



Assessing the Effects of Implemented Service Improvements on Patient Flow:

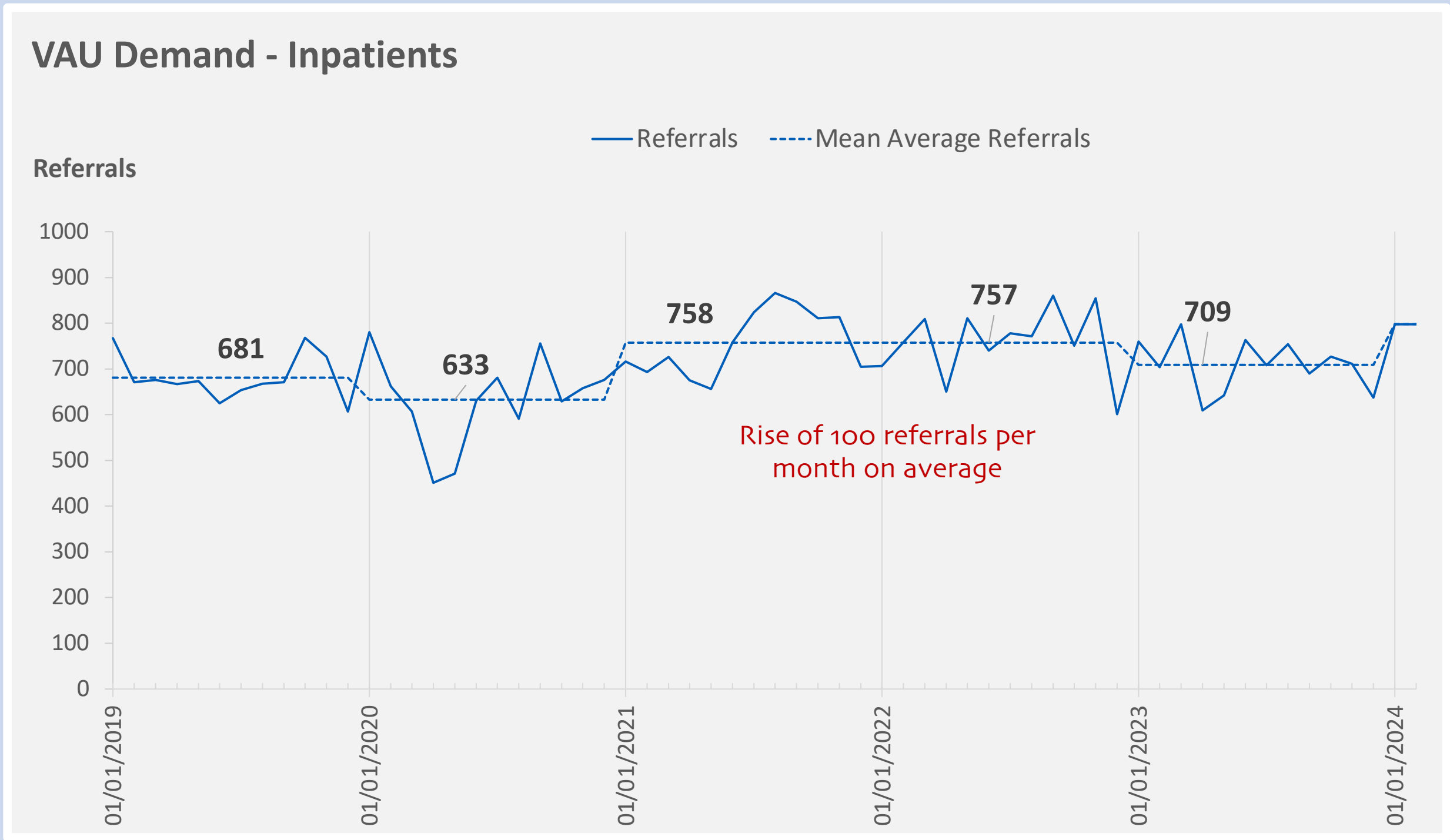
