Assessing Fracture Risk in the Parkinson's Disease Clinic

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What's the problem?

- Parkinson's UK National Audit
- No meaningful instruction in available PD Guidelines (SIGN, NICE, AAN)
- Evidence of association of increased risk and poorer outcomes

Parkinson's assessment and care planning process scores (complete from medical and Parkinson's nurse specialist notes)		
Domain 2: Motor and ADL assessment during the previous year		
4	Evidence fracture risk/ osteoporosis considered	• Yes • No • No, but notes document no falling and no concern re balance

- Local Audit - locally performing *poorly*
- n=30
- 6 had **no evidence** of fracture risk / osteoporosis being considered
- 24 had **no evidence**, but notes suggest "not falling or no concern re balance"

Healthcare Improvement Scotland

"People over the a…
Parkinson's diseas…
considered for fra…
assessment, partic…
presence of other…

"In the con…
fractures, P…
disease sho…
assessmen…
fracture ris…

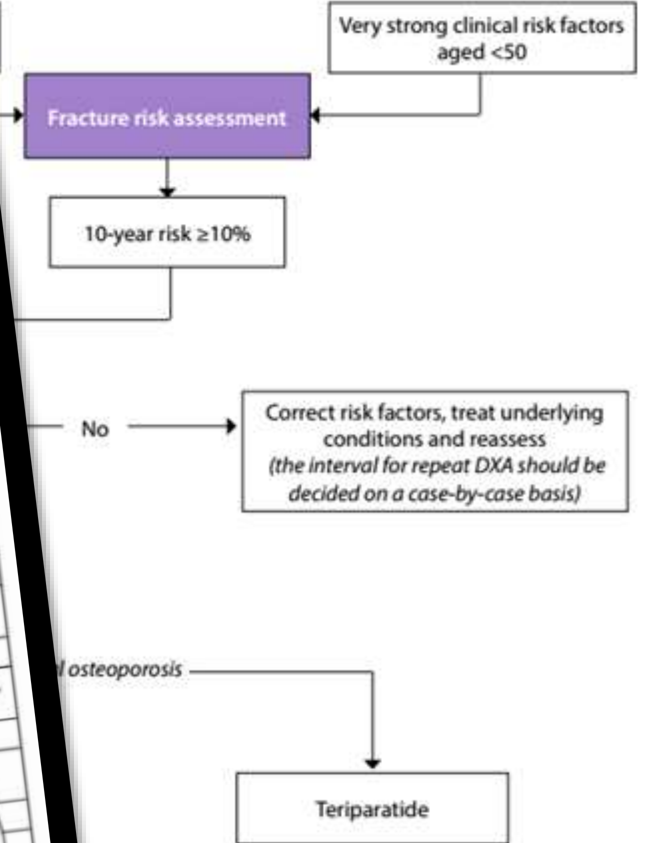
SIGN 142 • Management of osteoporo… of fragility fractures

A national clinical guideline

Pathway from risk fa… …n in postmenopausal women

Table 3: Risk factors included in FRAX and QFracture algorithms

Risk factor	FRAX 40–90 years	QFracture 30–99 years
Age	✓	✓
Sex	✓	✓
Weight	✓	✓
Height	×	✓
Ethnicity	✓	✓
Previous fracture	✓	✓
Parental history of hip fracture	✓	✓
Smoking	✓	✓
Alcohol	×	✓
Menopausal symptoms	×	✓
Epilepsy (or use of anticonvulsants)		✓
Cardiovascular disease	×	✓
History of falls	×	✓
Use of glucocorticoids	✓	✓
Use of antidepressants	×	×
Bone mineral density (femoral neck T-score/ absolute value)	✓ (option)	
Secondary osteoporosis	Binary yes/no choice	*Endocrine*
		hyperparathyroidism, thyrotoxicosis, Cushing's disease, type 1 or 2 diabetes, use of HRT
		Gastrointestinal
		Crohn's disease, ulcerative colitis, coeliac disease, steatorrhoea, blind loop syndrome
		Metabolic
		chronic renal dis… immobility
		Neurological
		Alzheimer's d…, Parkinson's disease
		Oncological
		cancer
		Respiratory
		COPD, asthma
		Rheumatological
		rheumatoid arthritis, systemic lupus erythematosus
		Other
		care or nursing home residence



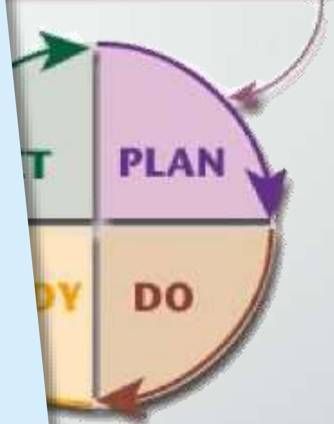
Parkinson's Disease and Fracture Risk

- Increased risk of fracture compared to general population (HR 1.99)
- Increased risk of hip fracture - often early in the disease course (HR 2.71)
- Greater dependency at 30 days after hip fracture repair
- Almost double average length of stay in hospital (UK)
- Higher complication rates including bed sores

- Why might there be increased risk?
  - motor dysfunction, impaired postural reflexes, truncal rigidity, absence of protective arm response.
  - reduced weight-bearing, aerobic exercise and reduced bone mineralisation (RR 3 vs control)
  - catabolic state, sarcopaenia, low Vit D (~55% vs 41% in Alzheimer's), malnutrition
  - cognitive impairment, depression, 'fear of falling'
  - levodopa?

