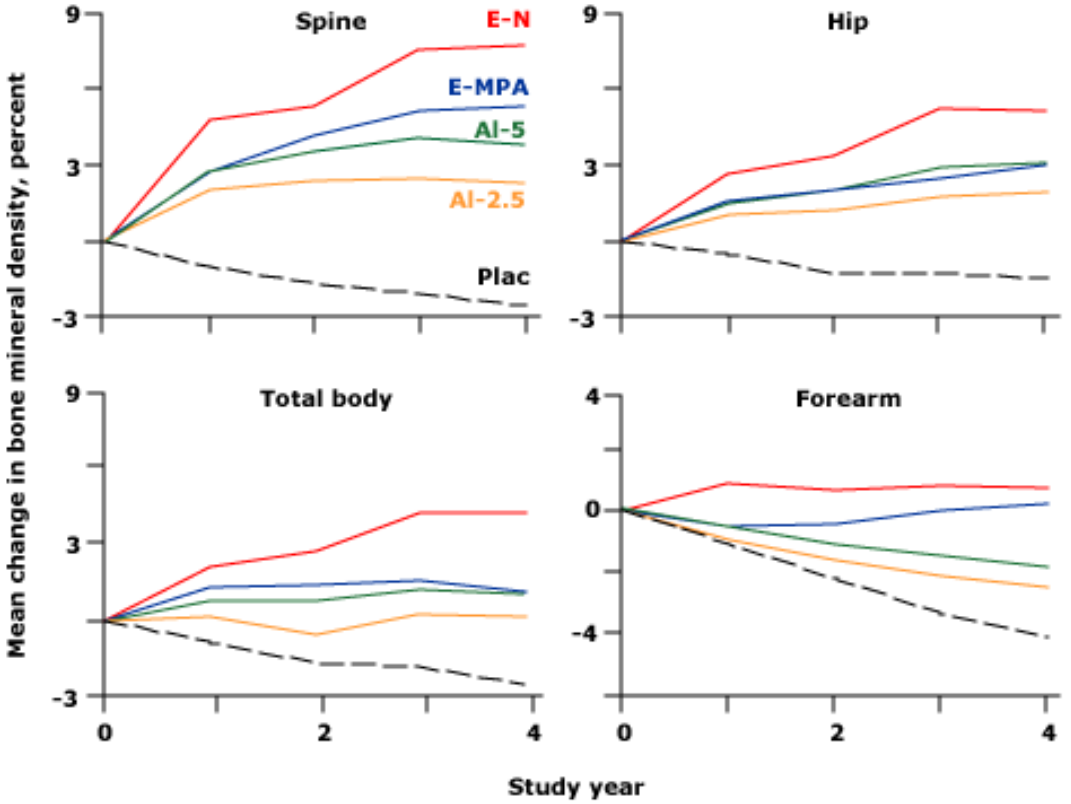




1. JAMA 2002, Rossouw J
2. Menopause 2016, Zhu, L

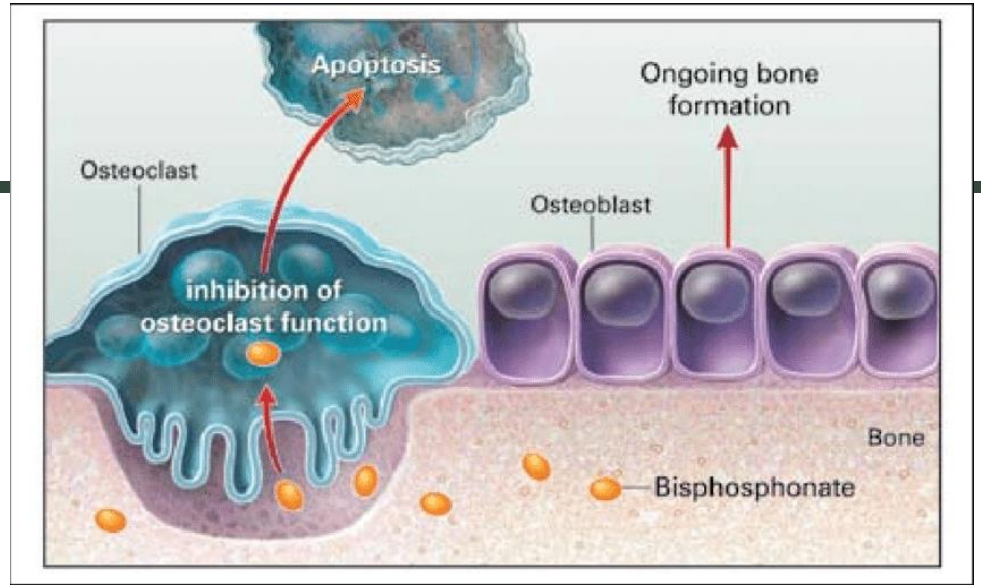
MHT vs Bisphosphonates

- 1609 post menopausal women 45-60years [1]
  - Alendronate daily (low dose) 2 years followed by placebo vs E+P for 4 years
  - BMD increase in both groups
  - ? Fracture data, low dose alendronate only 2years
- Varying consensus by different societies, Summary by RACGP
  - **Bone specific therapies more appropriate than MHT in post menopausal women at high risk of fracture**
  - Combination therapy more effective in raising BMD than either agent alone in some but not all studies [2]
  - **No proven additional fracture benefit from using combination therapy[2]**



1 Ann Intern Med 1999, Ravn
2. Uptodate 2025, Rosen

Bisphosphonates



- **PO risedronate / PO alendronate / IV zoledronic acid**
- Oral - GI SE (gastric irritation, oesophageal erosions, gastric ulcers)
  - Needs to be taken properly for absorption
- IV zoledronic acid
  - 1/3 acute phase reaction ~50% with first infusion, PO 4mg dexamethasone pre and 2 days post infusion
- AFF 3.2-50 cases / 100,000 person-yrs
- MONJ risk 1-100 / 100,000 person-yrs
- **AFF HR increases based upon tx duration**
  - 3months vs 5years HR 8.86, **5years vs >8years HR 43.51,** Asian race higher risk vs Caucasians

