Optimising Avastin Usage: Reducing Wastage and Enhancing Cost-saving

Singapore Healthcare Management 2025

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BACKGROUND

Since 2008, Singapore National Eye Centre (SNEC) has used Bevacizumab (Avastin) off-label for intravitreal injections to treat conditions like wet age-related macular degeneration. Initially, Avastin usage was high, with little to no wastage. Since the inclusion of Lucentis in the MOH Standard List 2 in January 2022, the change in price has caused a shift in prescribing patterns from Avastin to Lucentis. Hence, decreasing Avastin usage and increasing wastage of compounded syringes.

The practice of compounding 90 syringes from a 400mg Avastin vial exacerbated the wastage issue, resulting in many syringes expiring before use. The increase in expired syringe write offs has caused wastage of SNEC resources and financial losses.

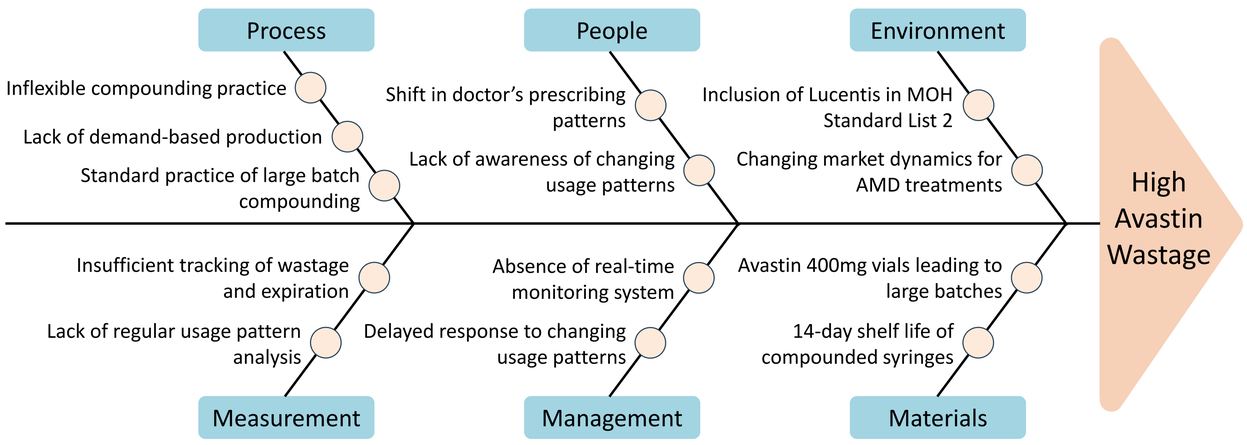
This situation required an urgent review of Avastin management to optimise usage, reduce wastage, and improve cost-effectiveness while maintaining treatment availability.

AIM

- Optimising compounding to match usage patterns
- Reducing syringe write-offs
- Improving resource management for sustainable ophthalmic care
- Minimising wastage to achieve cost savings

