NHS
Quality Improvement Scotland

Understanding our Advice ~ *October 2007*

The clinical and cost effectiveness of screening for meticillin-resistant *Staphylococcus aureus* (MRSA)

Purpose of this document

NHS Quality Improvement Scotland (NHS QIS) has issued advice to **NHSScotland** on screening for meticillin-resistant *Staphylococcus aureus* (MRSA) to prevent infection with MRSA.

Screening is one of a range of measures that can be put in place in hospitals to control the spread of infections, such as MRSA. Screening involves taking samples from certain sites on the body such as the inside of the nose or throat. These samples are analysed to identify patients who are carrying MRSA as this can increase their risk of developing an infection and spread MRSA to other patients.

We have advised that a study is set up in a number of hospitals to assess whether screening for MRSA in *all* patients who are admitted to hospitals is effective in preventing MRSA infections.

This booklet has been produced to explain our advice on MRSA screening to people who do not have specialist knowledge in this area.

It explains what MRSA is, how screening can help to prevent and reduce MRSA infections, how we formed our advice and the evidence we considered.

The full evidence is discussed in detail in our report called *Health Technology Assessment 9: The clinical and cost effectiveness of screening for meticillin-resistant Staphylococcus aureus (MRSA)*. Copies of the report are available from NHS QIS and on our website, www.nhshealthquality.org

The words in **bold** are explained in the **Glossary** at the end of this document.

What is MRSA?

MRSA stands for meticillin-resistant *Staphylococcus aureus. Staphylococcus aureus* is a germ that is commonly carried by about 3 in 10 healthy people, particularly on the skin or in the nose, and does not cause them any harm. This is known as **colonisation**. People may be colonised with *Staphylococcus aureus* for a short period of time or for longer. *Staphylococcus aureus* only becomes a problem for people who are vulnerable to **infection** – for example, the elderly, the very young and those with conditions such as diabetes or kidney disease. It can cause an infection if it enters the body through broken skin or through tubes (such as catheters). The illnesses *Staphylococcus aureus* causes can be harmless localised skin and wound infections, or more serious conditions such as blood poisoning.

MRSA is a germ that has become resistant to a group of **antibiotics**. It is one of many different kinds of infections that are common in hospitals or other healthcare facilities. MRSA infections can be treated intensively with antibiotics and patients colonised or infected with MRSA may need to be isolated in a single-bedded room during this time.

MRSA infection can complicate the treatment of the condition for which a patient was originally admitted to hospital. It can cause further distress, slow a patient's recovery, increase the length of their hospital stay and lead to permanent disability. In some cases, MRSA infections can cause death.

How screening can prevent MRSA infections?

Preventing and controlling the spread of MRSA infections is a national priority for NHS staff.

MRSA is mainly spread from one person to another by hand contact. Washing your hands thoroughly is one of the best ways of stopping the spread of MRSA. You can also use alcohol hand gels or rubs.

MRSA is most commonly spread between patients on the hands of NHS staff as the hands of healthcare workers can briefly be colonised with MRSA. Guidelines advise that screening of staff who persistently carry MRSA should take place when there are outbreaks of MRSA infection on wards for which a cause cannot be identified or despite there being strict **infection control measures** in place. We have not found enough evidence to recommend regular staff screening for MRSA and we consider current guidelines to be appropriate. Handwashing between patient contacts is the most important way to prevent spread of MRSA, and healthcare staff are expected to do this.

Screening helps to identify patients who are colonised with MRSA and it is an important way to control the spread of MRSA infection. Screening can be carried out before a patient is admitted to hospital (for example, when their treatment is planned, such as before planned surgery) or on admission to hospital for patients who require urgent treatment.

Screening all patients who receive healthcare can be difficult so **clinical risk assessment** helps to target screening at certain groups of patients who have a greater risk of MRSA colonisation. Clinical risk assessment takes place when a patient is admitted to hospital. We found that about 6 out of 10 infection control units carry out some assessment of risk of MRSA colonisation when patients are admitted to hospital and 4 in 10 units assess whether a patient is more likely to get an MRSA infection.

Patients who are admitted to the following units are more at risk of getting an MRSA infection, eg intensive care, burns unit, transplant unit, chest surgery ward, trauma, heart surgery wards, kidney wards and bone surgery units. However, the findings of our report showed that the best way to stop the spread of MRSA was to screen *all* patients who were admitted to high-risk (eg intensive care) and low-risk (eg skin conditions) hospital units. We also found that screening all patients with a laboratory test more accurately identified patients with MRSA than screening based on clinical risk assessment only.

