Scored: Local experience of FRAXs scoring for assessing fracture risk in People Who Inject Drugs (PWIDs) and Live With HIV (LWHIV)

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Introduction

- HIV infection, anti retroviral therapy and opiate use are associated with osteoporosis[1]
- Osteoporosis is caused by an imbalance between osteoclast and osteoblast activity resulting in reduced bone mineral density and increased risk of fracture
- PLWHIV (People living with HIV) are at increased risk of osteoporotic fracture compared to age matched controls not living with HIV[1]
- The 'FRAX score' (Fracture risk assessment tool) estimates 10 year risk of major osteoporotic fracture or risk of femoral fracture.
- BHIVA recommends measuring FRAX score at baseline and then every 3 years in PLWHIV over the age of 50 (as well as anyone with specific risk factors, eg; post menopausal, low body mass, smoking, high alcohol intake and glucocorticoid use)[1]

The problem

- Neither HIV nor drug use is included as suggested secondary risk factors for osteoporosis in the FRAX score
- There is concern that the FRAX score is underestimating osteoporotic fracture risk in PLWHIV/PWID cohorts[3]
- It can be challenging to regularly assess bone health in people with chaotic lifestyles

Methods

1. We conducted an audit of clinical notes to asses the practice of FRAX scoring for PLWHIV in Glasgow, inclusive of all PWIDs over the age of 40 years under the care of the Blood Borne Virus outreach team.
2. We explored the feasibility of retrospective FRAX scoring
3. We assessed whether including HIV/drug use as a secondary osteoporosis risk factor significantly affected an individual's FRAX score. Differences in scores were analysed using Wilcoxon signed-rank test using R.

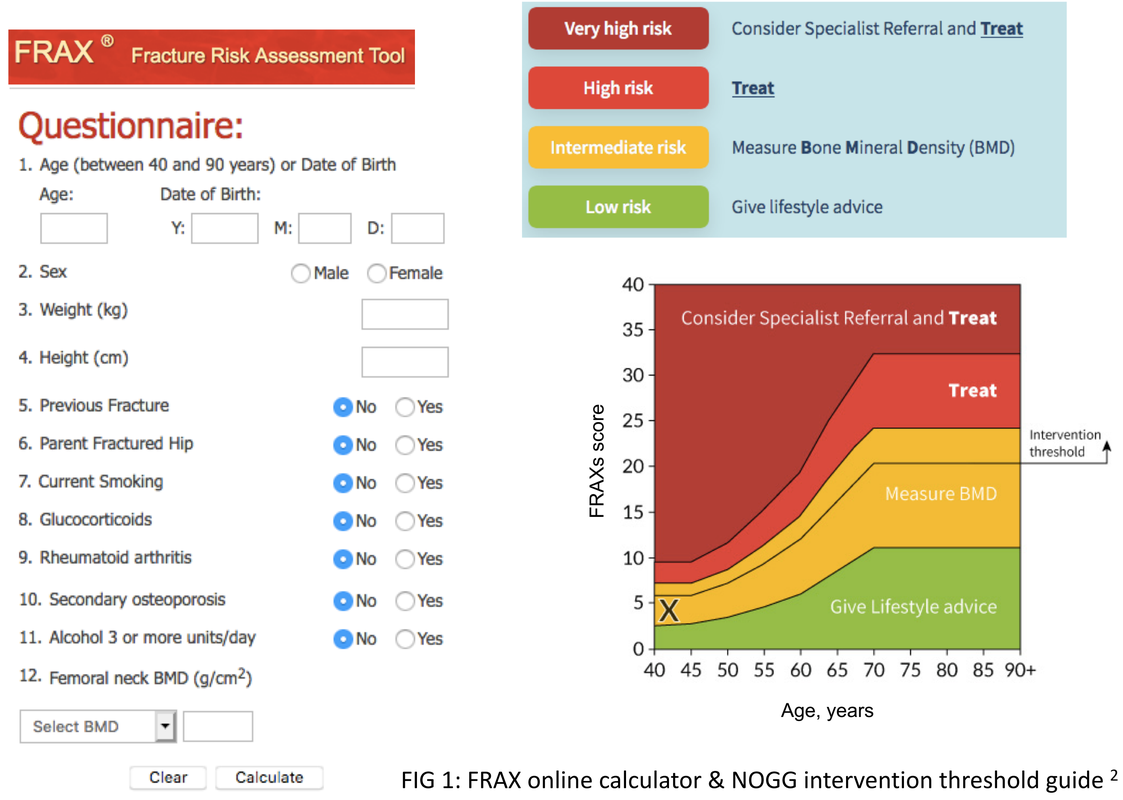

FIG 1: FRAX online calculator & NOGG intervention threshold guide [2]

Results

- The records for 91 PWIDs were reviewed, six were excluded from FRAXs scoring due to incomplete data. Age range from 40 – 64 (mean 47).
- 3 patients (3.5%) had a formal FRAX score documented – all of whom were over 50 years old and had a history of fragility fractures. 3 further patients had fragility fracture documented but no FRAX score.
- In total, **32 people (35%) had a history of fracture**.
- Retrospective FRAXs scores were calculated for 82 patients. Of these, **88% had a 10-year risk of major osteoporotic fracture > 2.5% for whom guidelines recommend formally measuring BMD**. No individuals were scored as high risk and requiring of treatment.
- Addition of a secondary risk factor increased mean FRAX score by 1.2 points **identifying 5 individuals as high risk** (requiring treatment).

