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## Roles of Infection Prevention and Control Nurses (IPCNs) in Preparing for Emerging Infectious Diseases

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### ABSTRACT

**Background:** Infectious diseases have become one of the world's serious problems including in Indonesia. Infectious diseases can originate from the community and hospital environment. Health workers performing inappropriate medical procedures could also be a cause of transmission of infectious diseases. Infection prevention and control nurses (IPCNs) as the pioneers of prevention and infection control in hospitals have not optimally played their roles.

**Purpose:** This study aimed to explore the roles of IPCNs and their constraints in preparing for emerging infectious diseases.

**Methods:** The present study employed a qualitative design with the hermeneutic phenomenological approach. The samples were seven IPCNs for the primary participants, and two Infection Prevention and Control Officers (IPCOs) and 13 Infection Prevention and Control Link Nurses (IPCLNs) as the triangulation participants. The data were collected using in-depth semi-structured interviews analyzed using a content analysis technique.

**Results:** The results identified two themes: (1) IPCNs played roles as clinical practitioners, activity coordinators, administrators, and educators, and (2) the roles of IPCNs had not been optimal due to the lack of support from the hospital management, insufficient infrastructure, weak monitoring and evaluation, and the unavailability of appropriate rewards and punishment.

**Conclusion:** The majority of participants in this study agreed that IPCNs had tried well to play their roles. However, various obstacles were encountered, which hindered the IPCNs in performing their roles.

**Keywords:** IPCN; infectious diseases

### BACKGROUND

Infectious diseases have become one of the world's serious problems, including in Indonesia. The Ministry of Health of Republic of Indonesia (MHRI) (2011) describes that infectious diseases can originate from the community (Community Acquired Infections) and the hospital (Hospital Acquired Infection), or previously known as nosocomial infection. However, since it is often indefinite to find the origin of the infection, the term of Hospital Acquired Infections has currently changed to the Healthcare-Associated Infections (HAIs).

Raka (2010) states that HAIs exacerbate the inability of body functions and cause emotional stress, as well as increase morbidity. Bearman (2014) and PIDAC (2012) assert that HAIs can extend a patient's length of care, increase hospital costs, lead to a decreased quality of life, and even cause a patient death. To minimize the effects of HAIs, the Joint Commission International (2011, 2014) and the Hospital Accreditation Commission (2012) have incorporated the infection prevention and control as a part of assessment elements of hospital accreditation.

The Infection Prevention and Control Committee (IPCC) can reduce and prevent HAIs if they have clear programs and qualified teams. WHO (2016) describes that effective programs of IPCC can lower the incidence of HAIs to < 30%. Standard precautions in the form of hand hygiene are part of the IPCC programs. Improving the practice of hand hygiene can reduce the transmission of pathogens in the health services by up to 50%.

The Ministry of Health of Malaysia (2010) mentions adequate hand hygiene officers in hospitals will prevent the transmission of microorganisms from nurses to patients, and reduce 25-50% incidents of HAIs. MHRI (2011) affirmed that failure of practicing hygiene and inappropriate hand hygiene is regarded as the main cause of nosocomial infection and the spread of multi resistant microorganisms in the health care facilities. Such behaviors are recognized as an important contributor to the emergence of an outbreak. However, WHO (2016) revealed that an average of 61% of health workers did not comply with the recommended hand hygiene procedures. Akmal (2009) also confirmed that only 20% to 40% of health workers in Indonesia have a compliance to a correct hand hygiene procedure.

The IPCC of Semarang General Hospital in 2016 revealed that the level of hand hygiene adherence of the health professions were 86.39% for physicians, 86.84% for nurses, and 81.39% for other supporting health workers, including laboratory assistants, nutritionists, radiologists, CSSD, laundry, and sanitation. The results of an audit of hand hygiene implementation based on the five moments described that 73.06% of health workers performed hand hygiene before contacts with patients, 74.63% before taking actions on patients, 100% after contacts with patients' body fluid, 85.50% after contacts with patients, and 73.16% after contacts with the patients' surface environment. WHO (2016) recommends that the compliance standard of hand hygiene implementation should be more than 90%. With this regards, it is shown that an improvement of adherence to hand hygiene implementation should still be pursued.

