Short Communication

Organization of Nosocomial Infection Control Measures and Local Networks for Infectious Disease Control in Middle-Scale Hospitals in Japan

Namiko Mori-Yoshikawa1, Norio Ohmagari2, and Teruo Kirikae3*

1National College of Nursing, Japan, Tokyo 204-8575; and
2Division of Infectious Diseases, Disease Control and Prevention Center and
3Department of Infectious Diseases, Research Institute, National Center for Global Health and Medicine, Tokyo 162-8655, Japan

(Received August 28, 2013. Accepted January 29, 2014)

SUMMARY: The aims of this study were to assess nosocomial infection control measures at middle-scale hospitals throughout Japan. Of the 823 hospitals participating in this questionnaire-based survey, more than half of the middle-scale hospitals have implemented nosocomial infection control measures, including infection surveillance or infection control rounds, while acknowledging a shortage of infection control staff. These hospitals most frequently consulted public health centers to obtain information and advice. Improved nosocomial infection control in middle-scale hospitals requires sufficient staffing and a local network, with active participation by public health centers.

All hospitals require nosocomial infection control. Local hospitals must share information on infectious diseases (1), particularly emerging infectious diseases (2,3) as well as drug-resistant nosocomial pathogens, which have been transmitted within and between hospitals (4,5).

According to the Ministry of Health, Labour and Welfare (MHLW) of Japan (http://www.mhlw.go.jp/toukei/saikin/iryosd/09/dl/02.pdf [in Japanese]), hospitals with 100–299 beds account for 40.8% of medical facilities throughout Japan, and they had 39.5% of beds among all medical facilities in 2009. Despite this large share, infection control measures in middle-scale hospitals have not been fully investigated. Here we report the results of a questionnaire-based survey of these hospitals with regard to nosocomial infection control and information sharing.

Self-administered questionnaires were sent by mail to 2,000 facilities, which included 1,521 with 100–199 beds, and 479 with 200–299 beds, randomly selected from the 3,120 general hospitals of these sizes throughout Japan, including 2,336 facilities with 100–199 beds and 784 facilities with 200–299 beds. The questionnaires were posted on July 30, 2011, and the submission deadline was August 31, 2011.

The questionnaire explored two areas (Table 1). Quantitative data were analyzed using IBM SPSS Statistics version 19 (Japan IBM, Tokyo, Japan) and compared using the χ²-test and Kruskal-Wallis test. Open-ended questions were qualitatively analyzed with coding. This study was approved by the ethics committee of the National Center for Global Health and Medicine (No. 864).

*Corresponding author: Mailing address: Department of Infectious Diseases, Research Institute, National Center for Global Health and Medicine, Toyama 1-21-1, Shinjuku, Tokyo 162-8655, Japan. Tel: +81-3-3202-7181 ext. 2838, Fax: +81-3-3202-7364, E-mail: tkirikae@ri.ncgm.go.jp
Of the 2,000 facilities to which questionnaires were sent, 823 returned responses usable for analysis (response rate, 41.2%), which included 621 responses from facilities with 100–199 beds (response rate, 40.8%) and 202 responses from facilities with 200–299 beds (response rate, 42.2%).

As shown in Table 2, most facilities had an Infection Control Committee (ICC), more than half had an Infection Control Team (ICT), and 40.8% had infection control specialists. When facilities with 200–299 and 100–199 beds were compared, more of the former had ICT and specialists. The infection control specialists were medical doctors in 31.2% of the facilities and nurses in 14.0%. Half of the facilities (50.8%) had either full- or part-time Infection Control Practitioners (ICPs). We found that 8.6% of facilities had full-time ICPs, with the proportion being higher for facilities with 200–299 beds than for those with 100–199 beds.

Most facilities with 200–299 and 100–199 beds had nosocomial infection control training programs (99.1% and 99.2%, respectively) and conducted infection control rounds (83.2% and 73.9%, respectively), surveillance (84.2% and 67.0%, respectively), and monitoring of pathogens (86.1% and 77.0%, respectively). More than half of the facilities conducted infection control consultations (74.3% and 59.9%, respectively). Infection control rounds (79.6% and 73.8%, respectively), surveillance (76.9% and 67.2%, respectively), monitoring of pathogens (80.2% and 77.3%, respectively), and infection control consultations (66.9% and 61.0%, respectively) were implemented at higher rates in facilities with specialists than in those without specialists. Rates of implementation of infection control rounds (95.7% and 76.9%, respectively) and surveillance (85.1% and 68.9%, respectively) were higher in facilities with full-time ICPs than in those with part-time ICPs.

