Roles of Infection Control Nurses in Community Hospitals

Laddawan Jantarasri MSc*,
Poonsap Soparatana MSc**, Wanchai Moongtui PhD**,
Worapot Tantisiriwat MD***, Somwang Danchaivijitr MD****

*Tasala Hospital, Nakorn Sri Thammarat,**Faculty of Nursing, Chiang Mai University, Chiang Mai,
***Department of Medicine, Faculty of Medicine, Vachira Hospital, Srinagarindviroj University, Bangkok,
****Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok

Objectives: To evaluate the roles of infection control nurses (ICNs) and to detect problems, obstacles during work and needs for support in community hospitals.

Material and Method: A descriptive study, data from interview and questionnaire survey of 2 ICN from HA awarded hospitals and 146 IC nurses from hospitals applied for HA.

Results: From April to May 2002, questionnaires were returned for 115 (81.56%) plus 7 interviews for a total of 122 samples. The practiced HA IC roles included counseling (86.5%), surveillance (83.1%), administration (82.8%), employee health (82%), education (80%), quality development (76.3%), epidemic investigation (72.2%) and research (10.4%). The major problems and obstacles included inadequate IC knowledge, multiple responsibilities, inadequate cooperation, less administrative support, inadequate budget and documents.

Conclusion: The present study suggested that the IC research role was the least done because of inadequate knowledge, too heavy work load and lack of administrative support.

Keywords: Roles, Infection control nurses, Community hospitals

Nosocomial infection is an important public health problem in every hospital. It causes increased patient's morbidity, mortality, hospital stay and hospital cost. An effective hospital infection control (IC) program including hospital nosocomial infection surveillance, nosocomial infection reporting system, knowledgeable doctor and adequate full time infection control nurse can reduce the severity of this problem[1,2].

Recently, the hospital accreditation (HA) program is the national standard in which every hospital has to comply with. Hospital infection control is one indicator of the HA program. It has described roles of infection control nurses (ICNs) into 8 issues including nosocomial infection surveillance, epidemic investiga-tion, hospital employee health, program administration, education, counseling, research and quality development. Compliance with these issues has proved to reduce the hospital nosocomial infection rate[3].

A community hospital (10-120 bed capacity) is a major component involved in the public health system in Thailand. Previous studies have described the failure of the hospital IC program in community hospitals mainly from inadequate IC nurse work[4,5]. As the HA program has been applied nation wide, the authors are interested in the roles of IC nurses from the hospitals which have been awarded HA and the hospitals applying for the HA.

The objective of the present study was to descriptively evaluate the roles of IC nurses in hospital IC development and HA of the community hospitals, problems, obstacles during work and supportive need for IC nurses.

Correspondence to : Danchaivijitr S, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand. E-mail: sisdc@mahidol.ac.th

Material and Method

From April to May 2002, 2 IC nurses from HA awarded hospitals and 146 IC nurses from hospitals applying for HA were studied. Information was obtained by interview and questionnaire survey. Interview was done in 7 ICNs, 2 from the HA awared hospitals (purposive sampling) and 5 from each one of the hospitals (by size) which applied for HA program (10, 30, 60, 90 and 120 bed capacity) by simple random sampling. Questionnaire survey was done in 141 IC nurses from sampling hospitals applying for HA.

The interview form consisted of identification information, 8 issues for roles of IC nurses by semi-structured interview and interview for problems, obstacles during work and needs for support. The interview form was tested by 5 IC experts (2 IC nurses, 1 IC nurse teacher, 1 nurse expert in IC and 1 IC expert from the HA program) for accuracy and language appropriation. Then it was adjusted and tested again in one of the ICNs who was not involved in the present study. Later, it was finalized and used in the study samples.

The questionnaire consisted of identification information, 45 questions for ICN roles in HA program including nosocomial infection surveillance (5 ques-

Table 1. Demographic data

General Information	Interview group (n=7)	%	Questionnaire group (n=115)	%	Total (n=122)	%
Sex						
Male	0	0	3	2.6	3	2.5
Female	7	100	112	97.4	119	97.5
Age (year)						
<26	0	0	3	2.6	3	2.5
26-30	1	14.3	13	11.3	14	11.5
31-35	2	28.6	32	27.8	34	27.8
36-40	1	14.3	52	45.2	53	43.4
41-45	3	42.8	11	9.6	14	11.5
>45	0	0	4	3.5	4	3.3
Range 25-48 year; Mean = 36.27 years, SD = 4.87						
Highest Degree						
Bachelor	7	100	108	93.9	115	94.3
Master	0	0	7	6.1	7	5.7

