Nosocomial Infection Control in District Hospitals in Northern Thailand

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Objective : *To study the practice of nosocomial infection (NI) control in district hospitals.*
Material and Method : *Descriptive study using questionnaires and group discussion.*
Results : *From February-March 2002, five district hospitals in the northern region of Thailand were randomly enrolled. All members of the infection control committee (ICC) were included and data were available from 71 members (85.0%). Infection control activities were done by members of the ICC. The NI control program was designed by the Ministry of Public Health. Due to limited resources and suboptimal implementation, several defects in key elements for infection control were identified. Lack of competent personnel, inappropriate practices and lack of admistrative support were the important barriers to good practice.*
Conclusion : *Lack of competent personnel and inappropriate work instructions were identified. A review of a NI control program in district hospitals is needed.*

Keywords : *Nosocomial infection, Control, District hospitals*

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Nosocomial infection is one major health threat. Each year, many people contract an infection during admission, adding unnecessary costs and burden to patients, families and the health care systems[1-3]. An effective infection control and prevention program can reduce the rate of nosocomial infection and its consequences[1,4].

Hospital infection control in Thailand was introduced in 1971, but active infection control activities actually started in 1987[5]. In the early stage, the Ministry of Public Health of Thailand (MPH) initiated hospital infection control and prevention only in the tertiary-care medical centers and provincial hospitals; smaller hospitals adopted the practice in 1992. The three main infection control programs were: organization of infection control committee (ICC), surveillance system, and isolation of patients. Now the effects from the health reform policy in Thailand and the requirement for hospital accreditation have put pressure on hospitals, including community hospitals, to improve the quality of care. As the hospital infection control program is one of the major indicators for accreditation, this descriptive study is aimed to assess the nature and quality of infection control in community hospitals. The results of the present study will help to improve the quality of infection control in community hospitals in the future.

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Material and Method

Data of this descriptive study were collected by questionnaires and by group discussion with members of infection control committees (ICC) from 5 randomized representative community hospitals in the northern region of Thailand from February to March 2002. The questionnaires included; age, sex, education, position, working experience, postgraduate train-

ing in infection control. Group discussion covered 7 topics in infection control: surveillance, building design, supply of equipment, disinfection/sterilization, quality control in infection control, sanitation management and training in infection control.

The questionnaires, method of group discussions and data collection were designed and approved for validity of content by 4 qualified specialists in infection control and 1 qualified specialist in group discussion.

Results

Community hospitals in the northern area were classified into 5 groups according to their size: 10-, 30-, 60-, 90- and 120- bed hospitals. The number of hospitals in each group was 20, 102, 20, 13 and only one 120-bed hospital. One hospital from each group was randomly enrolled in the present study (Table 1).

Sixty-one of 71 members (85%) of the committees participated in the present study. Most of them were female (93.4%), 50.8% were nurses, 77.1% had a bachelor's degree and 50.8% were 31-40 years old (Table 2). The aerage work experience in IC was 4.1 years. Eighty-two percent had attended a training course in IC. The most attended course was standard precaution and the least was surveillance of NI. A one day training course in nosocomial infection was attended by 82% of subjects. Experience in supervision and problem solving was reported in 72% and 67.2% respectively. Up to 44.3% wished to quit the job for several reasons.

Every hospital had ICC. Regular meetings were less than expected due to work overload of the members. Surveillance function was assigned in 3 areas : patients, healthcare workers and environment. Problems in surveillance were due to the lack of knowledge and time of the responsible nurses, and the lack of laboratory data. Immunization against infections in hospital personnel was not introduced. Data on monitoring food safety were not available.

The architectural design of district hospitals did not support infection control, especially the lack of space for isolation/precaution of patients with communicable diseases. Supply of essential equipment for infection control needed to be increased in personal protective equipment and sterilizers. The practices in disinfection/sterilization required to be standardized. Quality of IC had yet to be improved in both organization, competency and time available of responsible personnel. Disposal of food left after meals and defective incinerators for medical waste were common problems. Training in IC was needed as well as the provision of text books and documents.

Discussion

The present study was different from a study in the past which included only infection control nurses, because the authors included all the members in the infection control committee (ICC) such as doctors (the chairs of the committees) and other medical personnel. Every hospital had ICC but most ICC did not have meetings more regularly than it should for accredita-

Table 2. Demographic data of participants(N=61)

Demography	No	%
Genders		
Female	57	93.4
Male	4	6.6
Age (year)		
21-30	21	34.4
31-40	31	50.8
41-50	7	11.5
51-60	2	3.3
(X - 35.7 years, S.D.=5.9 years, range = 23-52 years)		
Education		
Master degree	3	4.9
Bachelor degree	47	77.1
Diploma degree	11	18.0

Table 1. Participants in the study

No. of beds	No. of hospitals	Hospitals enrolled	No. of members of ICC	Members of ICC participated in study	%
10	20	1	12	10	83.3
30	102	1	14	12	85.7
60	20	1	12	10	83.3
90	13	1	16	14	87.5
120	1	1	17	15	88.2

tion. Even though ICC of every hospital had members from the representative of major departments of the hospital, they lacked the nucleus of the ICC to work actively to perform infection control activities and to generate the ideas for working[6]. The causes of these problems were : inadequate staff, work overload and the lack of qualified infection control nurses. Only one ICN in the study group was trained in surveillance of NI. Members of ICC should be chosen by other qualifications, such as their interest, tactfulness and communication skills other than by their positions alone.

