

Analysis of the Effect of Vaccination Management on Migrant Children on Infectious Disease Control and Vaccination Knowledge

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Abstract: This article analyzes the impact of vaccination management of migrant children on vaccination rate, infectious disease control effect, and vaccination knowledge. The selected case data source time range is from January 2022 to December 2022. Migrant children registered in the community are selected as the basic data, and 60 cases are selected according to whether vaccination management of migrant children is implemented. The migrant children in the regular group were selected without any management model, while the observation group selected cases in which the vaccination management model was implemented for migrant children. The vaccination completion rate of the two groups of migrant children was compared, as well as the prevention and control effect of infectious diseases, and the mastery of vaccination knowledge. *Results:* After the migrant children were vaccinated, the number of immunized children in the observation group was significantly higher than that of the patients in the conventional group, $P < 0.05$, and the difference was statistically significant. The disease prevention and control effect was better than that of the children in the conventional group, $P < 0.05$, and the difference was statistically significant. Compared with the reference group, the observation group had a relatively higher vaccination knowledge mastery score, $P < 0.05$. *Conclusion:* Vaccination management of migrant children in the community can encourage parents to consciously lead their children to receive vaccinations, while also reducing the probability of infectious diseases in the community, which is worthy of clinical promotion and application.

Keywords: Migrant children; Vaccination management; Community infectious diseases

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1. Introduction

Vaccinations used in pediatrics are mainly to prevent and control the occurrence of common infectious diseases in children and infants. They include the pneumococcal vaccine, influenza vaccine, and oral rotavirus vaccine. Vaccination with this type of vaccine can not only reduce the probability of children being infected with such diseases and ensure the healthy growth of children, but also reduce the morbidity and infection rate of children in the entire region. Migrant children refer to children aged between 0 and 17 years old, whose place of residence does not match their actual place of residence, and who have been away from their place of residence for more than six months^[1]. Due to reasons such as following their parents to work in cities, migrant children cannot enjoy stable and high-quality educational conditions in their actual place

of residence. At different stages of their growth, many migrant children will experience the experience of being forced to return to their place of residence to go to school and become left-behind children. Therefore, people need to pay attention to and value the health of such a group of people. Correspondingly, the responsibility of the community health service center is to provide vaccination management for migrant children in the community so that common infectious diseases in children can be effectively controlled^[2]. Child vaccination is extremely beneficial for the control of infectious diseases and can protect children's health. In recent years, with the application of national immunization program measures, relevant departments and residents should pay close attention to the immunization program and strengthen their awareness of vaccination. However, in fact, there are still various problems and deficiencies in the vaccination management of migrant children. Due to the characteristics of high mobility and complex structure of migrant children, coupled with the relatively low educational level and poor health awareness of most parents, the quality of management services cannot be effectively improved, which can easily lead to immunity gaps, missed vaccinations, etc., and cannot form an immune barrier. In addition, the living environment and sanitary conditions of migrant children are relatively poor, so infectious disease control cannot be achieved effectively. All regions are required to pay more attention to the immunization of migrant children and to minimize the risk of infectious disease transmission while improving the quality of vaccination management. Some studies have found that in order to achieve the ideal goal in community infectious disease control, vaccination management of migrant children should be implemented to protect children's health while preventing and controlling diseases^[3]. This article conducted a group comparison of 120 migrant children in the community, and analyzed and explored the impact of migrant children's vaccination management on community infectious disease control using the no management mode and the vaccination management mode.

2. Materials and methods

2.1. General information

By analyzing data, the study explores the impact of using migrant children's vaccination management on the effectiveness of community infectious disease control. Method: A total of 120 migrant children registered in our community from January 2022 to December 2022 were selected and divided into a regular group ($n=60$) and an observation group ($n=60$) according to the numerical grouping method. Among the migrant children in the regular group, there were 31 boys and 29 girls, including 35 children under 5 years old and 25 children over 5 years old (inclusive). Among the migrant children in the observation group, there were 33 boys and 27 girls, including 32 children under 5 years old and 28 children over 5 years old (inclusive). Comparing the basic information of the two groups of migrant children, it was found that $P>0.05$, indicating that there is no statistical significance in the data difference between the two groups of migrant children, and no comparison can be made.

