

Management of a cardiothoracic surgical site infection outbreak in a newly opened cardiac hospital

ACIPC Conference 2024

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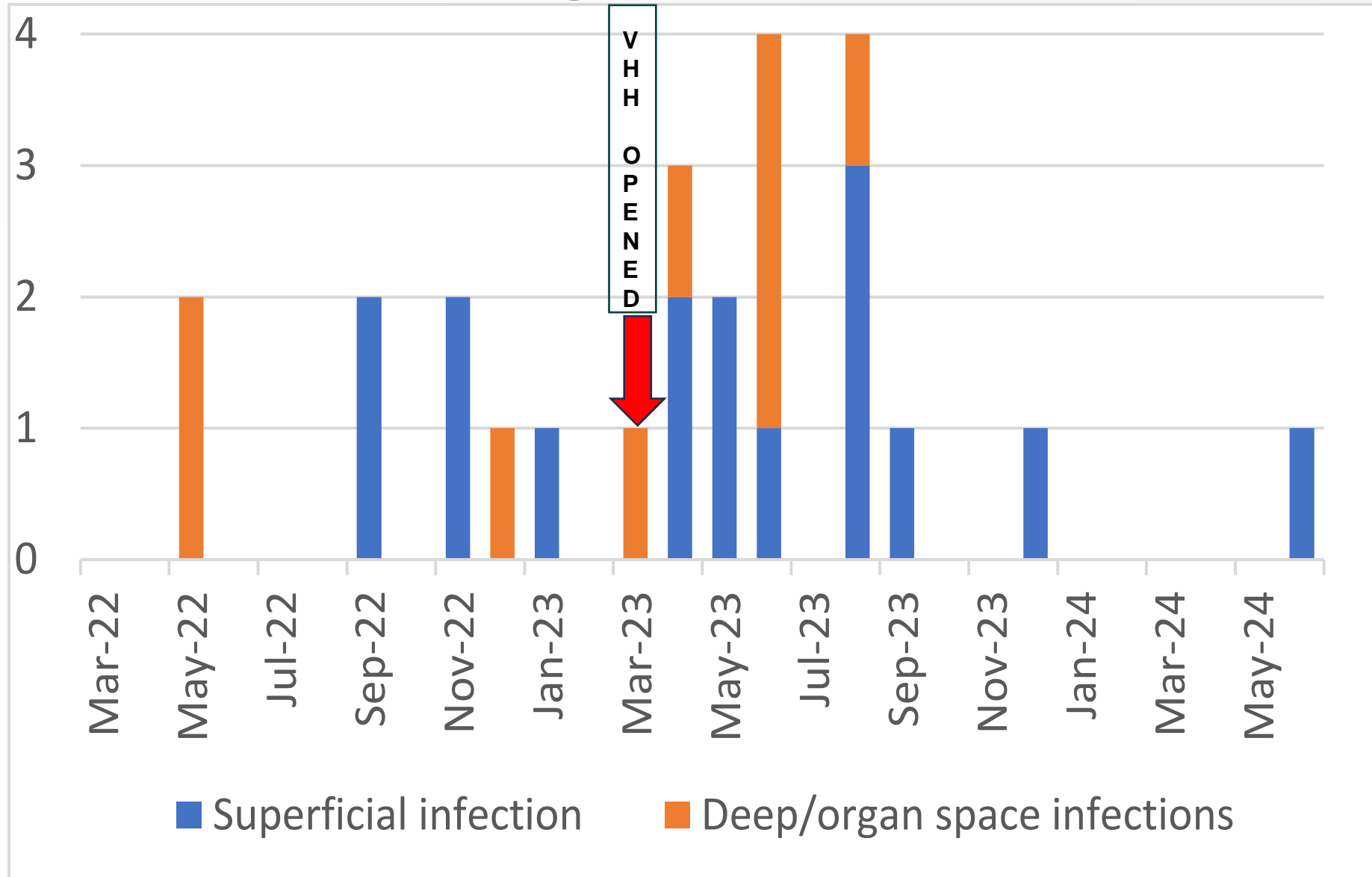


Disclosure

I have no
financial
interests or
relationships
to disclose



Cardiothoracic Surgical Site Infections



Cardiac infection rate comparison – public patients

	MMC Cardiac Procedures June- December 2022			VHH Cardiac Procedures March – September 2023		
Risk Index	Superficial infection rate	Deep/organ space infection rate	No. of cases	Superficial infection rate	Deep/organ space infection rate	No. of cases
1	2.3 (*1.1)	2.3 (*0.5)	43	1.9 (*0.8)	1.9 (*0.4)	53
2/3	0.0	0.0	15	3.1 (*0.8)	0.0	32

