



Major Article

Handshake-free zone in a neonatal intensive care unit: Initial feasibility study



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Background: The handshake represents a social custom with special importance in health care settings. However, handshakes can transmit disease and compliance with hand hygiene protocols averages <50%. We hypothesized that a handshake-free zone (HFZ) could be established within our neonatal intensive care unit (NICU) and would be well-received by patient families and their health care providers (HCPs).

Methods: We established an HFZ and conducted a prospective cohort study in the NICU at 2 UCLA Medical Centers. Data collection tools included questionnaires for NICU families and their HCPs.

Results: Handshake greetings occurred more frequently before than during the HFZ, as reported by HCPs ($P = .0002$) and patient families ($P = .05$). Before the HFZ, physicians were more likely than nurses to shake hands with patient families ($P = .001$), and believe the handshake was extremely important ($P = .002$); during the HFZ physicians' behaviors and attitudes shifted toward those of the nurses. All patient families and 66% of HCPs believed the NICU should consider establishing an HFZ.

Conclusions: The HFZ decreased the frequency of handshakes within the NICU. The influence of the HFZ on HCP behavior and attitudes varied with gender and profession. Patient families and most HCPs supported the implementation of an HFZ.

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The handshake represents a deeply established social tradition, with important interpersonal, professional, and political roles.^{1,2} In health care, handshakes between health care providers (HCPs) and their patients, and between HCPs themselves, have developed particular significance, commonly conveying trust, compassion, gratitude, and/or comfort.^{1–6} However, for years, there has been growing recognition of the importance of hands^{7–9} and handshakes^{10–14} as vectors for infection. Hands of HCPs, in particular, represent significant vectors for the transmission of disease.^{7,8,15}

In response to this heightened recognition of the importance of hands in the transmission of hospital-acquired disease, governmental bodies, hospitals, and other health care institutions have developed formal recommendations regarding hand hygiene in health care settings.^{7,9,15} Nevertheless, hands continue to contribute

to the substantial personal and economic burden of nosocomial infection worldwide.^{9,15,16} Despite aggressive and pervasive educational and monitoring strategies, on average roughly 40% of HCPs comply with formal hand hygiene recommendations,^{11,15,17} including in neonatal intensive care units (NICUs).^{7,18} In fact, effective compliance with hand hygiene protocols may be less than has been reported, given the impact of timing, duration, and technique.^{15,19}

Given the low rate of compliance with hand hygiene protocols, many individuals, in an attempt to limit contracting or spreading infection, have taken their own steps to avoid shaking hands in the health care setting but, in doing so, may face social or professional risks.¹ The concept of handshake-free zones (HFZs), wherein handshakes are discouraged and alternative greetings are encouraged, has been suggested as a means to help decrease the incidence of hospital-acquired infections.¹ By establishing a medical unit as an HFZ, the social stigma of refusing (or failing to offer) a handshake may be diminished; fewer opportunities for the transmission of handborne disease may be expected; and, ironically, heightened attention to the importance of hands as vectors for disease transmission may follow (with that, improved compliance with hand hygiene protocols). Nevertheless, primarily because of the

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handshake's profound social role in modern medicine, the concept of HFZs has not previously been trialed.

The purpose of this study was to evaluate the feasibility of establishing HFZs in medical settings, and to identify the social or cultural response to HFZs among HCPs and patient families. We hypothesized that an HFZ could be effectively established with signage and educational efforts, and would be well received by both HCPs and patient families.

PATIENTS AND METHODS

We chose to trial HFZs in our NICUs, which bring together pathogenic organisms with particularly vulnerable patients—newborn babies at increased risk because of immature immune systems, prolonged hospitalizations, exposures to antibiotics, frequent invasive procedures and indwelling lines, and close proximity to other patients.^{7,20} Moreover, nosocomial infections in NICUs, which contribute significantly to neonatal morbidity and mortality,^{7,20} have been found to be transmitted primarily through the hands of HCPs.^{7,8}

Following approval by the institutional review board of the University of California, Los Angeles (UCLA), we performed a prospective cohort study over a 6-month period (July–December 2015) at 2 NICUs affiliated with UCLA: a level-IV open bed NICU (28-patient capacity) at the Ronald Reagan UCLA Medical Center, and a level-III open bed NICU (16-patient capacity) at the UCLA Santa Monica Hospital.

