

Status quo of notifiable disease report management in a dental hospital

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Abstract: To understand the current situation of infectious disease epidemic report management in a certain dental specialized hospital in the past 5 years, and to provide scientific basis for future infectious disease prevention and control work. The information of Notifiable disease reported and managed by a stomatological hospital from January 1, 2018 to December 31, 2022 was collected, and the timeliness rate, completeness rate, and failure rate of the report card were statistically analyzed. From 2018 to 2022, 1177 cases of Notifiable disease were detected, including 82.41% of Viral hepatitis B (HBV), 8.58% of Viral hepatitis C (HCV), 7.82% of Syphilis (TP), and 1.19% of other Notifiable disease; A total of 82 cases of infectious diseases were directly reported online within 5 years, with a timely and complete reporting rate of 100% and a missed reporting rate of 0%; The detection rates from 2018 to 2022 were 4.0%, 4.2%, 4.4%, 3.8%, and 3.2%, respectively, with statistically significant differences in detection rates among different years ($\chi^2=12.683$, $P=0.013$); The detection rate of HBV in each month was higher than that of other Notifiable disease, but there was no obvious seasonal difference. The report quality of Notifiable disease in this study is high. Through this study, it lays a good foundation for building an effective, all-round and multi-level infectious disease prevention system in dental hospitals.

Keywords: infectious diseases, report management, HBV, HCV

1. Introduction

The epidemic situation report of infectious diseases is the most basic and important content in the monitoring and management of infectious diseases. It is also an important link for early detection of the epidemic situation of infectious diseases, effective control of the source of infection, cutting off the pathogen transmission, and better protection of vulnerable populations [1]. In recent years, with the increasing demand for oral disease diagnosis and treatment among infectious patients, the risk of cross infection among medical personnel in daily diagnosis and treatment has gradually increased [2]. In order to better regulate the management of infectious diseases in our hospital and provide scientific basis for the prevention and control of infectious diseases, the following analysis is conducted on the epidemic data of infectious diseases in our hospital from 2018 to 2022.

2. Materials and Methods

2.1. Data source

This study analyzes the data of Notifiable disease reported and managed by a dental hospital from January 1, 2018 to December 31, 2022.

2.2. Method

By checking the diagnosis of infectious diseases queried in the outpatient log and the registration and reporting status of infectious diseases in the department, we can view the paper infectious disease report card to obtain the timely rate, missed rate, completeness rate, and accuracy rate of infectious disease report card filling. Evaluation criteria: according to the reporting time limit of different categories of Notifiable disease, report within the specified time limit and count as timely report; Diagnosed as an infectious disease but not reported, it is considered underreported; Complete completion rate of infectious disease report cards=number of completed report cards/number of spot checks $\times 100\%$ [3]; Detection rate=number of positive individuals detected/total number of screened

individuals × 100%.

2.3. Statistical Analysis

All statistical analyses were performed using SPSS (version 25.0) and Graphpad Prism (version 8.0). The Categorical variables are presented as counts and percentages with Chi-squared test or Fisher’s exact test for comparison between the groups, Statistical significance was set at $P < 0.05$.

3. Results

3.1. Report quality of Notifiable disease

A total of 1177 cases of Notifiable disease were detected in our hospital in the five years from 2018 to 2022, with a detection rate of 3.94%. A total of 82 cases of infectious diseases were reported, with a timely and complete reporting rate of 100% and a missed reporting rate of 0%, as shown in Table 1.

Table 1: Report quality of Notifiable disease in our hospital from 2018 to 2022.

Time	Total outpatient visits	Number of screenings	Number of detected infectious cases	Number of reported infectious cases	Number of timely report cards	Timeliness rate (%)	Number of complete cards	integrity rate (%)	Number of missed reports	false negative(%)
2018	208280	6881	278	23	23	100	23	100	0	0
2019	202990	6108	257	12	12	100	12	100	0	0
2020	148830	5177	230	19	19	100	19	100	0	0
2021	191697	7063	265	19	19	100	19	100	0	0
2022	129758	4635	147	9	9	100	9	100	0	0
Total	881555	29864	1177	82	82	100	82	100	0	0

3.2. Composition of Notifiable disease

A total of 1177 cases of Notifiable disease were detected from 2018 to 2022, of which HBV accounted for 82.41%, HCV accounted for 8.58%, TP accounted for 7.82%, and other Notifiable disease accounted for 1.19% (Figure 1); The composition of Notifiable disease in each year showed in the table 2.

