

## Review Article

# Comparative Analysis of Transitional Area Setting Mode for Inpatients in General Hospitals Under Normal Epidemic Situation

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This article about the establishment of a transitional area for Covid-19, that is, all patients should have nucleic acid before admission in China, and only if they are negative can they be hospitalized. However, some patients are seriously ill and must be hospitalized quickly, so they need to be placed in the transitional area to wait for nucleic acid results, and then they can be transferred to the general ward. Positive cases are referred to another site for treatment.

However, transitional area settings in China are different. Some hospitals set up a separate ward for critically ill patients to wait for nucleic acid, and wait for negative results before being transferred to the general ward. Some set up transition rooms in remote areas of each ward, waiting for nucleic acid negative before being transferred to the general room. Some are in the emergency room waiting for nucleic acid results, if negative then transferred to the general ward. In my article, I have selected three transitional modes, compared the advantages and disadvantages, and selected the best one. Although the harm of Covid-19 is gradually becoming less serious, this best transitional setting model also provides a certain reference for the management of emerging infectious diseases in the future.

**Keywords:** General hospital; Transitional room; Epidemic; Prevention and control; Covid-19

## Introduction

Since the first report of Covid-19 in Wuhan City in December 2019, the global epidemic has been spreading at an accelerated pace, which has become a public health crisis all over the world [1]. At present, the epidemic situation in China is getting better and better, and the key tasks faced by general hospitals have changed accordingly [2], and the focus of medical work is gradually the same as before. The inpatient ward is an important and main place for the clinical treatment of the patients. In order to reduce the risk of nosocomial infection of Covid-19, suspected and confirmed cases of Covid-19 have to be blocked out of the inpatient ward, because if the whole ward are infected by the Covid-19, this is very dangerous for most of the patients [3]. All patients should have nucleic acid before admission in China, and only if they are negative can they be hospitalized. However, some patients are seriously ill and must be hospitalized quickly, so they need to be placed in the transitional area to wait for nucleic acid results, and then they can be transferred to the general ward for further treatment with negative result. Positive cases are referred to another site for further treatment. The Chinese National Health Commission proposed that medical institutions should set up transitional areas, treat newly admitted serious ill patients in single rooms, and then transfer them to the normal room for further treatment after their nucleic acid result are negative [4]. Transitional area plays an important role in controlling nosocomial and cross-infection of Covid-19. It is also a security barrier for the general ward [5].

Although transitional area are essential for screening patients for Covid-19, they are currently set up differently in various general hospitals, and the Chinese government has not clearly identified which mode is most suitable for general hospitals. In addition, the establishment of transitional area needs to occupy the original medical rooms and medical staff, and too many will affect the economic benefits of hospitals. Because most of the hospitals in China are responsible for their own profits and losses [6]. The setting of transitional area will lead to lower income of medical staff, lower satisfaction of medical staff, and even affect medical quality [7]. The purpose of this study is to explore the most suitable transitional mode for general hospitals, which can not only meet the needs of epidemic prevention and control, but also ensure the income of medical staff, improve the satisfaction of medical staff, and ensure medical quality and patient safety.

## Survey Method

### Questionnaire Survey

General hospitals in Shenzhen were selected as the research objects. To investigate the current situation of transitional area setting in different hospitals by questionnaire star setting questionnaire (Appendix 1).

### Selecting Hospitals for Investigation

Through questionnaire star survey, a total of 27 general hospitals of Shenzhen City were successfully collected. The transitional mode of 18 hospitals was: one room at the entrance of each ward or in

**Table 1:** Comparative analysis of transitional area settings for inpatients in Shenzhen General Hospital under normal epidemic situation.

Category	Mode 1	Mode 2	Mode 3
Composition of staff	Corresponding specialist doctors and nurses	ED doctors, nurses	Nurses mainly (doctors on call)
Cost of upgrading ward	About 10,000 yuan	About 2000 yuan	About 80,000 yuan
Number of patients admitted per year	About 1872	About 1022	About 2230
Cost of human resources	Low	Low	High
Consumption of protective equipment	Similar	Similar	Similar
Level of protection for staff	Similar	Similar	Similar
Economic benefits to the hospital	High	High	Low
Risk of nosocomial infection	Relatively high	Relatively high	Low
Patient satisfaction	High	Medium	Low
Doctor satisfaction	High	Medium	Low
Nurse satisfaction	High	Medium	Low
Risk of medical dispute	Low	Medium	High

remote places were set as transitional rooms, and then transferred to ordinary rooms after the nucleic acid results were negative (Mode 1). The transitional mode of the 8 hospitals was as follows: serious patients waited for nucleic acid results in the Emergency Department (ED) (Mode 2). The transitional mode of 1 hospital was: the hospital set up a ward with low bed utilization and transformed it into a ward with six rooms (Mode 3). According to the questionnaire results, one hospital in each mode was selected as the investigation object.

**Field Survey**

On-site observations were made at the selected hospitals and interviews were conducted with key people through interview Outlines (Appendix 2).

**Result**

Through field research, we could not only intuitively discover the use status of various transition modes under the epidemic situation, but also found out the specific problems faced by hospitals in epidemic management and use from the perspective of hospital management and users through communication. The following data were obtained through questionnaire survey and interview (Table 1).

**Discussion**

The results show that there were significant differences among the three transitional modes.

