Prevention of Bacterial & Viral Cross-Infection in Dialysis Unit

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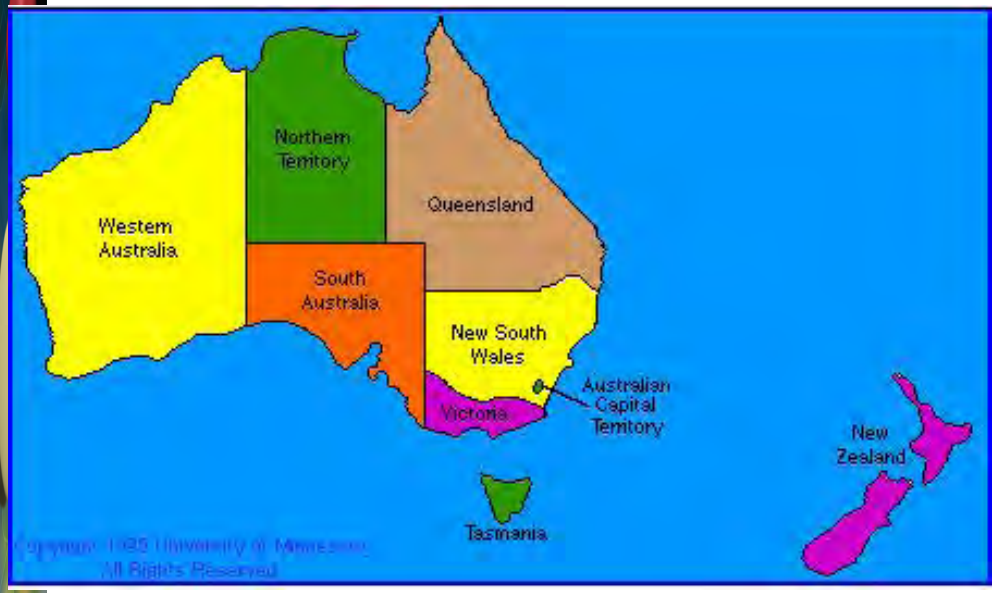
Happy New Year
From Sydney



Area: 7,682,300 sq km

Population: 21 million

Dialysis population: 10,062 patients

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Sydney South West Area Health Service

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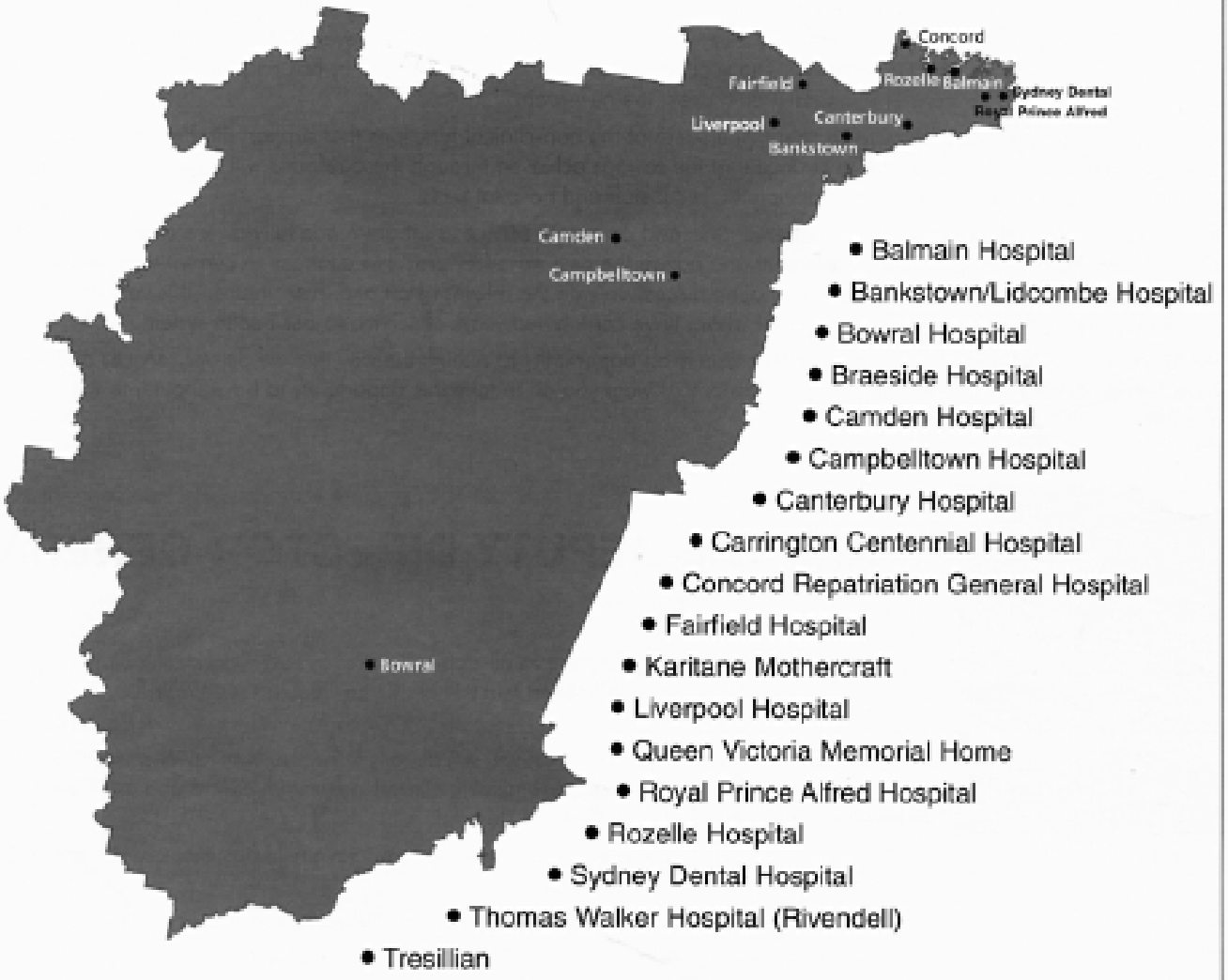
The new Area will include the following public hospitals and health facilities:



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Objectives

- To outline the common bacterial & viral infection amongst the haemodialysis population
- To convey a basic understanding of the common infectious disease processes (i.e. mode of transmission, treatment, etc.)
- Discuss the management on common bacterial & viral infection
- To identify strategies for preventing cross-infection

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Common Bacteria and Viruses in Dialysis

- Blood-Borne Viruses (BBV)
  - Hepatitis B
  - Hepatitis C
  - Human Immunodeficiency Virus

- Multi Resistant Organism (MRO)
  - Methycillin resistant staphylococcus
  - Vancomycin resistant enterococcus

Hepatitis B Virus (HBV)

- Non-cytopathic virus Transmission
- Perinatal transmission (most cases)
- High prevalence amongst endemic countries – China, South East Asia, Pacific nations
- Adults transmission via sexual contact & IV drug use
- Australia HBV carrier (160,000 – 200,000)
- Needle stick injury - Risk of percutaneous exposure, 30% (DNA +ve); 3% (non-DNA +ve)

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SIMPLIFIED VACCINATION SCHEMA

PATIENT SEROLOGY		Action	Comments
HEPB sAg +ve	**HEPB sAb<10**	**No vaccination**	**DIALYSE IN ISOLATION** **Monitor HepB sAg/sAb 6 monthly** **Recommend referral to Hepatologist.**
HEPB sAg +ve	**HEPB sAb>10**	**No vaccination**	**DIALYSE IN ISOLATION** **Monitor HepB sAg/sAb 6 monthly** **RARE: Probably clearing viral hepatitis infection ! Recommend referral to Hepatologist.**
HEPB sAg -ve	**HEPB sAb<10**	**NEEDS VACCINATION or BOOSTER**	HEP B NON-IMMUNE **Monitor HepB sAg/sAb 6 monthly**
HEPB sAg -ve	**HEPB sAb>10**	**No vaccination**	HEP B IMMUNE **Monitor HepB sAg/sAb 6 monthly**

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Hep B sAb <10, Hep B sAg –ve

Vaccination x 4 (0, 1, 2, 6 months)

Repeat serology @ end of the course.

