Evaluating the impact of a dedicated outpatient pharmacy clinic on medication safety and transitions of care for patients undergoing haematopoietic stem cell transplantation

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Presentation overview

01

Background

FACT-JACIE standards, medication risk in Bone Marrow Transplant

02

Service Model and Clinic Establishment

Workflow, scope, referral pathway

03

Clinic Activity

Patient volume, visit types, transplant categories

04

Medication Safety Outcomes

Reconciliation, interventions, acceptance rates

05

Clinical Impact Analysis

Length of stay, readmissions, incidents, bed day savings

06

Strategic Value and Future Directions

Publication plans, funding, expansion

The role of the BMT Pharmacist

- **ASTCT and ANZTCT recognition:** Defines BMT pharmacists as essential for medication therapy management in HSCT.

- **Core Responsibilities:**
  - Comprehensive medication reconciliation across complex transition points
  - Patient care, medication management and monitoring.
  - Development of evidence-based institutional protocols.
  - Patient education.
  - Transition planning.
  - Research and quality improvement.
  - Compliance with JACIE/FACT standards.

- **The FACT-JACIE international Standards:**
  - Integration of pharmacy services is no longer optional but a recommendation for high-functioning transplant programs in both inpatient and outpatient settings.
  - Adequate number of pharmacists is needed to manage complex patients going through BMT.
  - Minimum training requirements annually.

Clemmons AB et al. The Hematopoietic Cell Transplant Pharmacist: Roles, Responsibilities, and Recommendations from the ASBMT Pharmacy Special Interest Group. BBMT. 2018

Medication risk in BMT

- BMT patients = +++ high medication risk
- Polypharmacy
- Narrow therapeutic index drugs e.g., ciclosporin, tacrolimus, voriconazole, DOACs
- High risk drug interactions and adverse events
- Frequent dose adjustments, especially in the first few weeks post transplant
- More high-risk patients, older patients, co-morbidities
- Transitions of care = known failure points, admission and discharge errors, handover gaps, different EMR systems.
- High readmission risk

Service model and clinic establishment

Pre-Transplant Review (30–45 min)

- Comprehensive medication reconciliation including OTC & herbal supplements
- Drug interaction screening with transplant therapies
- Dosing optimisation (weight/renal-based adjustments)
- Pre-transplant patient education and counselling

Post-Transplant Review (30 min)

- Medication reconciliation and de-prescribing support
- Adverse event and complication management guidance
- TDM review and dose optimisation
- Adherence counselling and patient education
- Vaccination optimisation per NSW BMT Network guidelines

Operational Details

- Clinic days: Thursday PM + all-day Friday (flexible)
- Location: Assessment Room 1, adjacent TKCC Pharmacy
- Documentation via MOSAIQ; activity on TKCC Power BI dashboard
- Referrals coordinated by BMT CNCs

Telehealth Capability

- Virtual consultations available for all patients, especially regional patients.
- Enables flexible follow-up for D+40, D+100, D+180 reviews