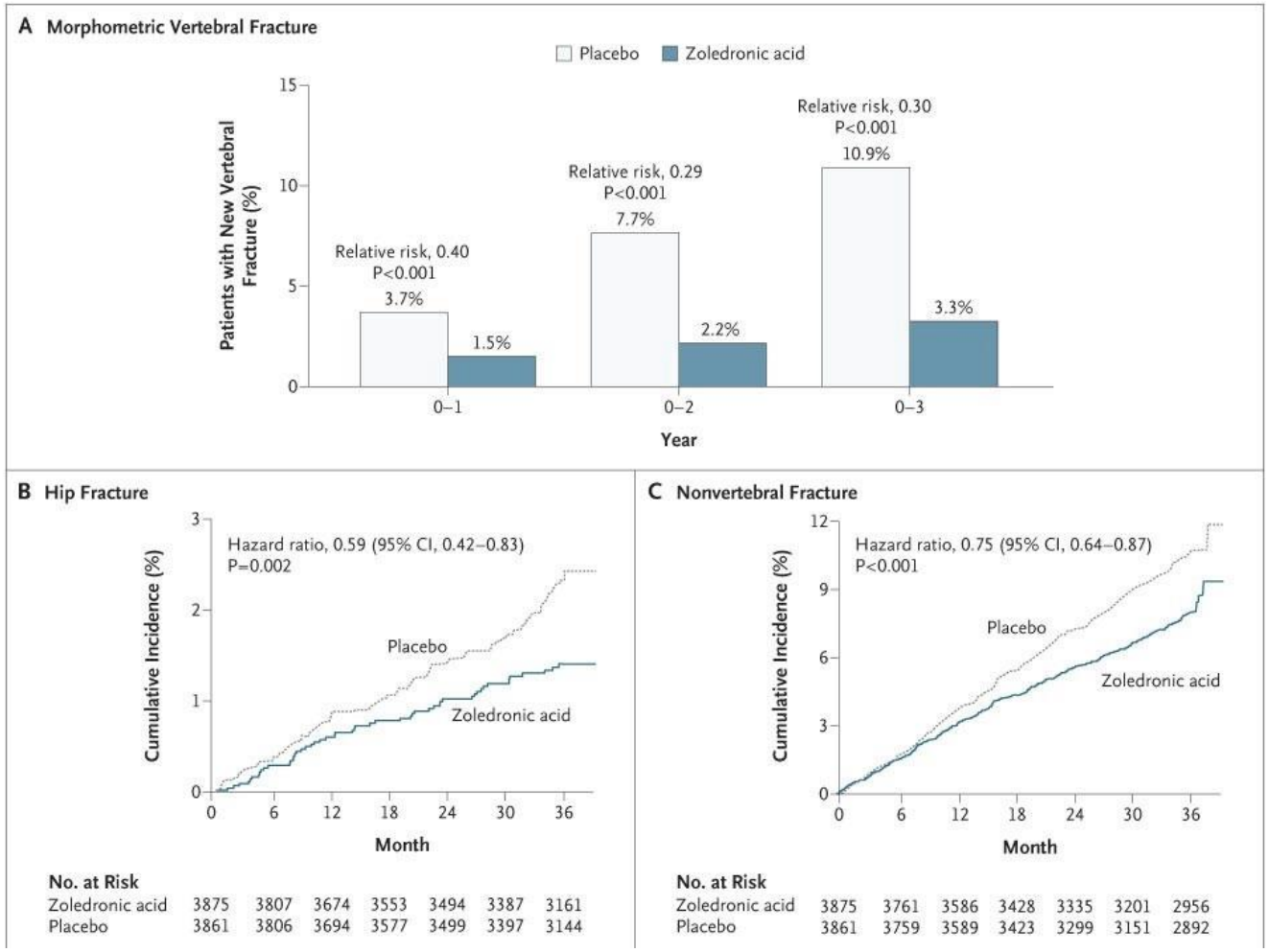
RACGP: Osteoporosis management and fracture prevention in postmenopausal women and men >50years of age

Bone Miner Res. 2023, Murdoch R

HORIZON trial

- Placebo-controlled trial ~4000 PM women
- 5mg IV zol annually x 3 vs placebo
- Mean age 73years, followed for 36months
- 30% <70years, 70% T <-2.5, 35% no prior #, ~13% on MHT

- 70% reduction in vertebral #
- 40% reduction in hip #
- BMD increase ~6% at both TH/LS



NEJM 2007, Black

Meta-analysis of alendronate for the treatment of PM women

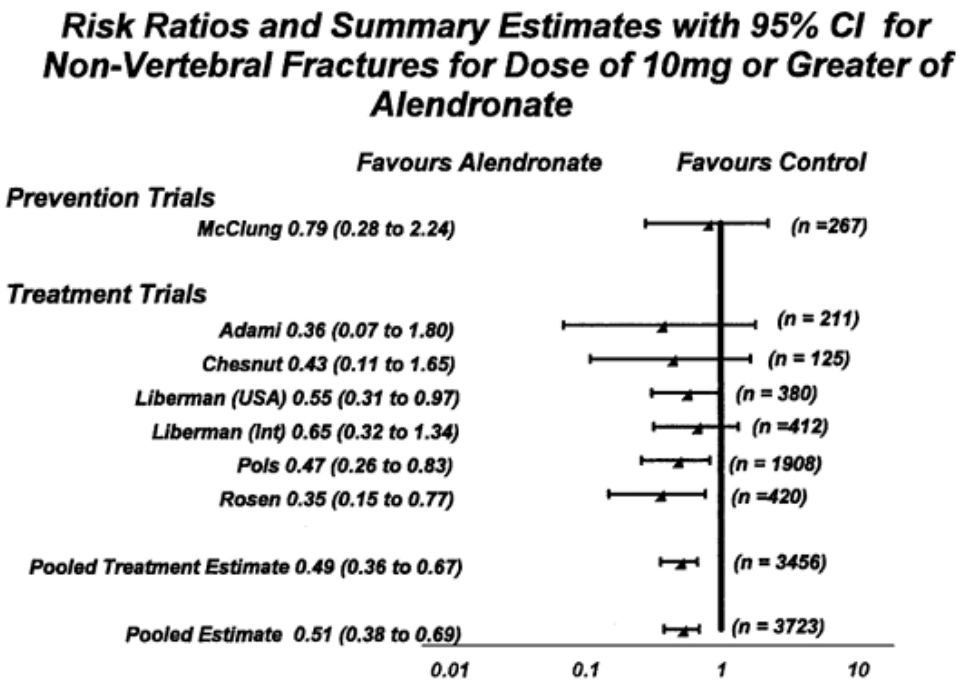


FIG. 3. Risk ratios for nonvertebral fractures with alendronate (10 mg and greater).