Hep B sAb >10

Repeat serology after 6 months

Hep B sAb <10

Give booster vaccinations x 4 over 6 months, second course (0, 1, 2, 6)

Hep B sAb >10 Repeat serology in 6 months.

Hep B sAb <10, Pt. does not seroconvert, **no more vaccination**

Repeat serology every 6 months

Hep B vaccination flow chart

Liverpool Hospital

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Summary of Policies (HBV)

	Latest Version	Screening	Frequency of screening	Vaccination for Patient	Vaccination for Staff	Isolation
NSW Health Infection Control Policy	2007	Yes	Not mention	Yes	Yes	Separation of patients by room or area and use of a dedicated machine is recommended
Victoria Health Infection Prevention Program	2006	Yes	Not mention	Yes	Yes	Not mention
Australia & New Zealand Society of Nephrology, DNT" Sub-Committee "Consensus Statement"	2001	Yes	3-6 monthly	yes	Not mention	Use of separate rooms and dedicated machines is recommended
Sydney South West Area Health Service (Western Zone)	2007	Yes	6 monthly	yes	Yes	Use of single room and dedicated machine

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Hepatitis C (HCV)

- Virus – flavivirus family
- Discovered – infected serum injected to chimpanzees – (non-A, non-B hepatitis) – antibody test
- Transmission
  - Predominantly parenteral (drug use) – 80%
  - Immigrant population- poor infection control practices during procedures (vaccination, European & Asian acquired); chemoprophylaxis program (for schistosomiasis, Egyptian acquired)
  - Sexual transmission – (controversial) very low level (higher: if HIV +ve & high HCV viral load; presence of blood in genital tract - menstruation)
  - Perinatal transmission – 5% of deliveries (higher if HIV +ve)

Summary of Policies (HCV)

	Latest Version	Screening	Frequency of screening	Vaccination for Patient	Vaccination for Staff	Isolation
NSW Health Infection Control Policy	2007	Yes	Not mention	Vaccine not available	Vaccine not available	There is insufficient evidence to justify routine use of dedicated machines for dialysis or isolation of patients
Victoria Health Infection Prevention Program	2006	Yes	Not mention	Vaccine not available	Vaccine not available	Not mention
Australia & New Zealand Society of Nephrology, DNT" Sub-Committee "Consensus Statement"	2001	Yes	3-6 monthly	Vaccine not available	Vaccine not available	Isolation should be considered
Sydney South West Area Health Service (Western Zone)	2007	Yes	6 monthly	Vaccine not available	Vaccine not available	Use of single room and dedicated machine

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Human Immunodeficiency Virus (HIV)

- Retrovirus
- First manifestation – early 1980s
- Human infection – early 20th Century (transmitted zoonotically to humans from primates in Africa)
- Mode of transmission:
  - Sexual contact
  - Blood to blood contact (blood transfusion, needle stick injury (0.3%)
  - Mother to child (20-45%)

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Summary of Policies (HIV)

	Latest Version	Screening	Frequency of screening	Vaccination for Patient	Vaccination for Staff	Isolation
NSW Health Infection Control Policy	2007	Yes	Not mention	Vaccine not available	Vaccine not available	There is insufficient evidence to justify routine use of dedicated machines for dialysis or isolation of patients
Victoria Health Infection Prevention Program	2006	Yes	Not mention	Vaccine not available	Vaccine not available	Not mention
Australia & New Zealand Society of Nephrology, DNT" Sub-Committee "Consensus Statement"	2001	Yes	Annually	Vaccine not available	Vaccine not available	Not mention
Sydney South West Area Health Service (Western Zone)	2007	Yes	Annually	Vaccine not available	Vaccine not available	Use of single room and dedicated machine

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U.S. TAX CODE
THE ONLY CODE I'M NOT EVEN THE SOVIETS CAN CRACK!
IRS

Hepatitis Registry

- A central database for all ESRD patients
- To keep track of the serology & Hep B immunization status
- To prevent cross-infection amongst dialysis patients
- Registry created by Renal Dialysis CNC in December 2005
- Started collecting data from March 2005 to present

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The Registry…

- Each unit to update the registry as needed, i.e. new patients, serology/vaccination updates
- CNC to collate all data entered every 6 months
- CNC to maintain the registry & alert units of patients requiring follow-up (i.e. vaccination, serology, etc.)
- CNC to submit quarterly report to Director of Dialysis
- This initiative was awarded

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Performance Indicators

1. Performance Indicator: *Number of patients with unknown serology at time of dialysis*

Numerator: Number of patients with unknown serology

Denominator: Total number of acute dialysis (including late referral i.e. <3 months)

2. Performance Indicator: *Number of patients being vaccinated*

Numerator: All patients having received even a single Hep B vaccination

Denominator: All patients (HD+PD) on maintenance dialysis with Hep BsAb <10 that require vaccination (excluding non-seroconvert patients)

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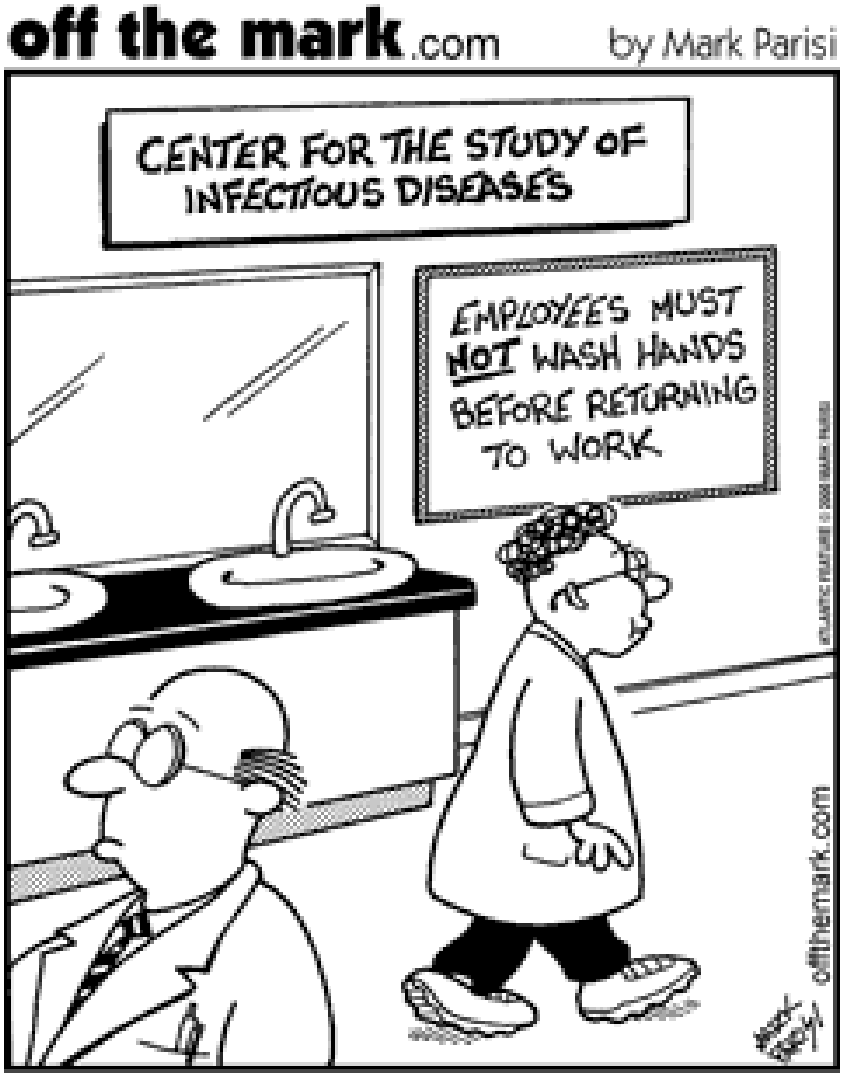
Multi-Resistant Organism (MRO)