Table 2. Work experience and assignment

General Information	Interview group (n=7)	%	Questionnaire group (n=115)	%	Total (n=122)	%
Work experience (year)						
>1	0	0	9	7.8	9	7.4
1-3	4	54.7	67	58.3	71	58.2
4-6	3	42.9	24	20.9	27	22.1
7-9	0	0	8	6.9	8	6.6
>9	0	0	7	6.1	7	5.7
Range 3 months – 15 years; Mean = 2.45 years, SD = 0.9369						
Character of work						
Full time	0	0	17	14.8	17	13.9
Non full time	7	100	98	85.2	105	86.1

tions), epidemic investigation (3 questions), hospital employee health (6 questions), program administrative (12 questions), hospital IC education (6 questions), program counseling (4 questions), research (2 questions) and quality development (7 questions). The answers to the questions were done or not done in each item, if answering done in the item would receive 1 point, if answering not done will get 0 point and open questions for answering not done would be asked. The questionnaire also had open questions for problems, obstacles during work and needs for support. The questionnaire was also tested by the same 5 experts and had content validity index (CVI) and interrater agreement of 0.88 before final adjustment. The reliability of the questionnaire in 10 ICNs (not involved in the study) by the using test-retest method, 2 weeks apart, was 0.97 (Pearson product moment correlation).

Results

Questionnaires were returned and had acceptable completion for 115 (81.56%). For the sample identification information (shown in Table 1), most samples were female (97.5%) with the mean age of 36.3 years old. The interview group was older. The samples graduated with a bachelor degree in 94.3% (100% in the interview group). The samples had worked in an IC position for 3 months – 15 years (mean of 2.45 years) (shown in Table 2). Eighty-six point one per cent of the samples

Table 3. Engagement in IC activities (N=115)

IC Activities	N	%
Involving in description of nosocomial infection definition	100	87.0
Doing own nosocomial infection surveillance	69	60.0
Analyzing surveillance information	102	88.7
Presenting surveillance information to the IC committee	105	91.3
Using information for further prevention plan	103	89.6
Total	479	83.3

Table 4. Function in epidemic investigation (N=115)

Epidemic investigation	N	%
Involving in hospital epidemic Investigation	81	70.4
Analyzing epidemic investigation data	85	73.9
Reporting epidemic investigation data to the IC committee	83	72.2
Total	249	72.2

Table 5. Responsibility in employee health (N=115)

Employee health	N	%
Involving in pre-employment check up	86	74.8
Participating in routine health personnel check up	104	90.4
Involving in health personnel immunization	86	74.8
Doing occupational accident surveillance	106	92.2
Involving in development of the practice guidelines for preventing occupational accident	104	90.4
Doing personnel health surveillance	80	69.6
Total	566	82.0

did not have IC full time work.

From the questionnaire group, the samples did 5 overall IC activities (involving description of nosocomial infection definition, doing own nosocomial infection surveillance, analyzing surveillance information, presenting surveillance information to the IC committee and using information for a further prevention plan) for 83.3% (shown in Table 3). While presenting surveillance information to IC committee was the activity mostly done (91.3%), doing their own nosocomial infection surveillance was the least done activity (60%).

Questionnaire samples did epidemic investigation (involving, analyzing and reporting) in 72.2%. The percentage of activities was 73.9, 72.2 and 70.4 respectively (shown in Table 4).

Six hospital employee health roles were done in 82% (shown in Table 5). Although participating in routine health personnel check up at least once a year was the most done activity (90.4%), doing personnel health surveillance was the least done one (69.6%).

An overall of 82.8% were involved in twelve program administrative activities (shown in Table 6). Most samples were involved in hospital IC policy, goal and protocol development activities (95.7%). The least involved activity was analyzing IC personnel work load (47%).

Eighty per cent were involved in six hospital education activities (shown in Table 7). The most involved activity was developing IC guideline for health personnel (90.4%). The least involved activity was a survey for the need for health personnel IC training (72.2%).

Four IC program counseling activities were done by 86.5% (Table 8). Counseling was done mostly in in-patient wards (93.9%) and least for hospital environment personnel (71.3%).

Table 6. Involvement in IC administrative activities (N=115)

IC administrative activities	N	%
Participating in IC policy or protocol	110	95.7
Participating in development of IC standard	109	94.8
Participating in IC goals	110	95.7
Participating in IC master plan and IC practice plan	105	91.3
Participating in disseminating IC policy or plan to work sectors	106	92.2
Participating in analyzing hospital IC management and practice	98	85.2
Participating in role, job description of hospital IC committee	105	91.3
Participating in development of IC problem solving and report	88	76.5
Participating in analyzing hospital IC personnel work load	54	47.0
Participating in IC work dissemination to responsible staff	82	71.3
Participating in evaluation of hospital IC personnel	79	68.7
Participating in coordination for adequate IC equipments	97	84.3
Total	1143	82.8

Table 7. Participation in IC education (N=115)

Hospital IC education activities	N	%
Survey for the need of health personnel in IC training	83	72.2
IC training plan development (document)	84	73.0
Developing IC guideline for health personnel	104	90.4
Participating in training of new hospital personnel	94	81.7
Participating in regular training of hospital health personnel	102	88.7
Participating in IC evaluation of health personnel	85	73.9
Total	552	80.0

Two issues about research were asked in the questionnaire. Whether the samples did or participated in research for IC program development and whether the research applied to IC hospital practice were asked. Only 10.4% showed involvement in these research aspects (Table 9).