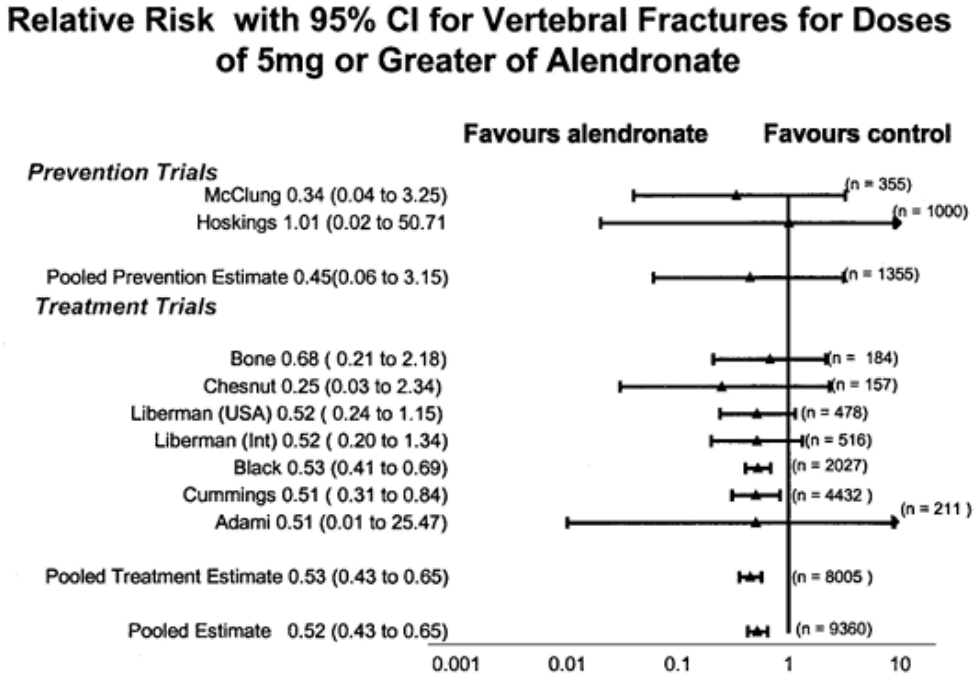


FIG. 2. RR for vertebral fractures with alendronate (5 mg and greater).

Mean age ~67.8years

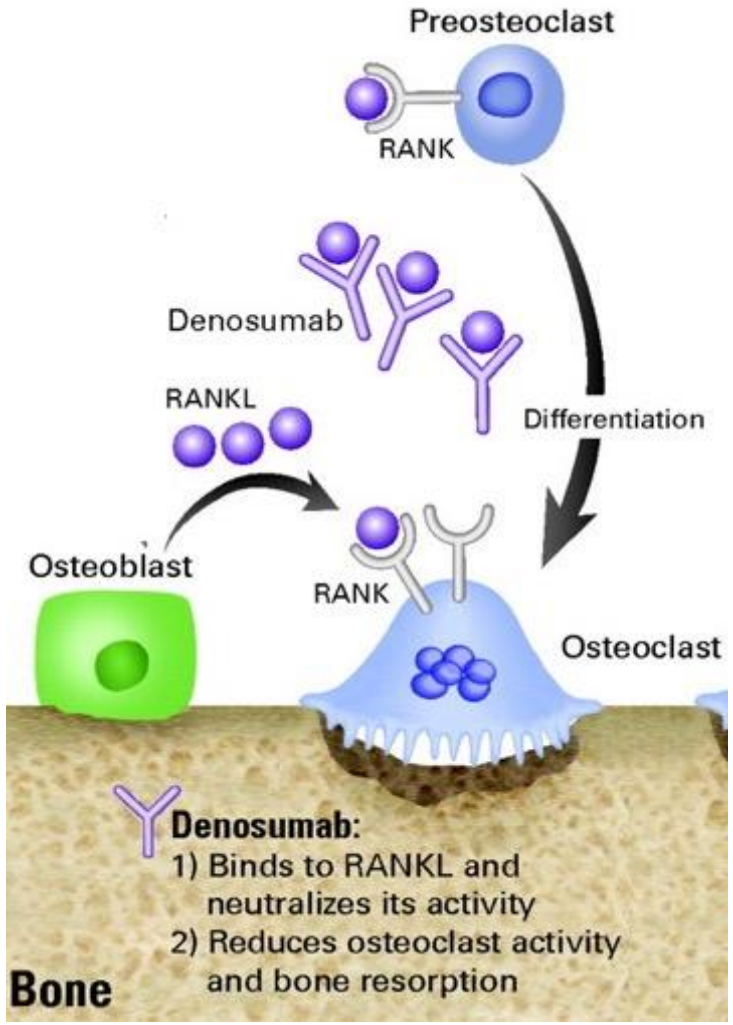
Mean FN T-score -2.6

~30% prior vertebral fracture

~ 50% reduction in both vertebral and non vertebral fractures

Endocrine reviews 2002, Cranney

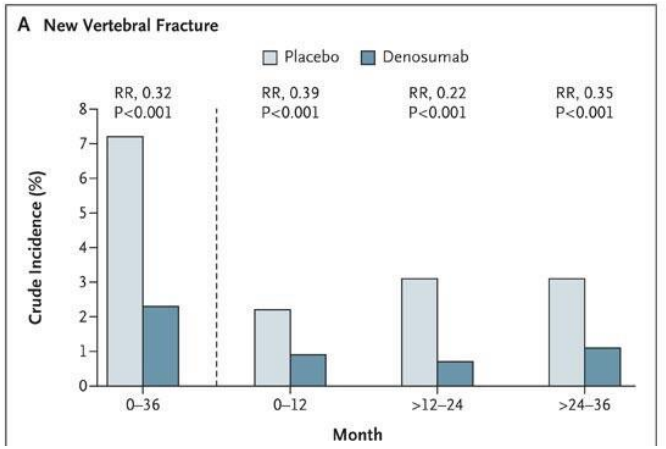
Denosumab

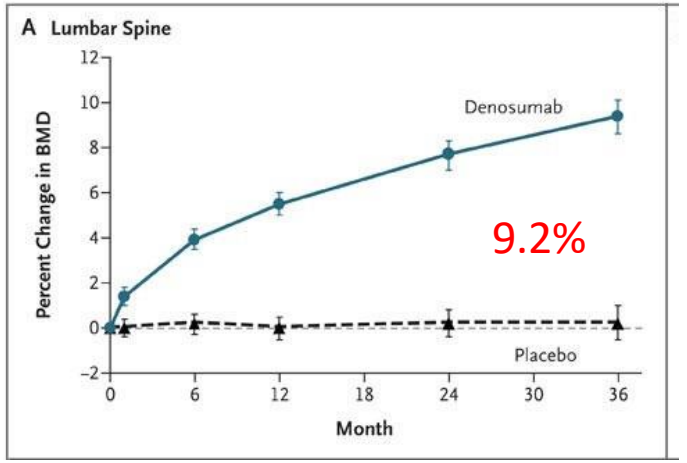


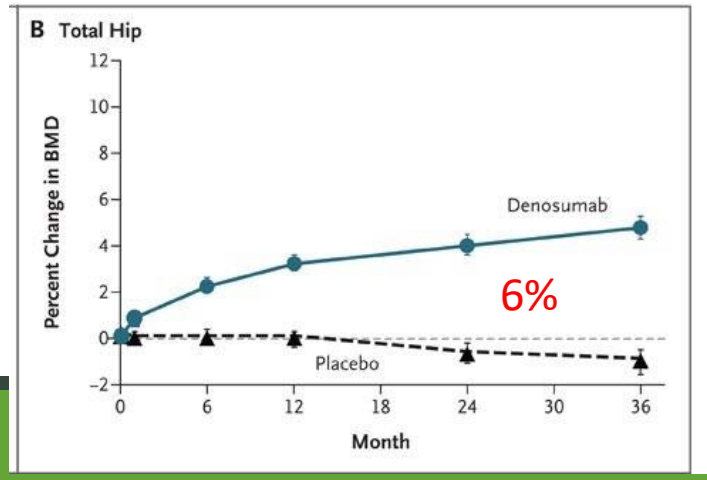
FREEDOM trial

- 8000 post menopausal women 60-90years
- BMD <-2.5
- Placebo vs 60mg denosumab 6monthly
- Followed for 36months

