

Global implementation of WHO's multimodal strategy for improvement of hand hygiene: a quasi-experimental study

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Source

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Abstract

BACKGROUND: Health-care-associated infections are a major threat to patient safety worldwide. Transmission is mainly via the hands of health-care workers, but compliance with recommendations is usually low and effective improvement strategies are needed. We assessed the effect of WHO's strategy for improvement of hand hygiene in five countries.

METHODS: We did a quasi-experimental study between December, 2006, and December, 2008, at six pilot sites (55 departments in 43 hospitals) in Costa Rica, Italy, Mali, Pakistan, and Saudi Arabia. A step-wise approach in four 3-6 month phases was used to implement WHO's strategy and we assessed the hand-hygiene compliance of health-care workers and their knowledge, by questionnaire, of microbial transmission and hand-hygiene principles. We expressed compliance as the proportion of predefined opportunities met by hand-hygiene actions (ie, handwashing or hand rubbing). We assessed long-term sustainability of core strategy activities in April, 2010.

FINDINGS: We noted 21 884 hand-hygiene opportunities during 1423 sessions before the intervention and 23 746 opportunities during 1784 sessions after. Overall compliance increased from 51·0% before the intervention (95% CI 45·1-56·9) to 67·2% after (61·8-72·2). Compliance was independently associated with gross national income per head, with a greater effect of the intervention in low-income and middle-income countries (odds ratio [OR] 4·67, 95% CI 3·16-6·89; $p < 0·0001$) than in high-income countries (2·19, 2·03-2·37; $p < 0·0001$). Implementation had a major effect on compliance of health-care workers across all sites after adjustment for main confounders (OR 2·15, 1·99-2·32). Health-care-workers' knowledge improved at all sites with an increase in the average score from 18·7 (95% CI 17·8-19·7) to 24·7 (23·7-25·6) after educational sessions. 2 years after the intervention, all sites reported ongoing hand-hygiene activities with sustained or further improvement, including national scale-up.

INTERPRETATION: Implementation of WHO's hand-hygiene strategy is feasible and sustainable across a range of settings in different countries and leads to significant compliance and knowledge improvement in health-care workers, supporting recommendation for use worldwide.

FUNDING: WHO, University of Geneva Hospitals, the Swiss National Science Foundation, Swiss Society of Public Health Administration and Hospital Pharmacists.