* Aggregate

Rate: per 100 cases



CBGB infection rate comparison – public patients

	MMC CBGB Procedures June- December 2022			VHH CBGB Procedures March – September 2023		
Risk Index	Superficial infection rate	Deep/organ space infection rate	No. of cases	Superficial infection rate	Deep/organ space infection rate	No. of cases
1	3.7 (*2.7)	0.0	81	5.5 (*2.4)	2.8 (*0.8)	109
2/3	3.8 (*4.5)	0.0	26	4.2 (*4.2)	0.0	48

* Aggregate

Rate: per 100 cases



CBGB infection rate comparison – private patients

	Private CBGB Procedures June- December 2022			Private CBGB Procedures March – September 2023		
Risk Index	Superficial infection rate	Deep/organ space infection rate	No. of cases	Superficial infection rate	Deep/organ space infection rate	No. of cases
1	0.0	0.0	25	3.6 (*2.4)	0.0	28
2/3	0.0	0.0	6	30.0 (*4.2)	10.0 (*1.1)	10

* Aggregate

Rate: per 100 cases



Pre-operative review

Decolonisation



Showering



Clipping



Chlorhexidine wash

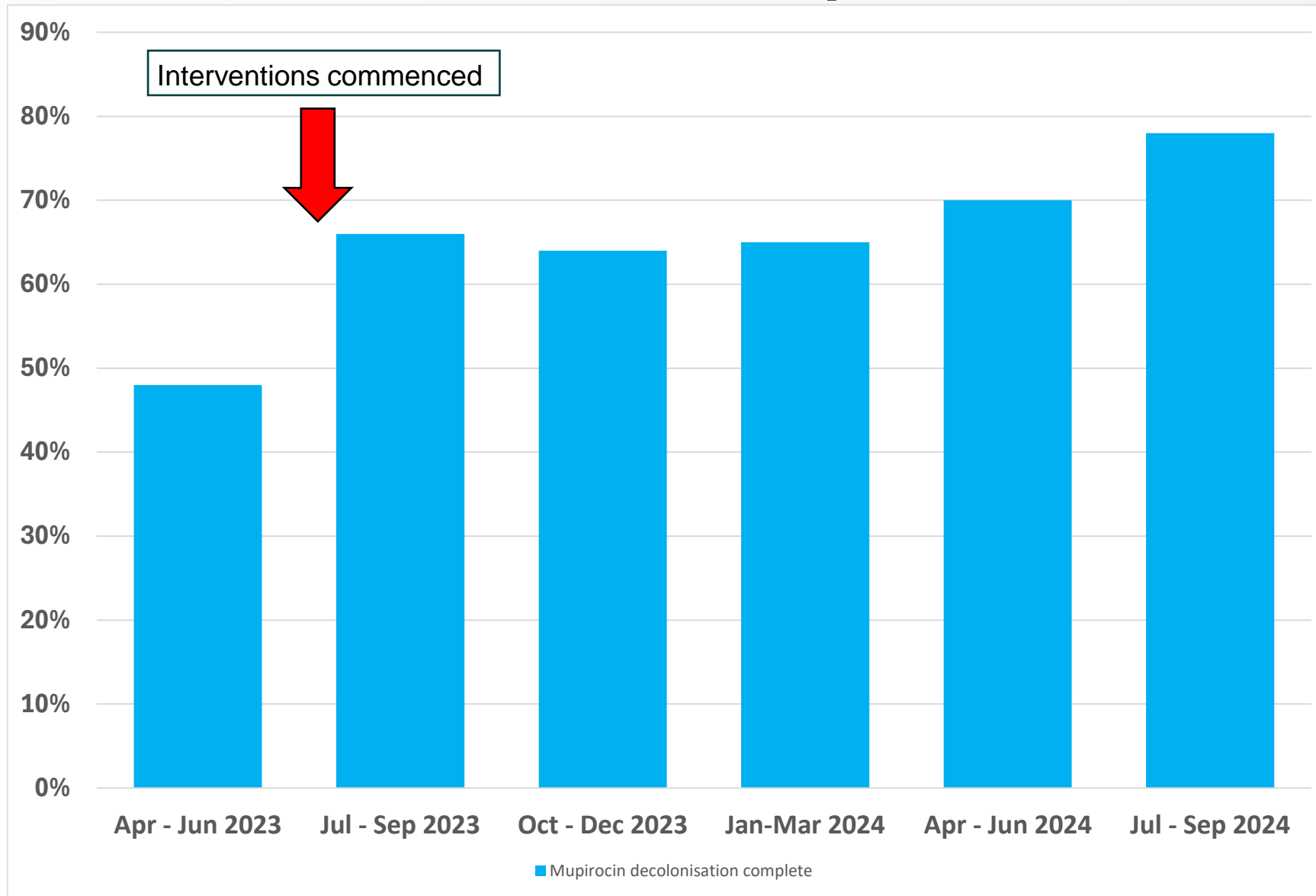


Inpatient decolonisation audit (Public wards)

