

What we tell our patients about reducing infection risks during haemodialysis

There are some infection risks associated with haemodialysis treatment. This article will explain some of these risks and the strategies that are commonly used to reduce them. There are a variety of 'bugs' or 'germs' that can cause infections. They are too small to see and so are often referred to as micro-organisms. The two different groups of micro-organisms that may cause infections are bacteria and viruses.

Which bacteria can cause infections?

There are a number of bacterial infections that can affect patients receiving dialysis treatment. However, the most common infections are caused by a bacterium called *Staphylococcus aureus*.

S aureus is a bacterium that lives harmlessly on the skin of about 30–40% of the general population. It is most commonly found in the nose when it invades the human body. It can cause a number of infections, such as skin abscesses and blood infections (septicaemia), which require treatment with antibiotics. This is sometimes the case for patients receiving haemodialysis via vascular access that continually opens onto the skin surface; for example, a dialysis catheter.

How are these infections prevented and treated?

Studies have shown that haemodialysis patients with vascular access can reduce their risk of infection if they receive a topical treatment to remove *S aureus* from the nose. For this reason, we do not screen such patients for the bacteria; instead, we give three-monthly courses of the topical treatment.

The treatment used is an ointment/cream called mupirocin (also known as Bactroban[®], SmithKline Beecham, UK), which is applied to the inside of the nose over a five-day period every three months.

Patients with natural access via arteriovenous fistulae (artificial connections formed between an artery and a vein that cause the vein to become dilated, allowing access to the bloodstream) do not need this treatment because their risks of



One of the simplest ways to avoid cross infection between patients is by hand decontamination after contact with each patient

infection are much lower. This is because there is no easy way for the bacterium to enter the body.

If *S aureus* is found to be the methicillin-resistant form of the bacteria (known as methicillin-resistant *Staphylococcus aureus*; or MRSA), further procedures can be carried out to attempt to eradicate it. Infections caused by this form of the bacteria require courses of a particular antibiotic (vancomycin), which must be administered into a vein, as it is resistant to the antibiotics that would commonly be taken by mouth. This is the only difference between the treatment required for MRSA and the other forms of *S aureus*. Like the other forms, MRSA can also be found living harmlessly on the skin.

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Every two months, all patients attending haemodialysis are screened to detect the presence of the bacterium MRSA. This involves taking samples from the nose and vascular access site. These samples are taken using swabs – similar to cotton buds – which are wiped over the skin surface around the access site and just inside the nostrils.

If MRSA is found, the patient is given topical skin washes, the mupirocin nose ointment described earlier, and antibiotic tablets, which may be taken for five days to try to remove it from the skin to prevent an infection.

Other possible sources of infection

There is a slightly higher prevalence of the blood-borne viruses hepatitis B and hepatitis C among dialysis patients. For this reason, all patients commencing haemodialysis are screened by

taking blood samples to find out if they carry hepatitis B and hepatitis C. In addition, if certain risk factors are present, a test for HIV (human immunodeficiency virus, that leads to AIDS) may also be carried out. These risk factors

include living in parts of the world with a high prevalence of HIV, drug abuse, homosexuality and having had multiple sexual partners.

Blood samples for hepatitis B and C testing are taken from every patient at regular intervals throughout the duration of their haemodialysis treatment. They are repeated, along with an HIV test, if patients are placed on the transplant waiting list.

Why is it necessary to perform regular screening?

Regular screening is needed because it is possible to carry the hepatitis B or C virus and to feel

completely well, so signs of infection can often only be found on a blood test. This routine screening ensures that patients will be able to receive appropriate treatment as soon as possible. It also enables us to monitor the strategies we have in place for preventing cross infection.

Is there a high risk of infections from other patients?

There is always a risk of cross infection between patients in a hospital setting, as healthcare professionals need to have direct physical contact with many different individuals when providing care – although the level of contact between staff and patients is not as intensive or frequent in dialysis as it is in a general hospital ward.

Some items of equipment that are used during hospital care must be shared between patients and these may present cross infection risk if not managed properly; for example, the dialysis machines.

Preventing cross infection

The prevention of cross infections between patients can be achieved by simple measures, outlined below, that all staff include in their everyday care of patients.