Results: 12 months activity summary

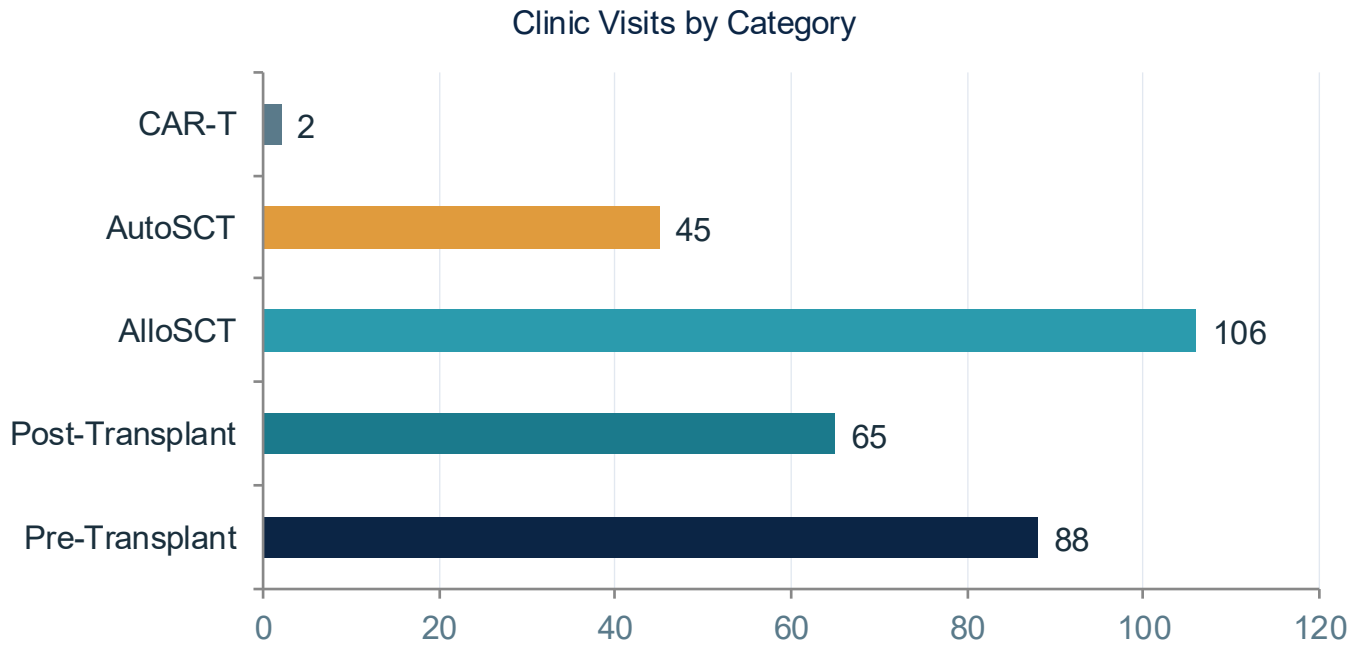
30 May 2025 – 30 May 2026

153
Total Clinic Visits

97
Unique Patients Seen

183
Pharmacist Interventions

88%
Intervention Acceptance



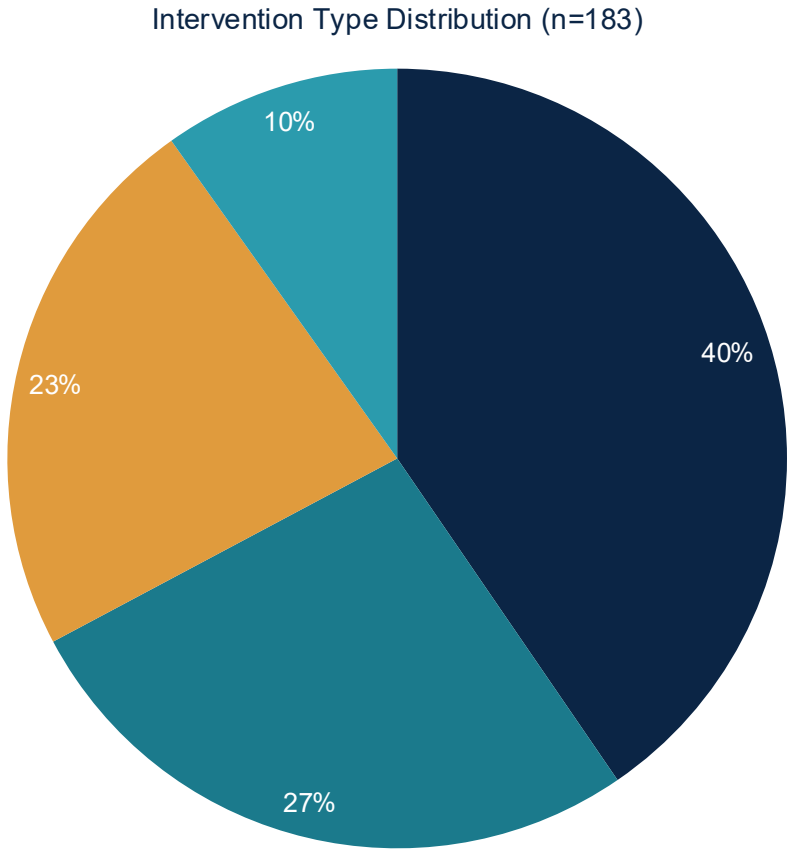
Quality Indicators

Quality Indicator	Rate
Medication history & reconciliation	100%
Allergy documentation & clarification	100%
Patient education re: transplant protocol	100%

1.65 interventions/patient **1.2 interventions/visit**

Average intervention rates

Results: Pharmacist Interventions



Intervention Type	n	Examples
Medication cessation/modification	**74**	Cease anticoagulation pre-CVC; reduce statin; cease carbamazepine
Protocol-directed therapy additions	**49**	Antimicrobial prophylaxis (valaciclovir, PJP)
TDM-guided dose adjustments	**42**	Ciclosporin or voriconazole dose changes based on drug levels
Chemotherapy dose optimisation	**18**	Fludarabine (renal); weight-based adjustments (IBW/ABW)

Interventions Accepted

161 / 183 Interventions accepted by treating team

88% Overall acceptance rate

Reflects strong multidisciplinary collaboration and clinical impact.