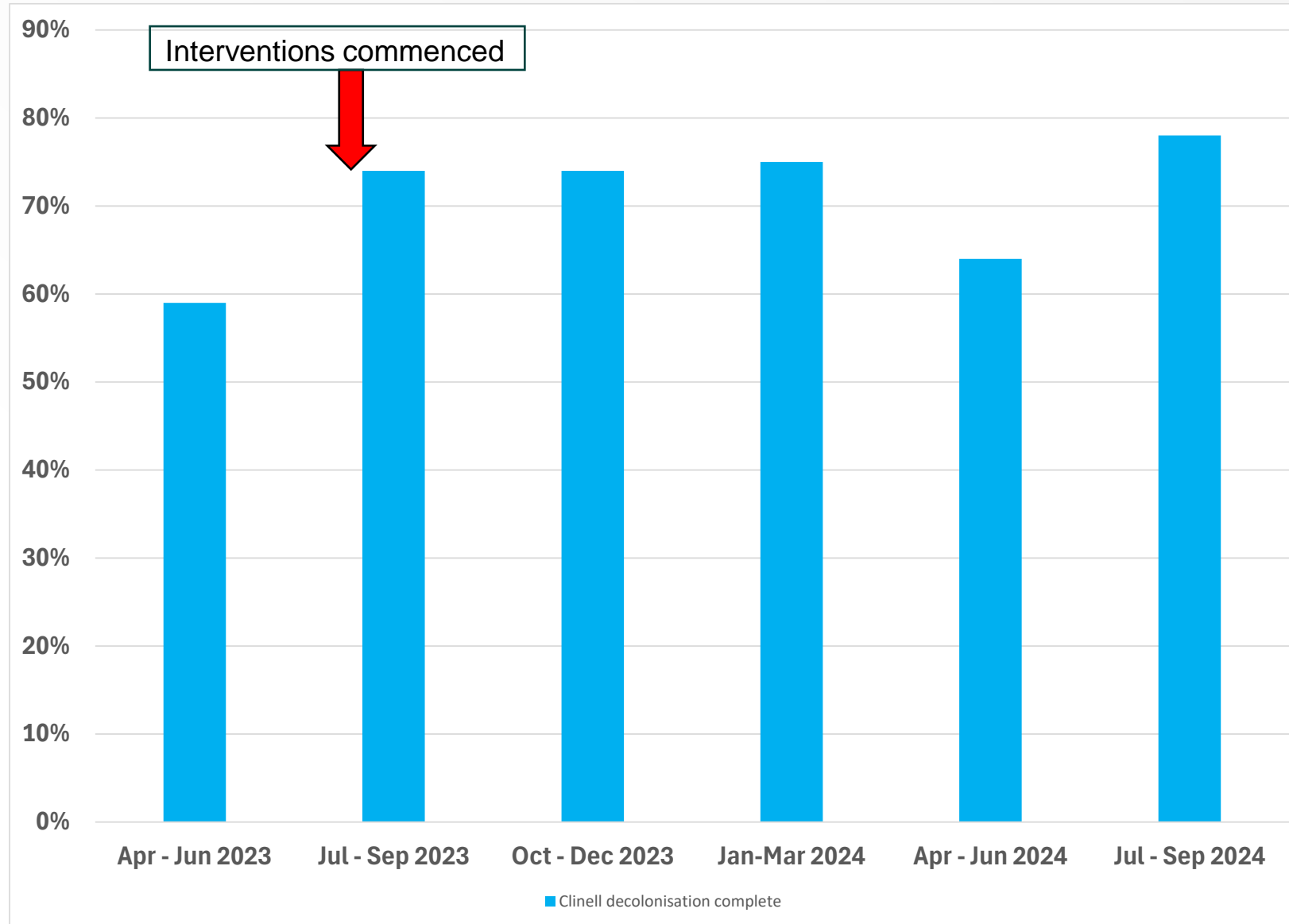
Hospital	Quarter	Complete	Total cases
MMC	Sep – Dec 2022	30%	165
VHH	Apr - Jun 2023	38%	89
VHH	Jul - Sep	54%	120
VHH	Oct - Dec	53%	114
VHH	Jan-Mar 2024	60%	108
VHH	Apr - Jun	48%	126
VHH	Jul - Sep	60%	120