Seven quality development issues were done by 76.3% (Table 10). The issue in which the IC nurses did most was involvement in IC problem solving or IC program development (89.6%) and the least was using epidemiological knowledge to determine standard IC practice (65.2%).

Problems and obstacles during work were asked in both the questionnaire and interview (shown in Table 11). From 122 responses, multiple work responsibility and too heavy a work load caused inadequate IC work time (34.4%). Another important issue was lacking knowledge to analyze IC surveillance data (22.9%). Lacking knowledge and experience for epidemic investigation, lacking cooperation from health personnel for employee health, inadequate IC budget support, inadequate knowledge for IC education and inadequate research methodological knowledge were also mentioned.

The needs for support were the last issues surveyed. Results are shown in Table 12. For IC surveillance role, most samples asked for support in IC training and full time work (18.8% and 18.0%, respectively). Epidemiological training was mostly requested, as well as the support for epidemic investigation role (17.2%). For program management role, they would like to have IC nurse position in regular hospital health personnel scheme (12.3%). While hepatitis B immunization was mostly wanted for hospital employee health (23.8%). Further IC training was mostly wanted for health educational role (22.1%). For counseling role, they would like to have support for regular IC nurse training (12.3%), up to date educational materials or textbooks (8.2%) and an IC consultant (5.7%). For the research role, they needed educational materials or textbooks and IC nurse training (14.7% and 12.3%, respectively). Finally, they requested guidelines on IC quality development and training (11.5% and 9.0% respectively).

Discussion

The present descriptive study has shown the roles of the ICNs, problems/obstacles during work and needs for support for HA. All of the ICNs (115 for the questionnaire group and 7 for the interview group) did most of the IC roles except for the research role (only 10.4%). Only one of the samples had done research and used the result to modify IC practice, for example, perioperative antibiotic prophylaxis. Most samples

Table 8. Involvement in counseling activities (N=115)

Counseling activities	N	%
Ward personnel counseling	108	93.9
Laundry personnel counseling	103	89.6
Central supply personnel counseling	105	91.3
Environment personnel counseling	82	71.3
Total	398	86.5

Table 9. Experience in IC research (N=115)

IC research activities	N	%
Participating in research in IC	5	4.3
Using research results to adjust IC practice	19	16.5
Total	24	10.4

Table 10. Participation in IC quality development (N=115)

IC quality development	N	%
Involving in need and problem analysis for quality development	85	73.9
Involving in IC problem solving or IC program development	103	89.6
Regular follow up on IC quality development program	85	73.9
Participating in problem solving evaluation and report to the hospital IC committee	90	78.3
Regular monitoring on IC indicators	84	73.0
Using epidemiological knowledge to determine standard IC practice	75	65.2
Participating in reviewing of IC surveillance and epidemic investigation	92	80.0
Total	614	76.3

Table 11. Problems and obstacles of IC (N=122)

Problems and obstacles of IC	N	%
1. IC surveillance role		
Multiple job responsibility, too heavy work load	42	34.4
Lack of knowledge for data analyzing and reporting	28	22.9
Lack of nursing personnel cooperation	15	12.3
2. Epidemic investigation role		
Lacking knowledge for epidemic investigation	23	18.9
Lacking skill and experience for epidemic investigation	12	9.8
3. Hospital employee health role		
Health personnel ignore employee health program	29	23.8
Lacking budget funding to support immunization	18	14.7
4. IC administration role		
Multiple job responsible, too heavy work load	20	16.4
Lack of cooperation from health personnel in IC issues	14	11.5
Lack of administrative support	10	8.2
5. Hospital IC education role		
Inadequate IC knowledge	21	17.2
Lack of up to date educational materials or textbooks	11	9.0
6. Hospital IC counseling role		
Inadequate IC knowledge	21	17.2
Multiple job responsible, too heavy work load, no time	11	9.0
7. Research role		
Lack of knowledge in research methodology	30	24.6
8. IC quality development role		
Lack of cooperation from hospital health personnel	12	9.8
Multiple job responsibility, too heavy work load	10	8.2
Lack of knowledge and understanding in IC quality development	9	7.4

graduated with a bachelor degree and might not have knowledge and experience for conducting research[6]. Research conduction would need personal knowledge, experience and also support from the personnel's institution for budgeting and timing issues[7-8]. Using the research result to adjust IC practice would need quick and easily assessed database, for example, computerized database[9]. Lacking all of these aspects plus non full time work responsibility (86% of samples) would be the reason for inadequate research role in most of the samples (10.4%). Murphy et al also suggested the same results in Australia[9].

