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Improving hand hygiene compliance among healthcare workers: an intervention study in a Hospital in Guizhou Province, China

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ABSTRACT

Objective: Hand hygiene (HH) is a critical component for controlling hospital-acquired infection (HAI). The present study was designed to develop an intervention approach to improve compliance with HH among healthcare workers in a hospital setting.

Methods: The HH intervention study was conducted in Guizhou Provincial People's Hospital, Guiyang, China and organized by its Department of HAI Management. It was an observational, prospective, quasiexperimental (before-after intervention) study. The study was divided into two phases: the baseline phase and the intervention phase. The investigative team included clinical monitoring staff and infection control practitioners who received a series of instructions on HH compliance, monitoring skills, and measurement of the use of HH products.

Results: Based on 27,852 observations in a 17-month period, the rate of compliance with HH improved from 37.78% at baseline to 75.90% after intervention. Significant improvement in compliance and an increase in consumption of HH products was observed after intervention. The per patient-day consumption of alcohol-based hand rub products and handwash agents increased by 4.75 mL and 4.55 mL, respectively. The consumption of paper towels increased 3.41 sheets per patient-day. During the same period, the prevalence rate of HAI decreased 0.83%.

Conclusions: This study demonstrates that a significant improvement in compliance with HH can be achieved through a systemic, multidimensional intervention approach involving all categories of healthcare workers in a hospital setting, which may result in a decrease of the HAI rate.

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Introduction

Hospital-acquired infections (HAI) are associated with increased morbidity and mortality both in developed and developing countries, resulting in increased healthcare costs, length of hospitalization, use of drugs, and unnecessary laboratory investigations.[1,2] Several studies have reported that hand hygiene (HH) is the most important, easy, and economical measure to reduce HAI.[3,4] It has been demonstrated that enhancing HH compliance results in a reduction of HAI and antimicrobial resistance.[5] However, adherence to HH recommendations among healthcare workers (HCWs) remains suboptimal, with compliance rates being 30–75% as reported in published studies.[6–8] There have been limited reports on HAI and compliance with HH in China. In order to improve awareness of HAI, its prevention and control, and to increase HH compliance among HCWs, we initiated an intervention program, including HH training and monitoring. It was hoped that the hospital-wide intervention on HH compliance could be used in other hospitals in order to reduce HAI in China and in other countries as well.

Methods

The present study was conducted in Guizhou Provincial People's Hospital, Guiyang, China, organized by its Department of HAI Management and carried out between August 2012 and December 2013. The hospital-wide intervention program included the following elements: administrative support, education and training, improved supply of HH products, surveillance, and feedback.

Study population and hospital setting

The study was carried out in Guizhou Provincial People's Hospital. The hospital was founded in 1947 and earned a ranking of AAA in China's general hospital licensing and accreditation system. The hospital is located in the city of Guiyang, Guizhou Province, China. The hospital has 2000 beds, 52 clinical units or departments, and 3182 HCWs, covering an area of approximately 45,000 square meters. The present study was carried out in 33 wards of the hospital from August 2012 to December 2013.

Study design

It was an observational, prospective, quasi-experimental (before-after intervention) study. The study was divided into two phases: the baseline phase (from August 2012 to October 2012) and the intervention phase (from October 2012 to December 2013). The primary outcome variables were compliance with HH and consumption per patient-day of alcohol-based hand rub (ABHR) products, handwash agents, and paper towels. The other outcome variable was the rate of HAI.

Intervention procedures

The present intervention program included a series of measures to improve compliance with HH among HCWs hospital-wide.

The first intervention was aimed at improving HH facilities. After the baseline survey, the following changes in the HH facilities were accomplished: 150 hand twist taps were changed to non-hand twist taps; the number of dispensers for paper towels and ABHR products was increased; and all hand faucets were equipped with paper towels, put up HH posters on HH dispensers. In addition, education, training and monitoring measures were implemented.

The second part of the campaign was an aggressive education program related to HH. As part of the education program, the ICP attended all the staff meetings in all departments and provided education on proper HH techniques. Two education lectures about HH to HCWs were given at an auditorium; additionally, issues of HH education was presented to the department staff at the health care quality meeting. Educational issues related to HH were also discussed with the head nurses at the department of nursing two times; for the nurse attendants and the medical professionals HH education was carried on at the local workplace. This action had to be repeated in some wards, especially in ICU. HH video played in the hospital's promotional video.

The final part of this campaign was to strengthen the management of HH. Every quarter, the department of HAI management prepared and sent a final report on compliance with HH, and on the consumption of HH products to the hospital director and department chief. Such reports were to include information on HH compliance in examination of medical quality and presentation of the rate HH compliance to the hospital director's council. Feedback on the observed data of HH was written on a whiteboard at the ICU which could be seen every day.

Data collection

The investigation team included the clinical monitoring staff (physicians or nurses who had not only their regular clinical duties, but also responsibilities associated with HH surveillance and HAI prevention) and the infection control practitioners (ICP). During the baseline phase, ICP assessed HH compliance, then ICP completed the follow-up with the clinical monitoring staff during the intervention phase. The investigation team received standardized instructions, including the definition of HH compliance, and monitoring/recording recommendations. Before conducting observation sessions, the observer trained and must be validated, parallel observation the World Health Organization (WHO) training film. Results were then compared and discordant notifications discussed. This process was repeated until considered adequate. The observation period was from 08:00–18:00 on a work day, with each observation lasting no more than 20 min with no shift changes to avoid any impact on the results.

HH was monitored according to the WHO HH observation method. Based on the WHO guidelines, "My Five Moments for HH" (5MHH), the observers recorded the following data on paper questionnaires for each of their observations: