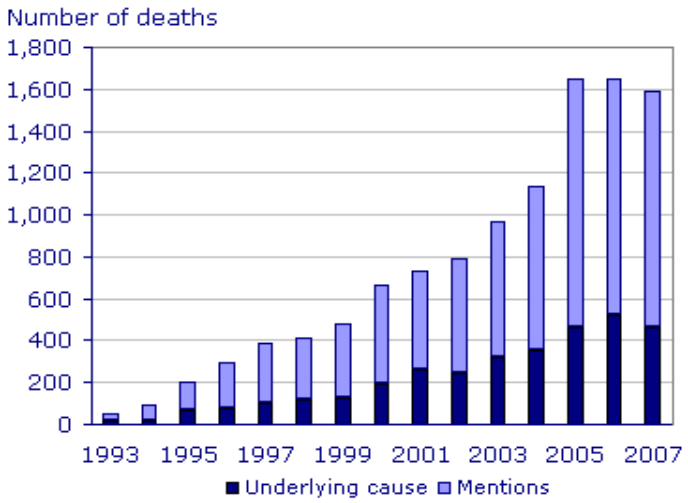
MRSA: A Guide for General Practitioners

This guide contains prescribing information which is presented more fully in the Community Antibiotic Guidelines June 2008. For further advice the PCT Infection Control Nurses are available on 01743 497031. Antimicrobial prescribing advice can be obtained from the Consultant Microbiologists on 01743 261000 or as per the recent guidelines.

What is MRSA?



Source: National Statistics UK

Number of death certificates mentioning *Staphylococcus aureus* by meticillin resistance, England and Wales

- The *Staphylococcus aureus* bacterium is commonly denoted either meticillin-sensitive (MSSA) or meticillin-resistant (MRSA)
- Asymptomatic carriage/ colonisation of nose, skin, axilla or groin with *Staphylococcus aureus* is found in up to a third of the population and a proportion of these are MRSA.
- All MRSA are resistant to flucloxacillin, all cephalosporins and co-amoxiclav; most isolates are also resistant to erythromycin, clarithromycin and ciprofloxacin; mupirocin-resistant strains are particularly difficult to eliminate.
- Some MRSA have epidemic potential = EMRSA

Who is at risk of acquiring MRSA?

- older patients (82% of patients with MRSA are over 60 yrs old)
- patients who have been recently or recurrently hospitalised or are resident in a long-term care facility because MRSA is now endemic in many hospitals, nursing and residential homes in the UK and abroad
- those known to have been colonised or infected with MRSA in the past - it can persist for months or years
- patients with broken skin (eczema, wounds, pressure sores, ulcers, IV cannula exit sites)
- patients with urinary catheters, feeding tubes, on dialysis
- patients with severe underlying disease

How can MRSA be diagnosed?

- appropriate clinical samples (e.g. pus, swabs from lesions, sputum, CSU, etc) should be sent to the microbiology department to assess the antibiotic sensitivities of the organism

Management of colonisation with MRSA

- a patient from whom MRSA is isolated but who is not suffering from an obvious infection is said to be colonised
- patients suffering from **clinical infection** with MRSA will usually need antibiotic therapy but treatment of **colonisation** with MRSA is **not** recommended unless the patient is likely to be admitted to hospital or has another clinical indication
- in one study 25% of patients who were colonised with MRSA on admission to hospital subsequently developed MRSA infection so pre-admission screening and elimination of colonisation with MRSA has become one of the measures used to control MRSA in 2° care
- nasal carriage alone with mupirocin-susceptible MRSA should be treated with mupirocin intranasally tds to both nostrils for 7 days, applied with a dry swab to the septum and rubbed in from the outside of the nose until tasted at the back of the throat; starting a week after treatment clearance may be checked by sending a nasal swab weekly for 3 weeks
- if the patient has a skin lesion growing the same mupirocin- and tetracycline-susceptible MRSA as that in the nose, doxycycline 100mg bd po for 14 days in addition to mupirocin intranasally as above is required for clearance (NB avoid taking milk/ antacids/ iron with doxycycline; avoid doxycycline in pregnancy)