- 68% reduction in vertebral #
- 40% reduction in hip #
- BMD increase ~6% TH, 9.2% LS





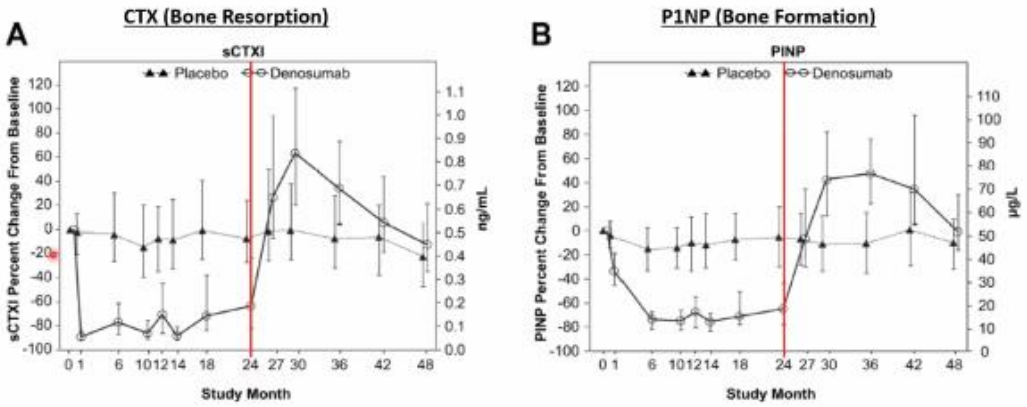


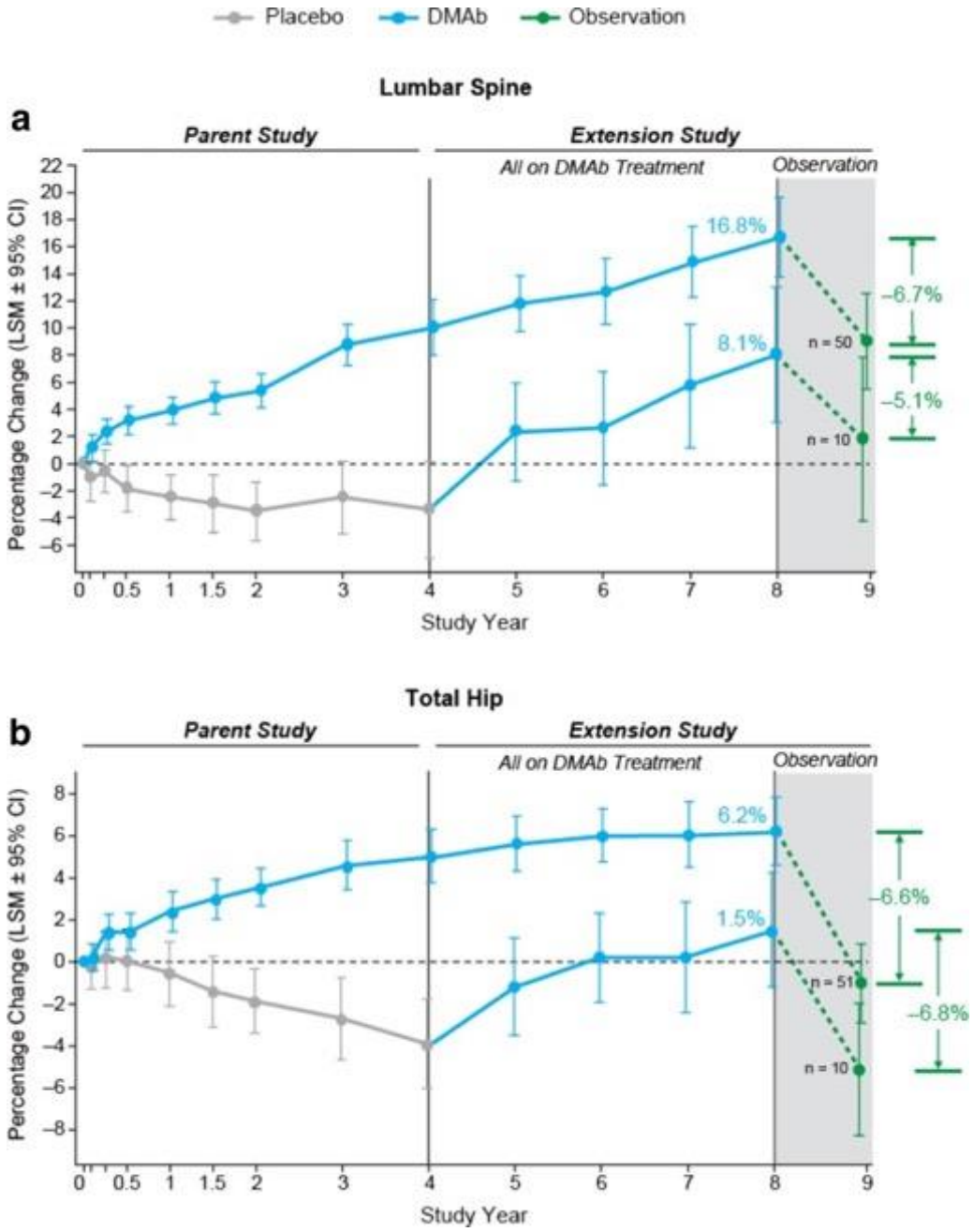
NEJM 2009, Cummings et al

FREEDOM Extension

- 10years of denosumab exposure
- AFF 1 per 10,000 person-years
- MRONJ 4.6 per 10,000 person-years
- **Can we extrapolate this safety data long-term ??**

- Reserved for those >70yrs in most cases
- **DO NOT MISS OR DELAY A DOSE**
- Rapid increase in BTM starting within weeks only returning to baseline by 12-24months





Lancet 2017, Bone et al
JCEM 2011, Bone

Stopping denosumab?

1. Young patient with low risk of fracture → Denosumab treatment is generally not recommended

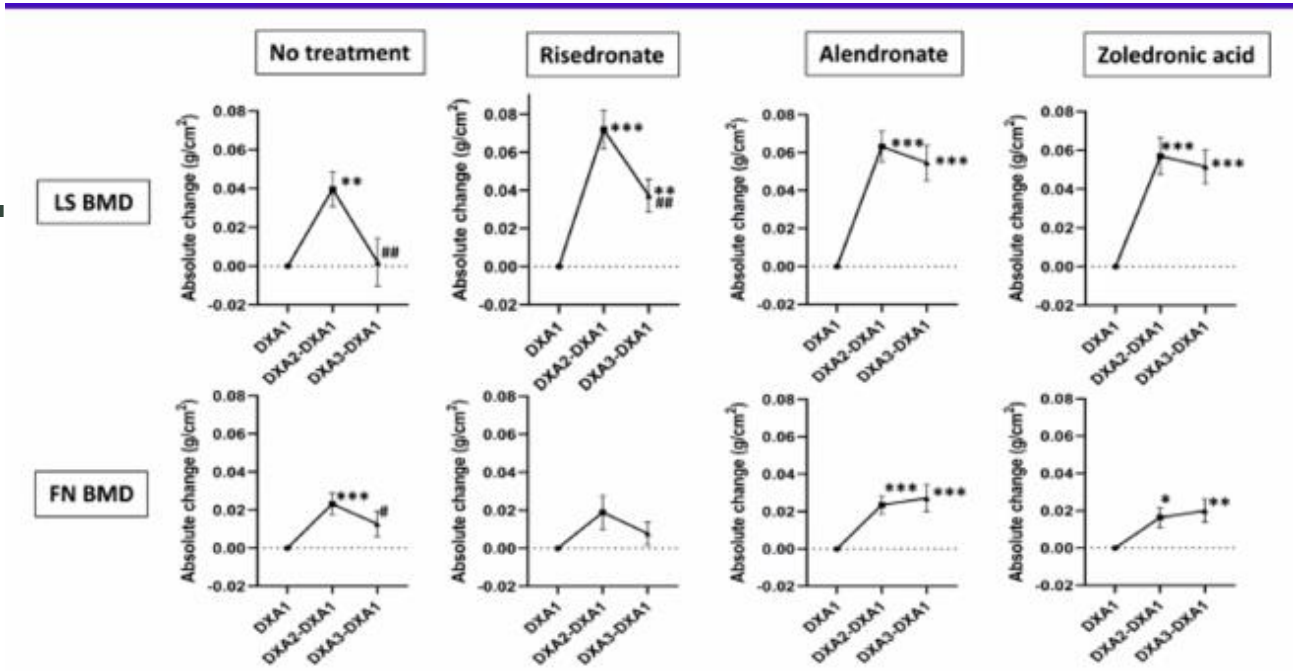
2. Denosumab treatment for short duration [i.e. up to 2.5 years] and low fracture risk → Switch to oral BPs for 12-24 months or administer zoledronate for 1-2 years depending on re-evaluation of BTMs and BMD

3. Denosumab treatment for long duration [i.e. more than 2.5 years] and/ or high fracture risk →
   - Continue denosumab for up to 10 years [Individualized decision after that timepoint]
   - Switch to zoledronate:

     Begin 6 months after last denosumab injection and measure BTMs 3 and 6 months later. Consider repeated infusion of zoledronate in case of persistently increased BTMs

     In case BTMs are not available administer zoledronate 6 and 12 months after last denosumab injection

     If zoledronate is not an option due to availability, patient preference or intolerance: treat with oral BPs for 12-24 months depending on re-evaluation of BTMs and BMD

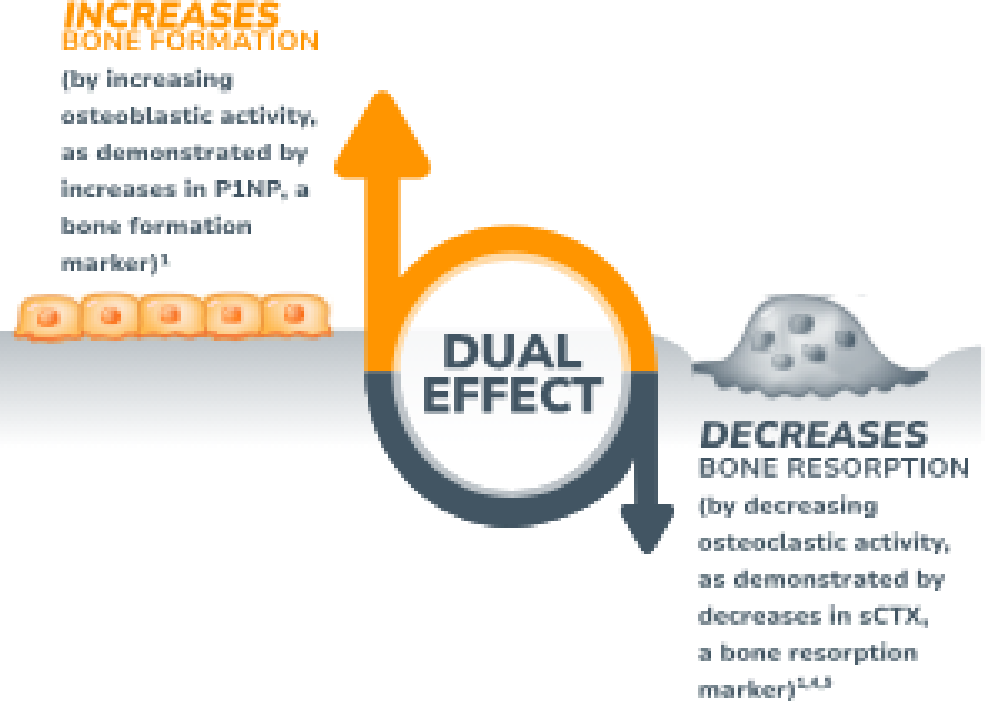


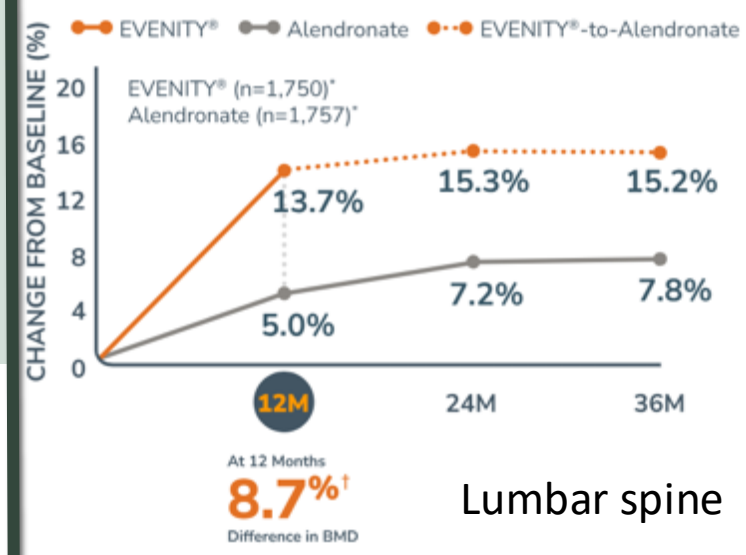
- Stopping → 3-5 fold higher risk for **vertebral**, major OP, hip #
- Longer duration of denosumab = more bone loss especially at lumbar spine

