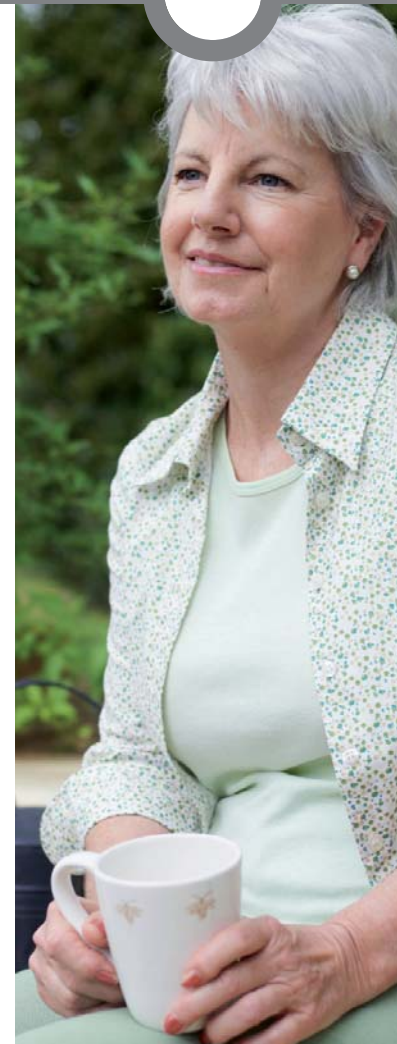
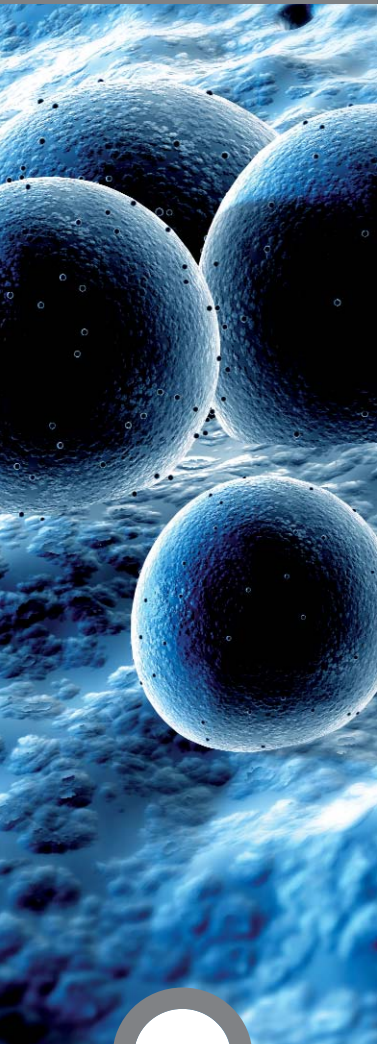


**MRSA:**

Separating Fact from Fiction

# Dispelling Misconceptions About **MRSA**



**The MRSA Working Group** | Separating Fact from Fiction



# Dispelling Misconceptions About MRSA

## MRSA is a 'superbug'

This is a term used by the media and may be misleading. MRSA stands for methicillin-resistant *Staphylococcus aureus*. It is a bacterium from the *Staphylococcus aureus* species that is resistant to some, but not all, antibiotics. The antibiotics that do not work against MRSA include penicillin-related antibiotics such as methicillin. However, several antibiotics can be used to treat MRSA infections, and the results can be good. *S. aureus* is a type of bacterium that commonly causes skin infections such as boils, abscesses and wound infections; it can also cause pneumonia and bloodstream infections. *S. aureus* is often found in the noses and on the skin of healthy people. About one in three people in the general population (30%) are 'carriers'. It has been suggested that about one tenth of them are carrying the MRSA strain of the bacteria (i.e. about 3% of the general population)<sup>1</sup> but this will vary according to the population and the age and hospital contact of the individual.

MRSA and *S. aureus* will not normally cause infection in a healthy person. However, if the bacteria enter particular sites in the body – for example, a surgical wound or the bloodstream – infection can occur. This may happen in the carriers themselves – for example, if they have a break in the skin (such as a wound or ulcer) or a catheter. Alternatively, the bacteria may be passed to another person. This is most likely to occur via someone's hands.

