

# The Value of Strengthening Nursing Management in the Prevention and Control of Nosocomial Infection

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**Abstract:** Through a deep analysis of nursing management in hospital, we find that the level of nursing management in hospital is improved from several aspects: to heighten the hospital staff's personal awareness of the prevention and control of nosocomial infection, reinforce the disinfection of medical devices, monitor medical staff and step up the management of hospital environment. What's more, it is also necessary to set up a reasonable nursing and management of nosocomial infection system and purchase some necessary equipment, to perfect the hospital environment, strengthen the training and ideological publicity of medical staff, and make the management of nosocomial infection make headway in an orderly manner. This paper briefly discusses the causes of nosocomial infection, and then analyzes the importance and measures of strengthening nursing management in the prevention and control of nosocomial infection. Hopefully, it will serve as a reference for people involved.

**Keywords:** nursing management; prevention; control; nosocomial infection

## 1. Introduction

Nosocomial infection not only affects the safety of medical care in hospital, but also inflicts serious pain and economic burden on patients [1]. For this reason, hospitals should do a good job in the prevention and control of nosocomial infection. As one of the important contents of hospital management, nursing management plays a very crucial role. The quality of nursing management in hospital is an integral part of the improvement of the medical level of hospital. Prevention measures should be taken throughout the nursing. Lots of the existing clinical trials have evidenced that proper nursing management plays a critical role in the prevention and control of nosocomial infection [2,3].

## 2. Causes of Nosocomial Infection

### 2.1. Heavy Use of Invasive Instruments

The medical devices used in some invasive operations, such as urinary catheter, gynecological vaginal

examination, tracheotomy, intubation and intravenous administration, etc. and hands of the staff can give rise to cross infection in hospitals, due to air pollution or inadequate disinfection [4].

### 2.2. Abuse of Antibiotics

The improper use of antibacterial drugs is one of the important factors leading to nosocomial infection. The annual use of antibiotics in China ranks 1st in the world, and this has a lot to do with some management mechanisms of hospitals and can lead to dysbacteriosis in patients and cross infection [5].

### 2.3. Non-standard Aseptic Operation

Medical staff in hospitals needs to perform a variety of operations on patients on a daily basis, and each item needs aseptic management, such as wearing masks, caps and work clothes and washing hands, etc. If not strictly followed, they can induce cross infection. Medical staff is easily exposed to some contaminated items when contacting patients, pass the pathogen to other patients or medical supplies, and give rise to cross infection. Therefore, medical staff should handle hand disinfection properly after contacting patients and avoid mixing medical equipment, in case the pathogen is spread to patients [6].

### 2.4. Susceptible Population

The susceptible population is enormous. Due to decreased immunity during the illness, patients are at greater risk of infection. It is commonly seen in patients with physical disability, infirmity, radiotherapy and chemotherapy or chronic diseases [7].

## 3. The Great Value of Strengthening Nursing Management in Preventing Nosocomial Infection

An effective way to prevent nosocomial infection actively and spontaneously is to handle prevention properly. Disinfection and sterilization during work, aseptic operation and isolation can cut off the source of infection from the root. The most important means to prevent infection is also an important content and foundation of nursing. 40% of the infections in hospitals are the result of poor nursing practice or non-standard nursing management. In light of this, to upgrade the

quality of nursing management, improve the standardization of nursing techniques and put the disinfection isolation system in nursing work into effect are not only the duties of medical staff to defend nosocomial infection, but also important channels to intensify the prevention and control of infection in hospitals [8].

All kinds of patients aggregate in hospitals, so hospitals are most prone to cross infection. Since nurses frequently contact and are the closest to patients, they are the first to detect infection inside the hospital. Also, nurses are the main manipulators that monitor nosocomial infection. On the other hand, nosocomial infection can easily occur due to non-standard disinfection and isolation, weak management concept, etc.

To participate in the management of nosocomial infection process. The nursing director is usually one of the members of the Infection Management Committee of the hospital, so he/she manages nursing work related to nosocomial infection in a specific and effective way and approaches supervision and management, by taking part in a variety of management activities of the Management Committee, under the guidance of the Nosocomial Infection Department [9,10].

