

Collaborative medical-pharmacist initiation of the fractured neck of femur EMR-based clinical care pathway

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BACKGROUND

Minimal trauma neck of femur (NOF) fractures are associated with significant postoperative morbidity and mortality.¹ Although fractured NOF clinical care pathways (CCPs) standardise patient care, the impact of partnered pharmacist medication charting² (PPMC) in this context has not been explored.

AIM

To evaluate the impact of pharmacist involvement, through the PPMC model, on the proportion of patients initiated on the electronic medical record (EMR) Fractured NOF CCP at hospital admission.

METHODS

This retrospective, pre- and post-intervention study was undertaken within the Orthopaedic Surgery Unit at Alfred Health, a major tertiary-referral health service in Melbourne, Australia. The study comprised an eight-month pre-intervention (Jan-Aug 2020) and an eight-month post-intervention period (Jan-Aug 2021).

Participants: Patients aged ≥ 65 years with the diagnosis of a primary minimal trauma NOF fracture

Control: Initiation of the Fractured NOF CCP by Medical Officer or Nurse Practitioner (Figure 1)

Intervention: Initiation of the Fractured NOF CCP by clinical pharmacists through the PPMC model (Figure 1)

Primary Outcome: Proportion of patients initiated on the Fractured NOF CCP* at admission to hospital

Secondary Outcomes: Proportion of patients initiated on the CCP through the PPMC model and time to CCP initiation

*Initiation was defined as charting at least one component of the Fractured NOF CCP

Figure 1. Fractured NOF CCP workflow

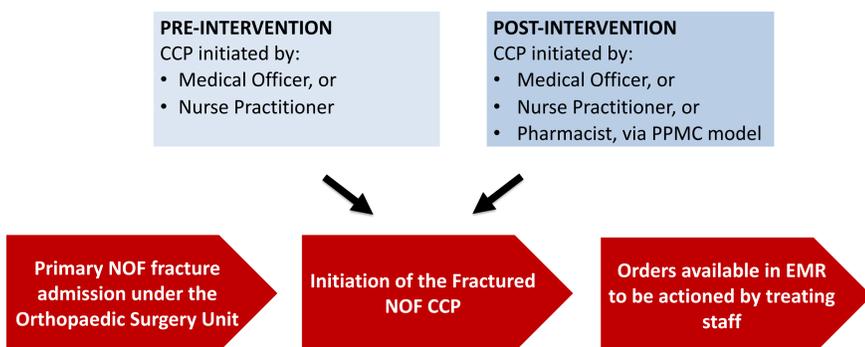


Table 1. Fractured NOF CCP contents

CARE COMPONENTS	AVAILABLE ORDERS
Diagnostic Tests	X-Ray, MRI
Patient Care	Vital signs, neurovascular assessment lower extremity, ECG 12-lead adult, peripheral IV insertion and care, blood glucose monitoring, oral fluids, mobility status, nil orally
Medications	Oral/parenteral analgesics, venous thromboembolism prophylaxis, post-operative antimicrobial prophylaxis, aperients, antiemetics
Intravenous solutions	Fluid orders
Pathology	Full blood examination, blood group, antibody screen, INR and APTT, vitamin D, UEC, urine MCS, Calcium/magnesium/phosphate
Referrals	Orthogeriatrics

To improve usability, the EMR-integrated Fractured NOF CCP was revised in Dec-2020 from a *multiphase* EMR PowerPlan to *two single-phase* PowerPlans. The components of the PowerPlans remained similar (Table 1).

RESULTS

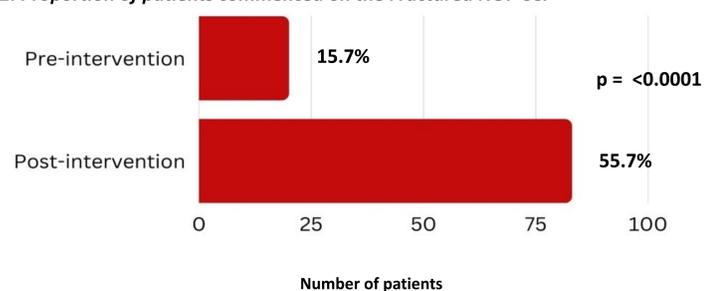
There was retrospective enrolment of 127 patients in the pre-intervention group, and 149 patients in the post-intervention group. Participant demographics were well matched between cohorts (Table 2).

