



A nudge intervention to improve hand hygiene compliance in the hospital

Fabrizio Elia¹ · Fabrizio Calzavarini² · Paola Bianco³ · Renata Gabriella Vecchietti³ · Antonio Franco Macor⁴ · Alessia D’Orazio¹ · Antonella Dragonetti⁵ · Alessandra D’Alfonso⁶ · Laura Belletrutti⁶ · Mara Floris⁷ · Fabrizio Bert⁸ · Vincenzo Crupi⁷ · Franco Aprà¹

Received: 10 February 2022 / Accepted: 2 June 2022 / Published online: 19 July 2022
© The Author(s), under exclusive licence to Società Italiana di Medicina Interna (SIMI) 2022

Abstract

Hand hygiene among professionals plays a crucial role in preventing healthcare-associated infections, yet poor compliance in hospital settings remains a lasting reason for concern. Nudge theory is an innovative approach to behavioral change first developed in economics and cognitive psychology, and recently spread and discussed in clinical medicine. To assess a combined nudge intervention (localized dispensers, visual reminders, and gain-framed posters) to promote hand hygiene compliance among hospital personnel. A quasi-experimental study including a pre-intervention phase and a post-intervention phase (9 + 9 consecutive months) with 117 professionals overall from three wards in a 350-bed general city hospital. Hand hygiene compliance was measured using direct observations by trained personnel and measurement of alcohol-based hand-rub consumption. Levels of hand hygiene compliance were low in the pre-intervention phase: 11.44% of hand hygiene opportunities prescribed were fulfilled overall. We observed a statistically significant effect of the nudge intervention with an increase to 18.71% ($p < 0.001$) in the post-intervention phase. Improvement was observed in all experimental settings (the three hospital wards). A statistical comparison across three subsequent periods of the post-intervention phase revealed no significant decay of the effect. An assessment of the collected data on alcohol-based hand-rub consumption indirectly confirms the main result in all experimental settings. Behavioral outcomes concerning hand hygiene in the hospital are indeed affected by contextual, nudging factors to a significant extent. If properly devised, nudging measures can provide a sustainable contribution to increase hand hygiene compliance in a hospital setting.

Keywords Hand hygiene · Infection prevention · Nudge · Decision-making

✉ Fabrizio Elia
fa.elia@libero.it

- ¹ Emergency Medicine, San Giovanni Bosco Hospital, Turin, Italy
- ² Department of Letters, Philosophy and Communication, University of Bergamo, Bergamo, Italy
- ³ Hospital Infection Prevention and Control Unit, San Giovanni Bosco Hospital, Turin, Italy
- ⁴ Hospital Infection Prevention and Control Unit, ASL Città di Torino, Turin, Italy
- ⁵ Department of Medical Specialties, ASL Città di Torino, Turin, Italy
- ⁶ Clinical Risk Management, ASL Città di Torino, Turin, Italy
- ⁷ Department of Philosophy and Education Sciences, University of Turin, Turin, Italy
- ⁸ Department of Public Health and Pediatrics, University of Turin, Turin, Italy

Background

Hand hygiene among healthcare professionals plays a crucial role in preventing healthcare-associated infections, a leading cause of mortality worldwide. According to the European Centre for disease prevention and control, 6% of patients contracts an infection during their hospital stay in the EU, with figures ranging from 2.3 to 10.8%, and 3.2 million patients are affected by nosocomial infections every year, which are fatal for 37 thousand patients [1].

Randomised studies on the topic are scarce, but the link between hand hygiene (HH) and nosocomial infections is well supported by the evidence [2–4] and healthcare professionals are generally aware of it. Still, data indicate that overall only a minority of hospital staff complies with good practice. For instance, a systematic analysis of 96 empirical studies has shown that median HH compliance rate in