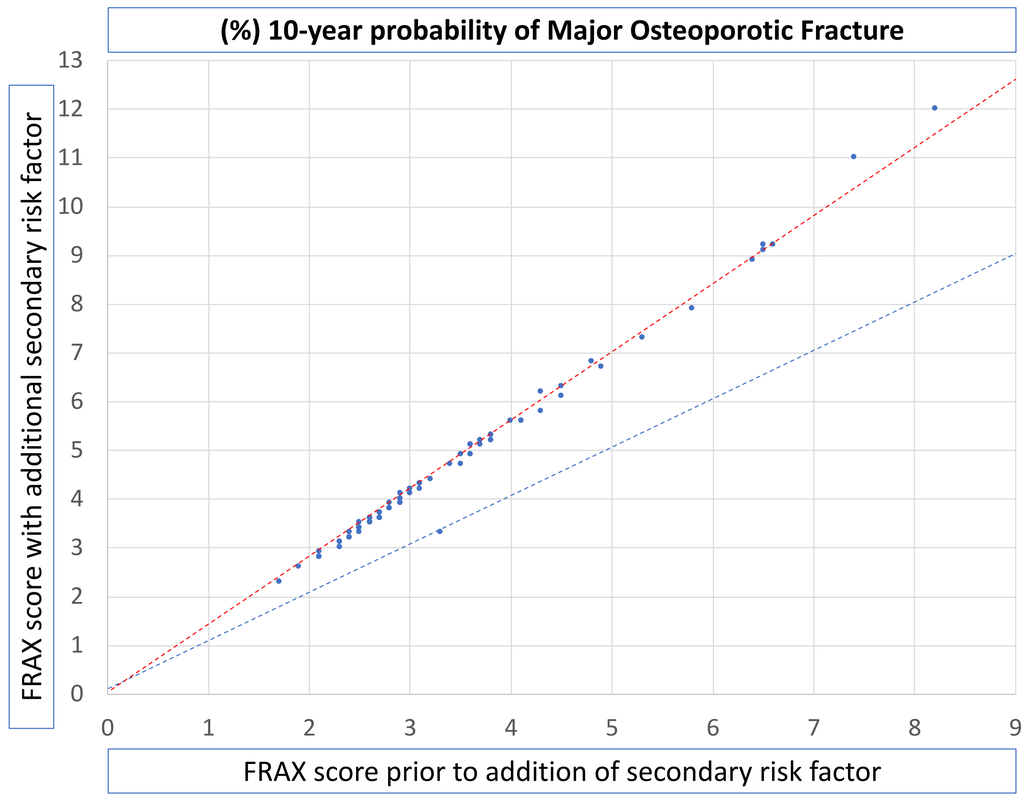

FIG 2: The difference in FRAX score before and after addition of a secondary risk factor. Scores significantly increased (single tailed Wilcoxon signed-rank test, *Z*-value: -7.9607, p = < 0.001).

Limitations

Limitations of this work include it's retrospective nature. Data were taken from clinic letters and admission paperwork spanning many years and patient's biometric data may have changed, for example, smoking/ETOH cessation, weight gain or loss. We observed a lack of data on menopausal symptoms which likely represents an absence of relevant history taking. For some, fracture risk is potentially over calculated due to the presence of a previous fracture which is most likely trauma related. However, we have likely under-measured risk due to the lack of family history/bone mineral density/malnutrition as well as risk from HIV/methadone/ drug use which is not captured with FRAX.

Take away points

- We have an ageing PWID PLWHIV cohort with a high rate of fracture
- While FRAX scoring was not routinely formally documented, data were available to retrospectively score FRAX pragmatically to triage those at higher risk to focus further testing
- Addition of a secondary risk factor for osteoporosis (HIV/drug use) significantly increases FRAX scores

(1) BHIVA guidelines for the routine investigation and monitoring of adult HIV-1-positive individuals 2016 (2019 interim update), available at www.bhiva.org
(2) National Osteoporosis guideline group (NOGG), FRAXs score intervention thresholds, available at www.nogg.org.uk
(3) (1) Mazzitelli M, HIV Med. 2022 Jan;23(1):103-108. PMID: 34541758