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## American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)

## Major article

## Family caregivers in public tertiary care hospitals in Bangladesh: Risks and opportunities for infection control

M. Saiful Islam MSS<sup>a,\*</sup>, Stephen P. Luby MD<sup>a,b</sup>, Rebeca Sultana MSS, MSC<sup>a</sup>,  
 Nadia Ali Rimi MSS<sup>a</sup>, Rashid Uz Zaman MPH<sup>a</sup>, Main Uddin MPhil<sup>a</sup>,  
 Nazmun Nahar MSS, MPH<sup>a</sup>, Mahmudur Rahman PhD<sup>c</sup>,  
 M. Jahangir Hossain MBBS<sup>a</sup>, Emily S. Gurley PhD<sup>a</sup>

<sup>a</sup> Centre for Communicable Diseases, International Centre for Diarrhoeal Disease Research (icddr), Dhaka, Bangladesh

<sup>b</sup> Global Disease Detection Branch, Division of Global Health Protection, Centers for Disease Control and Prevention, Atlanta, GA

<sup>c</sup> Institute of Epidemiology Disease Control and Research, Dhaka, Bangladesh

## Key Words:

Hospital-acquired infection  
 Caregiving practice  
 Socio-cultural  
 Qualitative research

**Background:** Family caregivers are integral to patient care in Bangladeshi public hospitals. This study explored family caregivers' activities and their perceptions and practices related to disease transmission and prevention in public hospitals.

**Methods:** Trained qualitative researchers conducted a total of 48 hours of observation in 3 public tertiary care hospitals and 12 in-depth interviews with family caregivers.

**Results:** Family caregivers provided care 24 hours a day, including bedside nursing, cleaning care, and psychologic support. During observations, family members provided 2,065 episodes of care giving, 75% (1,544) of which involved close contact with patients. We observed family caregivers washing their hands with soap on only 4 occasions. The majority of respondents said diseases are transmitted through physical contact with surfaces and objects that have been contaminated with patient secretions and excretions, and avoiding contact with these contaminated objects would help prevent disease.

**Conclusion:** Family caregivers are at risk for hospital-acquired infection from their repeated exposure to infectious agents combined with their inadequate hand hygiene and knowledge about disease transmission. Future research should explore potential strategies to improve family caregivers' knowledge about disease transmission and reduce family caregiver exposures, which may be accomplished by improving care provided by health care workers.

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The threat of hospital-acquired infection is not just a concern for patients and health care workers but also for family caregivers. Recent examples of outbreak of infections to family caregivers include severe acute respiratory syndrome in Toronto, Canada; avian influenza A (H5N1) in Thailand; and Ebola virus in central Africa.<sup>1,2</sup> Similarly, transmission of Nipah virus from patients to family caregivers has repeatedly been noted during outbreaks in Bangladesh.<sup>3–5</sup> Despite reported evidence of hospital-acquired

infection among family caregivers,<sup>1,2,5,6</sup> there are limited global or national initiatives to train and protect this at-risk group.<sup>7</sup>

Family caregivers are integral to inpatient care in Bangladesh because of social, financial, cultural, political, and infrastructural factors prevailing in public hospitals.<sup>6</sup> In Bangladeshi public tertiary care hospitals, nurses spend only 5.3% of their duty time in direct patient care activities.<sup>8</sup> Most nurses in Bangladesh are female. Religious, cultural, and social norms discourage females from having physical contact with strangers including male patients.<sup>8,9</sup> Moreover, nurses avoid cleaning jobs because they perceive that cleaning tasks lower their social status.<sup>8,9</sup> Cleaners and ward support staff generally do not clean up after patients or empty bedside waste receptacles unless they receive unofficial fees from family caregivers.<sup>8,9</sup> These staff members have links with workers' unions and have a strong bargaining position with respect to workload.<sup>9,10</sup> Consequently, family caregivers stay in patient wards and often perform most patient care activities.

\* Address correspondence to M. Saiful Islam, MSS, Centre for Communicable Diseases, icddr, b, 68, Shaheed Tajuddin Ahmed Sharani, Mohakhali, Dhaka -1212, Bangladesh.

E-mail address: [saiful@icddr.org](mailto:saiful@icddr.org) (M.S. Islam).

Supported by the US Centers for Disease Control and Prevention through cooperative award number I-U01-C1000298.

Conflicts of interest: None to report.

Although we know that family caregivers provide most of the care to hospitalized patients in Bangladesh,<sup>6,8-10</sup> we have little information about what their care entails, their exposure to infectious agents, their perceptions of disease transmission, or their hygiene practices. If we could identify their specific exposures and actual practices and understand their perceptions, then we could prioritize areas for interventions to reduce transmission of infectious agents between patients and family caregivers and vice versa. As part of a larger study that included ongoing surveillance for hospital-acquired respiratory infections,<sup>11</sup> this study explored caregiving activities and practices carried out by family caregivers in hospital wards at tertiary care hospitals in Bangladesh and their perceptions related to contagious disease transmission and prevention.