Mupirocin decolonisation complete



Chlorhexidine decolonisation complete



Perioperative review



Ventilation in Operating Rooms

- Laminar flow ventilation
- Lint on exhaust grills
- Double door opening shown to have a greater impact on air pressure
- Frequent door opening have been linked to increased bacterial loads within operating theatres.
- The impact on laminar flow with door opening not well researched.



Operating Room design

- Prep room design
- Operating Theatre design
- Sterile Stock Room location



Antibiotic prophylaxis



Procedure Group	Timing Compliance Mar-Sep 2023	Timing Compliance Jan-Sep 2024
CARD	83%	77%
CBGB	78%	84%



Procedure duration review

Procedure type	Jul-Dec 2022	Mar- Sep 2023	Jan-Jun 2024
CARD	15%	34%	19%
CBGB	25%	28%	21%



Review of blood glucose control



Operating Room - Cleaning

	Jun- 23	May-24	Aug-24
Operating Room	65%	97%	97%
Anaesthetic & Prep Rooms	60%	100%	100%
Recovery	10%	80%	100%



Operating Room processes

- No issues found with HCU placement or microbiological testing results
- Staff packing up equipment around patient prior to application of dressing at the end of the procedure.
- Hand hygiene in the OR initially 50%, now consistently above 85%