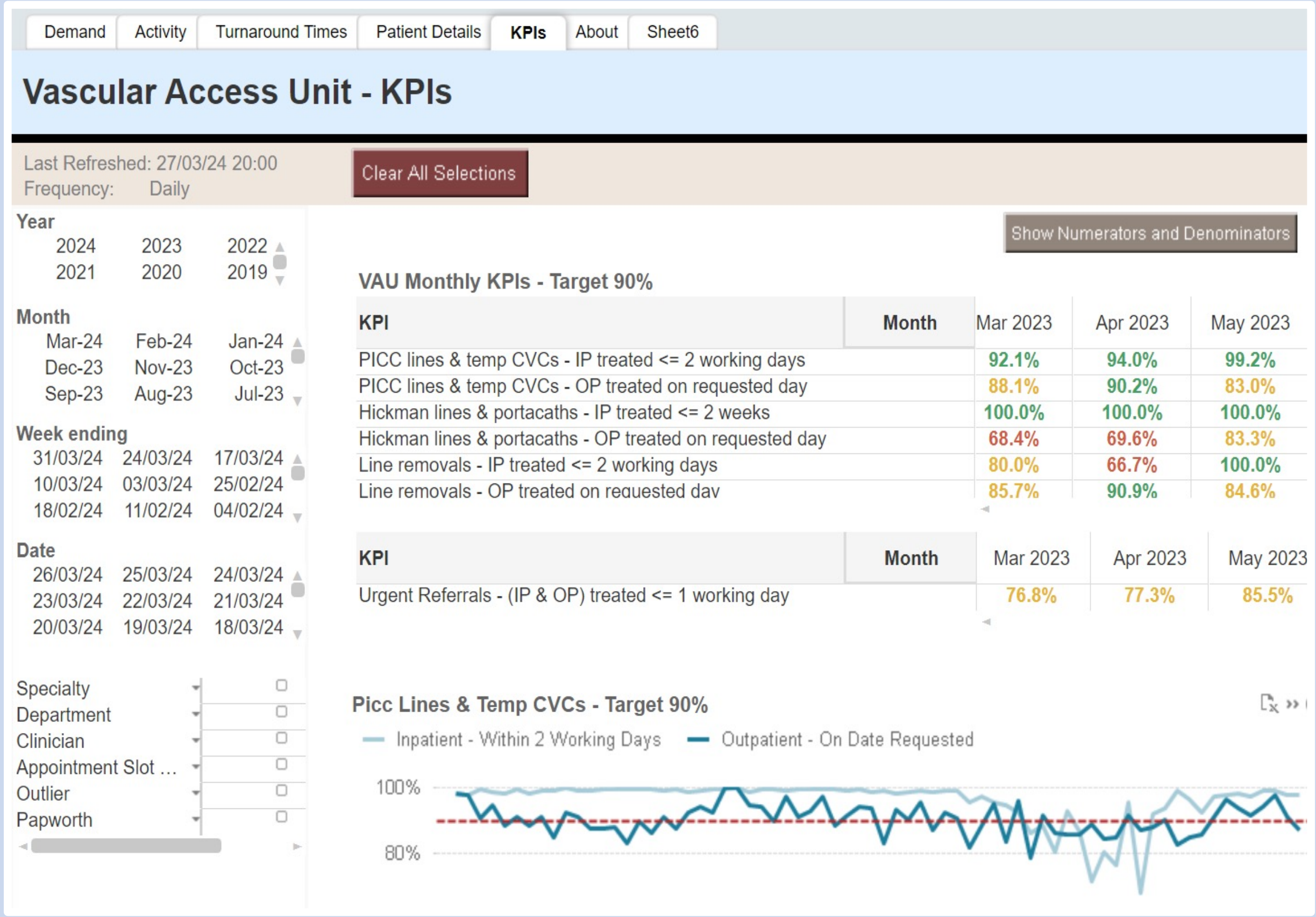
A Prospective Study in a Specialized Vascular Access Unit