## METHODS

### Study site and data collection

The data collection team, consisting of 5 qualitative researchers, conducted the study in 1 pediatric ward and 1 adult male medicine ward in each of 3 tertiary care public teaching hospitals: Rajshahi Medical College Hospital (RMCH), Faridpur Medical College Hospital (FMCH), and Suhrawardi Medical College Hospital (SMCH), Dhaka, Bangladesh. In public tertiary care hospitals, patients with infectious diseases shared large rooms with patients with noninfectious diseases where family members and visitors had access.

This evaluation included unstructured observations and in-depth interviews. The use of combined methods allowed the investigation team to verify and cross check the data collected by each approach and provided a depth of understanding that might not have been achieved through the use of a single method.<sup>12</sup> Between April and May 2007, the team conducted 48 hours of observation: 20 at Rajshahi Medical College Hospital, 14 at Faridpur Medical College Hospital, and 14 at Suhrawardi Medical College Hospital. From past experience working in hospital settings, the team knew that the frequency and nature of caregiving performed varied by time of day. Therefore, observation hours were split between daytime hours (9:00 a.m. to 2:30 p.m.), when there was more activity; evening hours (3:30 p.m. to 9:00 p.m.), when there was reduced activity; and at night (10:00 p.m. to 12:30 a.m.), when there was even less activity. There was a median of 30.5 beds (interquartile range, 30-33) in the patient ward, but each observer was responsible for observing a maximum of 10 patients and their respective caregivers. The observers sat either on a stool or on an empty patient bed and recorded interactions between family caregivers and patients and caregivers' behavior and practices as detailed handwritten notes.

The team conducted 12 in-depth interviews with family caregivers: 6 from pediatric wards and 6 from adult, male, medicine wards between September and October 2007 with family caregivers who had spent at least 5 hours per day in the hospital for at least 2 days so that the respondents had some experience of patient care activities. Interviewers asked family caregivers questions about the amount of time they spent with patients, the type of care given to patients, and their knowledge of disease transmission and prevention.

### Data analysis

The primary author (M.S.I.) reviewed the observation field notes and made a list of all observed patient care activities performed by family caregivers. M.S.I. tallied the frequency of each caregiving activity. The team transcribed the in-depth interviews verbatim, read interviews line by line, and developed a code list and a definition for each code. When new information that did not fit with

**Table 1**

Definition of care activities observed in 3 Bangladeshi tertiary care hospitals, 2007

Bedside nursing	Included all caregiving activities that required the family caregivers to be in contact with the patient, the patient's secretions, or the patient's excretions or medical equipment used for patient care, which usually occurred at the patient's bedside
Cleaning care	All types of cleaning activities
Psychologic support	Included activities intended to provide comfort and psychologic support to the patients
Direct care	Defined as all caregiving activities that involved touching patients or their secretions and excretions
Indirect care	Defined as all caregiving activities that did not involve direct contact

the existing codes was identified while reviewing the transcripts, 1 researcher created new codes and shared them with the whole team to reach a consensus on new code definitions. The researcher entered all the data into text-organizing software according to the code list, and M.S.I. reviewed the coded data to capture the main research themes and concepts.

### Definition of patient care activities

M.S.I. categorized observed activities as being either bedside nursing, cleaning, or psychologic care, and each of these was further categorized as being either direct or indirect caregiving activities (Table 1).

### Ethical considerations

The team obtained consent from the hospital authorities for the study. The hospital wards were public places, and we recorded family caregivers' activities as public behavior. For in-depth interviews, we received informed written consent from all respondents. The study protocol was reviewed and approved by the International Centre for Diarrhoeal Disease Research (icddr,b) Ethical Review Committee, and the Centers for Disease Control and Prevention's Human Subject Research Office relied on icddr's Ethical Review Committee.

## RESULTS

Interviewed family caregivers mentioned that they were present 24 hours a day at the patient's ward. The family caregivers provided bedside nursing, cleaning care, and psychologic support while patients were hospitalized (Table 2). Almost all the family caregivers in the pediatric wards were women, whereas the caregivers in the male medicine wards included both men and women. During the study, the team observed 2,065 episodes of caregiving, 75% (1,544) of which involved direct care (Table 2).

### Bedside nursing

The team observed family caregivers providing 1,592 episodes of bedside nursing such as feeding and administering medicine, preparing food and medicine for patients, changing patients' clothes, and making patients' beds. Family caregivers fed patients food, medicine, and drinks 272 times. While feeding patients, caregivers ate patients' leftover food or shared food from the same plate 32 times. Before eating and feeding patients, family caregivers rinsed their fingers and plates with water 71 times; putting a small amount of water on a dinner plate and then rinsed the fingers of their right hands in the water for 5 to 10 seconds. No family

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