2.2. Method

Patients in the regular group do not adopt any special management model, while patients in the observation group undergo a migrant child vaccination management model, which specifically includes: (1) Improving files: Register the basic information of migrant children and their vaccination status in detail, establish a complete file system or information management database, conduct real-time monitoring and reminders of migrant children registered in the system, and provide one-on-one notifications or reminder notifications through text messages when the vaccination time is reached^[4]. (2) Publicity and education: Communicate information about immunization to parents of migrant children and inform them of the importance of immunization. At the same time, immunization information can be publicized by posting posters on bulletin boards, distributing brochures, and hanging slogans; regularly organize lectures and trainings to enhance medical staff's understanding of vaccination knowledge, make them proficient in various skills, and guide family members to carry out child vaccination, promote the improvement of coverage and quality, and minimize the incidence of childhood infectious diseases. (2) Regularly hold lectures on immunization, and invite all parents of migrant children

in the community to participate. In the lectures, the vaccination methods and possible adverse reactions after vaccination will be explained, so that parents of migrant children can better understand the knowledge about vaccination and express their approval. (3) Use questionnaires to investigate the basic information of migrant children and their parents, conduct regular telephone follow-up visits, and remind their parents by phone to remember to take their children to the vaccination site for vaccination during the vaccination time of migrant children. (4) Improve vaccination points: Establish vaccination points in various hospitals, communities, schools, etc. to ensure that the distribution of vaccination points is reasonable so that parents can lead their children to be vaccinated in a timely manner; professionals and experienced personnel should be deployed at each session to provide parents with scientific and accurate guidance and consultation, and equipped with advanced equipment and facilities to ensure that vaccine storage and transportation will not be affected; medical staff should carefully check and confirm the information of vaccinated migrant children. While ensuring the efficiency of vaccination, errors should be minimized, and props should be used rationally to ensure the safety and hygiene of vaccination. (5) Introduce information technology: Use the information management system to manage the health files of migrant children to ensure the real-time and accuracy of the information in the system and ensure that children can be vaccinated in a timely manner^[5].

2.3. Evaluation criteria

(1) After passing the vaccination management of migrant children, compare the number of migrant children who completed the immunization on schedule between the two groups. (2) Compare the probability of infectious diseases among two groups of migrant children after different management interventions. (3) Compare the vaccination knowledge of the two groups and record it in detail.

2.4. Statistical methods

The statistical software used in the statistical stage of this article is SPSS 26.0, and chi-square and t-value verification are used to verify whether the statistical results have statistical differences.

3. Results

3.1. Comparison of the number of immunized children between the two groups

It can be seen from **Table 1** that after the migrant children vaccination management, the number of immunized children in the observation group has increased significantly compared with the patients in the conventional group, $P < 0.05$, and the difference is statistically significant.

Table 1. Comparison of the number of immunized children between the two groups (%)

Group	Number of people vaccinated	Vaccination proportion
Regular group ($n=60$)	19	31.67%
Observation group ($n=60$)	46	76.67%
χ^2	24.470	-
P	0.000	-

3.2. Infectious disease control effect of two groups of patients

It can be seen from **Table 2** that the disease prevention and control effect of children in the observation group after child vaccination management is better than that of children in the conventional group, $P < 0.05$, and the difference is statistically significant.

Table 2. Infectious disease control effect of two groups of patients (%)

Type of disease	Regular group (n=60)	Prevention and control effect	Observation group (n=60)	Prevention and control effect
Rotavirus	2	3.33	0	0.00
Pneumonia	5	8.33	1	1.67
Influenza	6	10.00	0	0.00
Hand, foot, and mouth disease	3	5.00	1	1.67
Total	16	26.67	2	3.33
χ^2		-		12.810
<i>P</i>		-		0.000

3.3. Comparison of vaccination knowledge between the two groups

It can be seen from **Table 3** that compared with the reference group, the observation group's vaccination knowledge mastery score is relatively higher, $P < 0.05$, and the difference is statistically significant.