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Report

The Kinghorn Cancer Centre (TKCC)

Activity

Data last refreshed: 2/06/2026 10:04:18 PM

Department Activity Type: BMT Pharmacy

Location: BMT

Scheduled Activity: All

Show Activity w/ Captured Status: Yes

Date Hierarchy: All

Filters

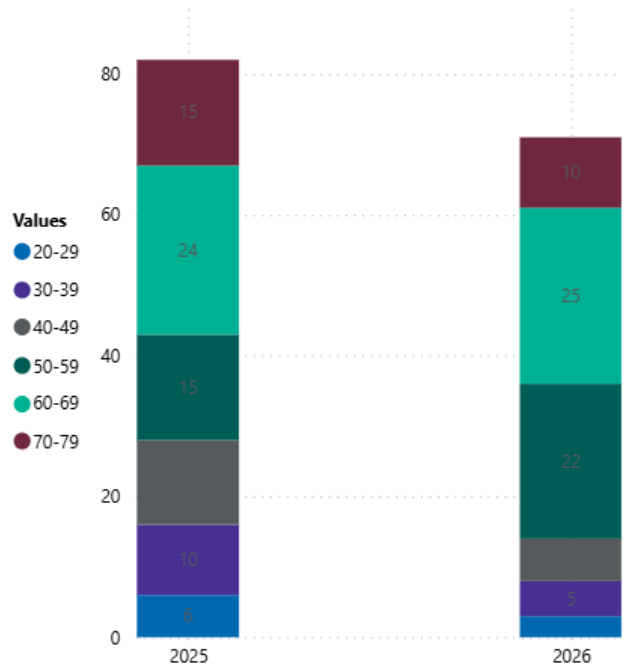
Summary | Scheduled Activity | Nelune | Men's Health Centre

Details

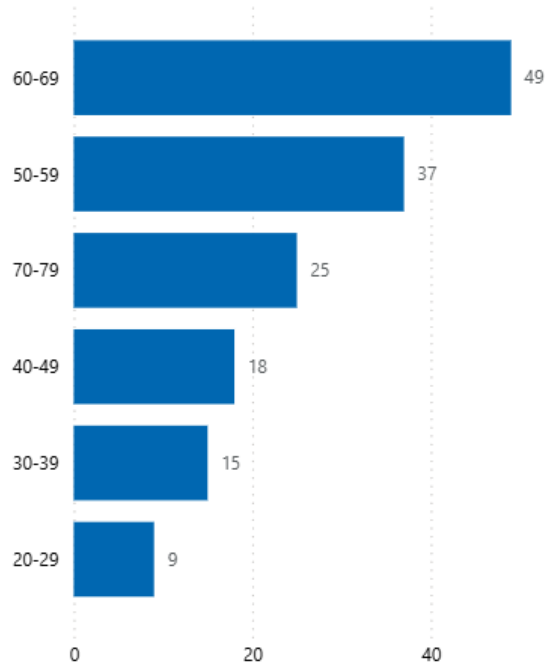
Select view

- (•) Age Band
- ( ) Code Group
- ( ) Activity
- ( ) Attending Staff T...
- ( ) Gender