The role of educator. To heighten the education and training of nursing staff, and constantly improve their awareness and professional level in prevention is an important step to prevent nosocomial infection. Also, attention should be paid to the health education of patients and people who visit the patients. Medical staff should not only be able but also be liable to disseminate knowledge about the prevention of nosocomial infection and cross infection to patients and their families. Especially for some patients with serious infectious diseases, medical staff should win their trust and make them cooperate with the medical staff consciously in the disinfection and isolation [11].

The role of executor. Nursing staff should check the quality regularly according to the hospital's specifications and standards, evaluate and analyze the inspection results and take prompt measures to solve existing problems. As far as disinfection management is concerned, regular disinfection and regular inspection should be maintained and all kinds of test results shall be monitored according to conventional standards, and air culture conditions in special areas should be monitored. Moreover, it is also necessary to strengthen the management of risk factors and key infection departments. The elderly have decreased immunity and infants and young children are in the growth period with underdeveloped immune system, so they are high-risk groups of nosocomial infection and also primary concern of the nursing staff. In addition, it is also necessary to standardize the layout and equipment in some key departments. In operating rooms and transplantation wards, air should be purified and areas should be strictly divided [12].

The role of organizer: under the leadership of the Infection Management Committee of the hospital, the

nursing department shall set up a nosocomial infection nursing monitoring system, with the director as the principal and head nurses as the members, to supervise and manage the performance of nosocomial infection management measures by the nursing staff. Perfect rules and regulations, develop a sound nosocomial infection nursing management plan and measures, maintain a wide range of standards and contents about disinfection management and work out corresponding rewards and punishment measures, to realize normalization and standardization [13].

#### **4. To Improve Management Measures for Nursing in Hospitals**

To heighten personal awareness of infection prevention. Inside the hospital, the concepts and hazards of nosocomial infection should be popularized, training and learning activities should be organized and carried out, and the individual awareness and sense of duty of medical staff and the prevention and control staff in hospitals shall be heightened, to internalize the infection control behaviors of hospitals as individual behavioral constraints, and constrain the standardization of nursing work and enhance the self-discipline of nursing staff.

##### **4.1. To Intensify the Disinfection of Medical Devices, as well as the Monitoring and Management of Medical Staff**

Every day, a mass of medical devices should be disinfected in a timely manner for subsequent use. For example, thermometers and stethoscopes, which are required by daily examination and nursing, need to be disinfected strictly before being used on the next patient. In addition, before nurses use all kinds of medical devices, they should inspect their effectiveness and quality and avoid using some instruments that are unqualified or damaged, in case of infection inside in hospitals. On the other hand, in daily nursing work, medical staff needs to be exposed to a variety of medical equipment for a long time. Apart from intensifying disinfection management before use, medical staff, as direct supervisors, must also realize that they are the first to be hurt. Being exposed to a large number of patients, medical staff should frequently wash their hands, and this is the most effective way to prevent and control infection. What's more, it is important to prevent nosocomial infection caused by hand contact, and avoid negligence in personal behaviors and consciousness. Personal hygiene and cleanliness should be maintained. Otherwise the consequences will be very serious.

##### **4.2. To Strengthen Environment Management**

The hospital environment is of vital importance for the prevention of nosocomial infection. If the hospital environment is contaminated, there would be uncontrollable consequences. Since the hospital environment is an important medium for the whole nosocomial infection, it is necessary to monitor it strictly and no negligence is allowed. The environment and hygiene in the wards, such as ventilation, temperature

and humidity, should be strictly managed on a daily basis. Each day, the garbage in wards should be cleaned in time the liquid used in wards must be disinfectant containing chlorine, air conditioners should be disinfected and cleaned day to day, the visitor flow inside the hospitals should be controlled, and the rules of the hospital should be strictly followed. In addition, for some large general hospitals, due to the large number of patients every day, bacteria that can cause various diseases tend to increase. If left uncleaned for a long time, they can raise the risk of pathogen infection and result in cross infection.

#### 4.3. To Establish a Hierarchical Management System

In hospital nursing, a disinfection and isolation management team, as well as a steering group consisting of the director and head nurse of each department, should be set up. Each nurse shall be committed to the prevention of nosocomial infection, and properly implement daily disinfection and sterilization. Inspect and spot-check regularly, strengthen the supervision and management mechanism, motivate nurses to operate in strict accordance with the specifications in their work, strictly comply with rules and regulations on disinfection management, cleaning and hygiene, etc., set up reward and punishment systems and avoid the formalization of work, in order to provide a guarantee for the control and management of nosocomial infection.