If young → don't start

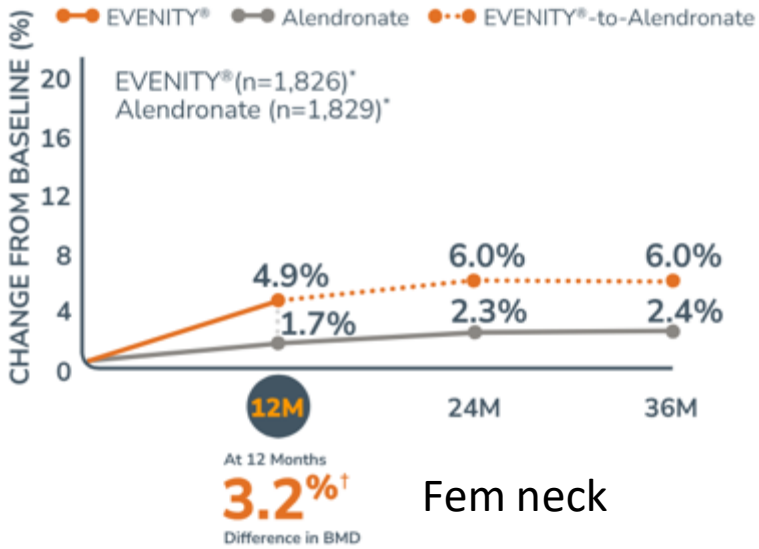
JCEM 2021, Tsourdi E
Osteoporosis int 2023, Tutaworn

Romosozumab (Evenity)