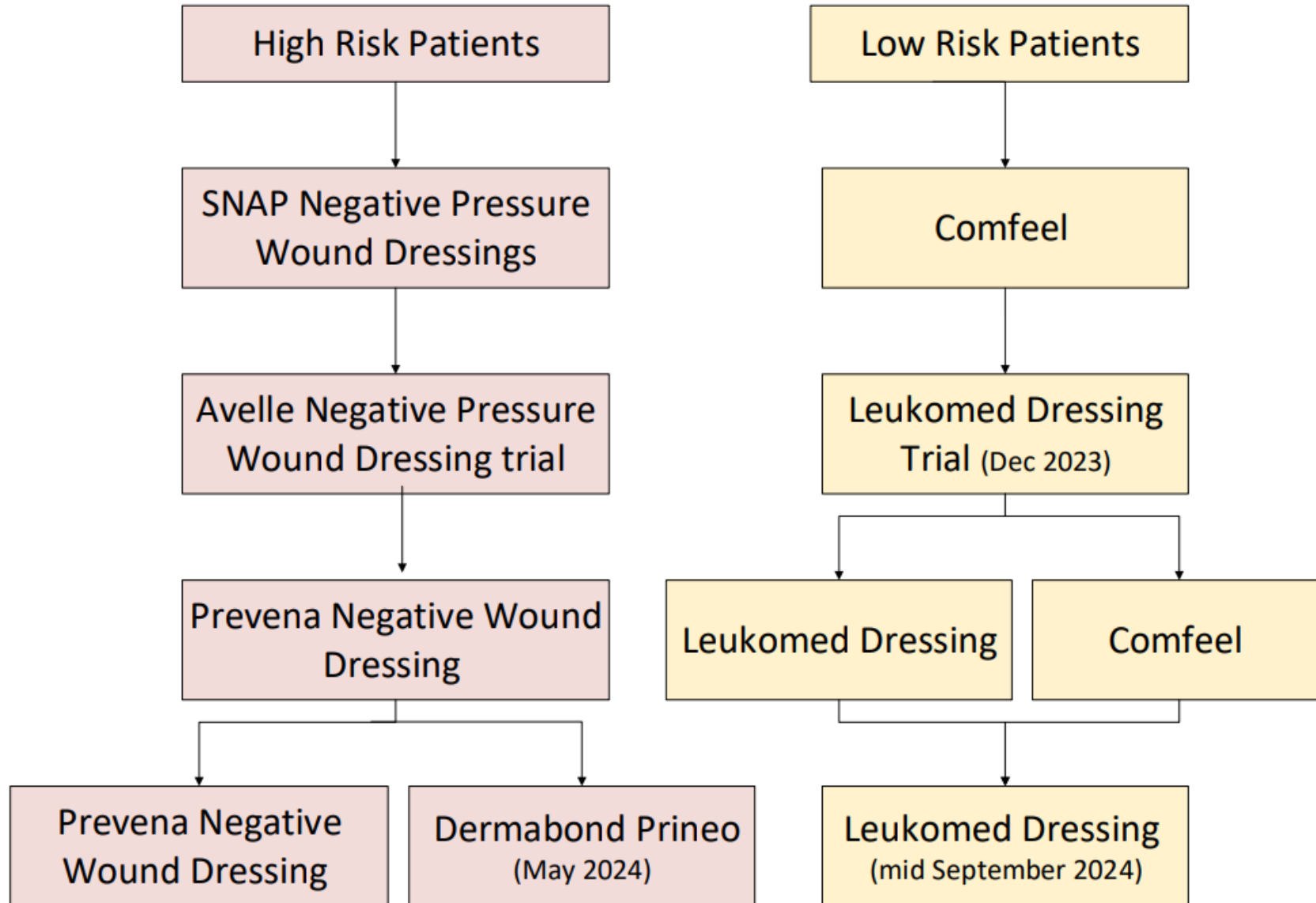


Surgeon infection rates: Mar – Sep 2023

Surgeon	% of overall cases	% cases risk rating \geq 2	No. of superficial SSIs	Superficial SSI infection rate	No. of deep/organ space SSIs	Deep/organ space infection rate	Overall infection rate
A	30.2%	45.5%	4	4.1	3	3.1	7.2
B	22.0%	55.0%	2	2.8			
C	14.6%	2.0%					
D	11.5%	27%	3	8.1	3	8.1	16.2
E	10.6%	16%					
F	7.1%	28%					



Dressings applied in OR



CSSD review

- CSSD tracking of trays
- Removal of engraved instruments
- Additional cleaning of some instruments prior to reprocessing