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Methycillin Resistant Staphylococcus Aureus (MRSA)

- Gram positive coccus
- Found in wounds, intravascular lines
  - Humans are the agreed reservoir – MRSA can colonise any favourable area on the body (nose, armpits, etc.)
- Transmission
  - Poor aseptic technique
  - Poor hand-washing technique
  - Spread primarily by close & direct contact
  - Sharing & multi-use of equipment without appropriate disinfection/sterilisation
  - Misuse of antibiotics

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Summary of Policies (MRSA)

	Latest Version	Screening	Frequency of screening	Isolation
NSW Health Infection Control Policy	2007	No	N/A	Separation area for infected and colonised patients
Victoria Health Infection Prevention Program	2006	Routine screening not recommend	N/A	Dialyse in an area separate or segregated from other patients
Australia & New Zealand Society of Nephrology, DNT" Sub-Committee "Consesus Statement"	2001	Yes	3-6 monthly	Use of separate rooms and dedicated machines is recommended
Sydney South West Area Health Service (Western Zone)	2007	Yes	6 monthly	Use of single room and dedicated machine

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Vancomycin Resistant Enterococcus (VRE)

- Enterococci
- Susceptible people: immuno-compromised patients; patients with IV lines
- Clinical infection requires treatment
- VRE – first described in the UK in 1980s
  - Multi-drug resistant
  - Colonized patients (majority)
  - Clinical infection – expensive and difficult to obtain antibiotics may have to be administered

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Summary of Policies (VRE)

	Latest Version	Screening	Frequency of screening	Isolation
NSW Health Infection Control Policy	2007	VRE screening may be a requirement prior to transfer between dialysis units	Prior to transfer	Separation of patients by room or area and use of a dedicated machine is recommended
Victoria Health Infection Prevention Program	2006	Suggest for in-centre dialysis patient only	Not mention	Dialyse in an area separate or segregated from other patients
Western Australia Guidelines	2006	No	N/A	No
Australia & New Zealand Society of Nephrology, DNT" Sub-Committee "Consesus Statement"	2001	Yes	3-6 monthly	Use of separate rooms and dedicated machines is recommended
Sydney South West Area Health Service (Western Zone)	2007	Yes until Mid 2009	3-6 monthly	Dedicated Isolation Dialysis Unit since 2002

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The Art of Isolation

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MRO - Transmission

- Environment (colonised)
- Hands of health care workers
- Spread from patient to patient

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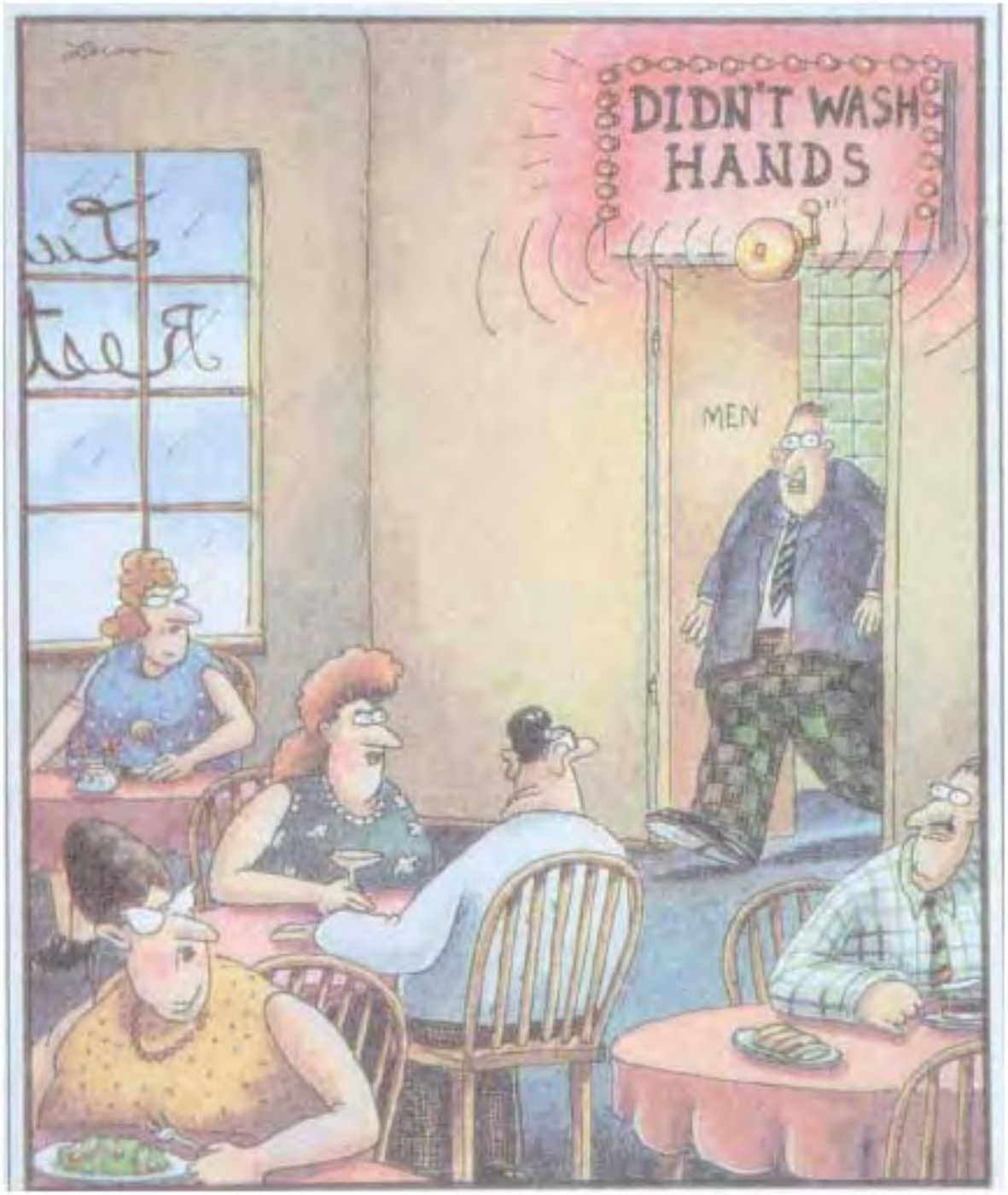

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WHY ARE RENAL PATIENTS SUSCEPTIBLE to MRO?