According to MHRI (2008), the efforts made to improve hand hygiene as one of the IPC programs in hospitals require the involvement and commitment of professionals, including IPCNs. As a pioneer of prevention and infection control in the hospital, IPCNs still have not optimally played their roles. Results of interviews with IPCNs at the research site indicated that IPCNs had not been able to undergo full authority to run the IPC programs due to some factors such as inappropriate assessment of hand hygiene compliance, lack of hand hygiene tools and devices, and unavailability of clear rewards and punishment system. Therefore, this study is urgently needed to explore the real rooted-causes of prevention and infection control to optimize the nurses' preparation for emerging infectious diseases.

## **PURPOSE**

This study aimed to deeply explore the roles of IPCNs and their constraints in implementing hand hygiene as a part of the IPCC programs in preparing for the emerging infectious diseases.

## **METHODS**

This study used a qualitative design with a hermeneutic phenomenological approach. The researchers themselves served as the research instrument in this qualitative study and performed a self-validation by participation in the training of Basic Infection Prevention and Control on 23-25 February 2017 in Sidoarjo General Hospital, East Java. The researchers also established good relationships with the trainers and experienced practitioners of IPCN to improve the mastery of theory and knowledge related to IPCN. Prior to the study, the researchers also piloted the interview guides and voice recorders to the IPCNs who were from outside of the research site. This was purposively done for optimal preparation before entering the research field.

This study was conducted in Semarang General Hospital, a type B hospital located in Semarang, Central Java in April to June 2017. The population was all IPCNs involved in the implementation of hand hygiene program in the hospital. A purposive sampling was used to recruit the samples which consisted of seven IPCNs as the main participants, two Infection Prevention and Control Officers (IPCOs), and 13 Infection Prevention and Control Link Nurses (IPCLNs) as the triangulation participants. Data were collected using in-depth semi-structured interviews which lasted for 50-60 minutes each to all participants. Interview guidelines, tape recorders, and smartphone recorders were functioned for data collection. To guarantee the validity of the data, the researchers also conducted document reviews and observations on the completeness of facilities and infrastructures related to the implementation of hand hygiene. To analyze the data, an inductive content analysis (Elo & Keyngas, 2008) consisting of open encoding, development of category, and abstraction stages, was used. The produced themes were further discussed with the main participants.

## **RESULTS**

The researchers obtained two themes related to the implementation of hand hygiene as one of the prevention and control programs in hospitals. These themes included (1) IPCNs acted as clinical practitioners, activity coordinators, administrators, and educators; and (2) the roles of IPCNs had not been optimally undertaken due to the lack of support from the hospital management, inadequate infrastructure, poor evaluation and monitoring, and lack of appropriate rewards and punishment.

## **DISCUSSION**

### **IPCNs acted as clinical practitioners, activity coordinators, administrators and educators**

The results of interviews with all participants indicated that IPCNs should be able to act as clinical practitioners, activity coordinators, administrators, and educators of the hand hygiene implementation. The role of IPCNs as clinical practitioners was revealed in their direct activities at the hospital both to see the actual condition of patients and to

supervise the implementation of nursing care by the staff nurses. IPCNs were not hesitant to remind and teach correct procedures to the staff nurses when they found a staff nurse negligent in performing the procedure.

As the coordinators of IPC activities, IPCNs had identified the potential causes of infection and provided suggestions of the appropriate actions. IPCNs also developed a collaboration with the IPC committee to identify, investigate and control the outbreaks of infection, as well as with the physicians in monitoring and interventions to all units.

As an administrator, IPCNs had participated in developing and implementing the policies related to infection control. A monitoring of nurses' adherence to the IPC programs was also carried out through periodic audits and regular reports. Providing advice to staff nurses on various aspects related to infection prevention and all matters associated with safety was also done.

IPCNs also acted as an educator. In this context, IPCNs actively involved in education and training programs both formal or informal for all health workers. IPCNs always updated with the latest development of infection and prevention control by incorporating themselves in the nurses' association of infection prevention and control, reading the literature, and attending relevant scientific meetings.

