HealthManagement
Promoting Management and Leadership

Volume 10, Issue 2 /2008 - Med Tech

MRSA Management: A Cost Efficiency Problem in Crossborder Hospitals?

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There is a great variation in prevalence of Meticillinresistant Staphylococcus Aureus (MRSA) in different countries in Europe, with the lowest rates in the Scandinavian countries and in the Netherlands. The prevalence ranged from more than 35% in the Southern part of Europe to around 1% in the Northern countries including the Netherlands. These variations have hampered, among other things, free access of patients to healthcare facilities in the different countries of the European Union, and more particularly the transfer of patients from hospitals in countries with a high to those with a low prevalence.

University Hospital Maastricht

The University hospital Maastricht (UHM), located in the Southern part of the Netherlands close to the border with Germany and Belgium, works in close cooperation in the field of surgery, especially cardiac surgery, with the University Hospital of Aachen (Germany) and the hospital of Tongeren (Belgium). Medical specialists working at UHM also perform surgery in Aachen and in Tongeren.

Within that context, it is interesting to look into the cost of the current MRSA policy at the UHM as well a into the impact of this policy on the crossborder transfer of patients between healthcare institutions and more generally, on the cooperation between crossborder hospitals.

MRSA Policy at the UHM

The Netherlands (including the UHM) and the Scandinavian countries have implemented a so-called “Search and Destroy policy” against MRSA. Furthermore, patients at high risk to be a carrier of MRSA will be put in isolation (i. e. in a separate room) until the results excluding MRSA carriage are known.

This policy consists of

1. Actively screening patients and healthcare workers (HCWs) for the presence of MRSA. Both infections and colonisation (i.e. presence of MRSA without any complaints) of patients and HCW will be recorded. HCWs who appear to be MRSA positive are excluded from direct care of patients, and decolonised with mupirocin. They are allowed to return to patient care as soon as screening cultures are MRSA negative. MRSA positive patients are decolonised with mupirocin and attended to in a separate room with a separate nursing team. When the therapeutic treatment is finished, control cultures will be taken to ensure eradication of MRSA.

2. All patients admitted to the UHM and presenting MRSA risk factors upon admission will be screened for the presence of MRSA. According to the estimated risk of MRSA colonisation, patients will be categorised in low or high risk groups. High risk patients include patients admitted to a foreign hospital for at least 24 hours as well as additional risk factors such as a recent operation or mechanical ventilation.

These patients will be put in isolation (i.e. in a separate room) until the results excluding MRSA are known. If no MRSA is found, the isolation is discontinued. In case the patient is MSRA positive, the isolation will be continued until control cultures are negative after treatment, on average after at least 14 days. Furthermore, a separate nursing team will take care of the MRSA positive patient only.

This also applies to patients admitted to crossborder hospitals. Consequently, availability of isolation rooms and adequate staffing are prerequisites to transfer patients between crossborder hospitals, espe cially between countries with a different prevalence of MRSA such as in the Euregion Maas-Rhine:

Cost of the Current Search and Destroy MRSA Policy

The costs and the financial cost-benefit break-even point of the current MRSA policy was calculated using retrospective data from the UHM.

The annual costs of pro-active screening was 1,383,200 euros. MRSA prevention and treatment of S.aureus bloodstream infections amounted to 2,736,762 euros. The total costs for the Search and Destroy policy is lower than the costs of treating S. aureus blood stream infections. Simulation of different ratios of MRSA and methi cillin susceptible S. Aureus showed that even if the MRSA prevalence is 8% or lower this policy is still cost-effective.

The Search and Destroy policy which includes pro-active screening for the presence of MRSA and isolation of patients at risk is expensive, but the policy contributes substantially to the containment of the MRSA problem in the Netherlands and Scandinavia. Without preventive measures the prevalence of MSRA will steadily increase as MRSA will spread between patients and between patients and HCWs.

In crossborder hospitals, the rate of patients at risk for MRSA will be higher compared to other hospitals and consequently more patients will be put in isolation until test results excluding MRSA are known. The implementation of (molecular) methods either “homemade” or commercially available to rapidly identify

MRSA will reduce the number of isolation days substantially and thus healthcare expenses.

Conclusion

From an economic point of view, the Search and Destroy policy is an efficient way to maintain a low level of MRSA. Implementation of this policy which include actively searching for MRSA positive HCW and patients, both infected and colonised, is essential for crossborder hospitals. It facilitates crossborder healthcare and contributes to the reduction of the prevalence of MRSA and/or to the preservation of a low prevalence of MRSA.

Furthermore, a harmonisation of protocols for the detection of MRSA and for the screening of patients to transfer to another hospital, will facilitate crossborder healthcare.

Published on : Tue, 5 Feb 2008