As the guideline from the Ministry of Pubic Health recommended a hospital-wide surveillance system by filling in the infection control form in every patient. The infection rate was under reported because ICN had no time and sometimes lack of knowledge to do so. Significant number of records had to be completed by other nurses. The method of surveillance was inappropriate and should be rectified.

Every community hospital shares the same architectural design. It is not planned for isolation patients. The space between the patients' beds is less than the standard guideline and there is no specific route for disposing of sewage and medical wastes. This inappropriate architecture is due to the lack of participation of infection control professionals in the building design[7].

In the present study, even though medical personnel could follow standard guideline for practice in general medical care for prevention nosocomial infections, hand washing was far below optimum. Alcohol-based hand rub solutions should be added to the conventional hand washing with antiseptic/water.[8] The availability of alcohol-based hand rub solutions was also important, if it is provided 1 per each bed, the rate of adherence of hand-hygiene could be doubled.[9] Due to limited resources in health care system, especially in district hospitals, supply of essential equipment, sterilizers and incinerators for medical waste were generally inadequate. Administrators often put the requirements in IC at the bottom of the list resulting in inadequate provision of man power and money in the infection control system.

The whole process of IC in district hospitals needs to be overhauled. The management of NI in these small hospitals requires different approaches. Currently, practice guidelines in big hospitals are applied despite different problems and situations in small district hospitals. It is time to work out a plan for the best practices in IC in district hospitals.

Conclusion

Nosocomial infection control in district hospitals was done by a committee. There were no key persons for carrying out the function. Organization and practice in I.C. should be reviewed.

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References

1. Centers for Disease Control and Prevention. Public health focus: surveillance, prevention and control of nosocomial infection. MMWR 1992; 41: 783-7.
2. Burke JP. Infection control, a problem for patient safety. N Engl J Med 2003; 348: 651-6.
3. Ramasoot T. Nosocomial infection control. J Med Assoc Thai 1995; 78(Suppl 1): S57-8.
4. Haley RW, Culver DH, Morgan WM, Emori TG, Munn VP, Hootonn TP. The efficacy of infection surveillance and control programs in preventing nosocomial infection in U.S. hospitals. Am J Epidemiol 1985; 121: 182-205.
5. Danchaivijitr S, Limsuwan A. Efficacy of hospital infection control in Thailand 1988-1992. J Hosp Infect 1996; 32 : 147-53.
6. Wenzel RP. Management principles and the infection-control committee. In: Wenzel RP, editor. Prevention and control of nosocomial infections. 2nd ed. Philadelphia: Williams & Wilkins, 1999: 207-13.
7. American Institute of Architects. Guidelines for and construction of hospital and health care facilities, 1996-97. Washington : American Institute of Architects Press; 1996.
8. Clark AP, Houston S. Nosocomial infections: an issue of patient safety: part 2. Clin Nurse Spec 2004; 18: 62-4.
9. Bischoff WE, Reynolds TM, Sessler CN, Edmond MB, Wenzel RP. Handwashing compliance by health care workers: The impact of introducing an accessible, alcohol-based hand antiseptic. Arch Intern Med 2000; 160: 1017-21.

การป้องกันและควบคุมโรคติดเชื้อในโรงพยาบาลชุมชนในภาคเหนือ

มารศรี จันทร์ดี, สุสัณหา ยิ้มแย้ม, พูนทรัพย์ โสภารัตน์, ธวัชชัย จริยเศรษฐพงศ์, สมหวัง ด่านชัยวิจิตร

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ผลการศึกษา : *ระหว่างเดือนกุมภาพันธ์-มีนาคม พ.ศ. 2545, สุ่มศึกษาโรงพยาบาลชุมชนในภาคเหนือ 5 แห่ง ข้อมูลได้จากกรรมการควบคุมโรคติดเชื้อในโรงพยาบาล 71 คน (85.0%) การป้องกันและควบคุมโรคติดเชื้อในโรงพยาบาลดำเนินการโดยกรรมการโดยใช้แบบแผนกำหนดจากกระทรวงสาธารณสุข เนื่องจากการขาดแคลนทรัพยากรและการปฏิบัติอย่างเข้มงวด ทำให้การปฏิบัติงานมีข้อบกพร่องในสิ่งที่สำคัญหลายอย่าง สาเหตุที่สำคัญของข้อบกพร่องคือขาดผู้ชำนาญการ การปฏิบัติที่ไม่เหมาะสม และขาดการสนับสนุนจากผู้บริหาร*
สรุป : *การป้องกันและควบคุมโรคติดเชื้อในโรงพยาบาลชุมชนขาดผู้ชำนาญการ และมีข้อปฏิบัติที่ไม่เหมาะสม ควรจะทบทวนการป้องกันโรคติดเชื้อในโรงพยาบาลชุมชน*