Poster Board Number 59

Impact of Multidisciplinary Care of Diabetic Foot Inpatients in Campbelltown Hospital

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Introduction

- **Diabetic Foot Infections (DFI),** a prevalent health issue particularly in **Greater Western Sydney**, has significant impacts on **patient quality of life** due to **reduced mobility, increased hospitalisations and amputations.** This places **substantial financial and care management burdens on the healthcare system**.
- The **High Risk Foot Service (HRFS) MDT** at **Campbelltown Hospital**, a tertiary hospital in South Western Sydney, expanded its services in 2020 to include more onsite consultants (vascular surgery, infectious disease & wound care) for optimizing treatment and patient care. The HRFS operates as a consult service, where the MDT team meet once weekly to review cases and formulate treatment plans.

Aim

- To examine the **impact** of the expanded **HRFS MDT** on **inpatient length of stay (LOS)** & **surgical outcomes for high-risk DFI patients. Findings** will help to assess the effectiveness of HRFS MDT and identify potential improvements.

Methods

- This was a **retrospective audit** at Campbelltown Hospital **from 1st January 2019 to 31st December 2021.**

Inclusion Criteria	Exclusion Criteria
• Age >18 • Pre-existing diabetes • Primary diagnosis of foot infection or ulcer • Admission from ED • Admission from outpatients	• HITH (home-in-the-hospital) admission • Incorrect primary diagnosis • Unrelated presentation • Transfers from other hospitals

- **Primary outcomes** = **length of stay** and **surgical intervention rates.**
- **Intervention** = the involvement of an **MDT** (defined as two or more actively participating specialties).
- **Statistical analysis:** Analysis was performed using Chi-square test for categorical variables and ANOVA for continuous variables. IBM SPSS Statistics software was utilised.

Results

Admissions and MDT involvement (see Fig 1.):

- There were 78 inpatients with 89 unique admissions (n=24 in 2019, n=28 in 2020 and n=37 in 2021). MDT attendance steadily increased at 62.5%, 75.0% and 83.8% respectively.

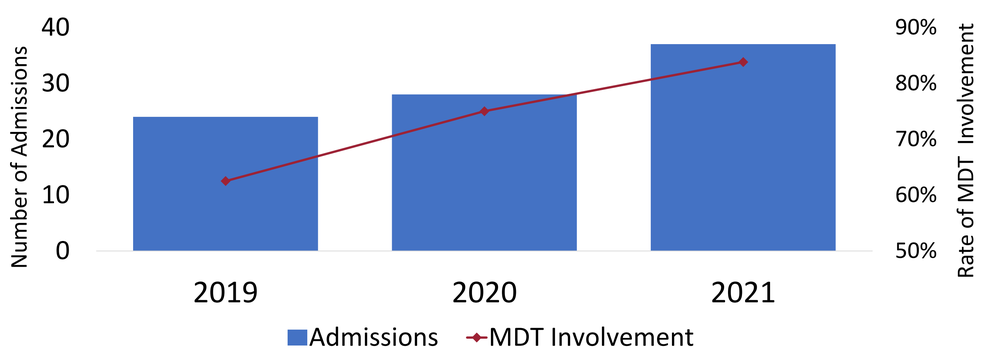

Fig. 1: Number of admissions per year (2019-2021) and rate of MDT involvement over the 3-year period.

Risk Factors:

- Patients with serious comorbidities such as chronic kidney disease were more likely to have MDT involvement (84.8% vs 15.2%, ***P=0.048***).
- Mean HbA1c (%) (8.4 ± 2.0 vs 8.2 ± 2.7, ***P*=0.701**), was similar between both groups.

Investigations Performed:

- Imaging was more likely to be performed with MDT involvement (78.8% vs 21.3%, ***P<0.05***).
- MDT involvement was less common with patients who had a blood culture.

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Length of Stay (see Fig 2.):

- Median LOS was not statistically different from 2019–2021 (7.8 IQR 15.0 days vs 4.8 IQR 7.9 days, ***P*=0.243**) but there was a trend towards reduced LOS by ~2.0 days with each subsequent year.
- Patients who required major surgical intervention (amputations) had a significantly longer median LOS than those who were managed conservatively (medically) (LOS: 24, IQR 21.5 days vs 5.2, IQR 13 days, difference 18.8 days, ***P<0.05***)

