

Infection Prevention and Control Haemodialysis in Remote Communities

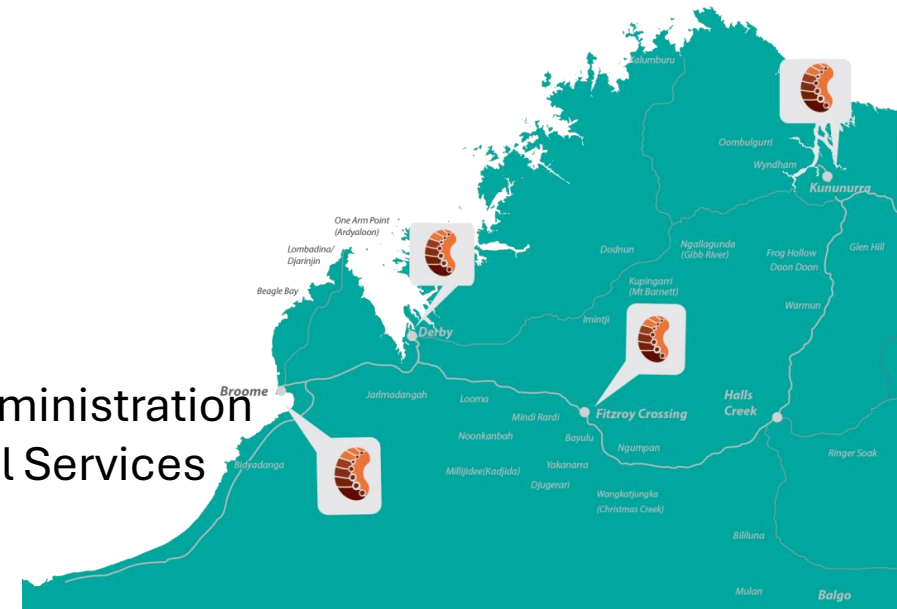
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Assistant, Kimberley Renal Services





Acknowledgement of Country

We would like to acknowledge the traditional owners of the land on which we are presenting today, the Wurundjeri Woi-Wurrung and Bunurong Boon Wurrung people of the Kulin nation.

We pay our deepest respects to the Elders, past and present. We acknowledge and honour the unbroken spiritual, cultural and political connection they have maintained to this unique place for more than 2000 generations.





Introduction

The Kimberley region has one of Australia's highest rates of kidney disease.

Kimberley Renal Services provides haemodialysis across four remote sites, facing unique infection control challenges.

This presentation highlights these challenges and presents approaches to addressing them.





Haemodialysis and Infection Risks

Patients attend 3 sessions per week, each lasting 4-5 hours.

Dialysis is delivered via a fistula or a central venous catheter(CVC).

The highest risk of healthcare acquired infection is in patients with CVCs.





Patient Journey

- Education on pre-dialysis, vascular access, and fistula creation
- Initial dialysis at tertiary hospital in Perth
- Transport and accommodation support
- Ongoing dialysis sessions
- Post-dialysis care and risk management education





Kimberley Renal Services

The dialysis units in the Kimberley region are run by Kimberley Renal Services (KRS), a subsidiary of Kimberley Aboriginal Medical Services (KAMS).

There are currently four dialysis units and one mobile dialysis unit across the region.