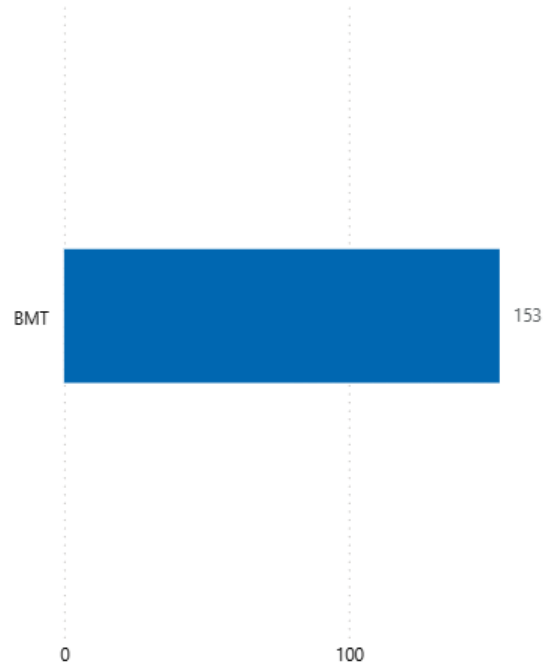
Activity by Age Band over Time



Activity by Age Band



Activity by Location*



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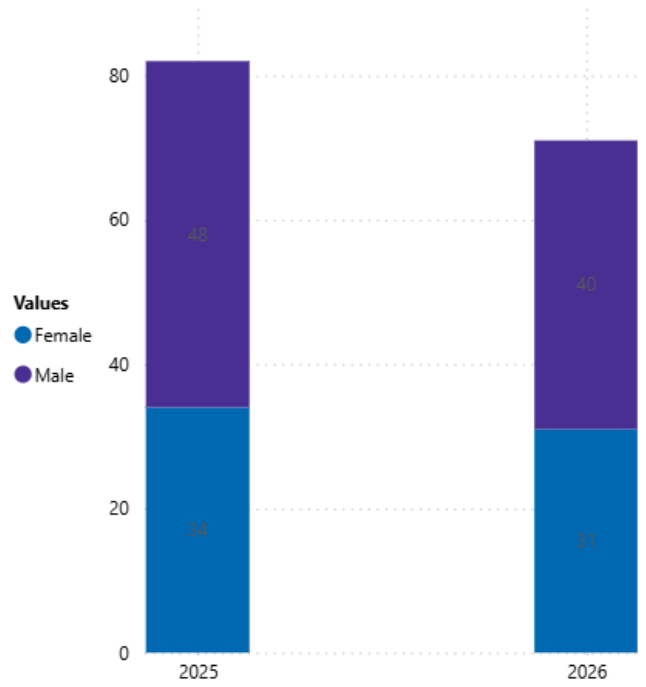
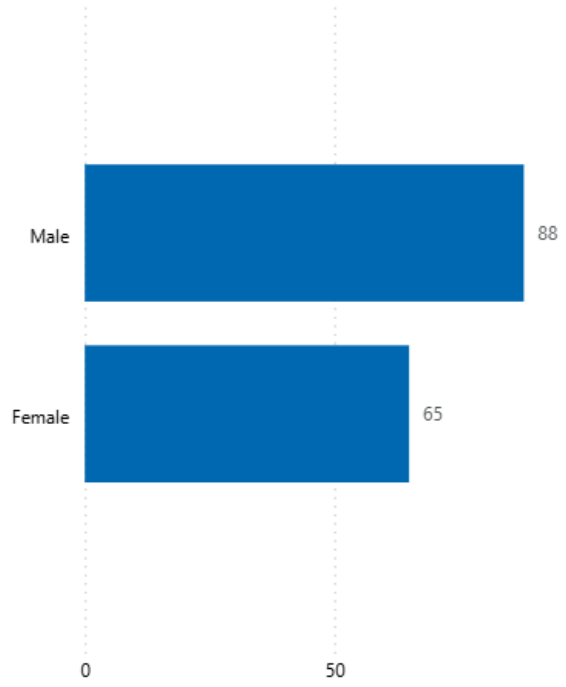


Activity by Gender



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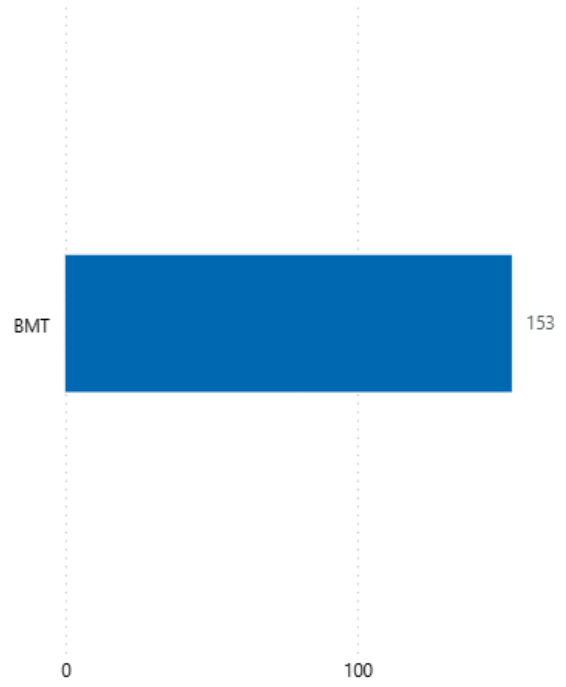

