

Reducing Delays in First Dose Denosumab and Zoledronate after Hip Fracture – A Quality Improvement Project

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Introduction

At Wrightington, Wigan and Leigh (WWL) 412 patients were admitted with hip fracture in 2024.

With National Osteoporosis Guideline Group (NOGG) from 2022 recommending greater use of injectable therapy in this cohort, due to risk of “imminent fracture”, orthogeriatric team now prescribe more denosumab and zoledronate.

The aim of this QI was to review timeline in initiation of these treatments with the aim of administering first dose within the shortest possible timeline, to address high risk of re-fracture.

Method

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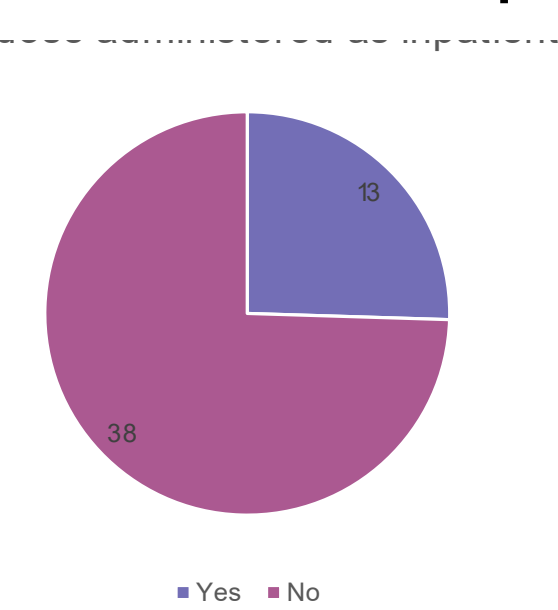
Denosumab

The cohort of patients:

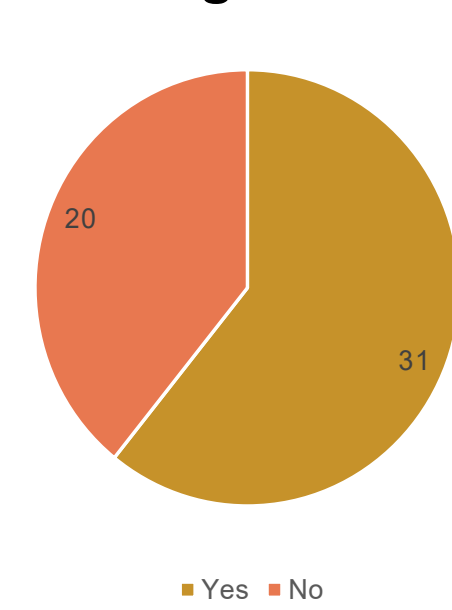
- Neck of Femur (NoF) fracture patients – includes 59 patients
- Over 60 years of age
- Both male and female included in the review
- Reviewed by the orthogeriatric team on Aspull ward who decided on the bone health plan; who aim to administer 1st doses as inpatient where possible
- 2 patient were removed as they passed away before 1st doses were given or considered
- After discharge drug will continue to be administered by SC injection every 6 months, via district nurse or SDEC pathway