Hand decontamination

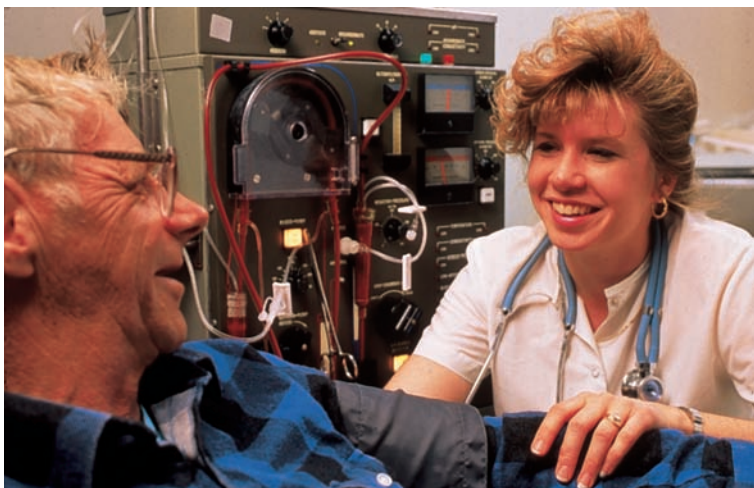
One of the simplest and most effective of these measures is hand decontamination between contact with each patient. This is achieved by washing the hands using soap and water, or by applying a hand-rub that contains alcohol. You will see bottles of alcohol hand gel or rub readily available in every dialysis unit.

In 2001, the Oxford Radcliffe Hospitals NHS Trust introduced the 'Handy Hygiene Campaign'. This campaign aims to further increase our commitment to good hand decontamination practice. The campaign has four strategies:

- Improving the quality of hand towels for the drying of hands after washing with soap and water
- Increasing the availability of alcohol hand-rubs in all areas
- Increasing staff education
- Encouraging patient involvement.

In the patient involvement aspect of the campaign, we encourage you to participate in your care, by asking those caring for you if they have cleaned their hands. There are leaflets available to help you to do this and if you would like to learn more and join in the campaign please ask one of the nurses if you have not already seen a 'Handy Hygiene' leaflet.

The prevention of cross infections between patients can be achieved by simple measures



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There is always a risk of cross infection between patients in a hospital setting, as healthcare professionals have direct physical contact with many different individuals when providing care



An effective method of preventing cross infection is the routine cleaning of the dialysis stations between each patient's dialysis

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Equipment decontamination

Within the dialysis setting, an effective, yet simple, measure to prevent cross infection is the routine cleaning of the dialysis stations.

Great care is taken to decontaminate the dialysis machines between each patient's dialysis session. The machines are disinfected internally using a heat or bleach cycle after every use so that there is no risk of contamination with bacteria or blood-borne viruses.

As the external surfaces of the machines, and sometimes items of furniture, can become splashed with blood, all the external surfaces of the machines, couches and tables are wiped with a bleach solution after every patient's dialysis session.

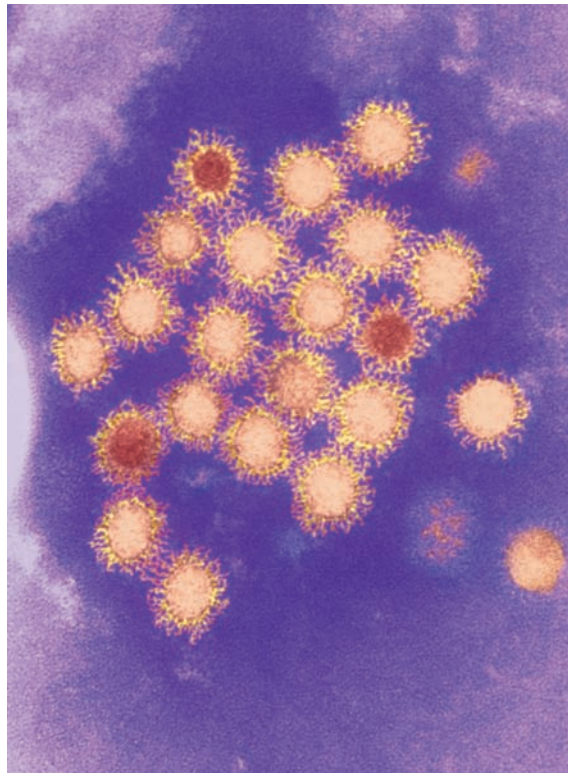
Isolation rooms

Patients carrying some types of organisms are managed in an isolation room. This is for one or more of the following reasons:

- Some infections, such as chickenpox or tuberculosis, are spread in the air
- Some infections can spread more readily if the environment becomes contaminated; for example, by blood splashes from a patient with hepatitis B
- Some organisms, such as MRSA, can spread on the hands of staff, and the isolation room reinforces the need for good hand decontamination.