All aforementioned facts are in line with the role description of IPCNs in the IPC programs submitted by the Ministry of Health of Malaysia on the Policies and Procedures on Infection Control (2010), which describes that IPCNs should be able to act as clinical practitioners, surveyors, coordinators/organizers of infection control activities, administrators, educators, researchers, and actively involved in the quality improvement activities. Costi Panjaitan (2015) and Bernadetta (2017), IPCN practitioners with more than 20 years of experiences in the infection prevention and control program, described that the roles and functions of IPCNs include clinical practitioners, surveyors, investigators, managers, educators, consultants, auditors, advocates, communicators, motivators, evaluators, researchers, and members of organizations.

**IPCNs had not optimally played their roles due to the lack of support from the hospital management, insufficient infrastructures, weak evaluation and monitoring, and unavailability of appropriate rewards and punishment**

***Supports from the hospital management***

The supports from the hospital management are urgently needed to ensure the implementation of planned programs. Some participants (IPCNs) acknowledged that the hospital management support was good enough. However, there were still some problems related to the lack of support and commitment from the management to the HAIs control and prevention programs. The regular evaluation and monitoring programs had not been implemented as they were planned. Moreover, there were no feedbacks from the management related to the submitted reports of HAIs incidents. There was also no specific allocation of funding for the IPC programs, and, as a result, the IPCC encountered various obstacles in implementing their programs especially related to the development of knowledge of the personnel. Sometimes, the management

support in the form of policies was not immediately taken into actions, and, as a result, the planned programs could not be immediately implemented.

Kewuan (2017) explains that providing supports, developing and giving recognition is an important relationship-oriented behavior. Providing supports is such a wide range of behaviors as seen when a manager is showing consideration, acceptance, and attention to someone's needs and feelings. Giving recognition involves giving praises and appreciation to other people for their effective work, significant success, and important contributions to reinforce the wanted behaviors, enhance interpersonal relationships, and increase personal satisfaction.

### ***Facilities and infrastructures***

Results of interviews indicated that the facilities and infrastructures for hand hygiene were available, and therefore, the adherence towards hand hygiene should have been optimally implemented. Damanik et al. stated that an ease of accessing facilities for hand hygiene such as sinks, hand rubbers, and alcohol rubs is essential to optimize the adherence to the implementation of hand hygiene (Weney, 2016). However, in this study, the nurses' adherence to hand hygiene in the hospital was out of the expectation. Based on the results of observations, the completeness of hand hygiene guidelines, standard operating procedures (SOPs), and facilities and infrastructure for hand hygiene were met. Nevertheless, some nurses still missed hand hygiene steps and improperly implemented the 6-steps-hand hygiene technique. The efficiency programs were not suited for an adequate need analysis, which could, therefore, threaten the adherence to hand hygiene implementation.

### **Monitoring and evaluation**

The IPCNs in the hospital in this study had attempted to monitor and evaluate the implementation of hand hygiene and provided feedback on the findings. The programs that have been designed will not be optimally implemented if there is no appropriate monitoring, evaluation, and feedback. Azis (2014) stated that evaluation and feedback should be included in any attempts made for improvement by monitoring the practice and knowledge of the health workers. A comprehensive evaluation in the form of audits allows the management to identify areas which require improvement and describes the continuous improvement in the documentation of training (Wyeth, 2013).

There are two different types of feedback (WHO, 2009). First is the feedback received from the staffs prior to an audit or education or training to determine the level of adherence. The assessment of this feedback is performed by administering a staff perception survey. The second feedback utilizes direct observations which are recommended as gold standards for monitoring and improving the adherence to hand hygiene.

Cordon (2008) stated that feedback had successfully increased the adherence to hand hygiene by six times. Such techniques as audits and communications can have different effects on the hand hygiene adherence culture. Aziz (2013) asserted that ensuring staff engagement and consultation on the audit process to help the staffs stay motivated to increase their involvement.