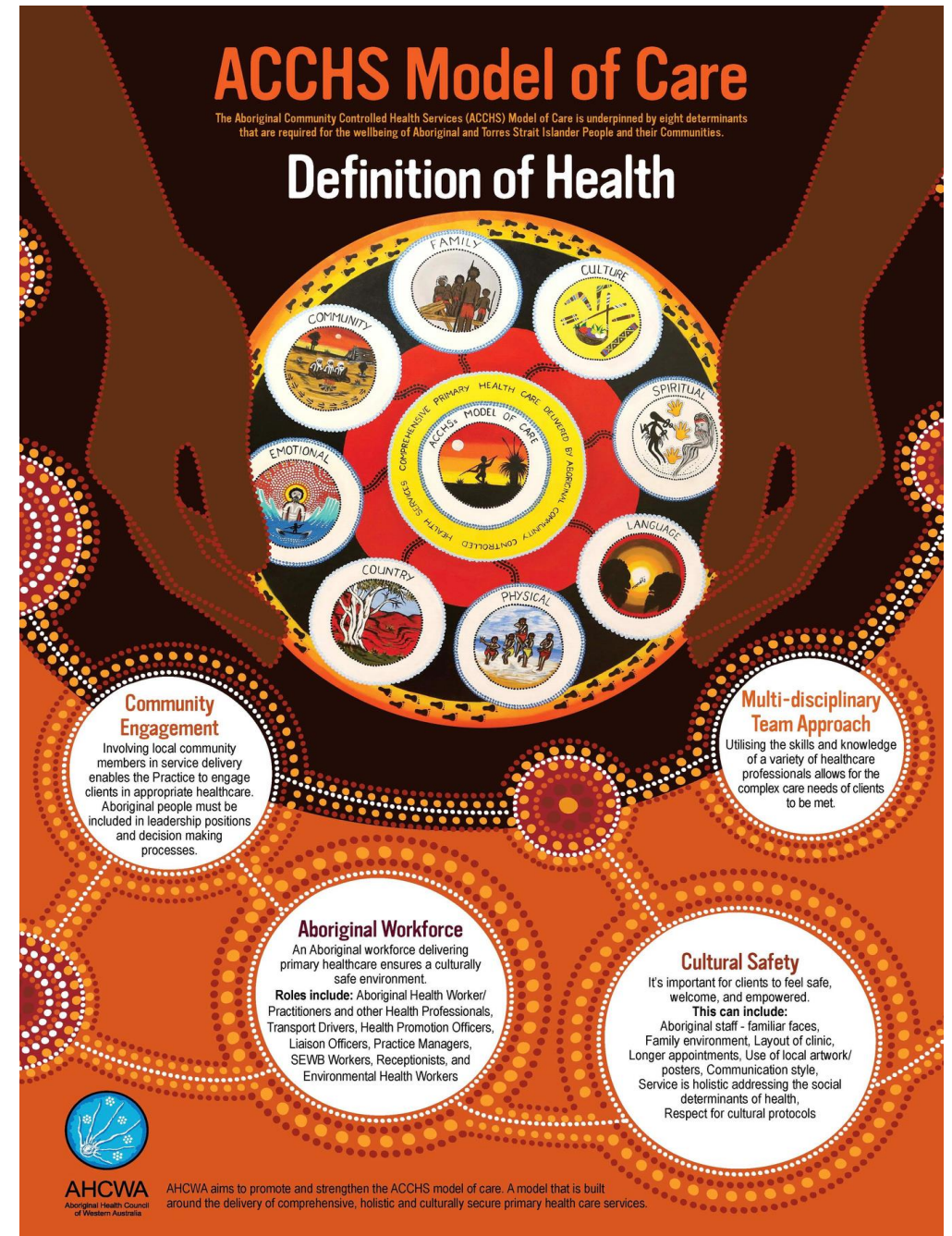
What is an ACCHS?

ACCHS stands for Aboriginal Community Controlled Health Service

What is Aboriginal community control?

The National Aboriginal Community Controlled Health Organisation (NACCHO), the national peak body for all ACCHOs, defines Aboriginal community control in health services as:

‘a process which allows the local Aboriginal community to be involved in its affairs in accordance with whatever protocols or procedures are determined by the Community’.