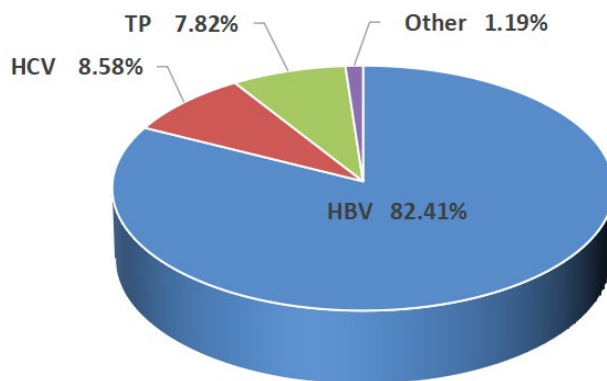


Figure 1: Composition ratio of Notifiable disease of different diseases from 2018 to 2022.

Table 2: Number and composition ratio of legal infectious cases of different diseases from 2018 to 2022

Time	Number of detected infectious cases					Number of reported infectious cases				
	Total	HBV	HCV	TP	Other	Total	HBV	HCV	TP	Other
2018	278	241(86.7)	18(6.5)	16(5.8)	3(1.1)	23	17(73.9)	4(17.4)	2(8.7)	0(0.0)
2019	257	213(82.9)	21(8.2)	17(6.6)	6(2.3)	12	6(50.0)	5(41.7)	1(8.3)	0(0.0)
2020	230	189(82.2)	20(8.7)	20(8.7)	1(0.4)	19	11(57.9)	3(15.8)	4(21.1)	0(0.0)
2021	265	208(78.5)	28(10.6)	25(9.4)	4(1.5)	19	10(52.6)	4(21.1)	4(21.1)	0(0.0)
2022	147	119(81.0)	14(9.5)	14(9.5)	0(0.0)	9	7(77.8)	2(22.2)	0(0.0)	0(0.0)
total	1177	970(82.4)	101(8.6)	92(7.8)	14(1.2)	82	51(62.2)	18(22)	11(13.4)	0(0.0)

3.3. The detection rate of Notifiable disease

The detection rates from 2018 to 2022 were 4.0%, 4.2%, 4.4%, 3.8%, and 3.2%, respectively, with statistically significant differences in detection rates among different years ($\chi^2 = 12.683$, $P = 0.013$). The detection rate was increasing year by year from 2018 to 2020, and was reached the highest value in 2020. Subsequently, the detection rate showed a significant downward trend, and decreased to the lowest value in 2022, details were showed in Figure 2.

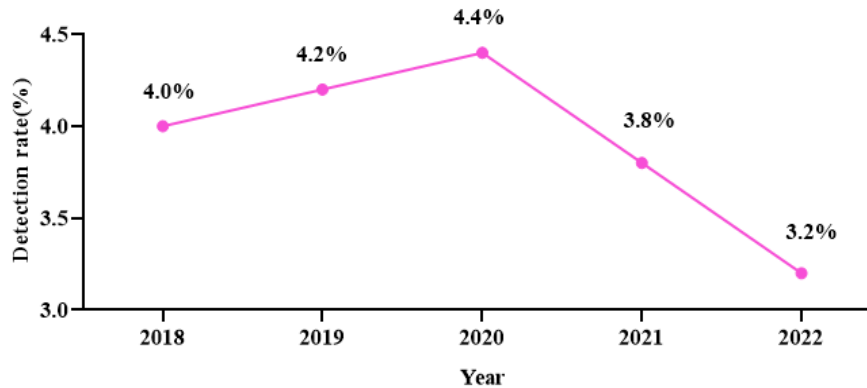


Figure 2: Run chart of Detection Rate of Notifiable disease from 2018 to 2022.

3.4. Time distribution of detection rate of Notifiable disease

The detection rate of HBV in each month is higher than that of other Notifiable disease, and is relatively high in March, May and October, and relatively low in July and August; The detection rate of HCV and other Notifiable disease from January to December was relatively stable; The detection rate of TP reached its peak in September, and remained relatively stable during the rest of the time, as shown in Figure 3.