During July and August 2015, online anonymous surveys were distributed electronically to HCPs, and paper-based anonymous surveys were distributed to families of patients admitted to the NICU. HCPs were defined as NICU nurses, NICU nurse practitioners, and physicians (ie, faculty, fellows, residents, and interns) with NICU admitting or consulting privileges during the study period. During September–December 2015, HFZs were established. HCPs were educated regarding the purpose and approach to the HFZs, printed background regarding HFZs was provided to HCPs and to patient families, signage regarding HFZs was posted at entry sinks and nursing stations, and HCPs explained the concept and rationale of HFZs to patient families. The HFZs were promoted as a means to decrease the spread of hospital-acquired disease by bringing attention to the importance of hands as vectors for disease, by emphasizing the importance of hand hygiene, by discouraging the handshake, and by encouraging alternative gestures (such as touching someone's shoulder, Namaste, or fist-bump) and other nonverbal forms of communication (such as eye contact, smiles, and asking about other's well-being). The HFZ applied both to handshakes between HCPs and to handshakes between HCPs and patient families.

The months of September and October served as an opportunity for HCPs to develop experience and comfort with the HFZs; during these initial months, no surveys were distributed. During November and December 2015, the same HCPs and patient family surveys were distributed as before the HFZs were established. Survey responses were subsequently evaluated and compared.

Descriptive statistics were provided to characterize the study participants and response rates. Responses to the survey questions were summarized as percentages. Comparisons of responses between 2 groups, or among 3 or more groups, were conducted using χ^2 tests. *P* values of the χ^2 tests were provided; *P* values < .05 were considered statistically significant.

RESULTS

Table 1 summarizes the general demographic characteristics of survey participants. Out of 285 patient admissions (190 at Ronald Reagan UCLA Medical Center and 95 at UCLA Santa Monica Hospital), 40 families completed the survey (14% return overall): 5 completed before the HFZs, and 35 during the HFZs. Out of 502

Table 1

Demographic characteristics of health care providers and patient families

	Before HFZ	During HFZ	<i>P</i> value
Staff profession	n = 170	n = 132	.62
Nurse	87 (55.8)	75 (57.7)	
Nurse practitioner	2 (1.3)	1 (0.8)	
Physician	41 (26.3)	27 (20.8)	
Resident/fellow	26 (16.7)	27 (20.8)	
Age, y			.52
21–30	34 (20.1)	30 (22.9)	
31–40	67 (39.6)	39 (29.8)	
41–50	25 (14.8)	24 (18.3)	
51–60	34 (20.1)	30 (22.9)	
> 60	9 (5.3)	8 (6.1)	
Gender			.87
Male	32 (19)	24 (18.3)	
Female	136 (81)	107 (81.7)	
Family: Relationship to patient	n = 5	n = 35	N/A
Mother	2 (40)	24 (68.6)	
Father	3 (60)	10 (28.6)	
Aunt	0 (0)	1 (2.8)	
Age, y			N/A
<20	0 (0)	1 (2.8)	
21–30	2 (40)	8 (22.9)	
31–40	1 (20)	25 (71.5)	
41–50	2 (40)	0 (0)	
51–60	0 (0)	0 (0)	
> 60	0 (0)	1 (2.8)	

NOTE. Values are presented as n (%).

HFZ, handshake-free zone; N/A, not applicable.

eligible HCPs receiving the electronic survey both before and during the HFZs, 170 surveys were completed before the HFZs (33.9% return) and 132 surveys were completed during the HFZs (26.3% return). Among HCPs, approximately 60% identified as nurses and 80% identified as women. Just more than half were younger than age 40 years. Among patient families, patient mothers completed most surveys. No statistically significant correlations were observed between respondents' behavior or attitudes and race, religion, or level of schooling.

Family responses

Table 2 summarizes family responses before and during the HFZs. Among all 40 family respondents, only 5 (12.5%) reported being greeted with a handshake from a doctor or nurse practitioner, and only 3 of 40 (7.5%) reported being greeted with a handshake from a nurse. The most commonly preferred greetings (each preferred by more than 65% of respondents) included direct eye contact, smile, being addressed by name, and being asked about one's well-being. Fewer than 20% indicated a desire to be greeted with touch, and fewer than 10% indicated a desire to be greeted with a handshake. Despite only 5 respondents before establishment of the HFZs, patient families reported statistically fewer handshakes from physicians and nurse practitioners during the HFZ than before (8.6% vs 40%; *P* = .05). All respondents supported the concept of HFZs in the NICU—91.4% responding “yes,” 3 responding “maybe” (each indicating support for HFZs if they are found to decrease infections), and no family responding “no.”

HCP responses

Table 3 summarizes the HCP responses. Both before and during the HFZs, more than 75% of HCPs agreed with patient families that the following greetings were most important: direct eye contact, smile, addressing by name, and asking about one's well-being. Likewise, both before and during the HFZs, fewer than one-third of HCPs

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