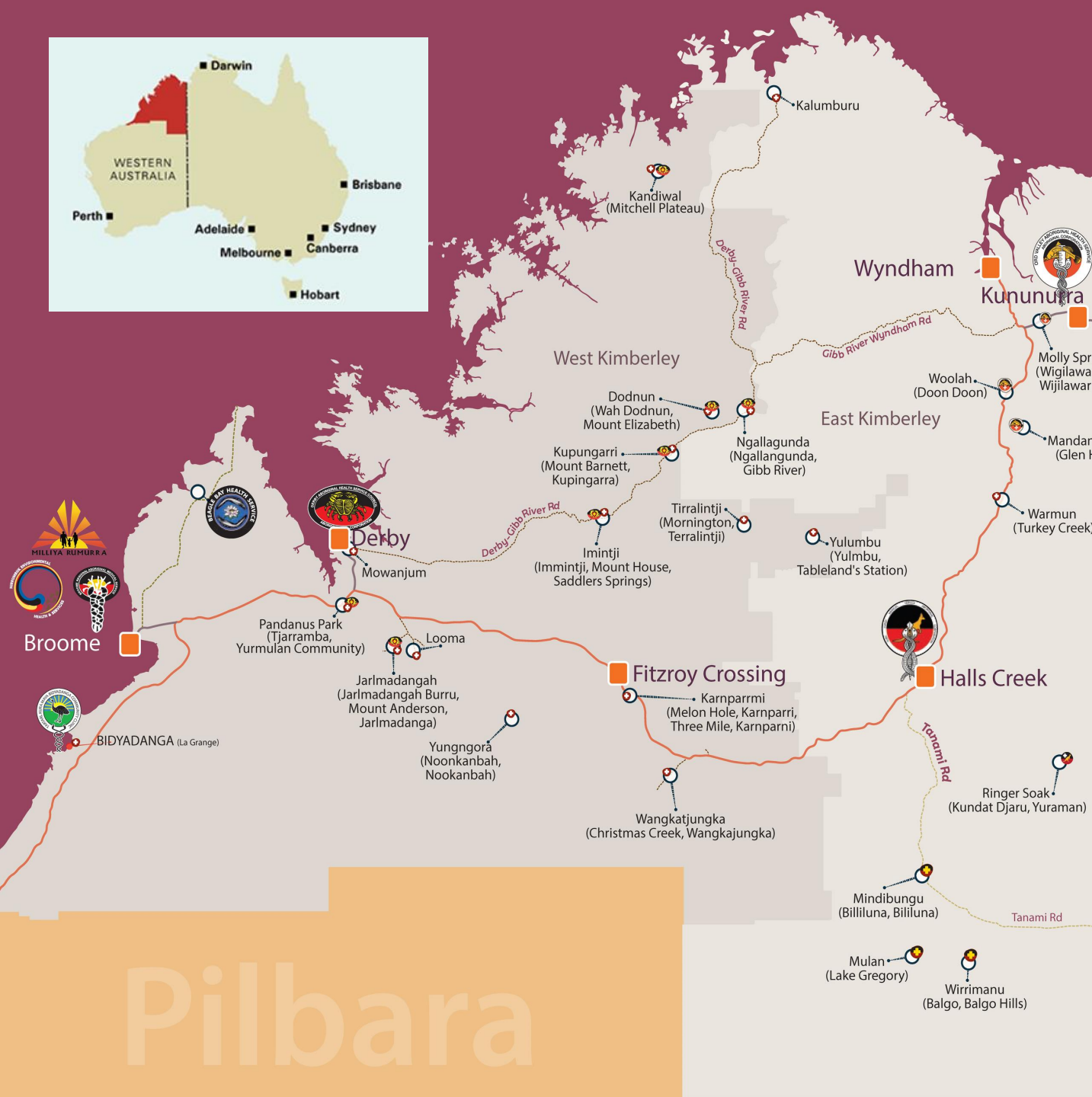




Program Challenges

- Geographic Isolation
- Limited Resources
- High rates of chronic illness and multi-resistant organisms
- Environmental and Infrastructural limitations
- Healthcare workforce challenges





The Kimberley Region

- Tropical environment
- 30 traditional language groups across the region
- Population fluctuates from 36,00 to 50,000 in 'Dry season'