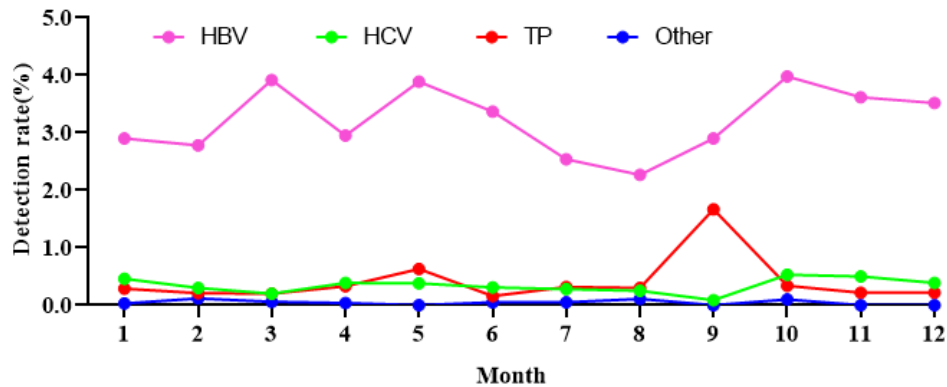


Figure 3: Time distribution of Notifiable disease of different diseases from 2018 to 2022.

4. Discussion

Stomatology has always been a key department for infection prevention and control within the hospital^[4]. As a specialized dental hospital, our hospital faces a greater risk of cross infection. The occurrence of infectious diseases not only poses a threat to medical staff and patients, but also increases the difficulty of controlling infectious diseases in dental specialized hospitals. This survey conducted statistical analysis on the Notifiable disease reported by our hospital for five consecutive years from 2018 to 2022. The results showed that 82 cases of Class B Notifiable disease were reported in 2018-2022, with the infectious disease reporting rate of 100%, the completeness rate of 100%, the timeliness rate of 100%, and the failure rate of 0%. The report quality was higher than the research results of domestic researchers such as Liu Mengting^[3] and Wang Yuanyuan^[6]. This may be related to the reporting process of Notifiable disease in the hospital, that is, when the laboratory finds positive cases of infectious diseases, it shall report them to the first physician and the public health department specialist at the first time, and the public health department specialist shall timely send instructions to

the members of the quality control team of the first department to report infectious disease cases. The members of the quality control team of the department shall supervise the first physician to fill in the infectious disease report card in detail and report it to the public health department, The Public Health Department supervises and reviews the timeliness, completeness, and accuracy of the infectious disease report card. After the review is confirmed to be correct, the Public Health Department specializes in online reporting. The parties involved in delayed or missed reporting of infectious diseases and the department heads are assessed in accordance with the hospital's "Reward and Punishment System for Infectious Disease Epidemic Report". Therefore, to a large extent, the busy work of medical personnel is avoided. The occurrence of underreporting caused by factors such as weak awareness of infectious disease reporting^[5].

Viral hepatitis is the main infectious disease in our hospital, accounting for 62.2% of reported infectious diseases from 2018 to 2022, which is similar to the results reported in relevant literature^[7]. Due to the unique nature of oral diagnosis and treatment operations, medical personnel may come into contact with blood and saliva contaminated by pathogenic microorganisms during clinical diagnosis and treatment, providing opportunities for infection and transmission^[8]. Therefore, in order to avoid cross infection between patients or between patients and medical personnel, and protect vulnerable groups, we must pay attention to and strengthen the prevention and control of infectious diseases at the hospital and the whole society level. At the hospital level, medical personnel should strengthen the training of prevention and control knowledge related to common infectious diseases and safe injection, strengthen daily supervision, strictly implement the Aseptic technique standard and one person, one use, one disinfection/sterilization, and do a good job in the protection guidance of medical personnel and the management of infectious disease reports; At the social level, health education on prevention and treatment of different HBV should be strengthened to improve the HBV vaccine coverage rate of the population, so as to improve the immunity of the population to hepatitis virus.

In this study, the annual detection rate of Notifiable disease in each year showed a trend of first increasing and then decreasing, and it will be the lowest in 2022; The detection rate of HBV cases fluctuated from January to December, but it was generally stable without obvious seasonality. The seasonal distribution was consistent with the results reported by Mao Shaoxia^[9], He Yaqin^[10] and Meng Qinghe^[11], of which the detection rate was the lowest in August. This phenomenon may be due to the impact of the epidemic at the end of 2022, which temporarily suppressed the medical consumption demand of patients in order to reduce the risk of infection. The specific reasons need further study.

To sum up, the report quality of Notifiable disease in our hospital is high. Through this study, a reference basis has been provided for our hospital's future disease prevention and control work, laying a solid foundation for building an effective, comprehensive, and multi-level infectious disease prevention system in dental specialized hospitals.

Limitations of this study: Due to the limited laboratory conditions in our hospital, AIDS and syphilis cases with positive initial screening need to be transferred to the CDC in the jurisdiction or designated hospital for confirmation of diagnosis, so the reporting rate of AIDS and TP in our hospital cannot reflect the reporting rate in this area.

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