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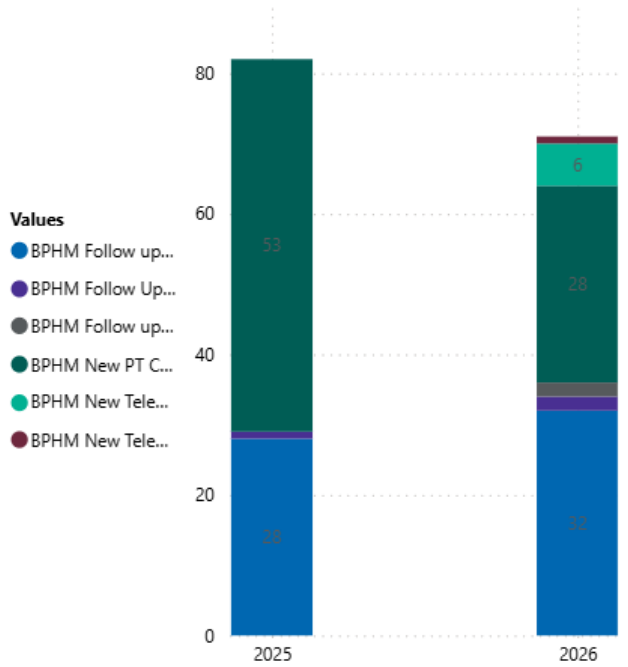

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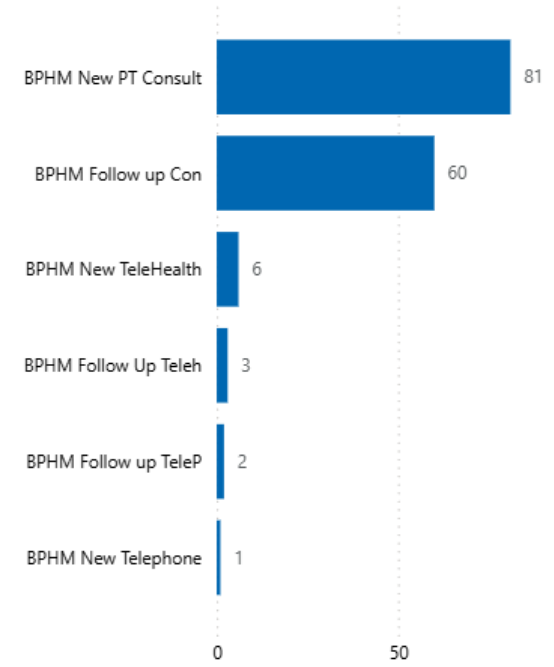

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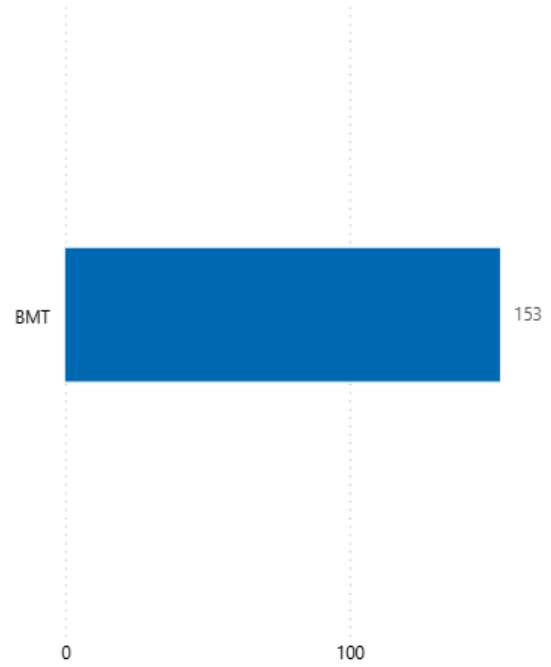