#### 4.4. To Purchase Necessary Equipment for the Hospital and Improve the Hospital Structure

The hospital building standards issued by the state have put forward some requirements concerning the building of hospitals. For this reason, major hospitals should take some reform measures according to their own requirements, such as increasing the number of wash basins and waste disposal devices. Besides, some necessary protective articles should also be purchased where permitted, to ensure the safety of medical staff.

#### 4.5. To Offer Training and Publicity to Medical Staff

The nursing department should work closely with the Infection Management Committee of hospitals, organize training and learning activities concerning the establishment of hospital environment, as well as the prevention of nosocomial infection among the medical staff in hospitals, and organize activities by taking nosocomial infection management knowledge as the theme, to familiarize medical staff with and inform them of some corresponding legal knowledge and clarify their individual rights and responsibilities. Moreover, medical staff should strictly abide by rules and regulations in daily activities, have a good sense of behavior and grasp knowledge about self-protection through irregular prevention and control work, not only improving the standardization of their own operations, but also giving education and guidance to patients and their families.

#### 4.6. To Finish the Assessment, Monitoring and Feedback of Nosocomial Infection Management Conscientiously

The infection management department of the hospital should team up with the nursing department to develop a nosocomial infection management system, supervise, manage, inspect, guide and feed back properly in day-to-day work, with an aim to enable all departments in hospitals to understand the existing problems and clearly know how to improve, to promote the nosocomial infection management in each department.

#### 4.7. To Intensify the Control and Management of Nosocomial Infection in Each Step

Hospitals should observe rules and regulations about nosocomial infection isolation, separate the aseptic area, clean area and contaminated area in a rational way, strictly implement aseptic operation, and store sterilized medical articles according to the date of sanitization. Moreover, it is also necessary to strengthen the disinfection management of diagnosis, treatment and equipment required in daily life and strictly implement sterilization. The hospital waste should be classified and then disposed in a centralized way. Contaminating medical wastes should be affixed with warning labels and sent to designated places for storage, in case that some contaminating medical waste heap up and cause the spread of epidemic. Moreover, it is important to reinforce the hospital management, disinfect air on a daily basis and wipe the desktop and ground using disinfectant containing fluorine, in case that the bacteria proliferate. Medical staff should maintain personal hygiene and protective measures, and avoid being stabbed by some contaminating medical equipment.

#### 4.8. To Implement a Nosocomial Infection Monitoring and Management System

Reinforce the nosocomial infection surveillance and management system. In the infection management of hospitals, the infection control and management measures of hospitals should be monitored and managed at regular intervals, the environmental pollution in each room, the concentration, dose and usage of various disinfectants, as well as the disinfection of some medical equipment should be overseen, and the investigation results should be analyzed, until the results of regular inspections conform to the standard.

#### 4.9. To Enhance the Self-protection Awareness of Nursing Staff

Existing surveys show that the infection rate of nursing staff is more than half of that of medical staff. Due to long term exposure to patients, nursing staff are more prone to infection, so they need to strictly do a good job in personal management and avoid being hurt. In daily work, nursing staff should not only fulfill their bounden duties, but also take proper protection and isolation measures, to avoid being stabbed by contaminated medical equipment and also learn basic methods to deal with emergencies.

#### 4.10. To Use Antibiotics Properly

In China, the abuse of antibiotics is a very serious phenomenon. Antibiotics act on bacteria, so they should be used in a rational and proper way, according to the state of illness of patients. When using of some immunosuppressant, we should take sound protection measures on patients, test the patients' level of leukocytes regularly and provide them with some prevention measures. The timing and dosage of antibiotics, as well as the need of drug combination should be strictly controlled.

#### 4.11. To Reinforce the Management of Departments Susceptible to Infection

The operating rooms, intensive care units, maternity wards and stomatology departments, etc. inside hospitals are all susceptible to infection, so the management in these key departments must be strengthened, to avoid infection in the key areas.

### 5. Conclusion

To sum up, nursing work is an important part in the prevention of nosocomial infection. How to prevent and control infection to ensure the life security of patients and enhance the level of medical treatment in hospitals and health of medical staff is a topic worthy of studying [14]. With the update and progress of modern medical equipment, this has posed higher requirements for clinical nursing work. Medical staff should not only possess professional qualities, but also enhance their personal sense of duty, intensify the prevention and management of infection in nursing work, minimize the probability of nosocomial infection, and control the occurrence of cross infection in hospitals [15].