- Lots of Vascaths, CAPD peritonitis, access cannulations
- Lots of infections -> lots of antibiotics
- Lots of comorbidities
  - age and diabetes
- Dialyse in close proximity
- Majority hospital based treatments
- All use the same toilet
- Interhospital transfers/ holiday patients

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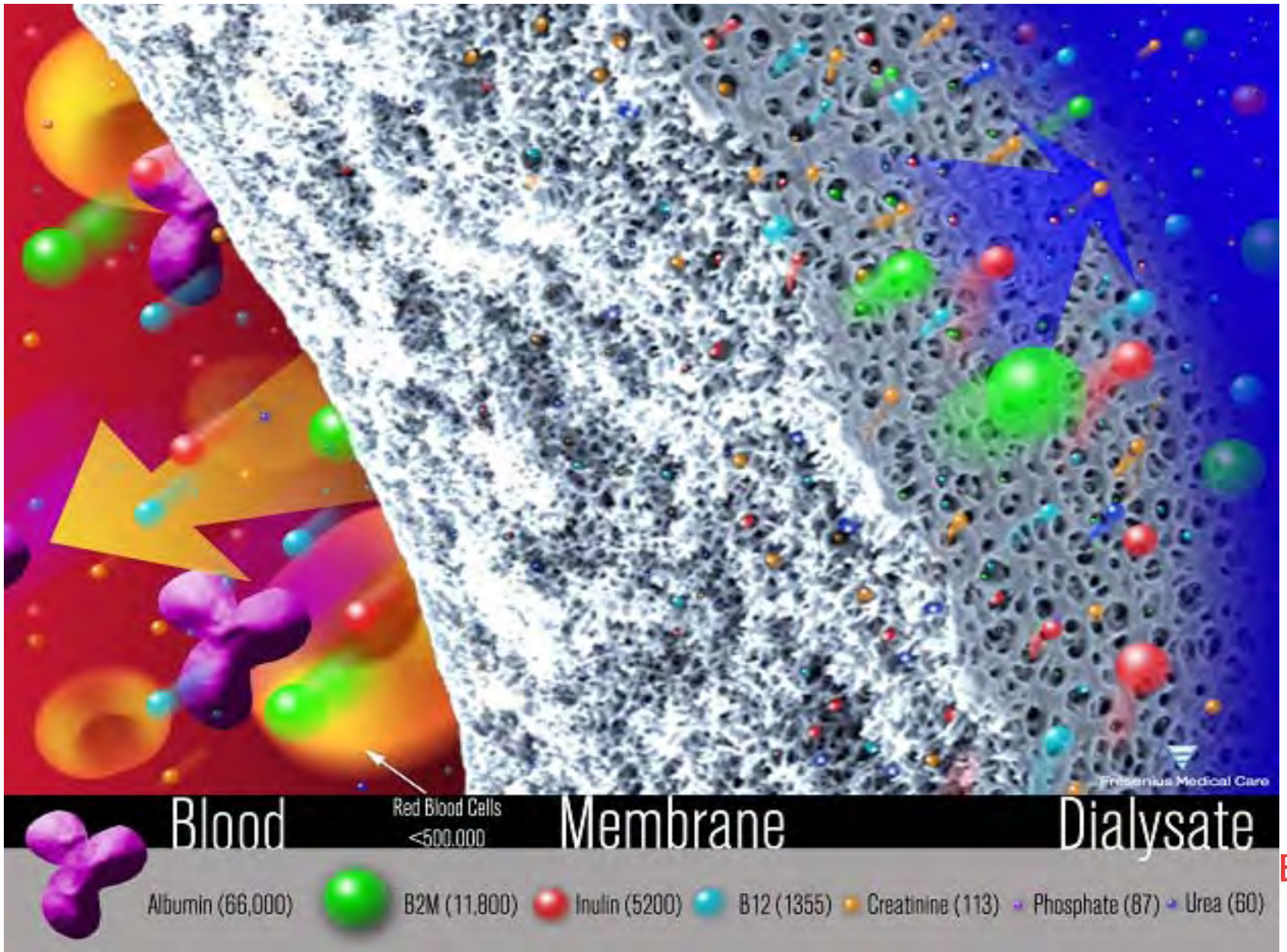
Dialyser Membrane



What is the risk of environmental contamination by VRE-colonised patients who attend for Outpatient appointments, radiological procedures & hemodialysis?

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Melbourne VRE Study

- 15 mth surveillance program (April 1998 - July 1999)
- Three large university teaching hospitals
  - ARMC, MMC, Alfred Hospital
  - Strict infection control/isolation of colonised patients
- Units:
  - ICU (General, Road trauma, Cardiothoracic)
  - Renal
  - Haematology/Oncology
  - Transplant (Liver, Lung)
- 3458 patients; 4215 admissions; 8953 swabs

Prof. M. Lindsay Grayson, Infectious Diseases Department
Austin & Repatriation Medical Centre
Department of Medicine, University of Melbourne

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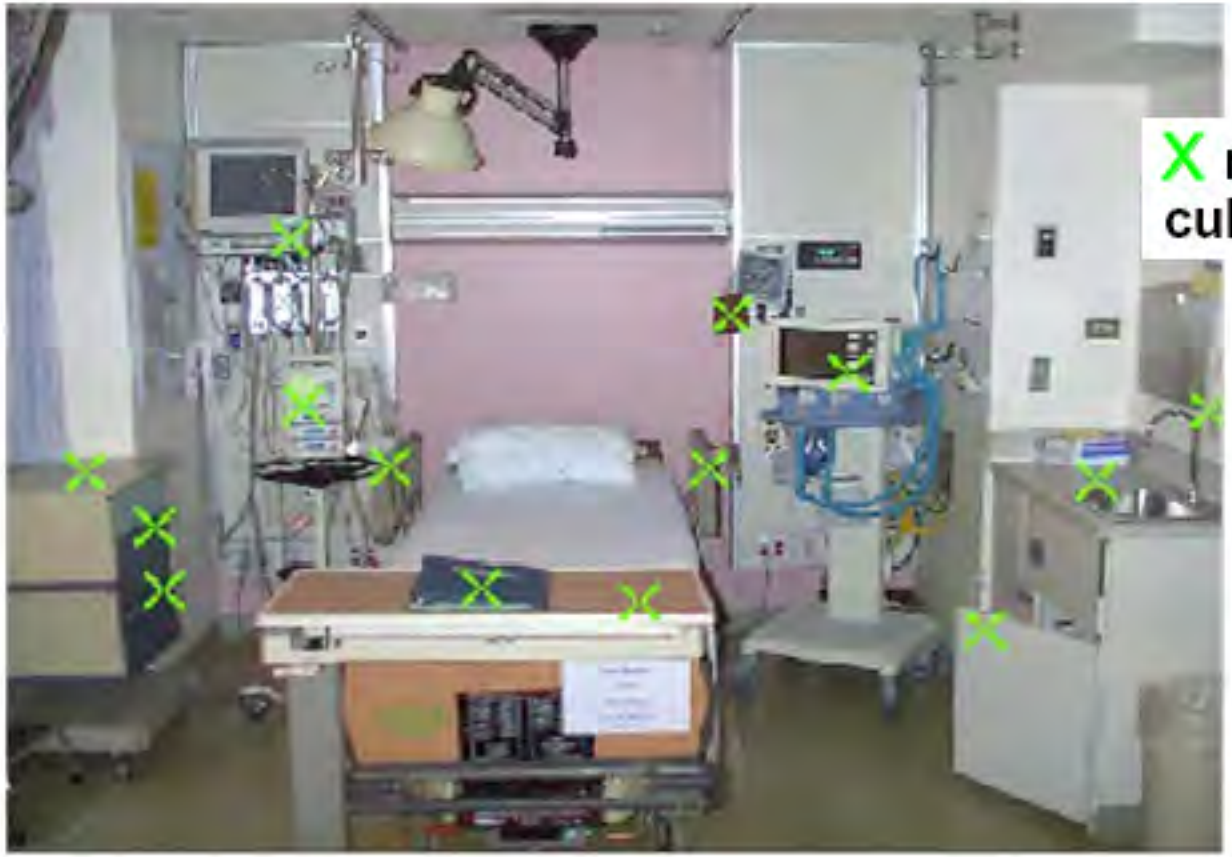
The Inanimate Environment Can Facilitate Transmission



X represents VRE culture positive sites

~ Contaminated surfaces increase cross-transmission ~

Abstract: The Risk of Hand and Glove Contamination after Contact with a VRE (+) Patient Environment. Hayden M, ICAAC, 2001, Chicago, IL.