Denosumab – Results

1st dose administered as inpatient



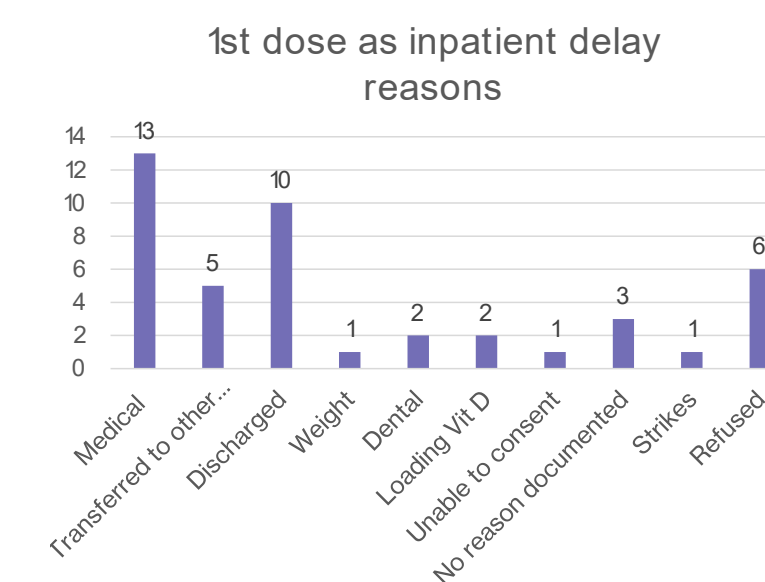
Awaiting first dose



SDEC/DN pathway

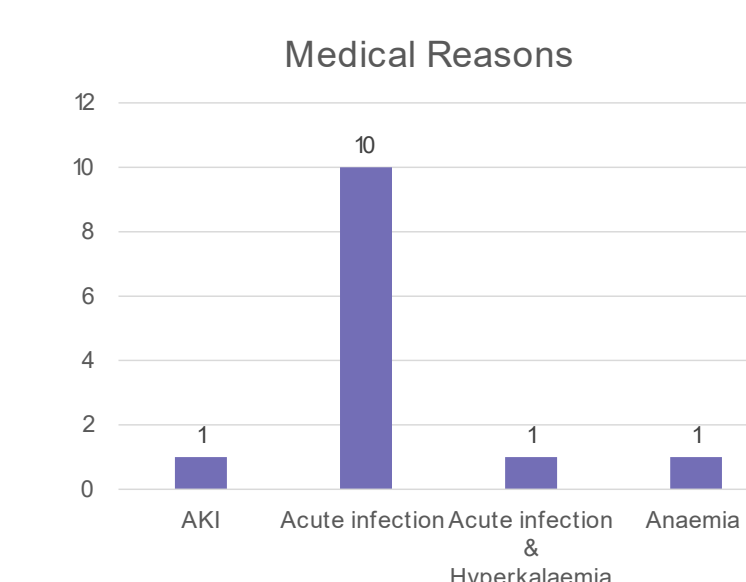
	SDEC	DN
Number of patients	10	40
Had the first dose	8 (80%)	23 (57.5 %)
Inpatient first doses	4 (50%)	8 (20%)
Outpatient 1st dose administration range	51 days to 101 days (4pts)	56 days to 208 (13 patients)
Over 120 days?	2	23

Denosumab – Results Continued...

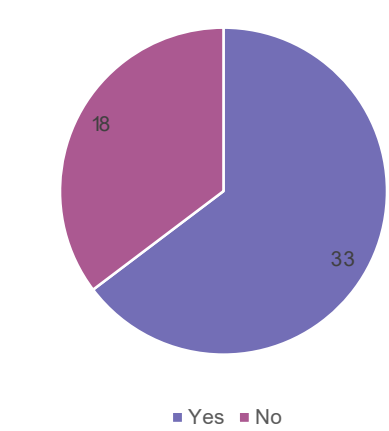


Average number of days to first dose administration:

62 days



Vitamin D replacement



Denosumab – Trends Found

- 7 Patients decided for the drug Denosumab regardless of what pathway RIP before first dose
- 1 Patient was under Rheumatology and should have continued under their care
- 2 Patients refused treatments at PIU call
- 5 Patients have large delays on the first dose administration due to requiring a change in pathway
- 1 Delay was due to medication not received from pharmacy when DN team arrived

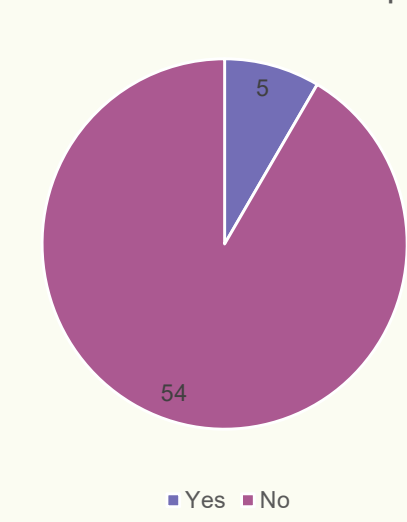
Zoledronate

The cohort of patients:

- Neck of Femur (NoF) fracture patients – includes 59 patients
- Over 60 years of age
- Both male and female included in the review
- Able to ambulate to PIU post operation and with satisfactory kidney function
- Reviewed by the orthogeriatric team on Aspull ward who decided on the bone health plan; who at the time, were not administering Zoledronate within the first 14 days of surgery
- After discharge drug will continue to be administered by IV infusion injection every 12 months, via the PIU pathway