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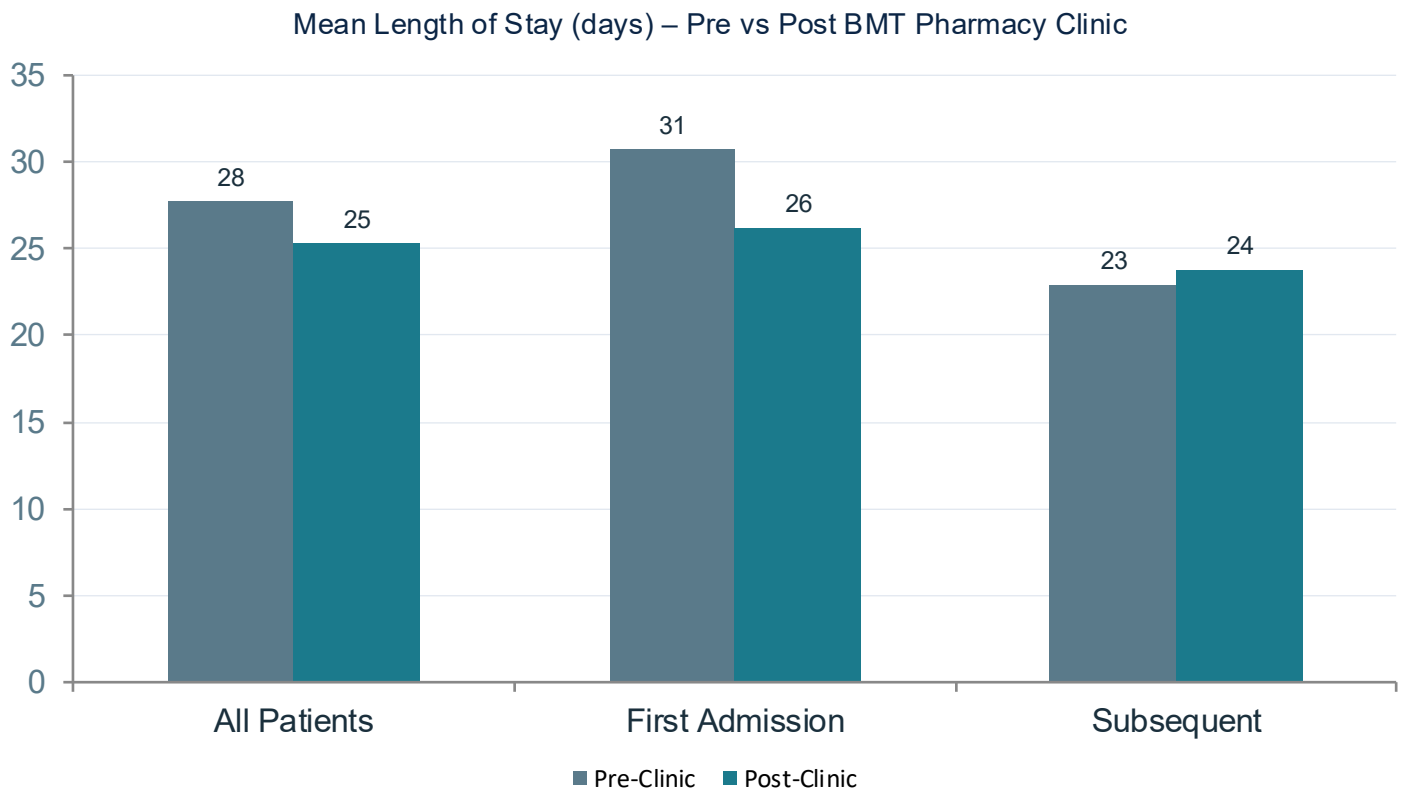
Clinical Impact – Length of Stay



Cohort	Pre	Post	Δ	p
All Patients (n=97/103)	27.7	25.3	−2.5 days	0.54
First Admission (n=60/64)	30.7	26.2	−4.5 days	0.14
Subsequent (n=37/39)	22.9	23.8	+0.9 days	0.17

−2.5 days

Mean LOS reduction (all patients)

−4.5 days

Mean LOS reduction (first admissions)

252

Estimated bed days saved (10 months)

~$656k

Estimated cost avoidance (@$2,600/day)

Note: Pre–post observational design; differences not statistically significant. Estimate does not adjust for case-mix or acuity.