Therefore, the term 'superbug' is not generally helpful, as MRSA are generally no more virulent than other types of *S. aureus*, although selecting an antibiotic to treat infections effectively is more difficult. Also, patients who get MRSA infection tend to have other conditions (e.g. recent surgery or other illnesses) that complicate their treatment.

## If you get MRSA you will die

This is the exception rather than the rule. MRSA can be carried without any ill effects. The problems caused by MRSA and other bacteria occur when they gain access to sites where they can cause infection and do harm, such as in open wounds, or get into the bloodstream where they might enter via a catheter or tubes.

It is important to remember that even with serious bloodstream infections, many people are successfully treated with antibiotics specially designed to treat MRSA and can recover full health. Statistics can be a bit misleading, as people infected with MRSA are often already very ill with other conditions (which is why they are in hospital),<sup>2</sup> and this sometimes reduces their chance of recovery from MRSA infection. Older people are more at risk of the serious consequences of MRSA infection.

Recent research funded by the Department of Health found that most patients who died following MRSA infection in NHS hospitals in England between 2005 and 2007 were elderly: 80% were over 70 years of age, and there was only one MRSA death in a person under 50 years.<sup>2</sup>

## If you go into hospital there is a good chance you will get MRSA

Less than one in a thousand people in hospital will get a serious MRSA infection.<sup>3,4</sup> While this is still a high number, which needs to be reduced as a priority, it is important that people going into hospital, and their families and carers, have the correct information available to them, to enable them to make informed judgements for themselves about the relative risks of all aspects of their treatment.

## MRSA comes from dirty hospitals

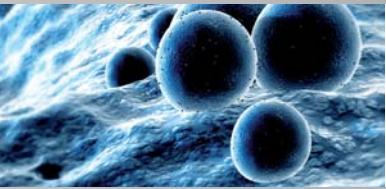
It is clearly essential that hospitals are kept clean, and some types of healthcare-associated infections are more likely to be spread from contact with dirty surfaces – such as *Clostridium difficile*. However, there is actually little evidence that MRSA is transmitted because of dirty floors or contaminated surfaces.

Even if a hospital is spotlessly clean, bacteria can still be brought in by the patients themselves or be transmitted by staff and visitors. Practising good hand hygiene is the most important way to prevent the spread of MRSA and other infections.

## MRSA is out of control and infection rates are soaring

In the UK, all serious cases of MRSA infection that are serious enough to reach the bloodstream have to be reported, which does not happen in most countries. This means that we have very accurate figures about the numbers of very severe cases here.

According to figures published by the Health Protection Agency (HPA), which is responsible for collating reports of MRSA bloodstream infections in the UK, rates of such infections have fallen recently. Dr Georgia Duckworth, a hospital infection expert at the HPA, has said that: "In 2006, MRSA numbers were beginning to show a slight fall, but it was premature to state then that this marked a downturn in the trend. However, the downward trend has continued and we are now confident that this heralds a real change."<sup>4</sup>



## Alcohol hand gels are sufficient to kill all bacteria

Good hand hygiene is vitally important. Alcohol-containing hand gels (or wipes) are very helpful, easy to use and effective against most types of bacteria, but hand washing with soap and water is necessary to remove other types (e.g. *Clostridium difficile*) and will also remove MRSA. It is also important to dry hands thoroughly after hand washing, as bacteria tend to thrive in moist conditions.

## Uniforms of doctors and nurses are to blame for the spread of MRSA

The spread of MRSA is caused by a number of different factors. Although poor hygiene practices by hospital staff can contribute, a recent report from the Department of Health Working Group on Uniforms and Laundry concluded that there is no firm evidence that uniforms (or other work clothes) pose a significant hazard in terms of spreading infection.<sup>5</sup>

## MRSA is a problem because of the NHS

All the countries of the developed world are affected by MRSA infections. Countries in the EU are affected to a greater or lesser degree. High rates of MRSA are seen in the USA and Japan, which have very modern healthcare systems.

## It is not safe for people with MRSA to be at home

This is wrong. It is in fact quite safe for people with MRSA to be at home, as long as they are otherwise well enough to be discharged from hospital. Sensible precautions to prevent the spread of MRSA (especially good hand hygiene) need to be taken if there is anyone at home who is particularly vulnerable (such as those with open sores/wounds or intravenous lines/catheters).

