

Estimating the effectiveness of isolation and decolonization measures in reducing transmission of methicillin-resistant staphylococcus aureus in hospital general wards

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Abstrak

Infection control for hospital pathogens such as methicillin-resistant *Staphylococcus aureus* (MRSA) often takes the form of a package of interventions, including the use of patient isolation and decolonization treatment. Such interventions, though widely used, have generated controversy because of their significant resource implications and the lack of robust evidence with regard to their effectiveness at reducing transmission. The aim of this study was to estimate the effectiveness of isolation and decolonization measures in reducing MRSA transmission in hospital general wards. Prospectively collected MRSA surveillance data from 10 general wards at Guy's and St. Thomas' hospitals, London, United Kingdom, in 2006-2007 were used, comprising 14,035 patient episodes. Data were analyzed with a Markov chain Monte Carlo algorithm to model transmission dynamics. The combined effect of isolation and decolonization was estimated to reduce transmission by 64% (95% confidence interval: 37, 79). Undetected MRSA-positive patients were estimated to be the source of 75% (95% confidence interval: 67, 86) of total transmission events. Isolation measures combined with decolonization treatment were strongly associated with a reduction in MRSA transmission in hospital general wards. These findings provide support for active methods of MRSA control, but further research is needed to determine the relative importance of isolation and decolonization in preventing transmission.