Contaminated sites during Outpatient, radiology and H/D procedures

• Chair arms	3/26 (12%)
• Chair seat	13/26 (50%)
• Couch/trolley	8/20 (40%)
• Tap handles	1/36 (3%)
• Door handles	1/36 (3%)
• Stethoscope	1/36 (3%)
• BP cuff/bulb	3/36 (8%)
• Hemodialysis machine	1/16 (6%)
• HCW gloved hands	3/26 (12%)
• HCW unglove hand	1/36 (3%)
• HCW gown	7/36 (19%)

Prof. M. Lindsay Grayson, Infectious Diseases Department
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Department of Medicine, University of Melbourne

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The Caring for Australian Renal Impairment (CARI)

Improving Patient Outcomes: Vascular Access Implementation

Project 2008 - 2009

Implementation of CARI Guidelines on Timing and Type of Vascular Access Formation in Australasian CKD Patients

K. Polkinghorne, www.cari.org.au

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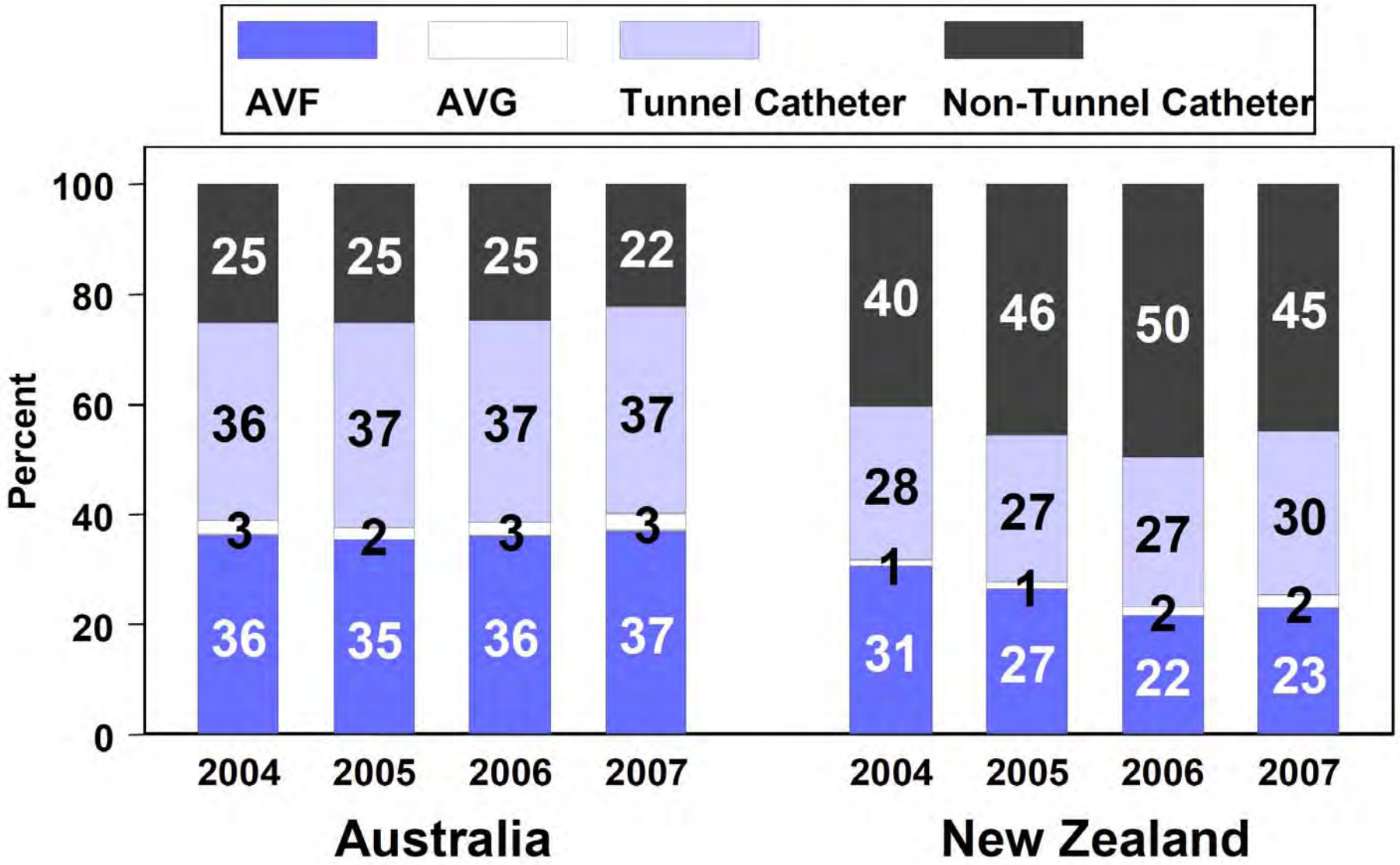
Vascular Access - Initial RRT

Haemodialysis at Initial Modality



Acute vascular access catheters for haemodialysis: Complications limiting technique survival

Table 4 Screening for infection

	Patient no. (%)
AVAC routine Tip culture results	
Coagularse negative *Staphylococci* (CNS)	89 (46)
Negative culture	65 (33)
Multi-resistant *Staphylococcus aureus* (MRSA)	17 (9)
Staphylococcus aureus	17 (9)
Corynebacteria	2 (1)
Candida	1 (0.5)
Chryseomonas	1 (0.5)
Gram negative rods (GNR)	1 (0.5)
Pseudomonas	2 (1)
Total	**195**
Blood cultures	
Negative culture	17 (40)
Staphylococcus aureus	12 (29)
MRSA	8 (19)
Coagulase negative *Staphylococci* (CNS)	3 (7)
E. coli	1 (2)
Serratia	1 (2)
Total	**42**

MRSA, methicillin-resistant *Staphylococcus aureus*.

JEFFERYS, A.; CHOW, J; SURANYI, M. Nephrology 2003

55%

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SUCCESSFUL CONTROL OF VRE COLONISATION

- Publications attest to effectiveness of intervention including:
  - Active surveillance
  - Contact isolation
  - Cohorting
  - As well as altered antibiotic policies
- PREVENTION BETTER THAN TO HAVE TO DEAL WITH ACUTE EPIDEMIC CRISIS