## People with MRSA should not be in care homes

This is not true. It is safe for people with MRSA to be in a care home, as long as basic hygiene precautions are followed. Indeed, recent Department of Health guidance on infection control in care homes stated that: "People affected by MRSA do not present a risk to the community

at large and should continue their normal lives without restriction. MRSA is not a contraindication to admission to a home or a reason to exclude an affected person from the life of a home."<sup>6</sup>

## People with MRSA are a danger to other people

People with MRSA do not represent a danger to healthy people. The risk is to people with open sores or wounds and those with intravenous lines or catheters. Providing sensible precautions (especially good hand hygiene) are taken, the risk of spread of MRSA to such people is low.

## There is no treatment for MRSA

This is not true. MRSA is sometimes more difficult to treat than other types of bacteria, as it does not respond to the most commonly used antibiotics. Also, people with MRSA infection sometimes have other illnesses that complicate the treatment. However, there are several antibiotics available to treat MRSA effectively.

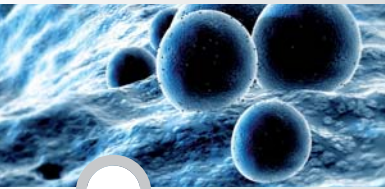
## The antibiotic vancomycin is the last line of defence against MRSA

Vancomycin is an antibiotic commonly used to treat MRSA. There are several alternative antibiotics that can be used to treat MRSA infections, and some of these can be given by mouth as tablets.

## We will never get rid of MRSA from our hospitals

It is very important that hospitals continue with their policies to drive down the levels of MRSA infection. However, about 3% of the general population may carry MRSA and some of them will continue to need to be admitted to, or visit, hospitals.

There will therefore be a continued risk of MRSA infections developing, even in spotlessly clean hospitals where excellent hand and other hygiene standards are maintained. However, as newer antibiotics are introduced these will help to manage the challenge.



## MRSA – the facts

### What is MRSA?

MRSA stands for methicillin-resistant *Staphylococcus aureus* (*S. aureus*), so called because it is resistant to methicillin and related antibiotics such as penicillin and amoxicillin. It is otherwise no different from other *S. aureus* bacteria. MRSA is found in the noses and on the skin of about 3% of the general population, in whom it usually causes no harm.<sup>1,7</sup>

### What happens when *S. aureus* and MRSA cause harm?

If *S. aureus* bacteria (including MRSA) enters the body through a wound or gets into the bloodstream, infection can occur.<sup>1</sup> This can lead to skin infections, pneumonia (lung infection) and bacteraemia (bloodstream infection). MRSA infection can be very serious, leading to prolonged hospital stays and sometimes death. MRSA is one of the most common healthcare-associated infections in the UK.<sup>8</sup>

### History of MRSA

*S. aureus* was identified as a cause of wound infections in the 1880s.<sup>1</sup> Before the discovery of penicillin in the 1940s, most people with *S. aureus* bloodstream infection died.<sup>9</sup> By 1959, most strains (types) of *S. aureus* had developed resistance to penicillin. Following the development of methicillin, rare cases and outbreaks of MRSA were reported in the 1960s and 1970s.<sup>1</sup> MRSA became more widespread in the 1980s, and certain strains established themselves in UK hospitals in the mid-1990s. MRSA of different types from those found in hospitals can be contracted outside hospitals, so-called community-acquired MRSA, though this is currently rare in the UK.<sup>10</sup>

### Effects of MRSA

MRSA may enter the body through a wound, causing wound infection or abscesses, and can also infect or grow in skin ulcers. If it enters the bloodstream, e.g. through intravenous lines or catheters, the patient is said to have bacteraemia.<sup>1</sup> The bacteria can then spread to other parts of the body, causing deep abscesses. Septicaemia (systemic infection of the blood) is the most serious type of MRSA infection. If MRSA enters the lungs of a patient in intensive care who is supported on a ventilator, it can cause pneumonia.<sup>1</sup>

### Who is at risk from MRSA?

In general, healthy people are not at risk of MRSA infection in hospital. Factors that increase the risk include length of stay in hospital, use of multiple antibiotics, severity of illness, recent surgery, use of invasive procedures and presence of medical devices (e.g. catheters and tubes).<sup>11</sup> The problem can be made worse by poor compliance with hand cleaning and other hygienic practices by healthcare staff, patients and visitors, and the lack of availability of single rooms for isolation of people with MRSA infection.