Geographically large:
Twice the size of the state
of Victoria

6 townships and over 200
small remote communities





Climate and Extreme Weather Events

Climate and extreme weather challenges include:

- Clinical stock management issues
- Mould and bacterial growth
- Increase in infections in Wet Season
- Travel restrictions



The Team

91 members of staff across the Renal Centres

Includes:

- Patient care assistants
- Aboriginal Health Worker and Practitioners
- Nursing staff
- Medical Staff and Nurse Practitioner
- Admin staff
- Management staff
- Chronic Kidney Disease Educators
- Pre-dialysis Coordinators
- Aboriginal Care Coordinators
- Vascular Access Nurse
- Transplant Coordinator

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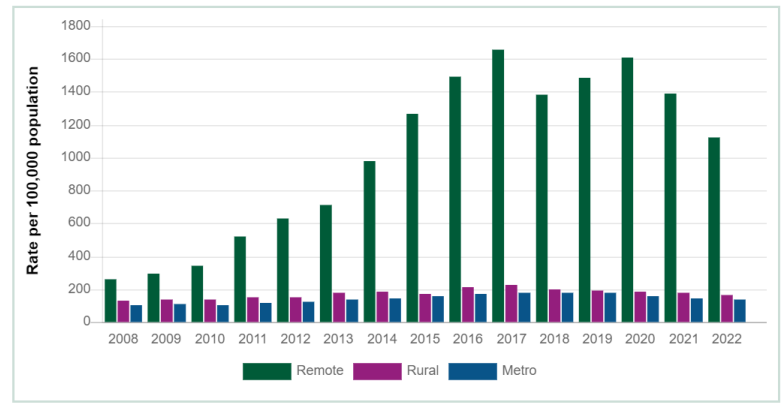


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High Rates of Chronic Illness and Multi-Resistant Organisms

- Higher prevalence of chronic kidney disease (CKD) in the Kimberley region.
- CKD impacts on immune function, increasing infection susceptibility.
- High rates of MROs in region.

Community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA)



The graph above shows the annual rate since 2008 of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infections per 100,000 of the population, by 3 geographically distinct areas in Western Australia (WA). For the purpose of this information, the WA areas are divided as:

• Remote: Kimberley, Pilbara, Midwest and Goldfields.

Reference: Western Australia Department of Health – Data – Community Acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA)



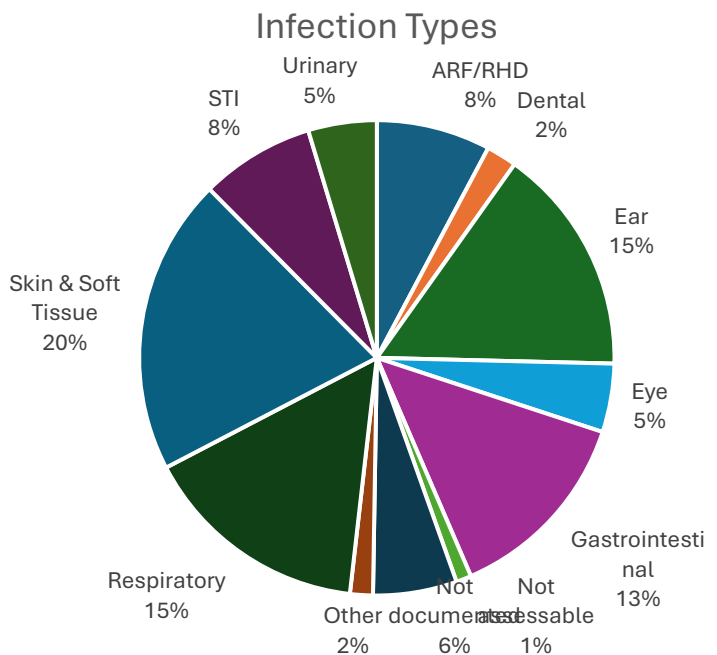


Resource Limitations

- Limited resources as smaller organisation.
- Example of adaption to limited resources:

Antimicrobial Stewardship

- Collaboration
- Creation of internal tools
- Communication resources



Kimberley ACCHOs Antimicrobial Stewardship 2024 Update

Antimicrobial Stewardship
What is it?
 Antimicrobials are medications used to treat infections. These medicines include antibiotics, antivirals, antifungals and antiparasitics.
 Antimicrobial resistance (AMR) is where bacteria, virus' and parasite transform over time and no longer respond to certain antimicrobial medicines.
 Antimicrobial stewardship refers to the coordinated programs used by health services to improve antimicrobial use, enhance patient outcomes, reduce AMR and reduce the spread of infections caused by antimicrobial resistant organisms.

Antimicrobial resistance (AMR) is one of the top global public health and development threats.
 World Health Organization, 2023

What are we doing?
 The Kimberley ACCHS are collaborating to bring antimicrobial stewardship activities into all Kimberley Aboriginal Medical Services.
 Current stewardship activities include:

- Kimberley ACCHS Antimicrobial Stewardship Program Meeting
 • Last held in Kununurra at the Lead Clinicians Forum in August
- NACCHO Antimicrobial Stewardship Academy
 • 6 month training program with fortnightly lectures, run biannually
 • Open for application from all AMS staff
- Internal Audits of Antimicrobial Prescribing and management of AMR infections
 • KAMS developed Antimicrobial Stewardship Audit Tool (Available to all AMS)
 • Final year Notre Dame University students assigned audit topics for their projects on antimicrobial related topics for the Kimberley ACCHS
 • Kimberley Pharmacy Services audits on antibiotic prescribing

Key Messages for Prescribers

Recording Duration on MMEx
 When adding a new prescription in MMEx, ensure duration advice is given to the patient in the 'Other Patient Instructions' box. Check that quantity prescribed and dispensed matches the specified duration.

UTI Prescribing
 When prescribing for UTIs consider geographical trends of resistance for antibiotic choice. Regional antibiograms show significant Trimethoprim resistance in the Kimberley. If prescribing empirically, consider cephalexin or nitrofurantoin.

MIC/S When Prescribing
 Please ensure that if you are prescribing antibiotics for an infection that can be cultured, MIC/S pathology is sent. This allows for early detection of resistance and a change in antimicrobial for effective treatment if required.