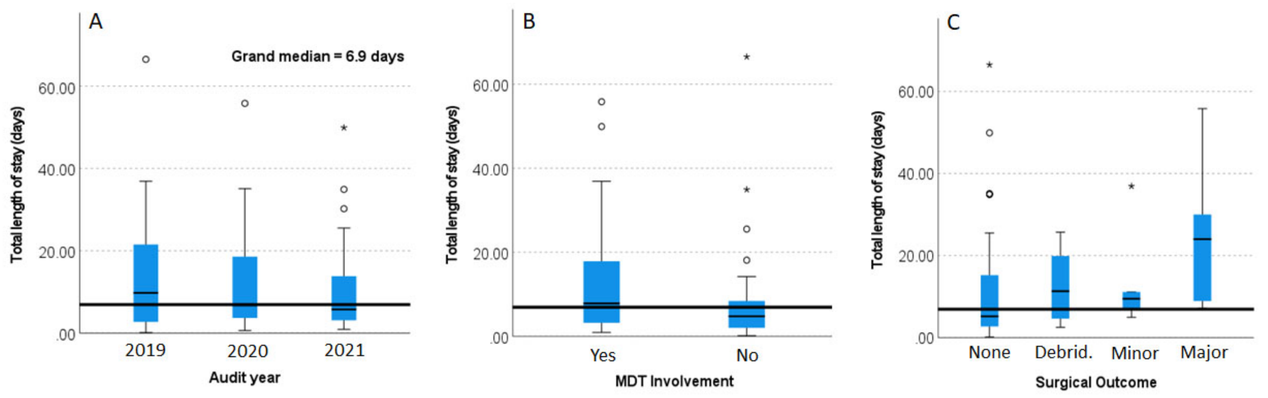

Fig. 2 Median length of stay and IQR by: A) year of audit (2019-2021), B) MDT involvement and, C) surgical outcomes of patients.

Surgical Outcomes:

- Major amputation was the most common surgery (39.1%), followed by surgical debridement (34.7%) and minor amputation (26.0%).
- Overall rates of surgical intervention were similar between both groups (74.6% v 72.7, ***P=0.262***).
- Revascularisation procedures that were performed during admission occurred in only 7% of patients.

Discussion

1. Compared to previous studies[1,2], we found longer LOS among patients who had MDT involvement. A possible explanation is that **patients who require MDT input** inherently have more **complex medical comorbidities**, therefore requiring additional involvement.
2. DFI is considerably higher in individuals **from low socioeconomic background** as there are more **barriers** to **accessing various health services** including those necessary for D**FI management and preventative care** (see Fig 3.).
3. Patients who had MDT care had **higher rates of surgical intervention**, suggesting that MDT involvement plays a role in **early intervention** through major surgery.
4. Our patients had a notably **lower rate of revascularisation (7%)** compared to Sydney hospitals as Campbelltown Hospital **has limited access to on-site vascular surgery services** potentially leading to delays in care.
5. There may be a need for a dedicated vascular surgery service at Campbelltown Hospital and improvements in the local healthcare infrastructure.

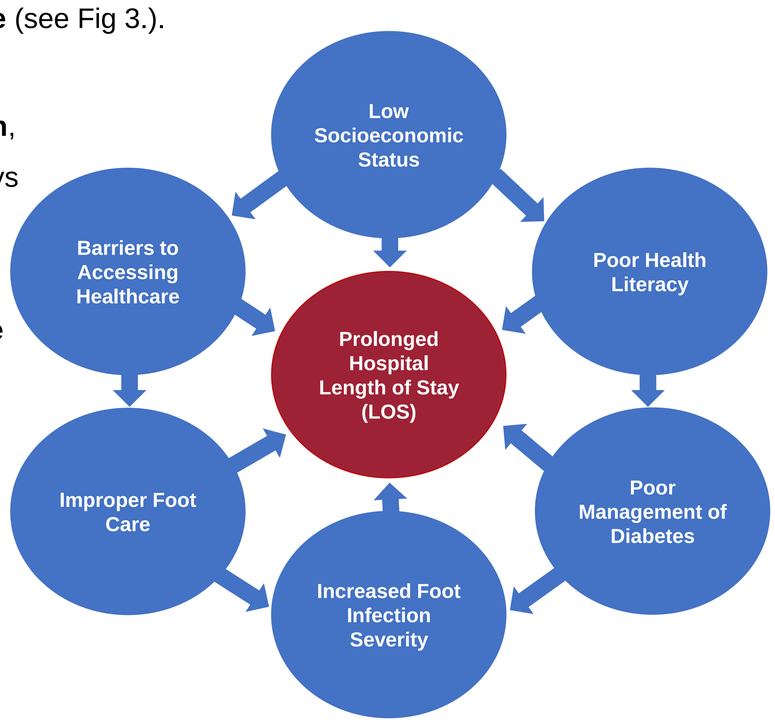

Fig. 3 Multifaceted relationship of low socioeconomic status and prolonged hospital length of stay.

Acknowledgements

Many thanks to the all the staff involved with HRFS at Campbelltown Hospital for their contributions to the data.

References

1. Manewell SM, et al: Length of stay and readmissions for people with diabetes-related foot ulceration admitted to two public tertiary referral hospitals in Australia. Wound Practice & Research 2022, 30(2):82-90.
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