### What is the size of the problem?

It is believed that 9% of patients in hospitals in England (about 100,000 people per year) have healthcare-associated infections, many of which are due to MRSA.<sup>8</sup> There are between 6,000 and 7,000 MRSA bloodstream infections each year in patients in NHS hospitals in England.<sup>4</sup> In 2005 in England and Wales, 1,629 death certificates mentioned MRSA as a contributory factor, and MRSA was cited as the main cause of death in 467 of these cases.<sup>12</sup>

## References

1. Department of Health. A simple guide to MRSA. [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4113886](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4113886) (accessed 23 Sept 2007)
2. Health Protection Agency. *National Confidential Study of Deaths Following Methicillin-Resistant Staphylococcus aureus Infection*. London: HPA, 2007. (Available at: [http://www.hpa.org.uk/publications/2007/mrsa\\_deaths/MRSA\\_mortality.pdf](http://www.hpa.org.uk/publications/2007/mrsa_deaths/MRSA_mortality.pdf))
3. Hospital Episode Statistics. Headline figures: NHS hospitals, England, 2006–07. [www.hesonline.nhs.uk/Ease/servelet/ContentServer?siteID=1937&categoryID=193](http://www.hesonline.nhs.uk/Ease/servelet/ContentServer?siteID=1937&categoryID=193) (accessed 12 Dec 2007)
4. Health Protection Agency. Surveillance of Healthcare Associated Infections Report. 1 November 2007. (Available at: [www.hpa.org.uk/publications/2007/HCAI/hcai.pdf](http://www.hpa.org.uk/publications/2007/HCAI/hcai.pdf))
5. Department of Health. *Uniforms and workwear: an evidence base for developing local policy*. London: DH, 2007. (Available at [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_078433](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_078433))
6. Department of Health. Infection control guidance for care homes. London: DH, 2006. (Available at [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4136381](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4136381))
7. Royal College of Nursing. *Methicillin-resistant Staphylococcus aureus (MRSA): guidance for nursing staff*. London: RCN, 2005. (Available at [www.rcn.org.uk/resources/mrsa/downloads/Wipe\\_it\\_out-MRSA-guidance\\_for\\_nursing\\_staff.pdf](http://www.rcn.org.uk/resources/mrsa/downloads/Wipe_it_out-MRSA-guidance_for_nursing_staff.pdf))
8. Comptroller and Auditor General. *The management and control of hospital acquired infection in acute NHS trusts in England*. London: National Audit Office, 2000. (Available at [www.nao.org.uk/publications/nao\\_reports/9900230.pdf](http://www.nao.org.uk/publications/nao_reports/9900230.pdf))
9. Lowy FD. Antimicrobial resistance: the example of *Staphylococcus aureus*. *Journal of Clinical Investigation* 2003; 111: 1265–1273.
10. Waltham Forest Primary Care Trust. *Staphylococcus aureus & community-acquired MRSA*, June 2006. [www.walthamforest-pct.nhs.uk/Publications/docs/Clinical%20services%20leaflets/staphylococcus.pdf](http://www.walthamforest-pct.nhs.uk/Publications/docs/Clinical%20services%20leaflets/staphylococcus.pdf) (accessed 12 Sept 2007).
11. Chief Medical Officer. *Winning ways: working together to reduce healthcare associated infection in England*. London: Department of Health, 2003. (Available at [patientexperience.nhsestates.gov.uk/clean\\_hospitals/ch\\_downloads/policy/winning\\_way\\_s.pdf](http://patientexperience.nhsestates.gov.uk/clean_hospitals/ch_downloads/policy/winning_way_s.pdf))
12. Office for National Statistics. Deaths involving MRSA. [www.statistics.gov.uk/StatBase/Product.asp?vlnk=13571](http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=13571) (accessed 26 Sept 2007).