Table 3. Comparison of vaccination knowledge between the two groups [n (Mean \pm SD)]

Group	Reason for vaccination	Vaccination process	Precautions for vaccination	Accurate vaccination time
Regular group (n=60)	5.68 \pm 1.70	5.23 \pm 1.46	4.33 \pm 1.28	4.75 \pm 1.24
Observation group (n=60)	7.29 \pm 1.33	7.05 \pm 1.12	6.40 \pm 1.14	6.80 \pm 1.15
<i>t</i>	5.777	7.661	9.354	9.389
<i>P</i>	0.000	0.000	0.000	0.000

4. Discussions

The progress of social and economic development, the acceleration of urbanization and industrialization, and the increasing scale of population mobility. Although it can accelerate the development of the national economy, the incidence of infectious diseases remains high as population mobility continues to increase. Among children, under the combined influence of various factors, they are increasingly becoming a key population affected by various diseases. Therefore, in disease prevention and control, infectious disease control should be done well. For now, vaccination management requires the collaboration and cooperation of hospitals, schools, and communities to strengthen the implementation of vaccination management. In this regard, the community should actively collect information and materials related to the migrant population in the community, sort out and summarize the information of migrant children, and provide children with corresponding card and certificate creation services in a timely manner. During this period, publicity and education can be carried out for parents of children to improve their awareness so that they can effectively realize the necessity of vaccination [6]. Hospitals and communities can cooperate with relevant departments to actively promote vaccination-related knowledge and content, and use methods such as posting posters, distributing brochures, and organizing lectures to enhance people's awareness. In addition, population management should be strengthened. Communities and employers should cooperate closely to provide community health services based on the population's living conditions. Regular censuses of the population in the community should be conducted to strengthen the understanding and mastery of relevant

information.

Vaccination plays an important role in controlling the epidemic of infectious diseases. Through vaccination, the level of population immunity can be further improved, and effective prevention and control of infectious diseases can be achieved. Among children, vaccination rooms are an important measure to control the spread of infectious diseases. However, because children's immune systems are not yet mature, they are easily susceptible to infectious diseases. In children's preventive vaccination, vaccination can effectively induce immune responses to specific diseases in the body and improve the immune system's resistance and defense capabilities against diseases^[7]. The application of this method is becoming more and more widespread, and it is extremely critical in the control of infectious diseases. Data from the World Health Organization shows that for most infectious diseases, the incidence and mortality of children show a downward trend after vaccination. Therefore, it is extremely critical to implement the management of children's vaccination. Through vaccination, while protecting the probability of contracting infectious diseases among migrant children, it also reduces the prevalence and infection rate of resident children, effectively controlling the prevalence of infectious diseases among children in the entire region. Child vaccination allows the vaccinated group to form protection in the body. When a small number of people become infected with the disease and form the source of infection, the vaccinated group effectively blocks the infection route, thereby achieving effective control of the epidemic. For example, measles vaccination has significantly reduced its incidence worldwide. It can be seen that the implementation of children's vaccination management is extremely critical, which can effectively control infectious diseases and reduce adverse events^[8].

In order to effectively control the spread of infectious diseases in the community, it is very important and necessary to increase the vaccination rate^[3]. It can be seen from the results of this study that after the migrant children were vaccinated, the number of immunized children in the observation group was significantly higher than that of the patients in the conventional group, $P < 0.05$; the disease prevention and control effect was better than that of the children in the conventional group, $P < 0.05$. This shows that the effect of vaccination management on migrant children is very obvious. In the country, the prevention of infectious diseases among migrant children is a work of widespread concern, which is related to whether thousands of migrant children in the country can grow up healthy. If the prevention of infectious diseases is not ideal, it may bring serious threats to the family, society, and the country. Vaccination management can solve the problem from the root cause of infectious diseases and effectively avoid spending a lot of treatment costs after being infected with infectious diseases^[9]. With the development and progress of science and technology, children's vaccination work has attracted more and more widespread attention, and the level of vaccination work management has continued to improve. The traditional management model has also gradually paid attention to telephone follow-up and reminder services, so that management measures can be refined and improved in subsequent management, and the quality of management can be improved^[10]. For now, vaccination management of migrant children is a new management method. Staff can gradually transform from passive management to active management, and the emphasis on work will also change. Therefore, the effectiveness of vaccination of migrant children also varies.

In summary, vaccination management of migrant children in the community can encourage parents to consciously lead their children to receive vaccinations, while also reducing the probability of infectious diseases in the community, which is worthy of clinical promotion and application.

About the author

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Disclosure statement

The author declares no conflict of interest.

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