A number of different laboratory testing methods are available to screen for MRSA. The methods considered in our study were screening agar, chromogenic agar and polymerase chain reaction. We found that chromogenic agar was the most accurate method of identifying MRSA at a low cost and relatively quickly.

Patients who do not feel unwell but are carrying MRSA in their noses or on other parts of their body should be offered antiseptic skin cleansers and ointments to remove MRSA. This procedure is called **decolonisation**. It involves using an antiseptic body wash once a day for bathing and applying antibiotic cream to the nose three times a day for about 5 days. After one course of decolonisation, patients are tested to check if they are free of MRSA.

Screening helps to identify patients who are colonised with MRSA and should be separated from others in a single-bedded room to prevent the spread of MRSA infection. We found evidence that **isolation** was effective at stopping the spread of MRSA. However, patients often feel very anxious and distressed at being isolated and we found evidence that there are a number of small changes that could be made to improve the quality of care patients receive while in isolation. We have recommended that patients with MRSA receive clear understandable information about

their condition and how it is being managed, and patients have every opportunity to discuss their concerns with healthcare staff and do not feel that they or their care is being disadvantaged.

Although we hear a lot about MRSA in the media, there is confusion about what MRSA is, how you can get it and whether it can be treated. We have advised that clear and reliable information on MRSA is available to all patients who are admitted to hospital and their relatives, which explains why screening takes place and how simple measures such as handwashing can help to reduce the spread of MRSA.

What we have recommended

We have advised that a study is set up in a number of hospitals to assess whether screening for MRSA in *all* patients who are admitted to these hospitals is effective in preventing MRSA infections. The data collected from this study will help to decide whether MRSA screening should be introduced in other areas across Scotland.

We have advised that NHS staff are not screened regularly for MRSA but current guidelines on staff screening when there are unexplained outbreaks should be followed.

We have advised that:

- clear and understandable information on what MRSA is and why screening takes place should be given to all patients who are admitted to hospital and their relatives.

- patients colonised with MRSA who are being cared for in isolation should not feel disadvantaged and that their care should not be compromised.

How we formed our advice

We used an internationally recognised process called **Health Technology Assessment** to form our advice. The assessment took account of the social, ethical, medical and economic implications of introducing MRSA screening.

It brought together:

scientific evidence (eg published studies)

+

expertise of healthcare professionals

+

needs and preferences of people who have had an MRSA infection while considering the way NHSScotland is organised and how patients are currently managed.

We spoke to doctors, nurses, **microbiologists**, **infection control staff,** members of the **healthcare associated infection (HAI) Task Force**, **Health Protection Scotland** and patients to consider all the evidence. The evidence was recorded in a consultation report that we published. Comments received during consultation were published on the web and taken account of in our scientific document, the Health Technology Assessment report.

Evidence used

We use the word 'evidence' to include information collected from a variety of sources, and we use different types of evidence to answer different types of questions. For example:

- Clinical effectiveness

How effective is clinical risk assessment at reducing MRSA infection? What is the most effective and accurate laboratory testing method for MRSA?

Evidence came from healthcare professionals and published studies.

- Cost and benefits

Is it cost effective to screen all patients or should we target selected groups of patients for MRSA screening? What are the costs of screening and isolating patients?

Evidence came from healthcare professionals, studies we made about costs and savings, information about clinical effectiveness and published studies.

- Organisational issues

What MRSA screening services are currently provided in Scotland? What effect would screening have on laboratory resources and staff training?