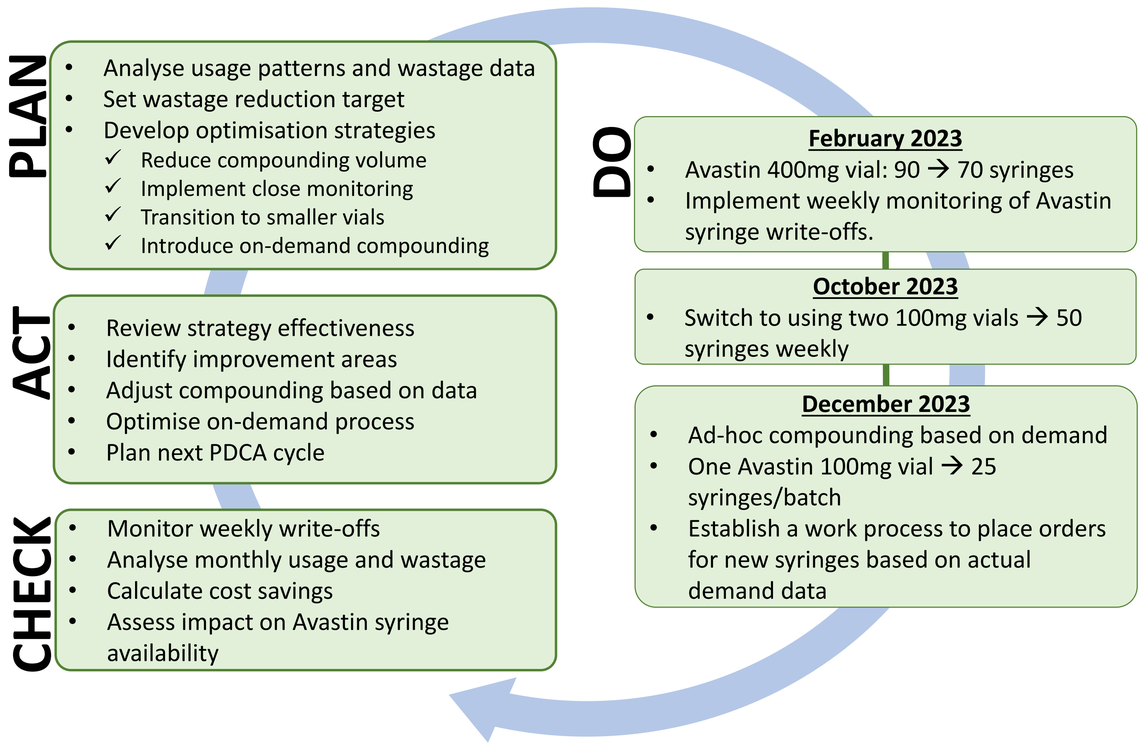
METHODOLOGY

A Fishbone Diagram was utilised to identify the contributing factors leading to the increase in Avastin wastage. Based on the findings, the following two factors were highlighted as possible areas of improvement: ①400mg Avastin vials leading to large batches, ②Lack of regular usage pattern analysis.



With the use of Plan-Do-Check-Act (PDCA) model, changes were implemented in 3 stages.

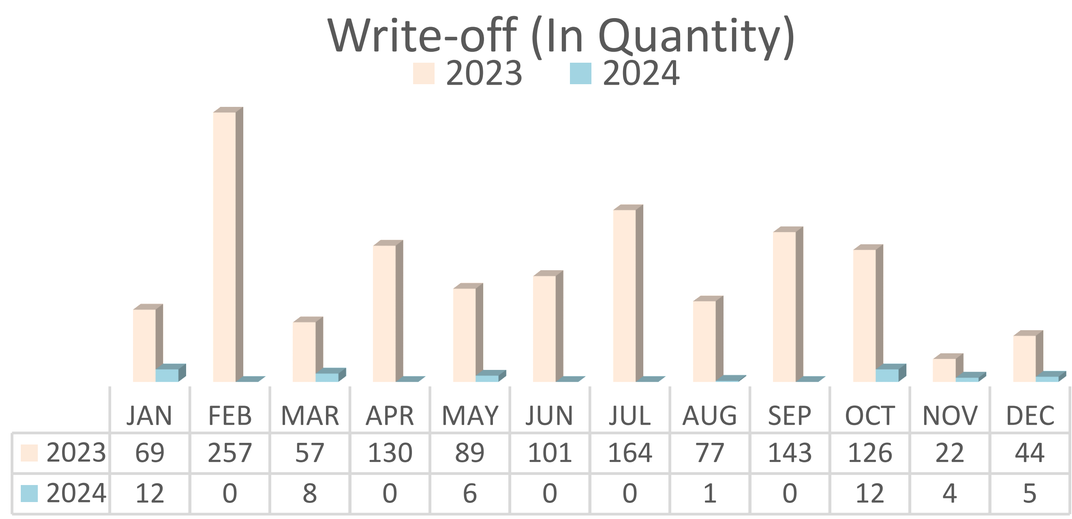
1st stage (February 2023)	• Reducing the quantity of compounded syringes from Avastin 400mg vial, from 90 to 70 syringes • Introducing weekly monitoring of Avastin syringe write-offs
2nd stage (October 2023)	• Switch to Avastin 100mg vials, compounding 25 syringes per vial • 50 syringes per week
3rd stage (December 2023)	• Implement ad-hoc compounding based on demand, one 100mg vial each time • Establish a work process to place orders for new syringes based on actual demand data