Management of infection with MRSA

- in the assessment of *Staphylococcal* infections the questions considered include:
    - what is the severity of illness?
    - should microbiological assessment be undertaken?
    - should antibiotic therapy be started?
    - is adjunct therapy required (e.g. drainage of an abscess)?
    - does the patient need hospital admission?
    - what information should be given to the patient and carers?
- in primary care *S. aureus* most commonly causes skin and soft tissue infections, especially when the skin is broken in eczema, by a surgical wound or by an intravenous device.
- in general, MSSA can be managed with reference to the Community Antibiotic Guidelines May 2008, while MRSA requires individual microbiological assessment of the sensitivity of the organism to different antibiotics
- for example, for impetigo and infected eczema: for MSSA topical and oral treatment produces similar results so first line treatment is flucloxacillin 500mg QDS for 7 days (due to increasing resistance topical fusidic acid QDS for 5 days reserved for very localised lesions, reserve mupirocin for MRSA); for MRSA follow microbiological advice based on antibiotic sensitivities: for tetracycline- and erythromycin-resistant MRSA in infected soft tissue lesions consider oral linezolid therapy under direction of named consultant microbiologist (NB course length restricted and risk of marrow suppression so weekly FBC and platelets)
- more rarely *S. aureus* enters the blood stream, which can lead to septicaemia, septic arthritis, osteomyelitis, meningitis, pneumonia and internal abscesses; in a recent study of hospitalised patients overall mortality 30 days after *Staphylococcal* bacteraemia was 29%

How can the prevalence of MRSA be reduced?

- care in use of antibiotics: broad spectrum antibiotics kill disease-causing organisms but also many commensals which can lead to proliferation of pathogenic bacteria resistant to the antibiotic; a recent

report using the UK GP Research database showed that there was a significant association between community-acquired MRSA and the use of quinolone or macrolide antibiotics in the previous year
- refer to the Community Antibiotic Guidelines June 2008 for prescribing advice based on local patterns of antibiotic resistance
- if appropriate limit course of antibiotics to 5 days
- bacteria are always present in leg ulcers but antibiotics do not improve healing, culture swabs and antibiotics are only indicated if there is evidence of clinical infection (cellulitis with >2cm surrounding erythema, increased pain, enlarging ulcer or pyrexia); otherwise refer to the Shropshire Wound Management Formulary for appropriate wound dressings
- prevent cross-infection by effective hand washing before and after patient contact; appropriate use of gloves, aprons, etc.; occlusive dressings for MRSA-colonised/ infected lesions; environmental hygiene; equipment sterilisation /use of disposables
- send swabs, CSU, etc. only if clinically indicated (e.g. evidence of infection)
- provide support and information for patients and carers
- screen healthcare staff or close relatives only on advice from consultant microbiologist

How can care homes prevent the spread of MRSA?

- Every care home should have a copy of the Shropshire and Staffordshire Health Protection Unit Infection Control Guidelines
- Staff should practice good hygiene at all times; this is vital in preventing the spread of all infections
- Healthcare workers should wear a clean uniform/clothing for each shift and adopt 'bare below the elbows' for each patient contact
- Disposable gloves and aprons should be worn when changing dressings, attending to catheters or providing direct personal care. These should be removed on completion of a task or before moving on to another resident. Hands should be washed after removal of gloves
- Lesions colonised/infected with MRSA should be covered with occlusive dressings (as any wound)
- Residents with MRSA should be encouraged and helped in normal hand washing / good hygiene, including regular baths
- Residents with MRSA should if possible occupy a single room with en-suite facilities
- Residents with MRSA may join other residents for social activities in the sitting room, dining room, etc., as long as the open skin lesions are kept covered with an occlusive dressing
- Avoid sharing personal items such as towels or razors
- Equipment used with patients should be disposable or cleaned after each patient use
- Daily cleaning should include damp dusting of all horizontal surfaces and sinks using warm water and detergent. Disposable cleaning cloths should be used and discarded after use
- Encourage visitors/relatives to wash their hands

Outbreaks (two or more related cases) in Care Homes must be reported to the Health Protection Unit on telephone **01743 261353 or 01785 221126.** The unit will advise on special measures for staff, residents and visitors to follow.

References

Davis KA, Stewart JJ, Crouch HK, Florez CE, Hospenthal DR. Methicillin-resistant *Staphylococcus aureus* (MRSA) nares colonisation at admission and its effect on subsequent MRSA infection. Clin Infect Dis. 2004; 39(6):776-782

Wyllie DH, Crook DW, Peto TEA. Mortality after *Staphylococcus aureus* bacteraemia in two hospitals in Oxfordshire, 1997-2003: cohort study. BMJ, doi:10.1136/bmj.38834.421713.2F (published 23 June 2006) downloaded from bmj.com on 20 August 2008.

FKGould, R Brindle, PR Chadwick, AP Fraise, S Hill, D Nathwani , GL Ridgway, MJ Spry, RE Warren. Guidelines (2008) for the prophylaxis and treatment of meticillin-resistant *Staphylococcus aureus* (MRSA) infections in the United Kingdom. For the BSAC/MRSA Working Party. Downloaded from www.bsac.org.**uk**/_db/_documents/**MRSA**_Consultation_Aug_08.pdf on 20 August 2008.

Schneider-Lindner V, Delaney JA, Dial S, Dascal A, Suissa S. Antimicrobial drugs and community-acquired meticillin-resistant *Staphylococcus aureus*, United Kingdom. Emerg Infect Dis, Vol 13(7), 994-1000.