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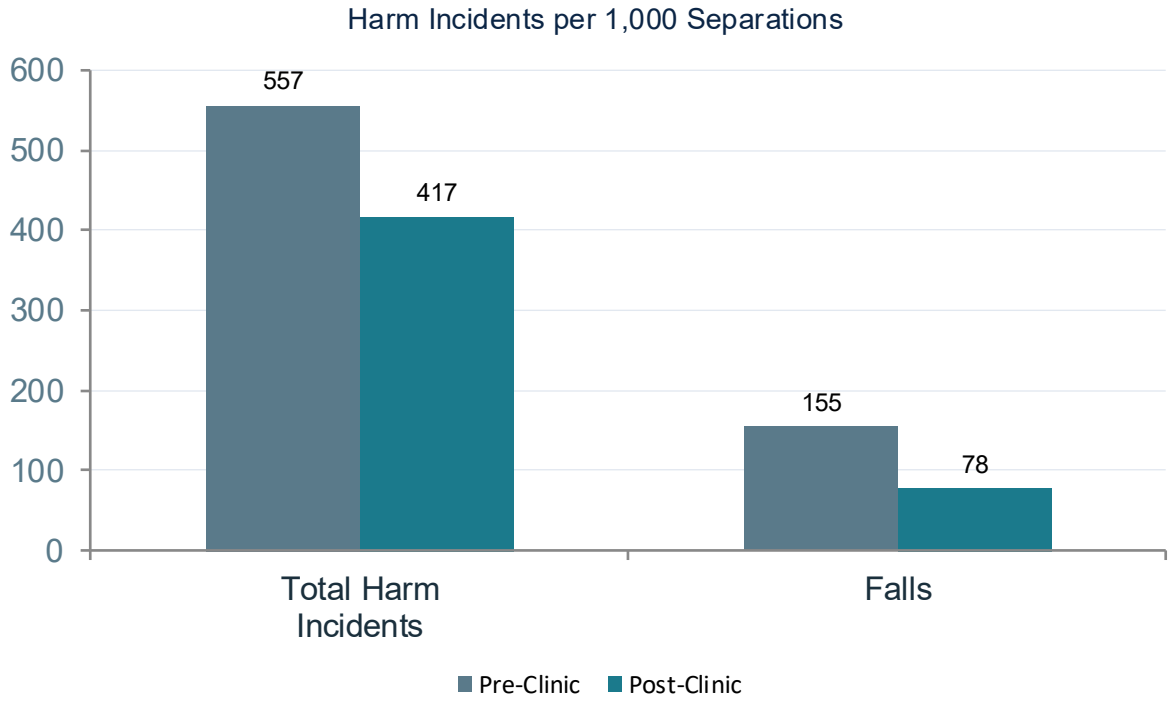
Clinical Impact – Safety and re-admissions



557 → **417** **−140**

Harm incidents per 1,000 sep.