RESULTS

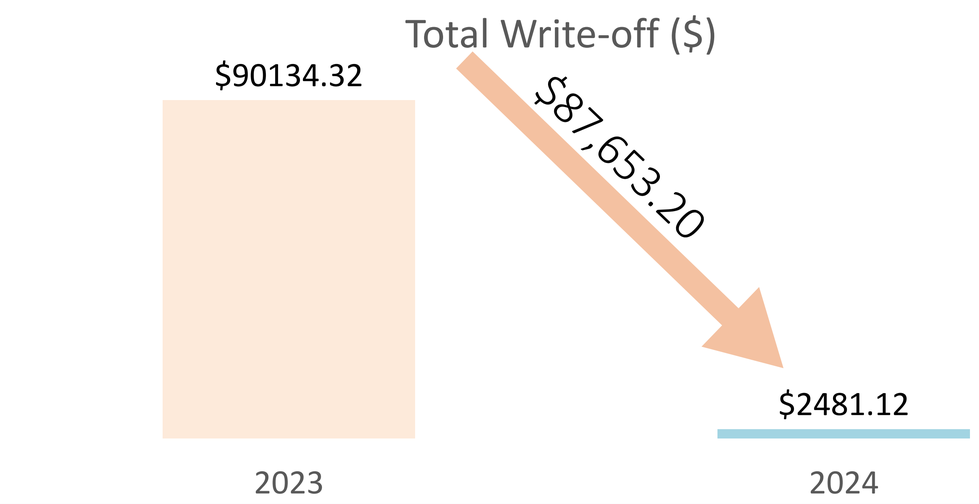
A retrospective analysis was done to compare the difference in wastage and cost savings before and after implemented changes.

When comparing the number of Avastin syringes write-offs on a monthly basis, a significant decrease was observed. There was a total of 1,316 syringes written off in Year 2023 while in year 2024, only 48 syringes were wasted. This reflected a 96.35% reduction in wastage.



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2023	69	257	57	130	89	101	164	77	143	126	22	44
2024	12	0	8	0	6	0	0	1	0	12	4	5

In terms of cost, 1,316 syringes and 48 syringes amounted to $90,134.32 and $2,481.12 respectively. Therefore, this showed that the new strategies in place had helped to accomplish a total cost savings of $87,653.20.



SUSTAINABILITY

Adaptive approach	**Continuous monitoring**	**Significant cost savings**
Flexible methods adjustable to changing usage patterns	Real-time adjustments based on demand	Strong financial incentive for continuation
Maintained treatment availability	**Resource efficiency**	**Long-term viability**
Optimised use without compromising care	Aligns with broader healthcare sustainability goals	Low-investment strategies integrated into standard procedures

CONCLUSION

The Avastin optimisation project at SNEC has demonstrated remarkable success in reducing medication wastage while maintaining treatment availability. Through strategic interventions, SNEC achieved a remarkable 96.35% reduction in Avastin wastage, leading to projected annual cost savings of $87,653.20. This initiative not only improved financial efficiency but also promoted sustainability in healthcare resource management.

The project's success highlights the power of adaptive strategies and simple process adjustments in healthcare management. It serves as an exemplary model for healthcare institutions aiming to enhance operational efficiency without compromising patient care quality. The sustainable and potentially replicability sets a valuable precedent for future initiatives in ophthalmology and broader healthcare contexts.