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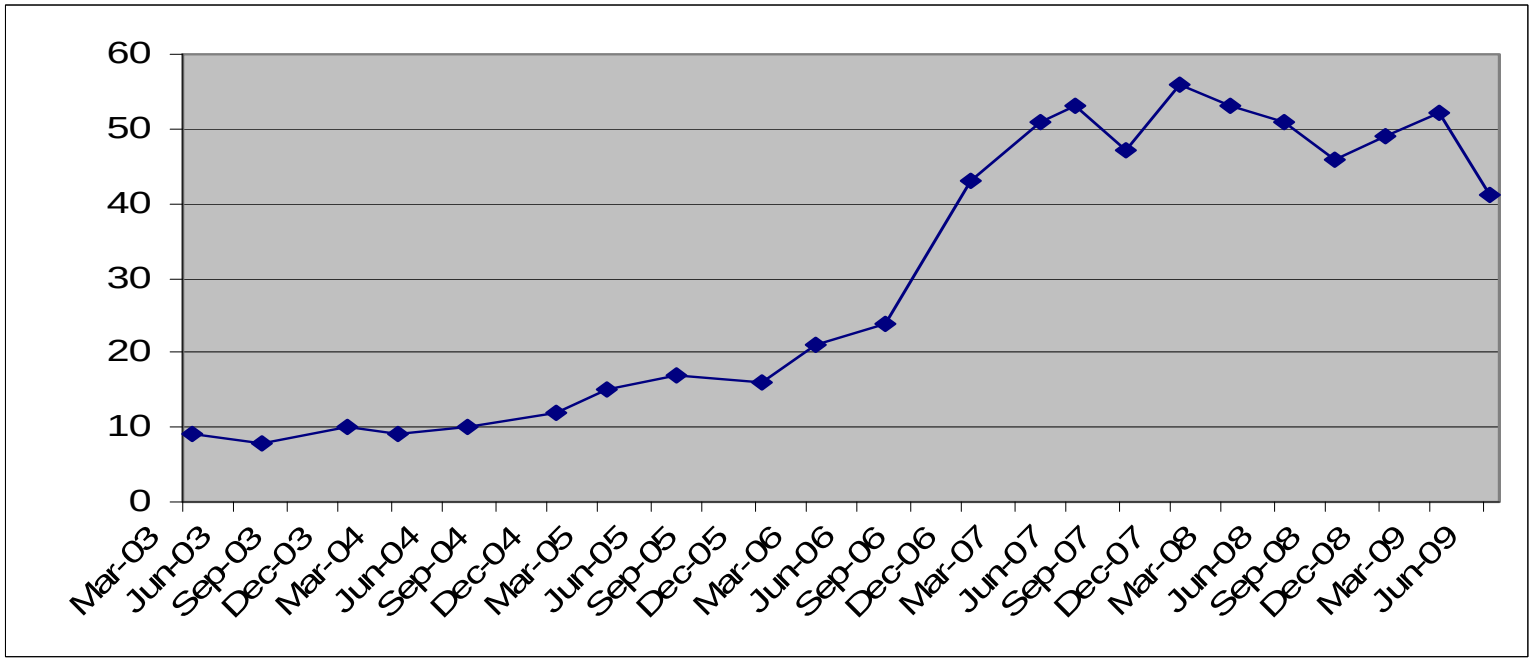
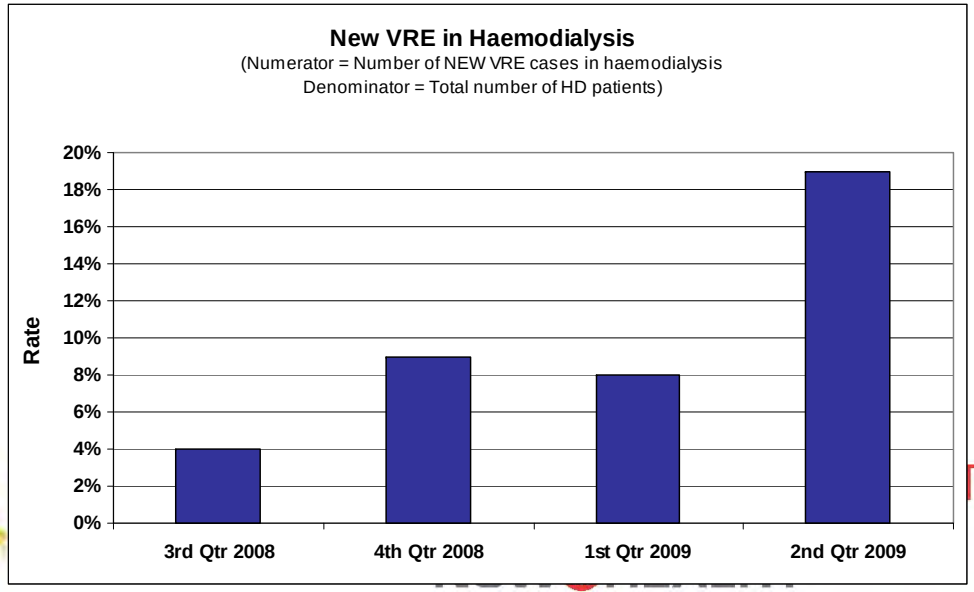
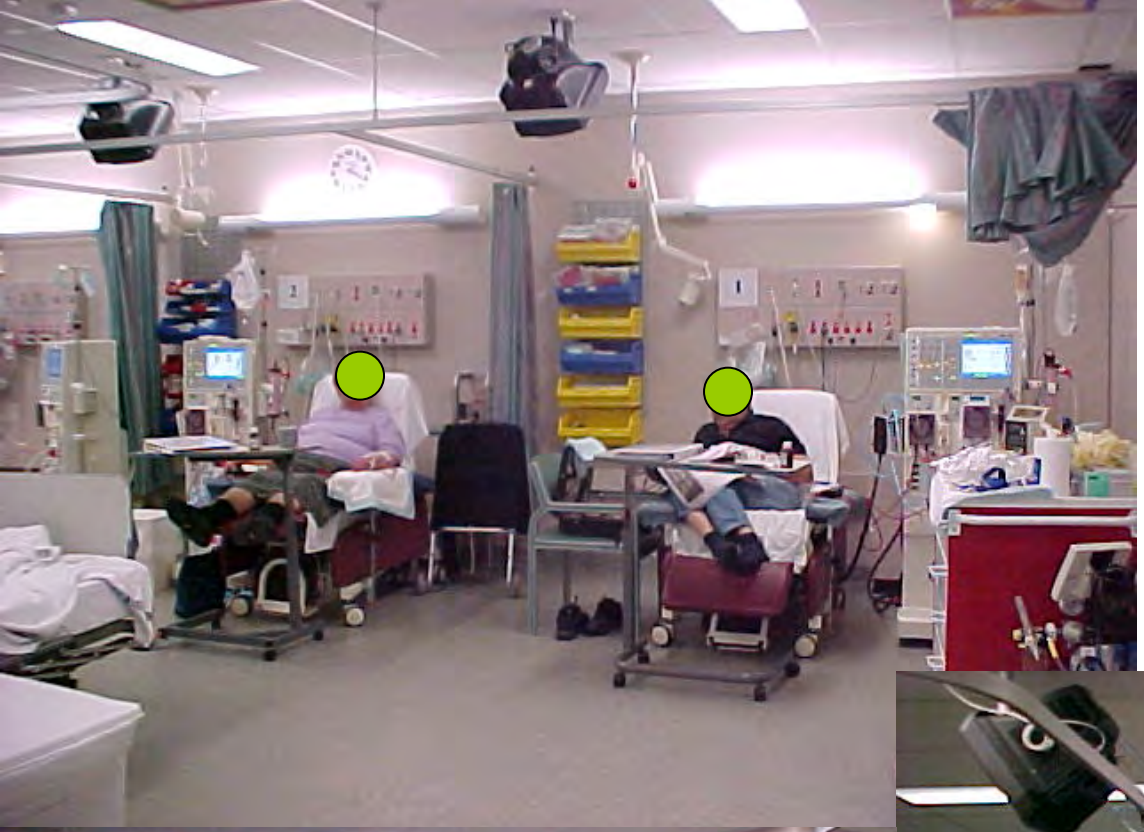
Cumulative VRE Data for In-Centre and Isolation Haemodialysis – March 2003 to June 2009