Zoledronate - Results

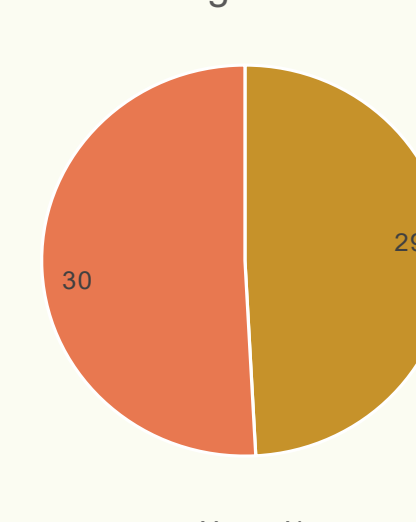
1st dose administered as inpatient



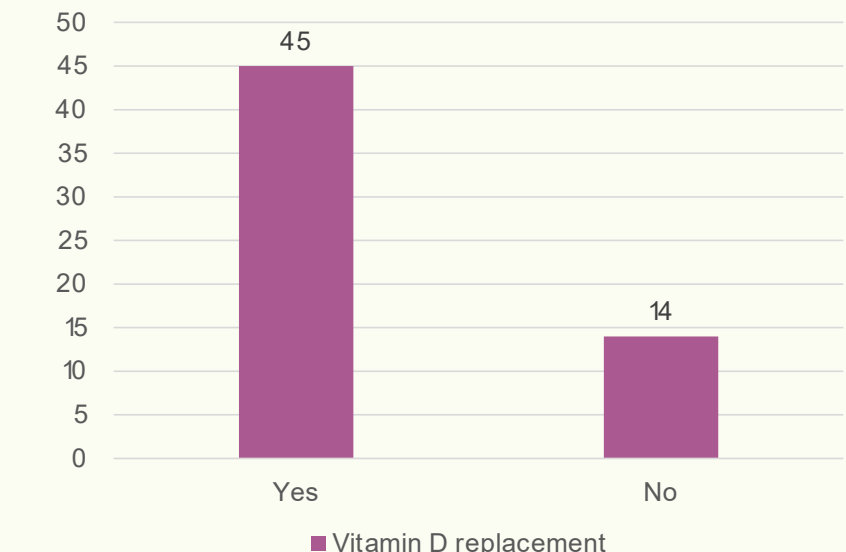
1st dose as inpatient delay reasons:

100% of patients (49) did not receive their 1st dose due to being within the first 14 days post operation.

Awaiting first dose



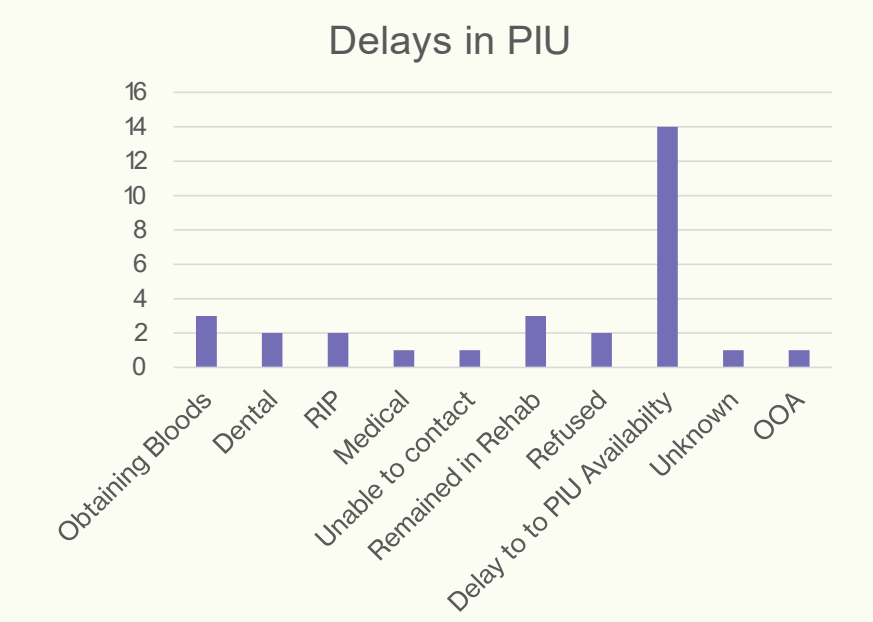
Vitamin D replacement



Zoledronate – Results continued...

Average number of days to first dose administration:

72 days



Zoledronate – Trends Found

- 4 RIP
- 2 patients awaiting dental procedure
- 1 OOA
- 1 Unwell
- 2 patients were delayed due to bloods being obtained
- 3 patients were unaware of the OPD
- 2 Remained in JHRU
- 2 patients refused treatments
- 14 Patients awaiting OPD's
- Other reasons:

Results

The average length of time for first dose denosumab was 62 days in 2024, improved by 66% since 2022 (187 days) and by 18.5% since 2023 (76 days).

The average length of time for first dose zoledronate was 72 days with no comparative data available.

Further analysis shows how zoledronate delays in 91% of patients were due to the practice of not administering bisphosphonate medications within 14 days of surgery, which is no longer established practice.

Furthermore, 64% of denosumab patients and 75% of zoledronate patients were delayed due to replacement of vitamin D.

Conclusion(s).

Focusing on early provision of injectable therapy is known to reduce re-fracture risk in patients who suffer hip fracture.

Improvement initiatives including inpatient consent, routine vitamin D supplementation and education of teams that delay is not necessary have been shown to reduce delays in first dose administration.

Action Plan

- Formulate a unified pathway to allow inpatient administration of injectable therapy where safe to proceed
- Consider single day of vitamin d loading to minimised delays due to deficiency
- If pathway changed from hospital to home administration, ensure this does not create additional delay in first dose administration
- Consider home delivered iv zoledronate to address delays due to Planned Investigation Unit capacity
- Continue raising awareness of the importance of timely administration of bone protection to address imminent risk of fracture