Kimberley ACCHOs Antimicrobial Stewardship Newsletter - November 2024

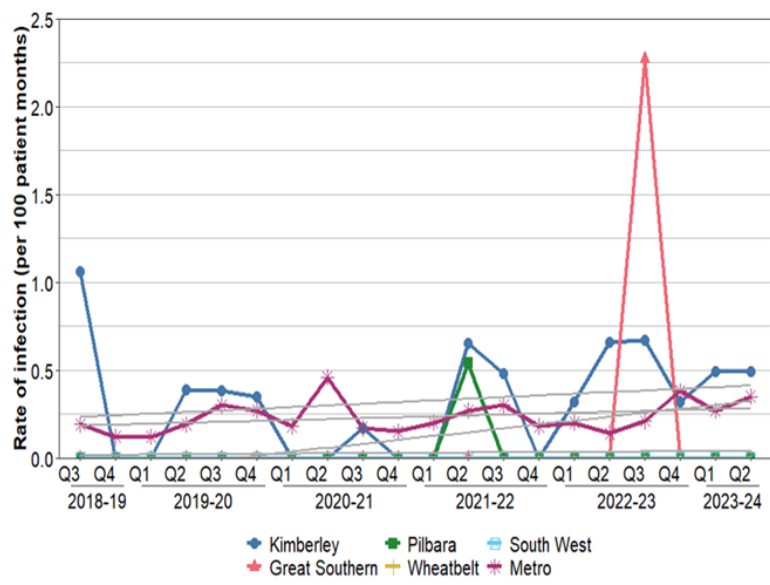
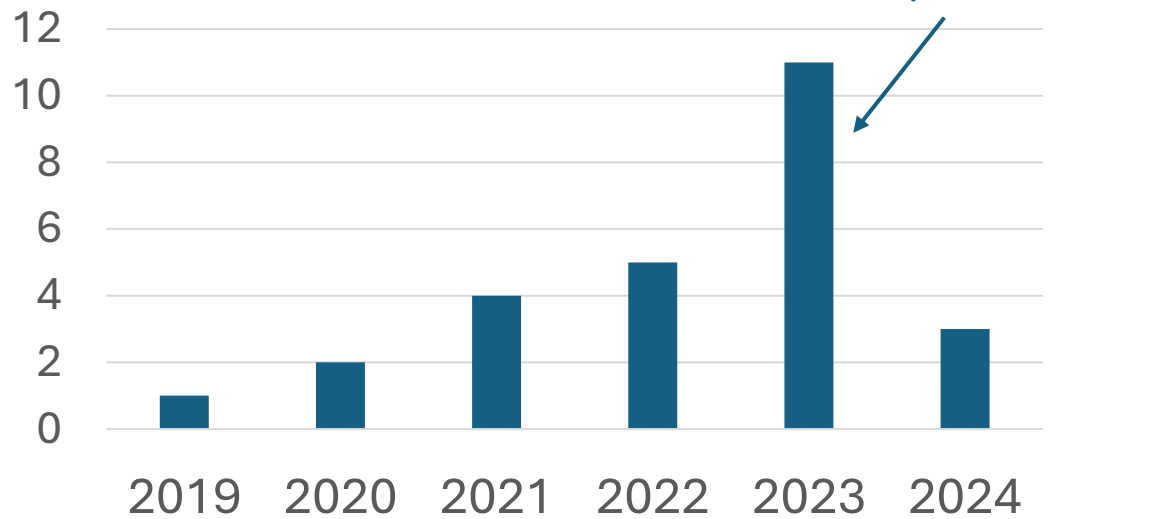




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Haemodialysis Blood Stream Infections

Number of HD-BSI Infections



Note: Metro includes both metro tertiary and metro non-tertiary.

Figure 1 WA AVF and cuffed catheter BSI rate by region

Reference: Infection Prevention, Policy and Surveillance Unit – HD-BSI data supplied 2024



Investigating HD-BSIs



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Date:	Pt Identifier:
Identified Pathogen:	Associated Site:
Date sample taken:	Date of Insertion:
LogicQ Incident Number:	HISWA Reportable: Y / N If yes, please attach screenshot to second page of doc

Situation:
Description of patient situation that gives context to blood stream
Example: Patient afebrile and obs WNL on arrival. During dialysis 38.0 blood cultures taken from CVC. Medical review called. Site of CVC red, nil exudate. Dx CD4 on arrival. Nil recent history of illness. Nil symptoms.

Timeline
For patients with HD-BSI - begin infection from 21 days prior to the positive culture

Patient KS Identifier:
Patient URNM:
Patient DOB: Age:

Identified Risk Factors:
Description of any present risk factors that could contribute to infection.
Examples: Patient presents with nil dressing. Staff shortages or Lack of documentation for dressing change. Faulty equipment & Trouble with line access.

Date of infection:
Infection:

Related documentation:
List documentation related to CVC/Access that relates to infecti
Examples:
- Documentation of site redness / swelling / exudate
- Progress note 11/02/2023 - RN Bell - Site descripti
- Relevant Pathology
- Blood Cultures - MMEx - 7/02/2023
- Relevant Discharge Summaries
- Eg. Broome hospital DIC Summary - 11/02/2023 - Sum
infection

Insertion:
30/06/2001 - Hickman line inserted to Internal Jugular (Right)
CVC inserted at RPH

Timeline from 21 days pre-positive B/C:
Example:
06/02/2001
Dialysis session. Patient stable treatment.
CVC used for dialysis due to venous blood. CVC CD+1.