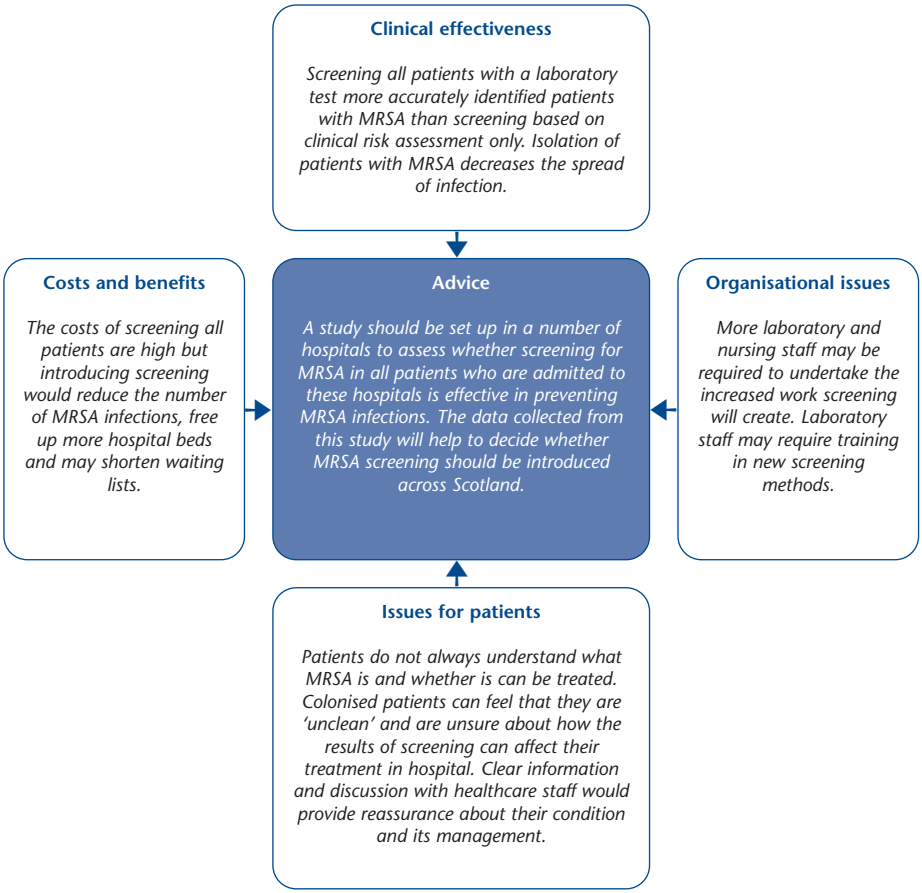
Evidence came from studies, a national survey we undertook and expert opinion.

- Issues for patients

How much do patients understand about MRSA? How do MRSA-colonised patients feel about being isolated, and does this result in different clinical care?

Evidence came from published studies and discussion groups with patients and staff.

The following diagram is an example of how all four types of evidence came together to help form our Advice.



Source of support and information

Further information about screening and MRSA is available from Health Protection Scotland (www.hps.scot.nhs.uk), tel: 0141 300 1100.

The NHS QIS scientific report, *Health Technology Assessment 9: The clinical and cost effectiveness of screening for meticillin-resistant Staphylococcus aureus (MRSA)*, is available from NHS QIS or its website, www.nhshealthquality.org

Glossary

Antibiotics	Medicine to treat infections caused by types of germs called bacteria.
Clinical risk assessment	An assessment of a patient's risk of carrying MRSA based on their previous medical history.
Colonisation	Carrying MRSA on the skin or other body sites but without it causing harm.
Decolonisation	The process of removing MRSA from the body.
HAI Task Force	A group set up by the Scottish Executive Health Department (now Scottish Government Health Directorates) to tackle healthcare associated infections across NHSScotland.
Health Protection Scotland	An organisation established under the direction of the Scottish Executive Health Department to strengthen and coordinate health protection in Scotland.
Health technology	An intervention used to promote health; prevent, diagnose or treat disease; or provide rehabilitation or long-term care. This includes medicines, devices, clinical procedures and healthcare settings.
Healthcare associated infection	Infections that are contracted in hospital or when attending infection healthcare facilities.
Infection	The invasion of harmful germs in body tissues.
Infection control staff	NHS staff who specialise in preventing healthcare associated infections within hospitals and their spread.

Infection control measures	Methods to improve keeping hands clean, such as alcohol-based hand hygiene products.
Isolation	The separation of MRSA colonised and infected patients from other patients by placing them in a single-bedded room with dedicated nursing.
Microbiologist	A doctor that specialises in germs that can cause disease.
NHSScotland	National Health Service in Scotland.
Scottish Executive	Formerly the name of the Scottish Government. See Scottish Government.
Scottish Government	The devolved government for Scotland, with responsibilities including health policy and the administration of NHSScotland. Until September 2007, the devolved government was named the Scottish Executive.

NHS Quality Improvement Scotland

Our role is to improve the quality of healthcare in Scotland. We provide clear, authoritative advice on effective clinical practice, set national standards and monitor and publish reports on performance. We also advise on health interventions that are value for money, produce clinical guidelines and support the implementation of clinical governance. To advise on value for money, we must balance how well a treatment works with how much it costs.

Feedback

Understanding our advice aims to explain the work of NHS QIS in a way that everyone can understand. We would warmly welcome feedback on this brochure. For example, have we clearly explained our advice on screening for MRSA and do you have any questions about our advice that were not answered here? Please give feedback to Karen Ritchie, Senior Health Services Researcher, NHS Quality Improvement Scotland, Delta House, 50 West Nile Street, Glasgow G1 2NP, tel. 0141 225 6891, email: karenritchie@nhs.net

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You can look at this document on our website. It is also available, if you ask:

- in electronic format
- in audio cassette
- in Braille
- in large print
- in community languages.

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