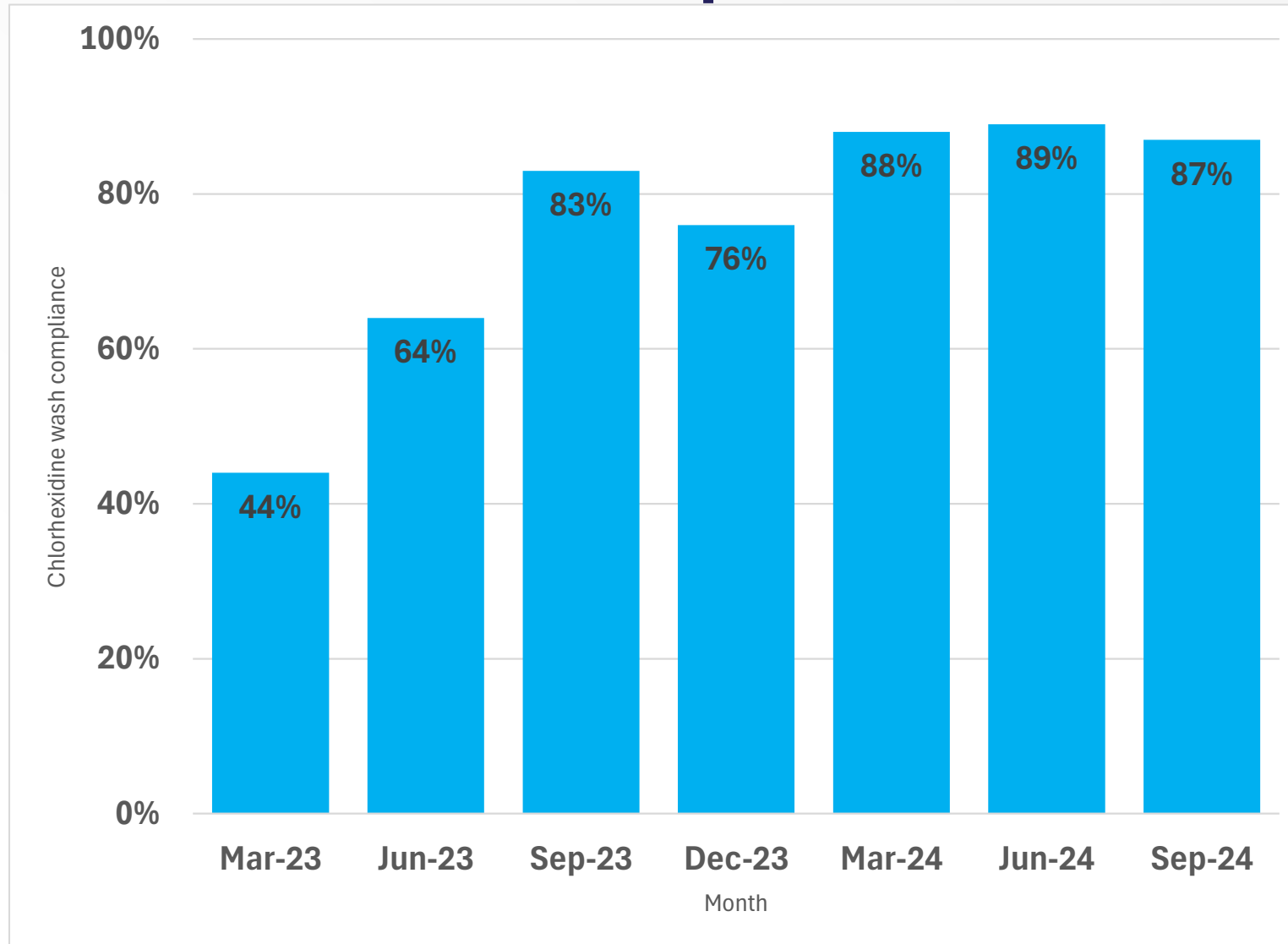


CSSD cleaning review

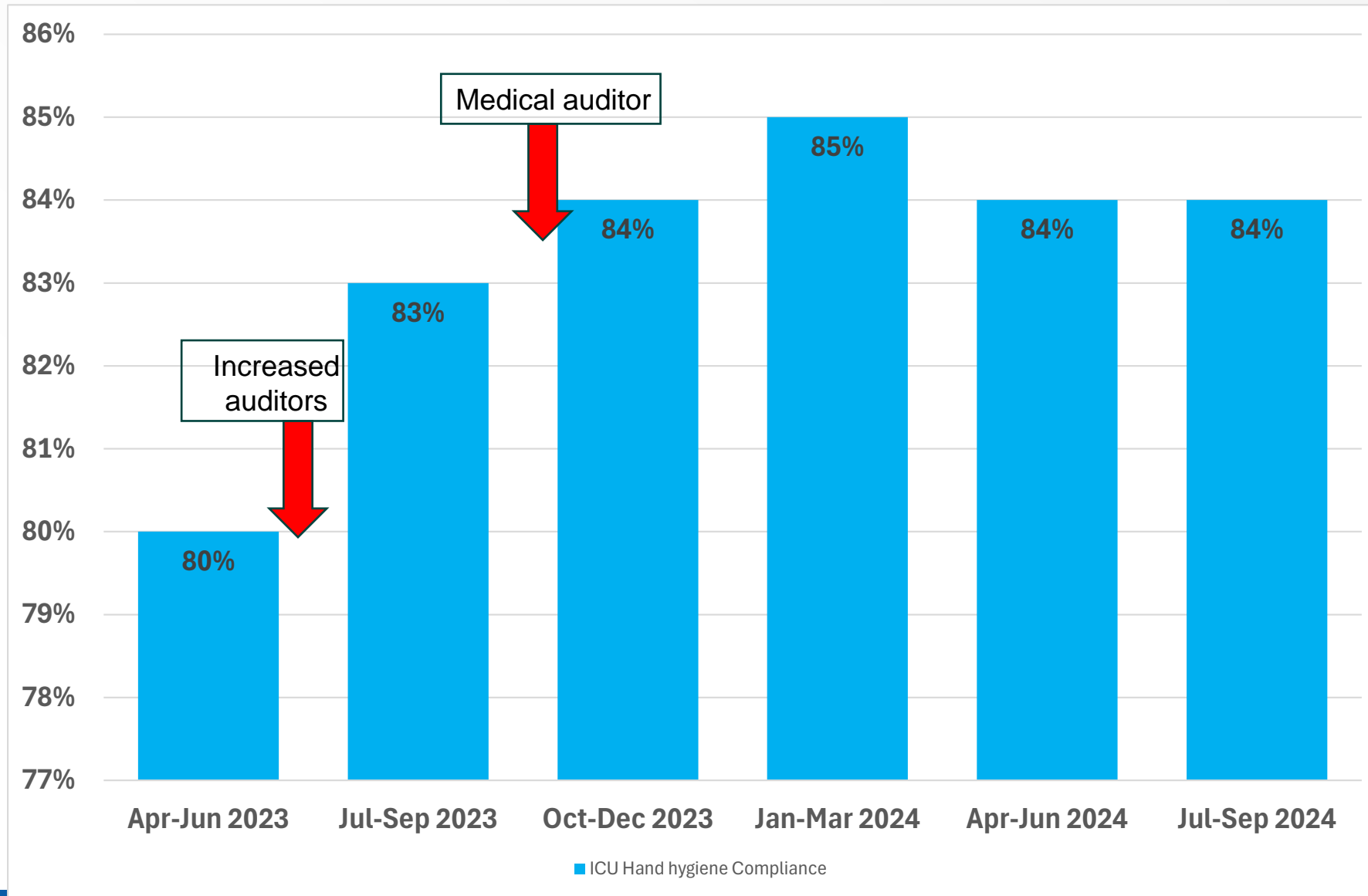
	Jun- 23	May-24	Aug-24
Decontamination & Consumable Rooms	20%	90%	100%
Cooling & Packing Rooms	40%	100%	90%