Maria Giannakopoulou Lead CNS, John Alston Data for Improvement Analyst, Joanne Crofts CNS, Joanne McGee CNS, Helen Summers CNS, Erickson Dela Mines SSN, Miguel Fernandez SSN, Cristine Co SSN

Cambridge University Hospitals

Introduction

The Vascular Access Unit at Cambridge University Hospitals NHS Foundation Trust, established in 2005, specializes in addressing the complex vascular access needs of patients with services ranging from ultrasound guided cannulation, line reviews, midline and central line insertions and removals. Post pandemic, the unit has experienced a notable increase in referrals, a rise from 6900 to 9600 per year between 2018-2019 and 2022-2023, as well as an uptick of deferred cases in early 2022. In response, VAU implemented a comprehensive strategy to address this and established KPI's to monitor the effects of said service improvements from the end of 2022 to present.



Objectives

This study aims to assess the impact of implemented service improvements that were focused on workforce and the current electronic system that was in place. The study also seeks to identify sustainable changes and highlight areas requiring modification and improvement to enhance the unit's ability to adapt to the dynamic demands for vascular access in Cambridge University Hospitals, contributing to improved and timely patient care delivery.

Workforce Improvements

- ✓Increased Healthcare Assistant staffing
- ✓Training sessions for ward nurses
- ✓Advanced Critical Care Practitioner training
- ✓Establishment of regular porters

Electronic System Improvements

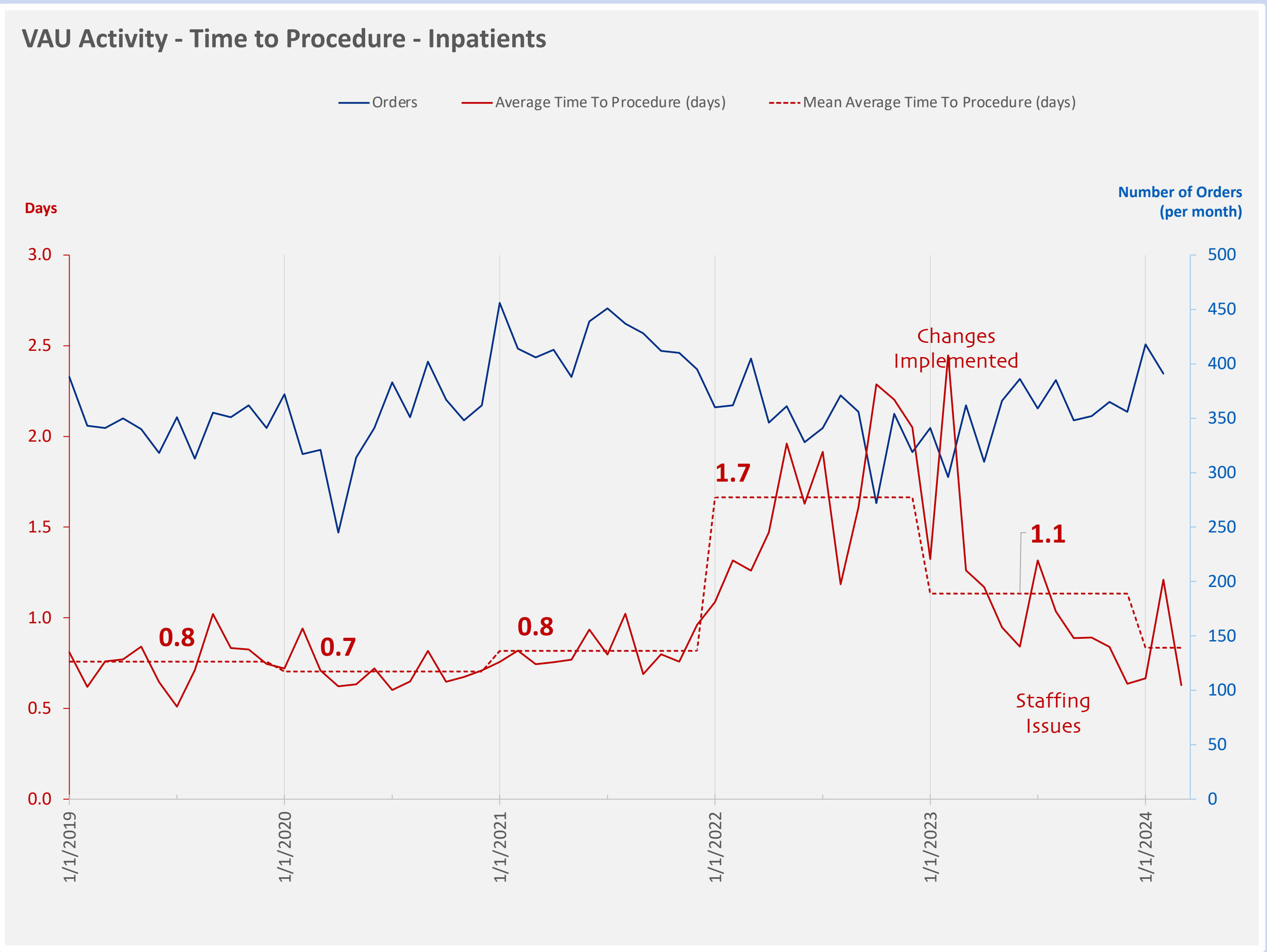
- ✓More comprehensive referral system
- ✓Real-time triaging of referrals