Quality Improvement Project

- quality improvement methodology
- *global aim:*
-
- F



- **What is the fracture risk for patients attending clinic?**

- *How many patients have their fracture risk assessed every cl*
- *How many meet the threshold for investigation?*
- *How many DEXA scans are generated from the clinic every month?*
- *How many DEXA scans demonstrated osteoporosis requiring treatment?*

- *Subjective - how did patients respond to fracture risk being explored?*
- *Unintended consequences?*

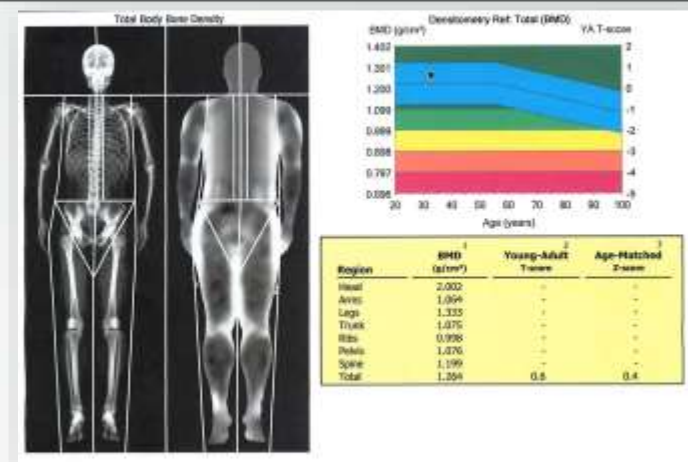
Aim : to reliably identify patients attending the movement disorder clinic who are at risk of osteoporotic fracture

Number of documented QFracture scores

- PDSA 1.0
- **Plan:** Complete a QFracture assessment with one patient during the movement disorder clinic this week; measured using version 1.0 of the data collection sheet; and discussed in the post-clinic MDT.
- **Do:** one assessment completed successfully, not rec
- **Study:** No difficulty in assessment. Felt to be quick t discussed with patient during the consultation due t felt to be inappropriate. Clinic would not routinely d Additional workload. Weight provided in imperial m
- **Act:** Print off weight conversion chart for clinic roo next wednesday. Minimise required data in proforr aware of requirement for height measurement - ar

5
4
3
2
1
0
Week 1 2 3 4 5 6
Scores

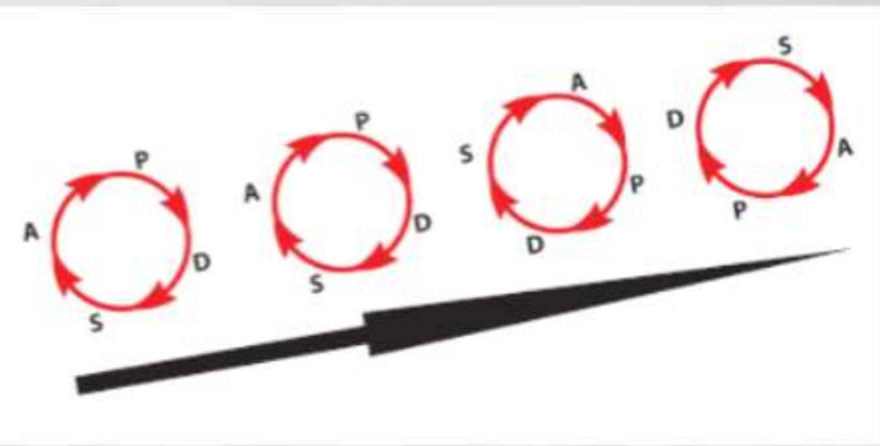
Interim report



- n=15
- mean age 69yrs
- mean % risk of major fracture at 10 years ≈ 14%
- **6 out of 15** returned scores of risk > 10% fracture at 10 years:
  - 1 declined any further investigation or treatment
  - 1 already on appropriate treatment
  - 2 previously investigated for osteoporosis in the last 5 years
  - **2 had new DEXA scans requested**

PDSA Cycles and Scaling Up

- Stadiometer calibration
- Shortcuts on Virtual Display Unit
- Imperial vs Metric Weights
- Unable to locate previous DEXA scan results



Reflections

- When to check? Return patients only? Breaking bad news…
- When to repeat? How to remember to do this reliably?
- When to hand-over care to GP? DEXA only? Vitamin D and calcium levels?
- The patients being referred for DEXA were **not** who I would have guessed…

Next Steps

- Agree strategy for ongoing implementation
  - 2nd Return Appointment and 5 yearly thereafter?
  - Include it in the diagnosis summary to prompt action?
  - Spread practice to colleagues / succession planning?
  - When embedded practice – regular sampling vs census approach?
- Patient attitudes survey