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# A systematic review on prevention of Methicillin-Resistant Staphylococcus aureus infection by pre-admission screening: The cost effectiveness and practicality

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Background: Methicillin Resistant Staphylococcus aureus (MRSA) is a common source of nosocomial infection, which is spreading through the community and hospitals across the countries. The performance of screening program really needs major effort related to laboratory capacity and ethical consideration, among other costly components. Significant literature research was conducted to review the cost, effectiveness and practicality of different methods of pre-admission MRSA screening in the hospital setting. A systematic literature review was conducted with search strategy using the PubMed Medline, Scopus and the Science Direct databases. The relevant data was abstracted from all studies based on various countries which in line with the finalized eligibility criteria. Results: PCR method was reported to have high sensitivity with low turnaround time as compared to culture method. A review of selected studies found the increasing annual costs of screening from standard culture, chromogenic agar to rapid PCR. In the meantime, other studies reported the total costs for labor and materials was lower for rapid PCR screening compared to culture methods. The culturing method offers a high level of variability due to time consumption and additional costs. Whereas PCR was reported as advantageous in term of saving time to identify MRSA positive patients, which involved isolation, thus increase the effectiveness of screening programs. It can pick up false negative results by conventional methods in the early condition of disease. Conclusion: Most studies verified that PCR is the most accurate method for detection of MRSA with Xpert MRSA having the best performance. Otherwise, oxacillin agar screen was revealed as a good alternative method to PCR. Targeted screening on high risk patients using rapid PCR may be the best choice to be implemented, in order to balance the economic and practicality of screening. We recommend that further clinical studies should be done to provide a sharp evidence of MRSA screening.

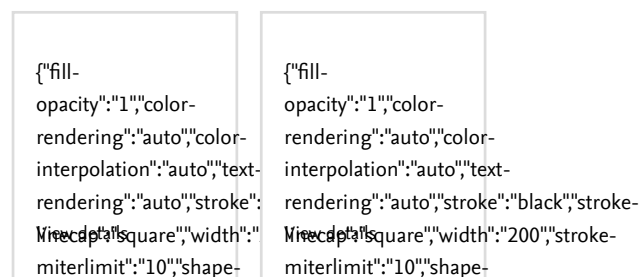
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