Results

Prior to implementing service improvement changes, the average time for the unit to complete referrals was about 1.7 days. Since the implementation of these changes, there has been a gradual reduction in the average referral completion time to just 1 day. Notably, in December 2023, the quickest response time achieved was 0.6 days. However, it is worth mentioning that during the initial phase of change implementation, referral completion times were notably prolonged.

- The service improvement initiatives have operated synergistically to significantly reduce the 'roll-over days' per case.
- ✓The implementation of a comprehensive referral system has notably enhanced patient flow by reducing triaging time, although there remains room for improvement as certain crucial questions are still overlooked.
 - ✓The introduction of regular porters familiar with the unit's workflow has facilitated a smoother patient flow from their respective wards into the unit.
 - ✓The presence of ACCPs (Advanced Critical Care Practitioners) has contributed to an increase in the number of cases completed in ICU and NCCU, while also helping to address staffing shortfalls."

Annotations	Baseline Periods	Month	Days	Mean	Target
Baseline Jan-22 to Dec-22	1	Jan-22	1.1	1.7	0.8
	1	Feb-22	1.3	1.7	0.8
	1	Mar-22	1.3	1.7	0.8
	1	Apr-22	1.5	1.7	0.8
	1	May-22	2.0	1.7	0.8
	1	Jun-22	1.6	1.7	0.8
	1	Jul-22	1.9	1.7	0.8
	1	Aug-22	1.2	1.7	0.8
	1	Sep-22	1.6	1.7	0.8
	1	Oct-22	2.3	1.7	0.8
	1	Nov-22	2.2	1.7	0.8
	1	Dec-22	2.0	1.7	0.8
Changes Implemented	2	Jan-23	1.3	1.7	0.8
	2	Feb-23	2.4	1.7	0.8
	2	Mar-23	1.3	1.0	0.8
	2	Apr-23	1.2	1.0	0.8
	2	May-23	0.9	1.0	0.8
Staffing Issue	2	Jun-23	0.8	1.0	0.8
	2	Jul-23	1.3	1.0	0.8
	2	Aug-23	1.0	1.0	0.8
	2	Sep-23	0.9	1.0	0.8
	2	Oct-23	0.9	1.0	0.8
	2	Nov-23	0.8	1.0	0.8
	2	Dec-23	0.6	1.0	0.8
	2	Jan-24	0.7	1.0	0.8
	2	Feb-24	1.2	1.0	0.8
	2	Mar-24	0.6	1.0	0.8



Conclusion

Service improvement is an ongoing process and multiple factors affect patient flow. Continuous monitoring of KPI's, as well as considering other factors such as increased hospital acuity and staffing patterns, this ensures that the delivery of timely patient care is not only improved but also sustained.

The unit experiences an adaptation period upon implementing changes, which may reduce its responsiveness to referrals. Therefore, strategically timing these modifications is crucial to avoid adverse effects on patient flow.

Ultimately, the Vascular Access Unit's aim of improving patient flow through various service improvement changes has been achieved. It is still a long journey to reach the target of 0.8 'roll-over days' per case referred and the unit is actively engaged in further refining the implemented changes to continue driving towards this objective.

References

Barbazza E, Klazinga NS (2021) Exploring the actionability of healthcare performance indicators for quality of care: a qualitative analysis of the literature, expert opinion and user experience. BMJ Quality and Safety 2021;30: 1010-20 ● Enticott,J., Johnson, A. and Teede.H. (2021) 'Learning health systems using data to drive healthcare improvement and impact: a systematic review', BMC health services research, 21,(1),pp.200-200 ● White M, Butterworth T, Wells JS (2017). Healthcare Quality Improvement and 'work engagement'; concluding results from a national, longitudinal, cross-sectional study of the 'Productive Ward-Releasing Time To Care' Programme. BMC Health Serv Res. 2017 Aug 1;17 (1):510