### References

- [1] Li Hongbo, Jiang Dongxia and Zhang Ruiyun. Effect of nursing management on prevention of nosocomial infections. *Chinese Journal of Nosocomiology*, **2014**, 000 (017): 4388-4390.
- [2] Lv Yonghong. The application effect of strengthening nursing management in the prevention of nosocomial infection. *Chinese Journal of Clinical Rational Drug Use*, **2015**, 000 (033): 163-164.
- [3] Zhao Junye. Study on the effect of outpatient nursing management on the control of nosocomial infection. *Inner Mongolia Medical Journal*, **2014**, 46 (008): 997-999.
- [4] Lu Liyun and He Meiling. Nursing management measures of controlling hospital infection in haematology department. *Journal of Jilin Medical College*, **2015**, 36 (002): 90-92.
- [5] Li Jing and Yao Ming. An analysis of application effect of nursing management in the prevention and control of neonatal nosocomial infection. *China Health Care & Nutrition*, **2018**, 28 (020): 337.
- [6] Zong Zhiping. Application of cluster nursing in prevention and control of nosocomial infection in geriatric ward. *China Health Standard Management*, **2018**, 09 (023): 144-146.
- [7] LI Xiaorong. Insight into the application value of fine management in the nosocomial infection prevention and control nursing in neonatal wards. *Journal of Clinical Medical Literature*, **2018**, 5 (84): 192-193.
- [8] Li Jianhua. Application value analysis of operating room detail nursing management in controlling hospital infection. *China Health Standard Management*, **2019**, 10 (010): 79-80.
- [9] Zheng Yumei, Wang Xianmei and Yu Xuxian. Intensifying management of nosocomial infection to control nosocomial infection and improve nursing quality in obstetrics. *Journal of Traditional Chinese Medicine Management*, **2018**, 26 (011): 148-150.
- [10] Yin, H.; Sun, T.; Yao, L.; Jiao, Y.; Ma, L.; Lin, L.; Graff, J. C.; Aleya, L.; Postlethwaite, A.; Gu, W.; Chen, H. Association between population density and infection rate suggests the importance of social distancing and travel restriction in reducing the COVID-19 pandemic. *Environmental science and pollution research international*, **2021**, 1-7.
- [11] Urwyler, P.; Charitos, P.; Moser, S.; Heijnen, I.; Trendelenburg, M.; Thoma, R.; Sumer, J.; Camacho-Ortiz, A.; Bacci, M. R.; Huber, L. C.; Stüssi-Helbling, M.; Albrich, W. C.; Sendi, P.; Osthoff, M. Recombinant human C1 esterase inhibitor (conestat alfa) in the prevention of severe SARS-CoV-2 infection in hospitalized patients with COVID-19: A structured summary of a study protocol for a randomized, parallel-group, open-label, multi-center pilot trial (PROTECT-COVID-19). *Trials*, **2021**, 22, (1), 1.
- [12] O'Hara, J.; Stocken, D. D.; Watson, G. C.; Fouweather, T.; McGlashan, J.; MacKenzie, K.; Carding, P.; Karagama, Y.; Wood, R.; Wilson, J. A. Use of proton pump inhibitors to treat persistent throat symptoms: multicentre, double blind, randomised, placebo controlled trial. *BMJ (Clinical research ed.)*, **2021**, 372, m4903.
- [13] Haugh, D. Communicating with medical library users during COVID-19. *Journal of the Medical Library Association: JMLA*, **2021**, 109, (1), 107-111.
- [14] Elsamany, S.; Hassanin, F.; Al-Abdulwahab, A.; Tashkandi, E. Suggested modifications in oncology/hematology inpatient service in Saudi Arabia during coronavirus disease-2019 (COVID-19) pandemic. *Avicenna journal of medicine*, **2020**, 10, (4), 208-214.
- [15] Ali, H.; Cole, A.; Ahmed, A.; Hamasha, S.; Panos, G. Major Stressors and Coping Strategies of Frontline Nursing Staff During the Outbreak of Coronavirus Disease 2020 (COVID-19) in Alabama. *Journal of multidisciplinary healthcare*, **2020**, 13, 2057-2068.