### Rewards and Punishment

Waney (2016) and Issakh & Wiryawan (2015) stated that the fundamental principle of motivation is the force which encourages individuals to do something to meet the needs at one particular time. There are some factors which influence the fluctuation of individual motivation, including the basic factor, i.e. personal motivation, the supporting factor, i.e., system at work, and the driving factor, i.e., rewards and punishment (Sule and Saefullah, 2015).

In this study, driving motivation in the form of rewards and punishment was not yet established. Nevertheless, the IPCNs were aware of the importance and the need of the system so that the hand hygiene implementation could be optimized. Wibowo (2007) stated that employees need rewards or compensation for the work they have done to improve their motivation to achieve the best performance. The important principle is that high achievement should be given appropriate rewards, and, vice versa, violations of the rules of the organization should also be given fair punishment. Suryabrata (2010) also explained that rewards or success would result in the continuation or repetition of an act which brings prizes or success. On the other hand, the punishment would reduce the tendency to repeat the behaviors causing penalties or failures (Suharli and Michell, 2009). Leaders will not succeed in motivating their employees if they do not implement an appropriate reward and punishment system. Errors in implementing the system will result in demotivation and lack of job satisfaction among the employees. If happen continuously, they can cause decreased performance for both the employees and the organization. People with high motivation can increase their performance (Ananingsih & Rosa, 2016).

### CONCLUSION

The majority of participants in this study agreed that IPCNs had tried to carry out their roles as clinical practitioners, activity coordinators, administrators, and educators. However, various constraints, such as inadequate management support, inadequate facilities and infrastructure, lack of evaluation and monitoring, and unavailability of appropriate rewards and punishment system inhibited IPCNs in acting out their roles.

### REFERENCES

- Akmal Taher. (2009). *Kebersihan Tangan Mempengaruhi Keselamatan Pasien [Hand Hygiene Affects Patient Safety]*. Pusat Komunikasi Publik, Sekretariat Jenderal Departemen Kesehatan. [info@puskom.depkes.go.id](mailto:info@puskom.depkes.go.id). [https://web.facebook.com/notes/rsud-prof-dr-margono-soekarjo-purwokerto/kebersihan-tangan-mempengaruhi-keselamatan-pasien/213072224347/?\\_rdr](https://web.facebook.com/notes/rsud-prof-dr-margono-soekarjo-purwokerto/kebersihan-tangan-mempengaruhi-keselamatan-pasien/213072224347/?_rdr)
- Ananingsih, P.D. & Rosa, E.M. (2016). Kepatuhan 5 Momen Hand Hygiene Pada Petugasi di Laboratorium Klinik Cito Yogyakarta [Adherence to 5 Moments of Hand Hygiene at Cito Clinical Laboratory, Yogyakarta]. *Jurnal Medicoeticolegal dan Manajemen Rumah Sakit*, 5 (1): 16-24. DOI: 10.18196/jmmr.5102
- Aziz, A.M. (2013). How Better Availability Of Materials Improved Hand-Hygiene Compliance. *British Journal of Nursing*, 22(8), pp. 458-463.