ICU chlorhexidine wash compliance



ICU Hand Hygiene Compliance



Ward review

Hand Hygiene



Aseptic
Technique
Audits



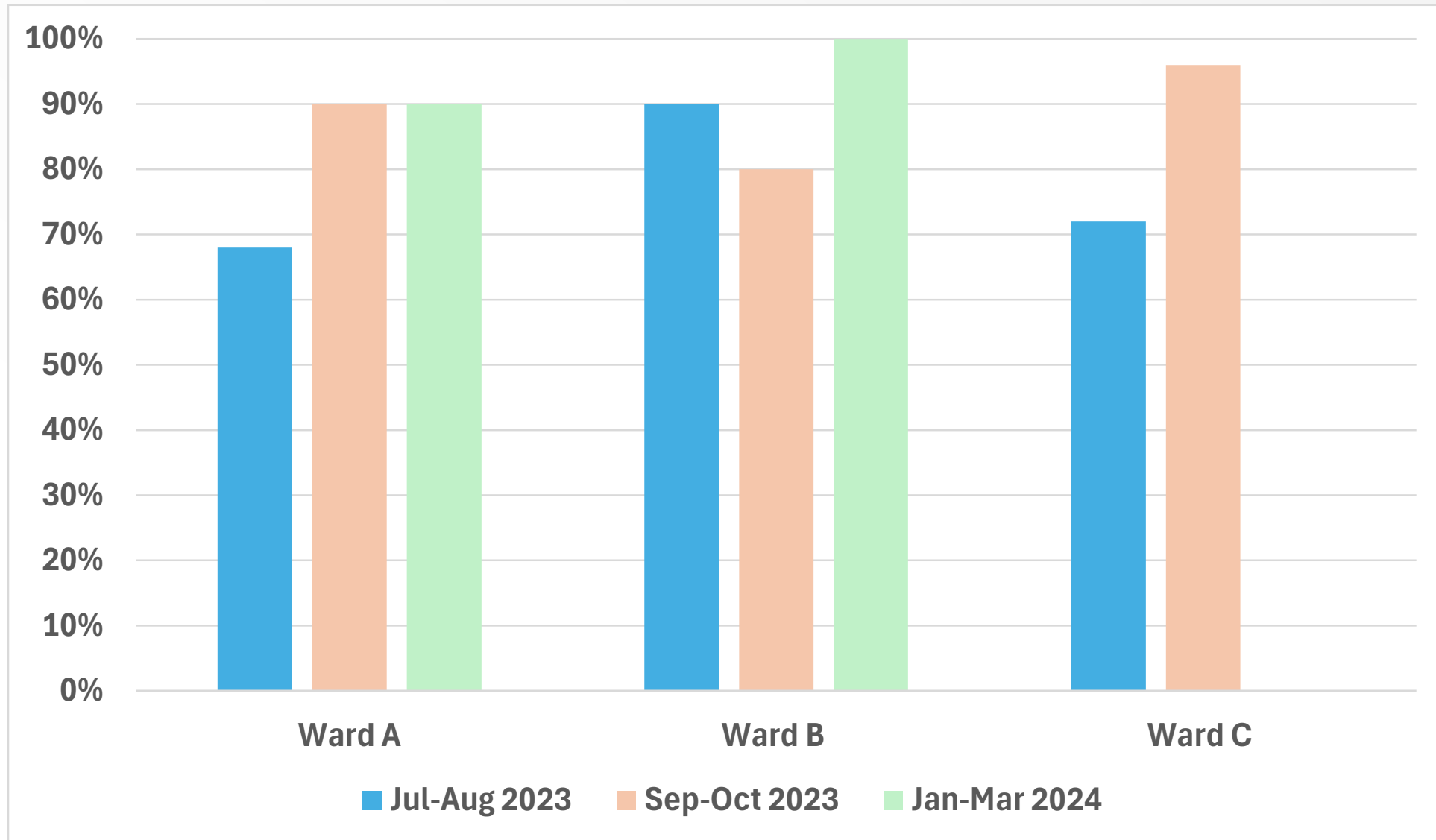
Wound
management



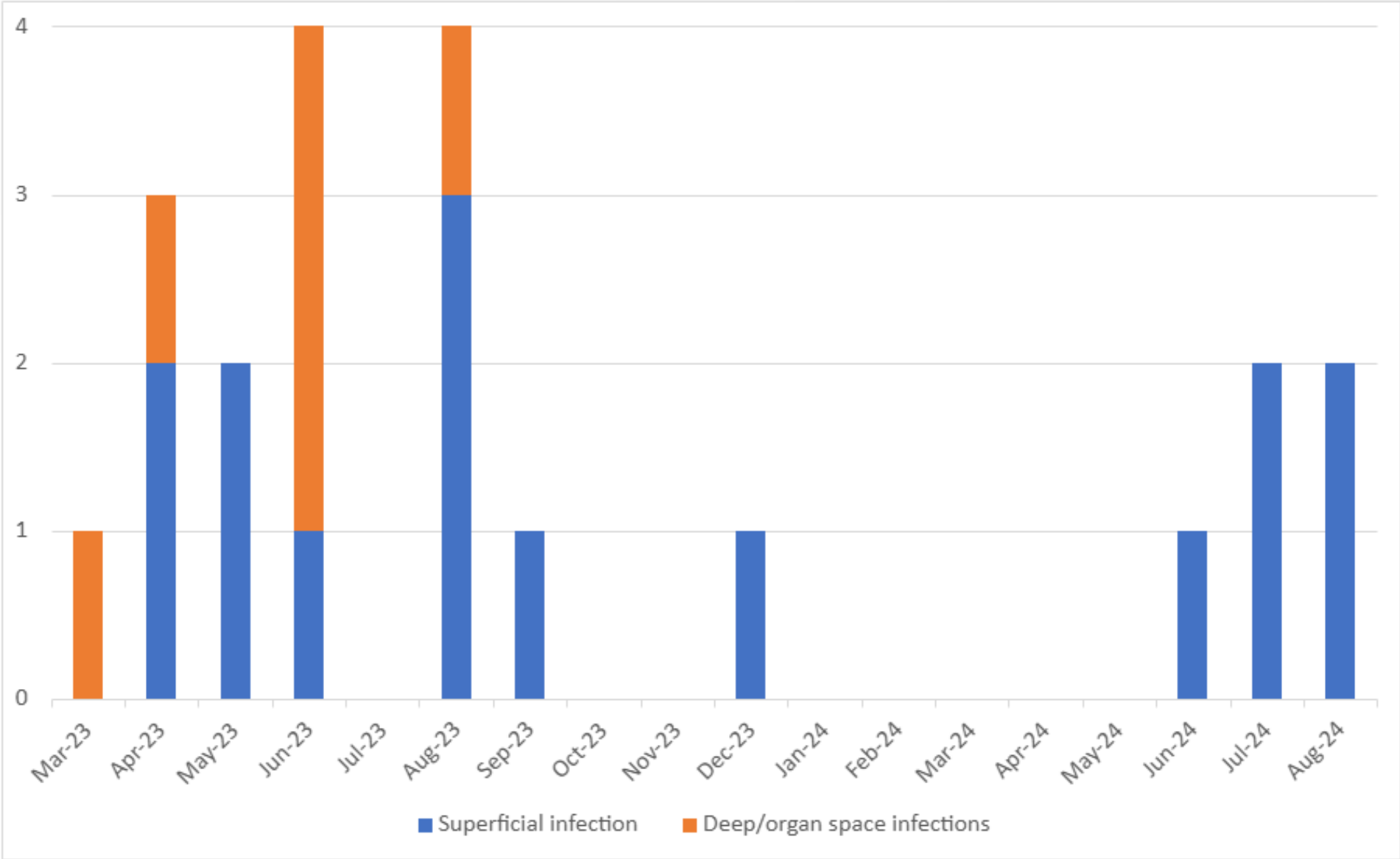
Environmental
cleaning



Ward environmental cleaning process assessment



Current situation



Conclusion

- Teams working in ORs should be involved in the planning stage
- Standardised processes are essential
- Ongoing monitoring to ensure improvements are sustained
- High level governance and multidisciplinary engagement is required to ensure recommendations are enacted





Acknowledgements

Monash Health Infection Prevention
team

Professor Rhonda L. Stuart

VHH Team