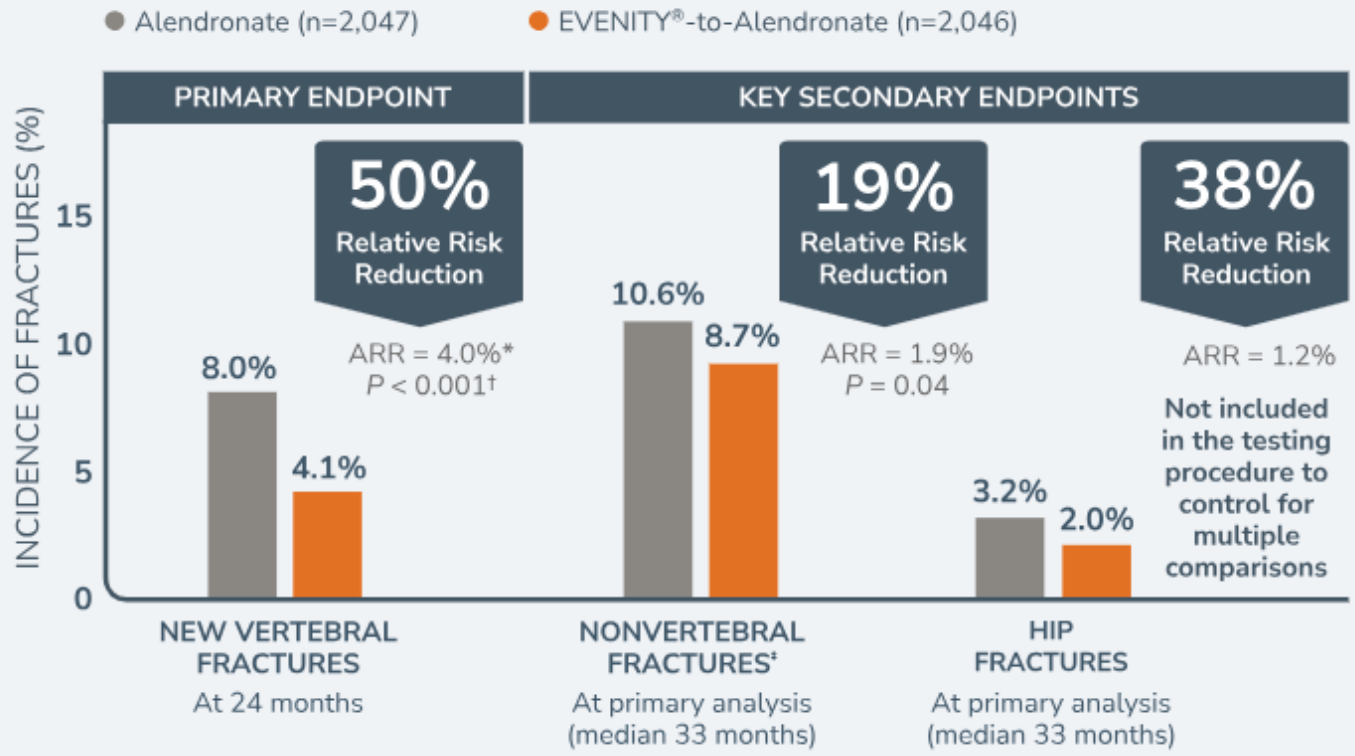




Lumbar spine



Fem neck



Saag 2017, NEJM

Romo is most effective when used as *1st line therapy*

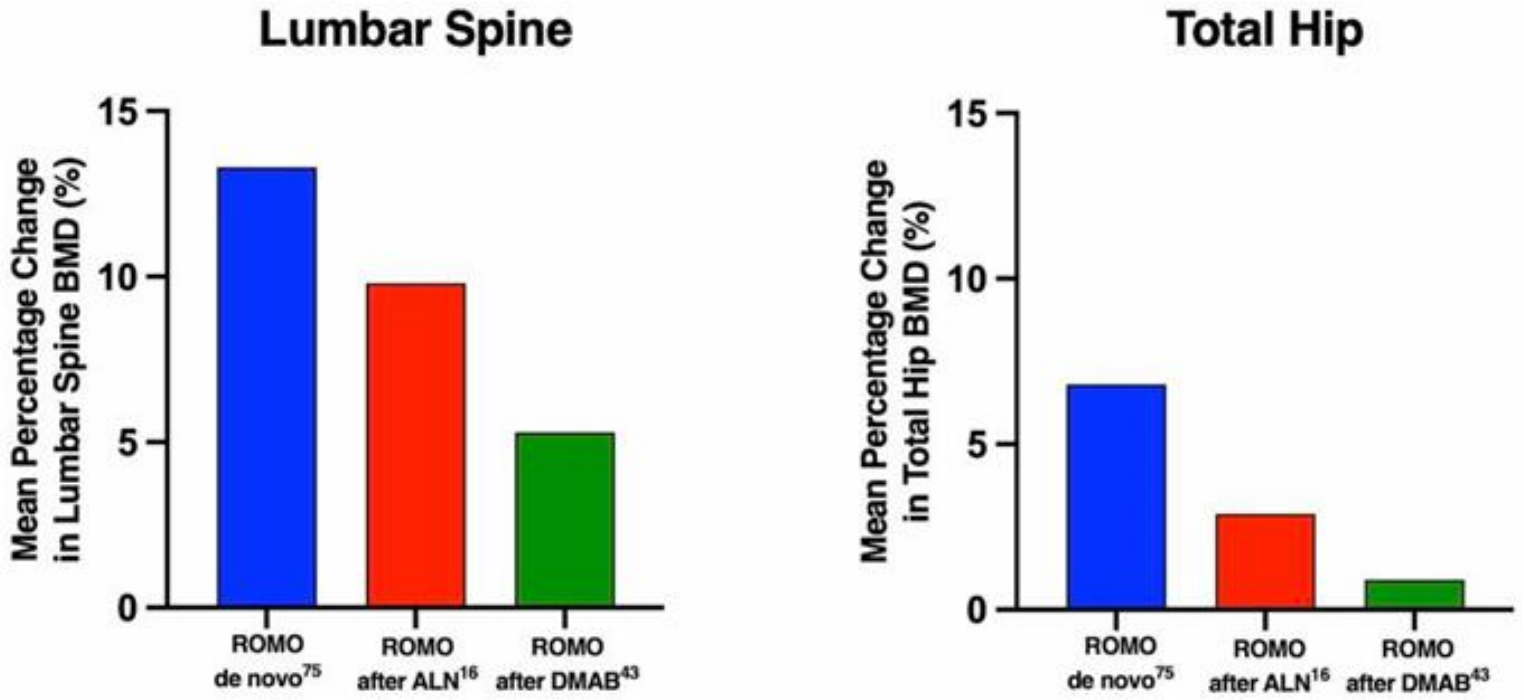


Figure 3. Mean percentage change from baseline to 12 months in bone mineral density (BMD) at the lumbar spine (left) and total hip (right) in women who received romosozumab (ROMO) after (i) no recent bone-targeted treatment (de novo); (ii) alendronate (ALN); and (iii) denosumab (DMAB). FRAME study (ref. 75), STRUCTURE study (ref. 16), Phase II Extension Study (ref. 43).

ROMOSOZUMAB

Source	General Schedule
Body System	MUSCULO-SKELETAL SYSTEM > DRUGS FOR TREATMENT OF BONE DISEASES > DRUGS AFFECTING BONE STRUCTURE AND MINERALIZATION

▸ Note

▾ ⚠ Authority Required

Severe established osteoporosis

Treatment Phase: Initial treatment - First-line therapy

Clinical criteria:

- Patient must not have received PBS-subsidised treatment with any of: (i) anti-resorptive therapy, (ii) teriparatide, (iii) romosozumab,

AND

- Patient must be at very high risk of fracture,

AND

- Patient must have a Bone Mineral Density (BMD) T-score of -2.5 or less,

AND

- Patient must have had a symptomatic fracture due to minimal trauma,

AND

- Patient must have had at least 1 hip or symptomatic vertebral fracture in the previous 24 months; OR
- Patient must have had at least 2 fractures including 1 symptomatic new fracture in the previous 24 months,

AND

- The treatment must be the sole PBS-subsidised therapy for this condition,

AND

- The treatment must not exceed a lifetime maximum of 12 months of PBS and non-PBS-subsidised therapy.

Treatment criteria:

- Must be treated by a consultant physician.

CI: prior history of MI or stroke

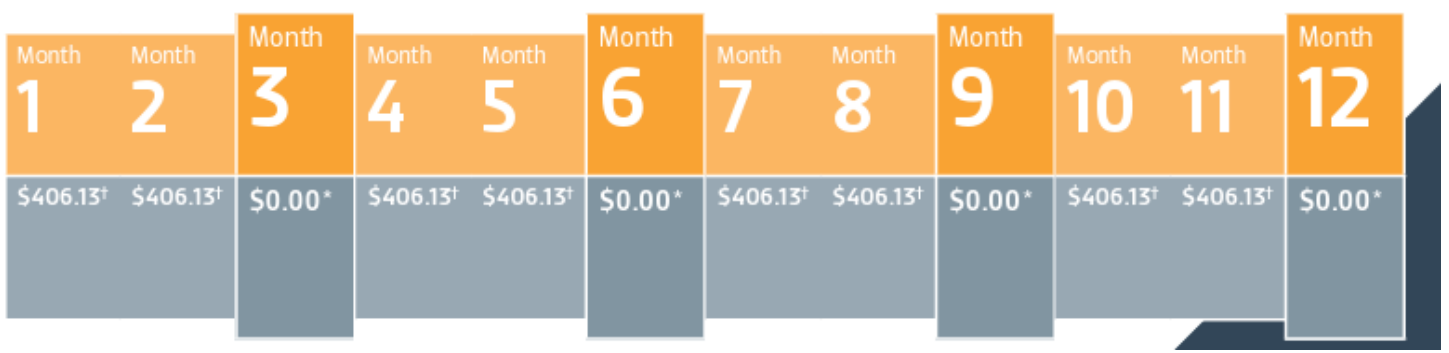
Evenity Co-Pay Program

Patient enrolment REOPENED (February 2025)

We are pleased to announce the relaunch of the EVENITY® Co-Pay Program. Patients enrolled after February 2025 will **pay for two doses of EVENITY® and then receive one dose of EVENITY® at no cost for the 12 months of treatment.**

Patients must meet the following criteria to be eligible for the EVENITY® Co-Pay Program:

- **TGA Indication:** EVENITY® (romosozumab) is indicated for the treatment of osteoporosis in postmenopausal women at high risk of fracture as well as treatment to increase bone mass in men with osteoporosis at high risk of fracture.[1]
- Does not qualify for reimbursement on the Pharmaceutical Benefits Scheme (PBS).
- Living in Australia.
- 18 years of age or over.



How long to treat + monitoring?