RESULTS

Table 2: Patient demographics

	Pre-intervention n=127	Post-intervention n=149	p
Female, n (%)	83 (65.4)	95 (63.7)	0.80
Age, median years (IQR)	85 (74 - 89)	84 (78 - 90)	0.58
ASA score, median (IQR)	3 (3 - 3)	3 (3 - 3)	0.34
Residence, n (%)			
Private Residence	98 (77.2)	115 (77.2)	1.00
Residential Aged Care Facility	25 (19.7)	31 (20.8)	0.88
Supported residential service	4 (3.1)	2 (1.3)	0.42
Respite Transitional Care Program	-	1 (0.7)	1.00
Fracture number, n (%)	134	164	
1	120 (94.5)	135 (82.3)	0.26
2	7 (5.5)	13 (7.9)	0.36
3	-	1 (0.6)	1.00
Fracture Location, n (%)			
Fracture of the neck of femur / Pertrochanteric fracture	122 (91.0)	146 (89.0)	0.56
Subtrochanteric fracture	12 (9.0)	18 (11.0)	

Figure 2: Proportion of patients commenced on the Fractured NOF CCP



Pharmacist involvement, through the PPMC model significantly increased the proportion of patients initiated on the Fractured NOF CCP at hospital admission (Figure 2).

The Emergency Department (ED) care components of the Fractured NOF CCP were initiated for 20 patients (15.7%) in the pre- and 23 patients (15.4%, $p=0.94$) in the post-intervention group. An additional 60 patients in the post-intervention group were initiated on the Fractured NOF CCP through the ward care components.

Figure 3: Post-intervention Fractured NOF CCP initiated via the PPMC model



Table 3: Time to Fractured NOF CCP Initiation from ED presentation

Patient care components	Pre-intervention (n=20)	Post-intervention (n=83)	p
Emergency Department	0.9 hours (IQR 0.4-1.9hours)	3.9 hours (IQR 2.0-6.3 hours)	0.001
Ward	N/A	16.6 hours (IQR 11.8-20.6 hours)	N/A

Almost three quarters of CCPs in the post-intervention period were initiated by a pharmacist (Figure 3). There was a statistically significant increase in the median time to Fractured NOF CCP initiation post-intervention (Table 3).

DISCUSSION

The EMR-integrated Fractured NOF CCP provides decision support and standardisation of care. This study demonstrated that the implementation of pharmacist initiation, via the PPMC model, significantly increased the proportion of patients commenced on the Fractured NOF CCP. Furthermore, pharmacist involvement significantly improved compliance to the standard of care in the post-intervention cohort, with three quarters of Fractured NOF CCPs commenced by a pharmacist.

The initiation of the Fractured NOF CCP by pharmacists occurred within the first day of admission, but was delayed compared to ED initiation. It is hypothesised that the rostered hours (07:00-16:00) of a PPMC credentialed pharmacist may contribute to this. Further exploration is required to assess the impact of this delay and address timeliness.

CONCLUSION

Pharmacist involvement, through the PPMC model significantly increased the proportion of patients initiated on the Fractured NOF CCP and compliance to the standard of care. The apparent delay in initiation post-intervention requires further exploration.

REFERENCES

1. Registry AaNZHF. ANZHF Annual Report of Hip Fracture Care. Australia: ANZHF; 2022
2. Tong EY, Roman CP, Smit dV, Newnham H, Galbraith K, Dooley MJ. Partnered medication review and charting between the pharmacist and medical officer in the Emergency Short Stay and General Medicine Unit. *Australas Emerg Nurs J.* 2015;18(3):149-55.