**Human Resource Cost, Ward Upgrade Cost and Economic Benefits Brought to the Hospital are Different**

Mode 3 had higher human resource cost and transformation cost than mode 1 and 2. The reason was that in mode 1, only one room in the each ward needed to be set aside as the transitional room, with obvious signs in the ward, a partition at the door, and disinfectant without other modifications [8]. This was simple and easy to achieve. As for the treatment, doctors and nurses in each specialized ward can manage the transitional patients according to the epidemic prevention requirements. In Mode 2, transitional patients just needed to stay in the Emergency Department without much modification and additional labor costs, the cost was only the environment layout, signage perfect aspects. In Mode 3, the whole transitional ward could treat transitional patients of various

departments from the whole hospital, which required a specialized nursing team, so the labor cost was high. In order to be transformed into a layout that fully met the requirements of “three areas and two channels” for epidemic prevention [9], the partition walls of several wards needed to be removed, and the installation project was also complicated. The disassembly and installation could only be carried out in sequence, and the amount of building materials was large, the cutting was complex, the transformation took a long time and costs were huge [10], and the functional room area after transformation was limit. Through investigation, it was found that mode 3 did not bring high economic benefits to the hospital, because there were about 40 beds in the whole ward, but only 6 rooms could be treated after temporary upgrading. According to the epidemic prevention requirements, these 6 beds cannot meet the needs of patients and cause a great waste of medical resources.

**There is Almost no Difference in the Consumption of Protective Equipment and the Level of Protection, but the Risk of Nosocomial Infection is Different**

The level of protection of all staff was in accordance with the unified regulations of the health supervision department of Shenzhen Municipal government, so there was almost no difference in the protective equipment. Preventing Nosocomial infection was the cornerstone of all epidemic prevention and control work, which was not only related to the success of anti-epidemic work, but also an important test of hospital management ability [11]. By the interviews of experts in hospital infection, in full compliance with requirements of hospital infection cases, mode 1 and mode 3 hospital infection risk were not too big difference, and better than the mode 2, the reason was that mode 2, ED cannot make single isolation, ventilation and disinfection were not good, so did not accord with the requirement of preventing hospital infection of Covid-19. In this study, mode 3 was located in an area that was not in accordance with the architectural design requirements of infectious disease hospitals [12-13]. For example, the building location, sewage disinfection and discharge, and ventilation did not fully meet the Covid-19 prevention and control requirements [14], but could only cooperate with the management means to prevent hospital infection, which relatively met the epidemic prevention requirements.

## The Satisfaction of Doctors, Nurses and Patients and the Risk of Medical Disputes were Different

The satisfaction of doctors, nurses and patients in mode 1 was higher than that in mode 2 and mode 3, and the risk of medical disputes was also lower than that in the other two modes. The reason was that patients who needed to transition were generally in serious or unstable condition. If admitted to the corresponding specialist transitional room, it was conducive to specialist doctors and nurses to timely check and treat patients, patients could get timely and effective treatment, and the risk of medical disputes could be reduced. In mode 3, the satisfaction of doctors, nurses and patients was the lowest. For patients who needed urgent hospitalization, after completing hospitalization procedures in the transition ward, the nurses of the transitional ward would call the specialist doctors to the transitional ward to check the patient and make corresponding medical advice according to the patient's condition, until the patient's nucleic acid was negative and then transferred to the general ward for further treatment. However, these patients were all critically ill. If the patient's condition changed, the nurse needed to contact the doctor by phone, because there was no doctor in the transitional ward, so the patient often could not receive timely treatment, resulting in low patient satisfaction. Because the doctor in charge was responsible for both the patients with negative nucleic acid in the general ward and the patients with unclear nucleic acid results in the transition ward, they often need to go back and forth between the general ward and the transitional ward many times per day, they were very tired, resulting in their lower satisfaction. Nurses in the transitional ward contacted doctors by phone every day, sometimes they needed several times to reach them. During the interview, they joked that "a telephone operator was needed to contact the doctor every day, they hated to call doctor, because there were so many situations in which a doctor needed to be called every day, such as when a patient was admitted, when there was a problem with a doctor's order, when there was a change of patient's condition, when the patient or family member was consulted, when they were transferred to a general ward, etc." In addition, because the nurses in the transitional ward were not general nurses, they might lack many specialized nursing knowledge, which brought great work pressure [15-16] and lower satisfaction.

Through the above comparative analysis, it is found that the establishment of transitional rooms in each ward best meets the prevention and control needs of general hospitals under the normal epidemic situation, and is also conducive to the timely diagnosis and treatment of patients by specialized medical staff. This mode can make every general hospital with the least investment, the highest operating efficiency, the highest satisfaction of doctors, nurses and patients, and the most popular among medical staff and patients. At the same time, it can also ensure the quality of medical treatment and patient safety, reduce medical disputes. Through questionnaire survey, it is found that there is only one hospital in Mode 3. For the convenience of research and comparison, only one hospital is selected for each mode, which leads to a small sample size, this is the deficiency of this study. At present, despite the rapid development of new vaccines and therapeutic drugs for Covid-19, with the continuous emergence of new variant strains [17], the pressure of normal epidemic prevention and control is still relatively large [18]. In addition, although the

harm of Covid-19 is becoming less, the design of general hospitals is generally unable to cope with infectious diseases like Covid-19. In the future, if there are infectious diseases similar to Covid-19, the results of this study can be used to reasonably set up transitional wards.

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