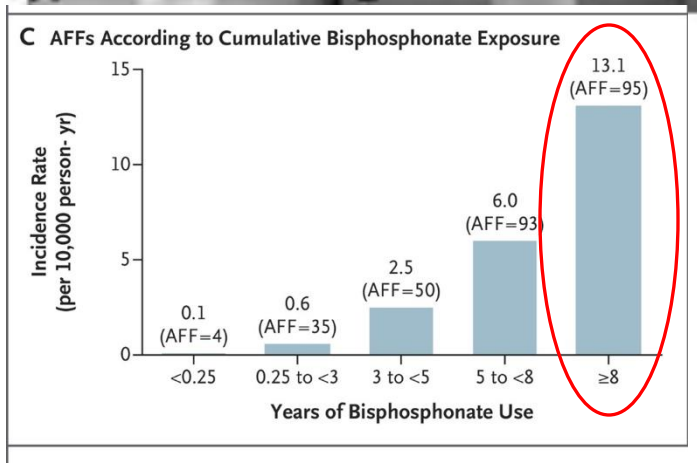
- ❑ Romosuzumab, monthly subcut for 12months + 12months of consolidation
- ❑ Teriparatide, daily subcut for 18months + consolidation
- ❑ PO bisphosphonates, 5-10years and **then consider drug holiday if no further #, T score >-2.5**
- ❑ IV zoledronic acid, annual infusion 3yrs, then consider drug holiday
- ❑ Denosumab only start if prepared to be lifelong

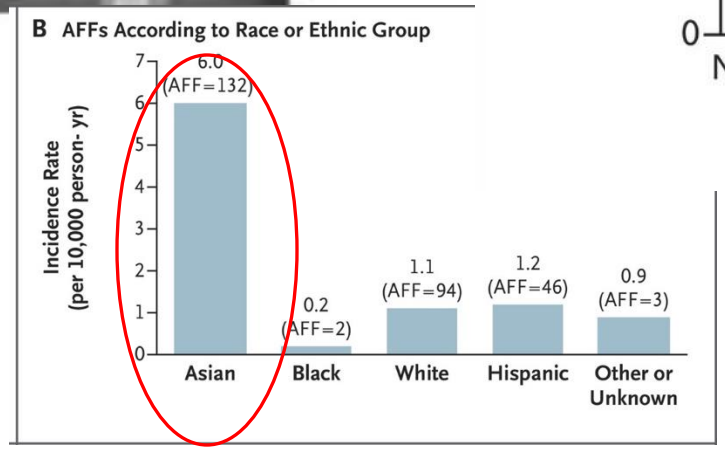
BMD every 2years, once post commencement of Dmab to ensure improvement

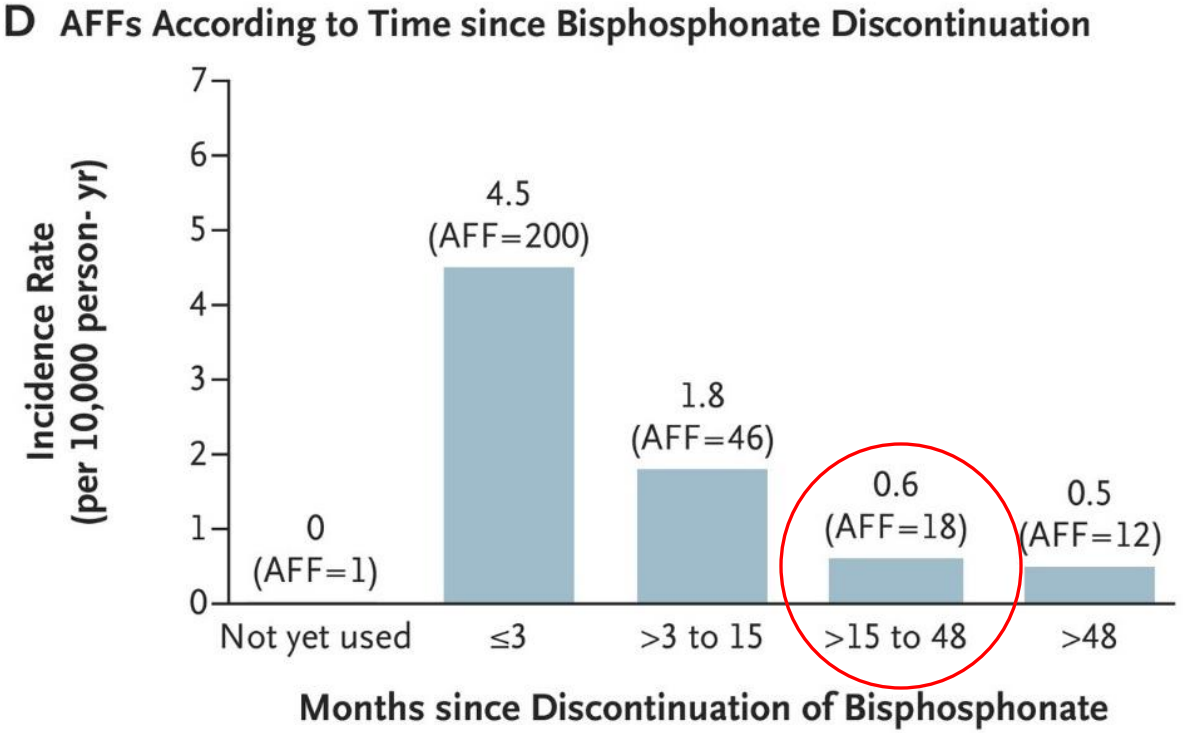
Use same machine wherever possible to improve comparability of results

Baseline BTM pre-PO bisphos, once 3-6months post start to assess compliance and efficacy

Why do we need to consider a drug holiday?







NEJM 2020, Black

Taking a drug holiday

When to restart treatment?

- Reassess BMD 2yearly (1year off risedronate)
- Restart treatment
  - >5% decline in BMD
  - T-score ≤ 2.5
  - Further minimal trauma fracture

When to refer?

- Anyone who qualifies for an anabolic agent under the PBS
  - Even if they don't qualify but prepared to pay $3600 for 12months of treatment
- Minimal trauma fracture in patient with a normal BMD
- Recurrent fractures or continued bone loss on therapy
- Complications of therapy
- Pre-menopausal osteoporosis or in men <50yrs
- Condition that complicates management – CKD IV/V, hyperparathyroidism, malabsorption

Summary

1. **Osteoporosis is under-diagnosed,** the best time to intervene is BEFORE fracture
2. Osteopenia in women within 10years of menopause should be offered MHT if no contraindications
3. Bone-specific therapy offered to those with diagnosis of OP or high fracture risk
4. Denosumab should be reserved for those >70years in most cases
5. Romosozumab should be considered as first line for osteoporosis especially if meeting PBS criteria

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Questions ??