Recommendations:
Description of any preventative measures that could be imple
infections.
Example: Further staff education. Review of line by vascular a
patient if concerns about home environment. Increased assess
ongoing dressing issues). Equipment review.

07/02/2001
Patient admitted hospital.
08/02/2001
Dialysis session. Nil documented concerns.

13/02/2001
Dialysis session. Cramping. Ended 10 minutes early.
CVC documentation: CVC dressing peeling. Redressed;

15/02/2001
Patient reviewed by Primary Health GP for multiple iss
infection.

Post infection:
Example
29/02/2001
CVC removed at Tokyo Hospital. IVABs continue.

Clinical Incident Management ROOT CAUSE ANALYSIS Staff Fact Sheet

What is a root cause analysis?
A root cause analysis, often referred to as an "RCA", is a systematic approach that aims to identify factors contributing to adverse events or near misses.
The RCA process includes reviewing the incident, interviewing relevant stakeholders (staff/patients/careers) and analysing all available information to create a report that includes recommendations for improvements.
KAMS has adopted best practice guidelines for the phases of incident management and the RCA forms a part of this process.



Clinical Incident Management ROOT CAUSE ANALYSIS Patient Fact Sheet

No-Blame Approach
A root cause analysis is not about blaming anyone. Instead, it looks for problems in the system, human factors, and other conditions that lead to incidents. Our approach is to understand what happened and why without blaming individuals. The findings and recommendations will never point fingers at or name individuals.



Confidentiality
The information you provide for an RCA will be handled as sensitive information. The resulting report will list which staff contributed to the report, but no information you provide will have your name attached to it.
This is to ensure staff feel open to sharing their understanding and experience of events without fear of reprimand.

Confidentiality
The information you provide for an RCA will be treated as sensitive. The final report will mention if patients contributed, but your name will not be linked to the information you provide for the returned report.

What happens with the information I provide?
The information gathered from RCA interviews is combined into a report that outlines all the contributing factors. The RCA team reviews this report to identify the root causes of the incident based on these factors.
The team then discusses ways to prevent similar incidents in the future and makes recommendations. These recommendations will be reviewed after six months to ensure they are effective.

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The information gathered from RCA interviews is combined into a report that outlines all the contributing factors. The RCA team reviews this report to identify the root causes of the incident based on these factors.
The team then discusses ways to prevent similar incidents in the future and makes recommendations. These recommendations will be reviewed after six months to ensure they are effective.

What if I think of something I would like to add or retract from my interview?
You will be provided with the details of the RCA team investigating the incident. If you feel you would like to discuss anything further, you can contact anyone from the team that you feel comfortable discussing the issue with.
You will have an opportunity to review the RCA and recommendations before the report is finalised and submitted. CVC inserted at RPH

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Documentation on CVC:
Below grey text is an example of what to record. Delete this text and the examples when filling in with your own audit information.

Session Date	Vasc Access Assessment - Pre-dialysis Assessment	Vasc Access Comments	Progress Note assessment	Post dialysis: Cannulation /CVC Issue	Other
09/01/2000	CVC: - Dry and intact - Dressing changed	Nil	CVC dressing and looked changed. Hep locked post treatment.	No	
11/01/2000	Nil - not available	Nil	nil	No	
13/01/2000	Missed dialysis session				
16/01/2000	CVC: - Dry and intact - Dressing changed	Nil	CVC dressing was clean and intact, no signs of infection	No	