- Aziz, A.M. (2014). Hand Hygiene Compliance for Patient Safety. *British Journal of Healthcare Management*, 20(9), pp. 428-434.
- Bearman, Stevens, Edmond, & Wenzel. (2014). *A Guide to Infection Control in the Hospital*. Fifth Edition. Boston: International Society for Infectious Diseases.
- Bernadetta. (2017). *Peran Infection Prevention and Control Nurse [Roles of Infection Prevention and Control Nurse (IPCN)]*. 2017. Presented at Basic Infection Control and Prevention Training. Division of Education and Training of Sidoarjo General Hospital, East Java.
- Creedon, S.A. (2008). Hand Hygiene Compliance: Exploring Variations in Practice Between Hospitals. *Nursing Times*, 104(49), pp. 32-35.
- Department of Health Republic of Indonesia. (2008). *Pedoman Managerial Pencegahan dan Pengendalian Infeksi di Rumah Sakit dan Fasilitas Pelayanan Kesehatan Lainnya [Guidelines for Infection Prevention and Control Management at Hospitals and Other Health Care Facilities]*. Jakarta: Department of Health Republic of Indonesia.
- Elo S. & Kyngas H. 2008. The Qualitative Content Analysis Process. *Journal of Advanced Nursing*, 62 (1), 107-115. Doi:1111/j.1365-2648.2007.04569.x.
- Issakh, H.I. & Wiryawan, Z. (2015). *Pengantar Manajemen [An Introduction to Management]*. Second Edition. Jakarta: In Media.
- Joint Commission International. (2011). *Accreditation Standards For Hospitals*. 4<sup>th</sup> Edition. USA: Joint Commission International Accreditation
- Joint Commission International. (2014). *Accreditation Standards For Hospitals*. 5<sup>th</sup> Edition. USA: Joint Commission International Accreditation
- Kewuan, N.N. (2017). *Manajemen Kinerja Keperawatan [Management of Nursing Work Performance]*. Jakarta: Penerbit Buku Kedokteran EGC.
- Ministry of Health Malaysia. (2010). *Quality Medical Care Section. Medical Development Division. Policies and Procedures on Infection Control*. 2<sup>nd</sup> Edition. Malaysia: Ministry of Health Malaysia.
- Ministry of Health Republic of Indonesia (MHRI). (2011). *Pedoman Pencegahan dan Pengendalian Infeksi di Rumah Sakit dan Fasilitas Pelayanan Kesehatan Lainnya. Kesiapan Menghadapi Emerging Infection Disease [Guidelines for Infection Prevention and Control at Hospitals and Other Health Care Facilities. A Readiness for Emerging Infection Disease]*. Jakarta: MHRI.
- Ministry of Health Republic of Indonesia (MHRI). (2012). *Standar Akreditasi Rumah Sakit [Standards of Hospital Accreditation]*. Jakarta: MHRI
- Pandjaitan, C. (2015). *Peran dan Fungsi IPCN [Roles and Functions of IPCN]*. Presented at Basic Infection Control and Prevention Training by Perdalim & HIPPII Semarang.
- Provincial Infectious Diseases Advisory Committee (PIDAC). (2012). *Best Practice for Infection Prevention and Control Program in Ontario. In All Health Care Settings*, 3rd Edition. Ontario: Public Health Ontario Partners for Health. Santé Publique Ontario Partenaires Pour La Santé.
- Raka. (2010). Prevention and Control of Hospital-Related Infection in Low and Middle Income Countries. *The Open Infection Diseases Journal*. 4, 125-131
- Suharli, M.J.J. (2009). *Habit: Delapan Kebiasaan Yang Mengubah Nasib Anda [Habits: The Eight Habits that Changed Your Fate]*. Jakarta: Gramedia Pustaka Utama.

- Sule, E.T. & Saefullah, K. (2015). *Pengantar Manajemen [An Introduction to Management]*, First Edition. Jakarta: Penerbit Prenamedia Group.
- Suryabrata, S. (2010). *Psikologi Pendidikan [Educational Psychology]*. Fifth Edition. Jakarta: Rajawali Pres.
- Waney, M.P., Kandou, G. D, & Panelewen, J. (2016). *Faktor-Faktor yang berhubungan dengan Penerapan Hand Hygiene di Instalasi Rawat Inap Rumah Sakit Tingkat III R. W. Monginsidi, Manado [Factors Related to the Implementation of Hand Hygiene at Inpatient Wards of Level III Hospital of R. W. Monginsidi, Manado]*. <https://ejournalhealth.com/index.php/CH/article/view/107/104>
- Wibowo. (2007). *Manajemen Kinerja Devisi Buku Perguruan Tinggi [Management of Work Performance of Higher Education Books]*. Jakarta: PT Jasa Grafindo Persada.
- World Health Organization (WHO). (2009). *A Guide to the Implementation of the WHO Multimodal Hand Hygiene Improvement Strategy*. Geneva: WHO.
- World Health Organization (WHO). (2016). *Health Care Without Avoidable Infection. The Critical Role of Infection Prevention and Control*. Geneva: WHO.
- Wyeth, J. (2013). Hand Hygiene and The Use of Personal Protective Equipment. *British Journal of Nursing*, 22(16), 920-925.