Most samples used in-patient nurses or IC ward nurses to record and collect all nosocomial surveillance data because they had other responsibilities including in-patient ward supervision (39%), in-patient nursing service (32.45), anesthesiological responsibility (10.5%) and head nurse duty (4.8%). This non full time work was also mentioned in a study by Siriwat[10]. While only 38.5% of Thai IC nurses in hospitals from the Ministry of Public Health did their own nosocomial infection surveillance[10], most of the US IC nurses did their own surveillance including collecting, analyzing and reporting the data. It involved around 35-40% of their total work load[11]. This would make the data become more effective and more accurate.

Administrative roles to analyze work load was done in only 47% in the questionnaire group. The interview group also responded the same way because they did not know how to analyze the work load. Ac-

Table 12. Supportive needs for IC (N=122)

Supportive needs	N	%
1. IC surveillance role		
IC training	23	18.8
2. Epidemic investigation role		
Training in epidemiology	21	17.2
Investigation guideline	10	8.2
3. Hospital employee health role		
Budget for hepatitis B immunization	29	23.8
4. IC program administration role		
ICN position	15	12.3
Support from hospital administrator	12	9.8
IC office	10	8.2
Full time ICN	10	8.2
5. IC education role		
Training support	27	22.2
Update educational material support	22	18.0
6. IC program counseling role		
Regular education for ICN	15	12.3
Updated educational material	10	8.2
IC consultant	7	5.7
7. Research role		
Updated education material	18	14.7
Training for ICN	15	12.3
8. IC quality development role		
Quality development guideline	14	11.5
Quality development training	11	9.0

cording to the HA standard which is 1 ICN for 250 bed capacity, non community hospital could have one ICN. Without the ICN position in the health scheme, no job descriptions and responsibilities could be set. This results in difficulty to do the work load analysis.

Although the samples did not analyze the regular work load, they have done IC in HA work analysis. With the HA requirement, there is an IC standard that every hospital has to comply with. Without this standard, a hospital might not pass the HA program. Analysis of work load could reveal weakness in the IC practice and guides to the improvement of hospital IC program in community hospitals.

Conclusion

The study suggested that IC nurses in community hospitals practised most of HA IC roles except for research. This resulted from inadequate knowledge, too heavy a work load and lack of administrative support.

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บทบาทของพยาบาลควบคุมการติดเชื้อในโรงพยาบาลชุมชน

ลัดดาวัลย์ จันทร์รัศมี, พูนทรัพย์ โสภารัตน์, วันชัย มุ่งตุ้ย, วรพจน์ ตันติศิริวัฒน์, สมหวัง ด่านชัยวิจิตร

วัตถุประสงค์ : ศึกษาบทบาทของพยาบาลควบคุมโรคติดเชื้อในโรงพยาบาลชุมชน รวมถึงปัญหา อุปสรรคในการปฏิบัติงานและการสนับสนุนที่ต้องการ

วัสดุและวิธีการ : ศึกษาแบบพรรณนาโดยการสัมภาษณ์ และใช้แบบสอบถาม

ผลการศึกษา : ระหว่างเดือนเมษายนถึงพฤษภาคม พ.ศ. 2545 สัมภาษณ์พยาบาลทำหน้าที่ควบคุมโรคติดเชื้อ 7 คนและได้รับแบบสอบถามกลับมา 115 ฉบับ รวมข้อมูลทั้งสิ้นจากพยาบาลทำหน้าที่ควบคุมโรคติดเชื้อ 122 คน พยาบาลควบคุมโรคติดเชื้อมีบทบาทดังนี้ ให้คำปรึกษา 86.5%, เฝ้าระวังโรค 83.1%, บริหาร 82.8%, ดูแลสุขภาพของบุคลากร 82.0%, ให้การศึกษา 80.0%, พัฒนาคุณภาพ 76.3%, สอบสวนโรคระบาด 72.2% และวิจัย 10.4% ปัญหาและอุปสรรคที่พบได้แก่ การขาดการสนับสนุนจากผู้บริหาร, ขาดงบประมาณและเอกสาร

สรุป : การวิจัยทำได้น้อยที่สุดเนื่องจากขาดความรู้ ภาระงานมาก และขาดการสนับสนุนจากผู้บริหาร