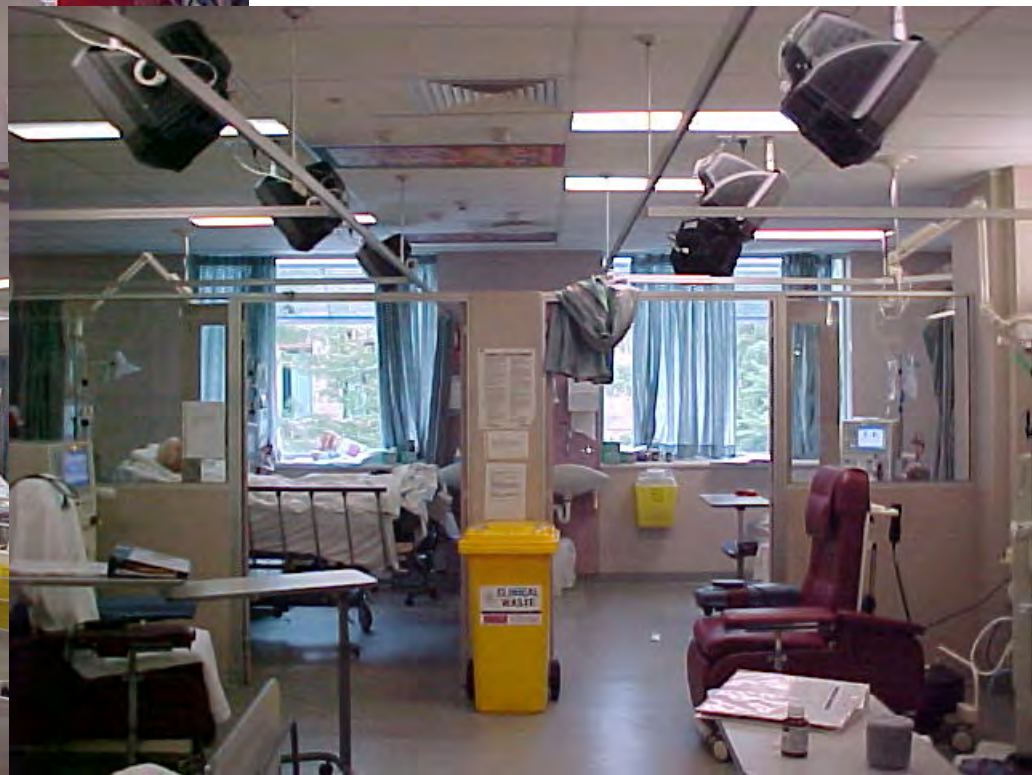


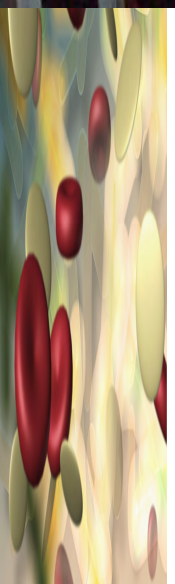
Liverpool Hospital



Isolation Rooms in the In-Centre Haemodialysis Unit







The VRE Isolation Haemodialysis Unit in Liverpool Hospital

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A way forward for VRE

Journal of Hospital Infection (2006) 62, 1-21

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WORKING PARTY REPORT

Guidelines for the control of glycopeptide-resistant enterococci in hospitals☆

B.D. Cookson[a], M.B. Macrae[b,*], S.P. Barrett[c], D.F.J. Brown[d], C. Chadwick[e], G.L. French[f], P. Hateley[g], I.K. Hosein[h], J.J. Wade[i]

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[g]Pathologies and Patient Services, St Bartholomew's Hospital, London, UK
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[i]Health Protection Agency London, King's College Hospital, London, UK

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Recommendations- HPA in London (Health Protection Agency)

- **Screening**
  - **Outbreaks (≥2 cases related time/place)**
  - **Selective media**
  - **Not necessarily enrichment**

- **Management**
  - **Only treat if infected**
  - **Check if sensitive to routine antibiotics**
  - **?role of linezolid & quinupristin/dalfopristin**

- **Patients & staff**
  - **Carriage persists months to years**
  - **Clearance treatment not recommended**
  - **Don't screen staff**

Cookson, et.at. 2006, Journal of Hospital Infection

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HPA recommendations Cont'd

- **Risk assessment VRE outbreak**
- **Patient by patient**
  - **Extent of VRE**
  - **Incontinent [or Diarrhoea, colostomy]**
  - **Resistant to linezolid, *etc*.**
- **Hand hygiene**
  - **Soap fails, either antiseptic hand wash or alcoholic hand rub**
- **Isolation**
  - **Ideally, single rooms**
  - **Capacity exceeded, cohort**
- **Cleaning**
  - **Heavy contamination**
  - **No evidence any particular regimen superior**
  - **Hypochlorite or phenolic**
  - **Special attention dust-prone surfaces**
  - **Especially at termination of incident**
- **Inter-hospital transfer**
  - **Must notify recipient of VRE status**
  - **Not a risk for n*ormal people in community***
- **Antibiotic stewardship**
  - **Fewer *Glycopeptides & Cephalosporins***
  - **Vital to measure and feedback to prescribers**
  - **Sheet cost to budgets of prescribers**

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Strategy in 2009 - Liverpool Infection Prevention Unit and the Renal Unit

Implement 7 Pillars of MRO control

- **Administrative support**
- **Education**
- **Judicious use of antibiotics**
- **MRO surveillance**
- **Infection control precautions**
- **Environmental measures**
- **Decolonisation**

Cookson, et.al., 2006

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Administrative support

- Health Department
- Area Health Services
- General Managers
- Heads of Department
- Expensive
- *Swabs*
- *Gowns*
- *Labour*
- Key communication to stakeholders
- Ownership of the problem
- KPIs

Education

- All types of healthcare workers
- All levels of seniority
- Undergraduate programmes
- Postgraduate programmes
- Continuous
- Mandatory
- Feeding back KPIs

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Preventing haemodialysis catheter infections

What is a haemodialysis catheter?

A haemodialysis catheter is a fine tube made from a synthetic material that is used as an alternative to a fistula or graft. Catheters are most commonly used if you need to dialyse immediately and you don't have time to wait for a graft or fistula to be formed. Some people need a catheter permanently.

Most haemodialysis catheters are inserted by tunnelling it under the skin of the chest and then into a large vein in your chest. This is a tunnelled catheter.

As these catheters are made from a synthetic material, your body regards it as a foreign body and there is a higher risk of infection at either the entry site or of the blood stream. Infection can happen even when there is a good blood flow through the catheter.

The risk of infection is higher in people who dialyse through a catheter.

How do I know if I have an infection?

Your doctor can diagnose infection based on your symptoms and from the results of a microbiological examination of tissue or fluid from the infection site. In severe blood stream infection a blood test is required. These microbiological tests can take 2 or more days to be confirmed.

If you have any of the following, you may have an infection:

- Fever
- Chills
- Drainage from the catheter site
- Redness or tenderness around the catheter site
- Generally feeling unwell and weak.

How are infections treated?

Most infections are easily treated with antibiotic tablets. In serious blood stream infections it may be necessary for the catheter to be removed so that the infection can be treated effectively. Recovery is usually rapid, and most people recover fully. If the infection is more severe, you may need some weeks in hospital for antibiotic treatment through a drip.

How can I prevent infections?

Good care of your catheter can help prevent problems like infection. You need to:

- keep the catheter dressing clean and dry
- always wash your hands before handling your catheter or dressing
- make sure your care givers either wash their hands or use an antiseptic hand rub before handling your catheter
- keep the caps and clamps of your catheter tightly closed when not being used for dialysis. Only your care team should use the catheter for taking blood samples or to give medications
- call your dialysis team if the skin around your catheter feels sore or looks red, or if the dressing has come loose.

For more information about preventing infection in maintenance haemodialysis, go to the dialysis website www.health.vic.gov.au/renaldialysis

Department of Human Services

A Victorian Government initiative

Victoria The Place To Be

10 Tips for preventing infection in haemodialysis

Be aware

Haemodialysis is a risky business infection-wise. It is important that you understand the infection risks to you, and what risk you might pose to others. The following simple strategies will help you minimise these risks and keep you healthy.