More than half of the facilities conducted surveillance of infectious agents, with 58.2% conducting surveillance for drug-resistant bacteria and 46.1% for specific infectious agents. Rates of surveillance for infections related to bloodstream (34.0%), urinary catheterizations (27.8%), hand hygiene (27.1%), and surgical site (22.2%) were moderate, whereas rates of syndromic surveillance for fever (13.8%), respiratory infections (8.7%), and digestive tract infections (5.8%) were lower.

Overall, 74.8% of these facilities consulted external organizations for nosocomial infection control, including 73.8% of the facilities with 100–199 beds and 78.2% of the facilities with 200–299 beds. Of the facilities that consulted external organizations, 80.4% consulted public health centers and 22.9% consulted university hospitals (multiple answers allowed). Facilities tended to receive information on infectious diseases from public health centers, followed by the Medical Association. These patterns remained unchanged when the facilities were asked about their sources for general information or for information on specific infectious diseases or pathogens. The overwhelming majority of these medical facilities reported that public health centers were the recipients of information on infectious diseases. In total, 80.8% of these facilities stated that public health centers should serve as the gateway to the local network, while 46.4% chose the Medical Association.

The questionnaire included open-response questions, asking the respondents to comment on matters in “the internal system” and “partnership with external organization” they considered most necessary to improve nosocomial infection control measures in their own facilities. From the responses, 1,352 codes were extracted and divided into 12 categories (data not shown). With regard to the internal system, the category with the largest number of codes (215) was “infection control staffing” and the most frequent comments were “we need a specialist” (95 responses). With regard to the partnership, the category with the largest number of codes (235) was “local networks,” which were community networks of hospitals to exchange and share information on infectious diseases, discuss nosocomial infection control measures, perform research, conduct educational meetings, and make mutual visits.

Our findings indicate that many middle-scale medical facilities in Japan are implementing nosocomial infection control measures. However, the appointment of infection control specialists or full-time ICPs may be necessary for further improvements to the implementa-
Infection Control at Hospitals in Japan

tion rate. The facilities with specialists had higher implementation rates of these measures, particularly surveillance. The facilities with full-time ICPs showed extremely high implementation rates of all infection control measures, particularly infection control rounds. The infection control infrastructure was significantly associated with infection control performance (6,7). Our results on the presence of ICPs and implementation rates of infection control rounds were in agreement with those of a survey conducted by MHLW of Japan (http://www.e-stat.go.jp/SG1/estat/List.do?id=000001102728 [in Japanese]).

Considering the number of beds, it may be appropriate for each middle-scale hospital to appoint 1 full-time ICP. We found that although 42.2% of the facilities had part-time ICPs, only 8.6% had full-time ICPs. The results of the Study on the Efficacy of Nosocomial Infection Control (SENIC), performed in the 1970s, indicated that 1 full-time ICP should be appointed for every 250 beds (8). A second SENC performed in the 1990s (9) suggested a standard for acute care hospitals of 3 ICPs for every 500 beds (10). Similarly, the Panel of ICP in the United States has recommended that 1 ICP should be appointed for every 100 acutely ill patients (11). The healthcare system in the United States is different from that in Japan; therefore, those results cannot be simply compared with the results of the present study.

In Japan, it is necessary to establish a system that promotes the involvement of specialists in nosocomial infection control measures in middle-scale medical facilities. The results of our survey revealed that ICPs in middle-scale medical facilities strongly desired the assignment of specialists to their own facilities. However, because many middle-scale facilities may be economically unable to appoint any specialist at this stage, it will be necessary to develop community networks allowing these facilities to directly consult specialists. From 2012, MHLW launched a medical service fee system to support local nosocomial infection control measures, with hospitals staffed with infection control specialists playing the central role. Because Japan has a universal health insurance system, using this system to support nosocomial infection control measures will likely be effective.

Community networks are necessary to prevent nosocomial infections, and public health centers should actively join these networks. The Infectious Disease Law in Japan requires facilities to notify public health centers upon confirmation of the onset of a designated infectious disease in an individual or a group of people. Moreover, public health centers inspect medical facilities. These may be the reasons why the largest number of medical facilities reported that public health centers were their local partners in medical cooperation.

This study has several limitations. The survey response rate was not high (41.2%), suggesting that the collected data were not necessarily representative of all middle-scale medical facilities in Japan. Therefore, the actual infection control measures in middle-scale medical facilities may be lower than those in the present survey because of the low survey response rate. Continued monitoring of infection control measures at medical facilities in Japan is required to improve the prevention and detection of nosocomial infections.

Acknowledgments We thank Dr. Hiroshi Yoshikura (National Institute of Infectious Diseases, Tokyo, Japan) for discussion and advice and Ms. Kayo Shimada (Research Institute, National Center for Global Health and Medicine, Tokyo, Japan) for technical assistance.

This study was supported by Health Sciences Research Grants from the Ministry of Health, Labour and Welfare of Japan (H22-SINKO-IJPPAN-003).

Conflict of interest None to declare.

REFERENCES