Pa	Co	Inf	Co	D	O	Sex	Gen	Posi	Central	line	Insertio	Date	of	st	+ vs	Health	care	site	Case	more	Anatomic	Anatomic	Anatomic	Rec.	Pa	Pa	Rec.	
438072	84824	2009/05	Female	DFHC	Femoral CVC - Right		MA02021		30/06/2002			30/06/2002				Unknown			Yes									
22882	7872											29/09/2002							Yes									
65465	84745	07/04/87	Female	DFHC	Internal Jugular - Left		25/09/2021		30/06/2002			30/06/2002				Kimberley Hospital		Yes	Central Venous	Peripheral Ven	RN Approval	S. James	S. James	MA				
65465	84745	07/04/87	Female	DFHC	Internal Jugular - Right		30/06/2002		30/06/2002			30/06/2002				Kimberley Hospital		Yes	Not Specified	Central Venous	Peripheral Ven	Not Specified	Stomachology	Stomachology	Stomachology	Stomachology	Stomachology	Stomachology
8004	9395											30/06/2002																
9269												29/06/09																



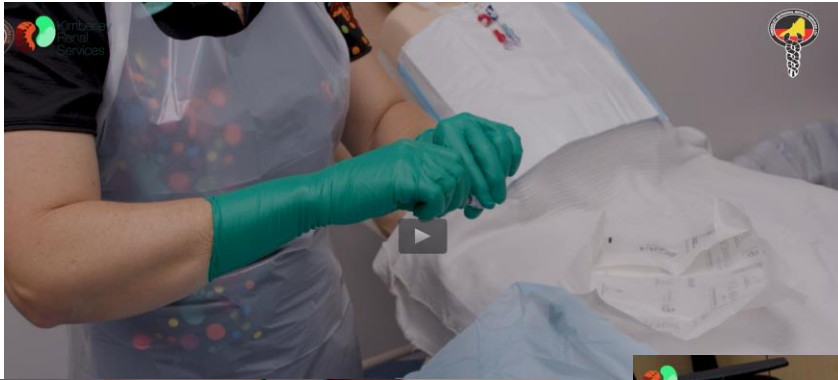
Root Cause Analysis Findings

RCA Patient Incidents Main Findings	RCA Organisation Infection Rate Increase Main Findings
Dressing integrity	Patient engagement with pre-dialysis decreased over COVID-19 due to reduced number of field trips meaning increased number of patient not engaged with service and vascular access pre-dialysis
Patient non-attendance	Support services are a strengthening factor to the patient journey – e.g. vascular access, pre-dialysis, aboriginal care coordinators
Presence of two access sites (e.g. fistula and CVC)	Nil surgical capacity to remove CVC unless booked months in advance or emergency removal
Incomplete documentation on assessment and management of device	Environmental health: weather, housing, overcrowding
Limited staff education resources	Limited education and competency for staff
Lack of context and culturally appropriate patient education resources	Reporting processes through incident management system increased awareness and management
Recurrent and concurrent skin infections and environmental health issues	Documentation of CVC cares not capturing scope of required information and electronic medical record system not set up to capture two access site assessment per treatment
CVC removal wait time due to remote location	Compliance with policy and procedures and variability in interpretation of these
Chlorhexidine reactions	Chlorhexidine reactions and unclear alternative dressing plans



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Implementation of Online Education Packages



Haemodialysis Connection via Central Venous Catheter

S – Supervised I – Independent

Criteria	Date	Date	Date	Comments
Expected Performance	S	S	I	
Adheres to infection prevention and control best practice				
Performs procedure as per Doc_1012 'Haemodialysis – Commencement via central line catheter'				
Completes appropriate documentation on MMEX				





What more?

- Focus on patient experience of managing infection risks, including invasive devices through consultation and research
- Would like to see AMS continue to grow with an inclusive approach for all health disciplines and with a patient comms element strengthened
- Continued collaboration with IP&C teams





References

- Western Australia Department of Health – Data – Community Acquired methicillin-resistant Staphylococcus aureus (CA-MRSA). Sourced from https://www.health.wa.gov.au/Reports-and-publications/ca-mrsa/data?report=mrsa_data
- Western Australia Department of Health. Infection Prevention, Policy and Surveillance Unit – HD-BSI data supplied 2024





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