Wash your hands

Good hand hygiene, including hand washing with soap and water or the use of an alcohol based hand rub, is the most important thing you can do to prevent an infection. Keep your hands clean and always wash your hands before handling your access site.

Insist on the best

It isn't just you that needs to keep your hands clean! Good hand hygiene is essential for all of your carers and dialysis team. Feel free to ask your dialysis team and carers to wash their hands!

Keep it clean

Your access site is important, but it can be the site for a serious infection. You can help prevent these infections by washing your fistula site with an antiseptic hand wash before dialysis. Your carers and dialysis team will use an 'aseptic' (free from bacteria) technique to make sure that you aren't put at risk.

Get to the point

Hepatitis B vaccination will protect against hepatitis B infection. Unfortunately the vaccine doesn't work as well in people with kidney disease. But even partial protection from the vaccination, combined with a high standard of cleanliness in the dialysis units will protect you. Vaccines research is improving the standards of immunisation; your dialysis team will keep you updated.

And stick to it

As you know – getting stuck with a needle is no fun – it's even worse when it is someone else's used needle. Make sure you and your caregivers dispose of sharps into a safe sharps container immediately after use.

Dress for success

Your blood can be an infection risk to your carers and dialysis team. If there is a chance of a blood splash from your lines, or during needling, your carer should be wearing eye/face protection, gloves and protection for their clothing.

Spot the difference

Good cleaning practices help prevent bacteria being passed from one person to another. Your dialysis team will clean your chair and equipment after every use – every time.

Be alert

Know the signs and symptoms of infection and tell your carers or dialysis team immediately if you notice any of the following:

- Fever
- Chills
- If you have a catheter or are generally feeling unwell/weak
- Drainage from the catheter site
- Redness or tenderness around the catheter site.

Be a squeaky wheel

If you are worried about infection prevention speak with your carers or dialysis team. Everyone is responsible for preventing infections and working together will give you the best results.

For more information about preventing infection in maintenance haemodialysis, go to the dialysis website

www.health.vic.gov.au/renaldialysis

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Judicious use of antibiotics

- Selection of VRE increased by Vancomycin *related to need to Rx MRSA*
- Antibiotic policies
- Restriction of certain antibiotics
- Measurement of antibiotic use and feeding this back to prescribers
- Support by administration

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MRO surveillance

- Role of screening
- Must think through dealing with positives
- Large numbers of colonised patients often found
- Intensive screening programme with sensitive method can find hundreds of carriers per infection
- Industrial concerns
- Screen patients with high risk situations, e.g. *ICU, haematology*
- Need research

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Infection control precautions

- Isolate/cohort patients
- Need to know who's got the MROs
- *Flagging*
- Attention to hand hygiene
- Gloves and Gowns
- Physical barriers
- Dealing with non-compliant HCWs

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Environmental measures

- Need to physically clean
- Use disinfectants that will kill enterococci
- Phenolics
- Hypochlorite
- ALL fomites
- Toilets
- Everything in rooms

Decolonisation

- Difficult but “do-able” with MRSA
- Healthcare workers
- Patients
- Impossible with VRE and other superbug
- Approx 30% may clear over time
  - some excrete intermittently
  - some remain colonised for years
  - even low level colonisation is an infection
- Control risk if exposed to antibiotics
- When colonisation recurs usually same strain, *i.e.*, not truly cleared

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VRE Clearance in Liverpool Hospital

- Commenced late 2009
- The preconditions for clearing:
  - Undergoes Renal Dialysis
  - Is stable medically
  - Has no catheters other than a dialysis catheter
  - Has not have received antibiotics in the 3 months prior to clearance
  - Does not have an acute wound, ulcer or tracheotomy
- Three neg. swabs to be taken one week apart
- Dialyse out of the Isolation Unit

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Infection Control Issues and Controversies

- VRE control measures don't *eradicate* VRE
- Outbreak "control" usually means reduction of VRE to a lower level
- Unsuccessful control of outbreaks unlikely to be published
- Cost of control immense Royal Perth Hospital *$AUD 2.7m*

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Swine Flu (H1N1) vaccination

The Australian Government is making Panvax® H1N1 vaccine available

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The priority groups for vaccination

- Front line health care and community care workers who have direct contact with patients
- People with underlying chronic medical conditions such as asthma, cancers, HIV, heart disease, diabetes and CKD
- People who are obese with a BMI over 35
- Indigenous people and remote and isolated communities with indigenous people
- Children in special schools, initially only 10 years ad over until child safety data is available
- Pregnant woman
- Parents and guardians of children aged 0-6 months

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Conclusion

- No conclusive evidence of dialysis related transmission in index patient
- Isolation: does it make a difference?
- Hepatitis registry: usefulness?
- Implement 7 Pillars of MRO control
  - Administrative support
  - Education
  - Judicious use of antibiotics
  - MRO surveillance
  - Infection control precautions
  - Environmental measures
  - Decolonisation
- Importance of Continuous auditing
- Resource implications

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Preventing infections in satellite haemodialysis units

Requirement	Transmission based precautions			
	Standard	**Airborne**	**Droplet**	**Contact**
Gloves	Worn to protect the hands when there is a risk of contact with blood or body substances.	As per standard precautions.	As per standard precautions.	For all manual contact with patient, associated devices and immediate environmental surfaces.
Impermeable apron/gown	Worn to protect clothing when there is a risk of splashing or contamination with blood or body substances.	As per standard precautions.	As per standard precautions.	When health care worker's clothing is in substantial contact with the patient, items in contact with the patient, and their immediate environment.
Respirator or mask	Refer to AS 4381:2000 for additional information. Worn to protect mouth when there is a risk of splashing or contamination with blood or body substances.	P2/N95 particulate respirator for tuberculosis only. All others, use face mask suited to the purpose such as a mask that filters to 0.1 microns and has a splash resistant shield.	Yes –mask*.	Protect face if splash likely.
Goggles/face-shields	Worn to protect eyes and face when there is a risk of splashing or contamination with blood or body substances.	Protect face if splash likely.	Protect face if splash likely.	Protect face if splash likely.
Special handling of equipment	Chairs, haemodialysis machines and other direct patient contact equipment is cleaned after the patient is discharged using a neutral detergent and warm water solution. Haemodialysis machines should be cleaned and disinfected according to manufacturers instructions.	Single use or reprocess before reuse on next patient (includes all equipment in contact with patient). *check with local infection control regarding disinfectant use.	Single use or reprocess before reuse on next patient (includes all equipment in contact with patient). *check with local infection control regarding disinfectant use.	
Single room	No.	Dialyse in a single room or Cohort patients with same infection. Door closed.	Dialyse in a single room or segregated area of the unit (See also other requirements).	Dialyse in a single room or segregated area of the unit or cohort with patient with the same infection.
Single room with negative pressure air handling system	No.	Essential for pulmonary TB.	No.	No.
Transport or transfer of patients	No.	Appropriate mask* for patient Notify area receiving patient.	Appropriate mask* for patient Notify area receiving patient.	Notify area receiving patient prior to transfer.
Other requirements		Encourage patients to cover nose and mouth when coughing or sneezing and wash their hands after blowing nose.	Provide one metre of separation between patients in ward accommodation.	Remove gloves and gown, and wash hands immediately on leaving patient.

* Refer to Australian Standards:
AS 4381:2000 Single-use face masks for use in health care, for additional information
AS/NZS 1715 Selection, use and maintenance of respiratory protective devices
AS/NZS 1716:1994 Respiratory protective devices Adapted from the Blue Book, Department of Human Services

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Glycopeptide
Resistance in
S. aureus

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