Experience with MRSA over the last ten years has greatly increased because the organism has become common in UK hospitals. The risks of MRSA transmission in dialysis units are known to

be much lower than on the renal or transplant wards, and isolating patients with MRSA in dialysis units is unlikely to be having a significant impact on the spread of the organism. Most units, therefore, no longer isolate patients with MRSA during dialysis. However, if you have MRSA you are likely to be isolated on the renal and



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It is possible to carry the hepatitis B virus and feel completely well, so screening is carried out using regular blood tests throughout the duration of dialysis treatment



Taking infection control seriously

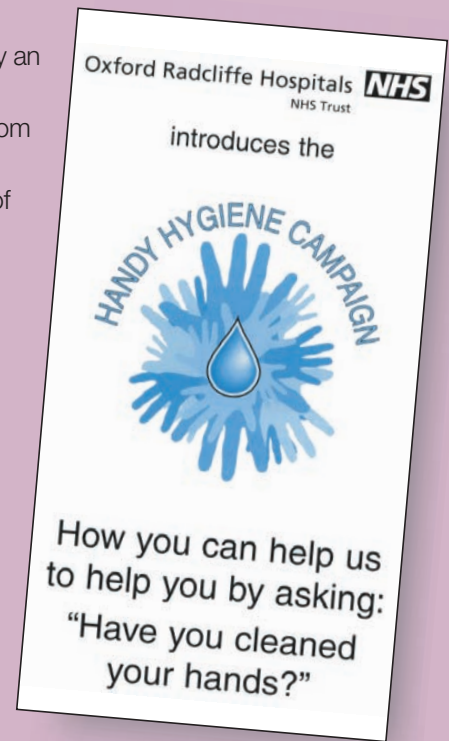
Infection control strategy group

Within the Oxford Kidney Unit there is an infection control strategy group led by an infection control doctor, which includes a nephrologist, an educationalist, a manager, a head nurse, a vascular access nurse and a representative nurse from each mode of dialysis. The purpose of this group is to develop strategies for effectively managing infection control within the unit. This includes monitoring of infection rates and using these data to improve the way services are provided.

Infection control link nurse

Working on each ward or department in the Oxford Kidney Unit you will also find a nominated infection control link nurse. These nurses, in addition to their regular role, focus on infection control-related issues within their area and are pivotal in promoting and maintaining high profiles for infection control developments, such as the Handy Hygiene Campaign that was launched in the Oxford Kidney Unit in 2001.

Infection control link nurses attend training sessions throughout the year and receive newsletters to keep them up to date on local and national issues. These nurses are used as a resource by both their colleagues and by patients. If you have any questions relating to infection control, please ask to speak to the infection control link nurse for your area, who will be happy to help with any queries.



transplant ward, to reduce the risks of spreading the bacterium to other patients.

How you can help to reduce your risk of infection during dialysis

Always wash your hands or use the alcohol hand-rubs available in the units when you have completed your dialysis session. This is very important if you have been holding a dressing over your fistula site after the needles are removed.

Try to be patient and allow staff time to complete hand decontamination and routine cleaning of the machines and furniture – even when the units are very busy or you are being delayed ■

If you would like to receive additional copies of the *What I tell my patients about...* feature from this issue, please send your request and mailing address by post to *BJRM* Patient Information, Hayward Medical Communications, Rosemary House, Lanwades Park, Kentford, Newmarket CB8 7PW.

NB: Patient information leaflets on *Reducing infection risks during haemodialysis treatment* and *Handy Hygiene Campaign* are available from Mary Jeffrey, Head Nurse, Oxford Kidney Unit, Churchill Hospital, Oxford Radcliffe Hospitals NHS Trust, Headington, Oxford OX3 7LJ.

Key points

- The most common infections affecting patients on dialysis are caused by a bacterium called *Staphylococcus aureus*.
- Infections caused by the methicillin-resistant form of *S aureus* (MRSA) require courses of antibiotic treatment.
- Dialysis machines are disinfected internally using a heat or bleach cycle after every use so that there is no risk of contamination with bacteria or blood-borne viruses.
- Isolating patients with MRSA in dialysis units is unlikely to have a significant impact on the spread of the organism, so most units no longer isolate patients with MRSA.