155 → **78** **−77**

Falls per 1,000 separations

30.9% → **29.1%** **−1.8%**

% Episodes with harm incident

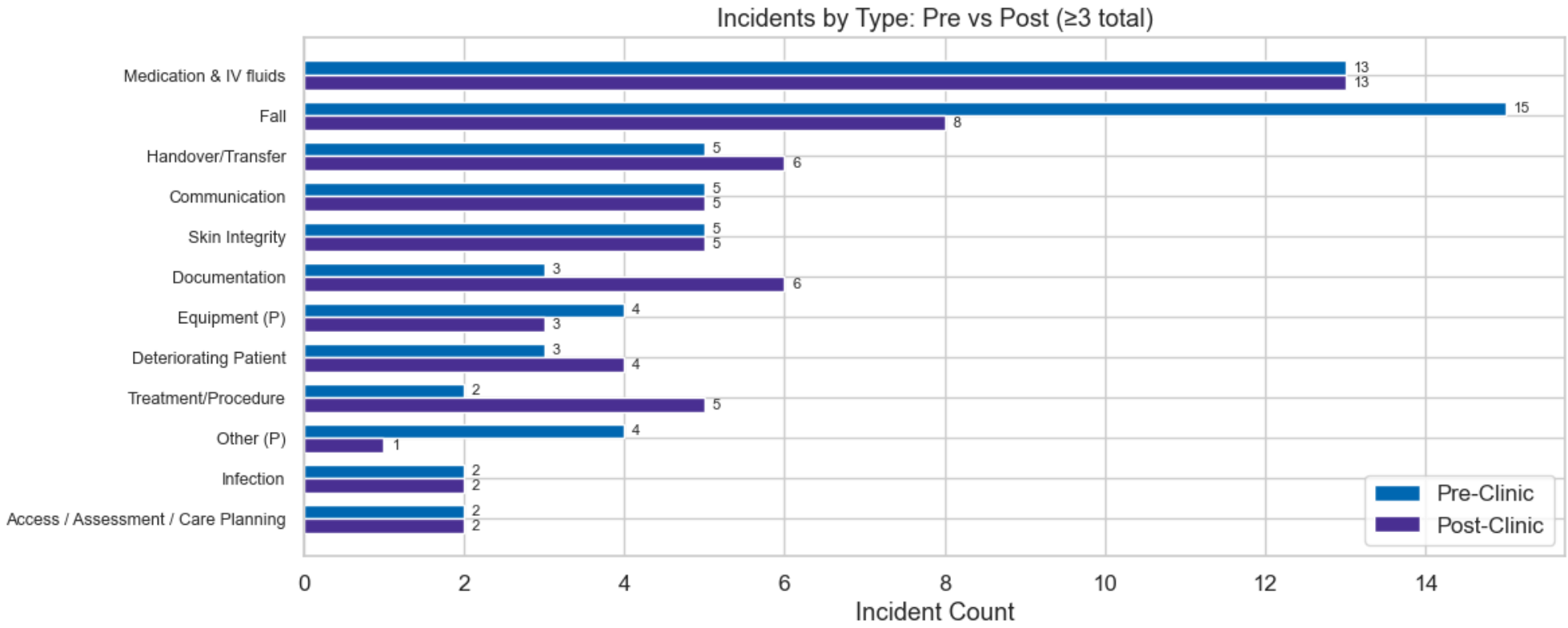
28-Day Unplanned Readmissions

Cohort	Pre	Post	Δ
All Patients	24.7%	28.2%	+3.5%
First Admission	21.7%	29.7%	+8.0%
Subsequent	29.7%	25.6%	−4.1%

All differences are non-statistically significant (p>0.05). Pre–post observational design; no randomisation or case-mix adjustment applied. Differences may reflect changes in case-mix, staffing, protocols, or seasonal variation.

Incidents by Type

- Incident types were compared between cohorts to identify categories associated with the change in harm score incidence.
- Falls accounted for the largest single-type reduction, declining from 15 to 8 incidents between cohorts.



Impact on Medication Safety & Transitions of Care

Medication Reconciliation

- 100% completion rate for all pre- and post-transplant visits
- Pre-recorded histories reduce workload for inpatient teams
- Minimised admission and discharge discrepancies

Drug Safety

- Detection and resolution of clinically significant drug interactions
- High acceptance rate (88%) reflects meaningful clinical impact
- Active de-prescribing and polypharmacy reduction

Transitions of Care

- Proactive recommendations minimise last-minute clarifications
- Enhanced discharge planning and medication access streamlining
- Improved patient compliance through early education support

Standards Compliance

- Supports NSQHS Standards requirements
- Aligns with FACT-JACIE integration recommendations
- Contributes to formal accreditation readiness

Ongoing evaluation and future directions

- Continue to collect data regarding interventions.
- Patient and clinician satisfaction surveys.
- Reducing time to BMT chemotherapy charting and ordering.
- Reductions in medication related readmission rates.
- Continue to work on the business plan and exploring funding models and sources to ensure continuity of BMT Pharmacy clinic.
- Continue to demonstrate value for the clinic.
- Publish and disseminate results.

Conclusion

- The Pharmacist-led BMT Pharmacy Clinic has delivered measurable value across medication safety, transitions of care, and clinical outcomes in its inaugural 12 months.
- 183 pharmacist interventions with an 88% acceptance rate demonstrate strong clinical integration and impact.
- 100% medication reconciliation and allergy documentation rates across all 153 clinic visits.
- An estimated 252 bed days saved with ~$656k cost avoidance suggests significant return on investment.
- The clinic supports NSQHS and FACT-JACIE standards and highlights the need for outpatient BMT clinical pharmacy services.

Acknowledgments

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