

Original Research Article

A study on notifiable diseases reported in a tertiary care hospital

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ABSTRACT

Background: This study was undertaken to analyse the various diseases reported in a tertiary care hospital. To find out the most common disease notified.

Methods: This is hospital record based retrospective study. The data was collected from notifiable disease register maintained in the Department of Microbiology and also from medical records section of this hospital from August 2013 to December 2016.

Results: The total number of cases reported was 1613. Of the 22 diseases listed by the government only seven were more common. Tuberculosis ranks the top followed by HIV-AIDS, malaria, dengue respectively. The disease group commonly affected is 13-59 years (61.5%) with male (63.5%) predominance.

Conclusions: To prevent the spread of epidemic, the health care personnel must be adequately trained to identify the disease and notify the higher authorities.

Keywords: Infectious disease, Notification, Vector-borne disease

INTRODUCTION

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can spread, directly or indirectly, from one person to another. Of the top ten causes of death in India, four diseases (Diarrheal disease, Lower respiratory infections, Tuberculosis, COPD) are mainly of infectious origin. The prevention, management, and control of infectious diseases require active participation and co-operation of health care workers and public.

A notifiable disease is any disease that is required by law to be reported to government authorities. The collation of information allows the authorities to monitor the disease, and provides early warning of possible outbreaks.

Notifiable diseases are to be reported because of their infective nature, severity or frequency of occurrence. The disease and conditions vary from country to country, varies between different regions and also from time to time. A disease like small pox which was once considered to be endemic, which needed notification earlier is almost obsolete now, however any one case would result in rapid spread to house-hold contacts, then end up in an out-break and epidemic.

Notification provides valuable information regarding the emergence of outbreaks or new occurrences. The public health Notifiable disease management guidelines were prepared by State Health authorities with the advice and suggestions by Medical officers, public health officers and infectious disease specialists.

Integrated disease surveillance programme (IDSP) was launched with World Bank assistance in November 2004 to detect and respond to disease outbreaks quickly. A central surveillance unit (CSU) at Delhi, state surveillance units (SSU) at all State/UT headquarters and district surveillance units (DSU) at all districts in the country has been established. The main objective is to strengthen the disease surveillance in the country by establishing a decentralized state based surveillance system for epidemic prone diseases to detect the early warning signals, so that timely and effective public health actions can be initiated in response to health challenges in the country at the districts, state and national level.²

There are 22 notifiable infectious diseases listed by Tamil Nadu directorate of public health.³

Table 1: List of notifiable diseases.

Cerebrospinal fever	Typhoid/Enteric fever
Chicken pox	Tuberculosis
Diphtheria	Infectious Hepatitis
Leprosy	Epidemic Influenza
Cholera	Whooping cough
Measles	Virus Encephalitis
Plague	Haemorrhagic fever
Rabies	Malaria
Scarlet fever	Tetanus
Small pox	Poliomyelitis
Dengue	AIDS

Based on the collation of information, the health authorities monitor the disease occurrence and provide early warning of possible outbreaks. This is applicable to both the private hospitals and public hospitals like the primary, secondary and tertiary care hospitals in the State. Usually the tertiary care hospitals attached to medical colleges in the State receives a continuous stream of patients affected with the locally endemic infectious disease directly or by referral service.

Notification is primarily done by the medical officer who notifies the disease to local health authorities by writing or telephone message, which in-turn makes necessary action, by deputing the health inspector for field visits and executes preventive measures. Hence this study was undertaken to analyse the various diseases reported in a tertiary care hospital. To find out the most common disease notified.

METHODS

Study area and population covered

This study was carried out in a tertiary care teaching hospital located in Trichy district of Tamil Nadu. The hospital covers a population of 3,00,000 and covers so many panchayats. Apart from permanent residents there are a considerable number of students and other immigrant workers who come from different parts of country. This hospital functions as a referral centre, where in various medical practitioners from nearby catchments areas, refer patients suffering from infectious disease to this hospital.

Study design and data collection

This is hospital record based retrospective study. The data was collected from notifiable disease register maintained in the Department of Microbiology and also from medical records section of this hospital from August 2013 to December 2016.

Data analysis

The data was analyzed and results tabulated by applying simple descriptive statistics.

RESULTS

A total of 1613 patients from laboratory confirmed notifiable diseases were reported from August 2013 to December 2016.

Table 2: Year-wise distribution of reported notifiable disease.

Disease	2013	2014	2015	2016	Total
Tuberculosis	92(5.7%)	331(20.5%)	270(16.7%)	214(13.3%)	907(56.2%)
HIV-AIDS	32(2%)	68(4.2%)	104(6.5%)	87(5.4%)	291(18.1%)
Malaria	26(1.6%)	48(3%)	37(2.7%)	41(2.3%)	152(9.4%)
Dengue	10(0.6%)	12(0.7%)	50(3.1%)	36(2.2%)	108(6.7%)
Typhoid/enteric fever	11(0.6%)	36(2.2%)	25(1.5%)	13(0.8%)	83(5.2%)
Chicken-pox	3(0.2%)	3(0.2%)	40(2.5%)	4(0.2%)	50(3.1%)
Leprosy	5(0.3%)	6(0.4%)	5(0.3%)	4(0.2%)	20(1.2%)
Total	179(11.1%)	504(31.2%)	531(32.9%)	399(24.7%)	1613(100%)

Table 2 shows year-wise distribution of reported notifiable disease in the study area. From the table it is very clear that there is a decreasing trend over the years. TB still ranks the top but the incidence of new cases has

decreased from 20.5% to 16.7% to 13.3% in the years 2014 to 2016. There is not much difference in the incidence of HIV-AIDS, malaria, dengue, chicken-pox and leprosy.

Table 3: Age-wise distribution of reported notifiable disease.

S.no	Notifiable disease	<12 yrs	13-59 yrs	>60 yrs	Total
		No (%)	No (%)	No (%)	No (%)
1	Tuberculosis	9 -0.5	530 -32.8	368 -22.8	907 -56.1
2	HIV-AIDS	0	216 -13.4	75 -4.6	291 -18
3	Malaria	15 -0.9	86 -5.3	51 -3.2	152 -9.4
4	Dengue	22 -1.4	58 -3.5	28 -1.7	108 -6.6
5	Typhoid/Enteric fever	33 -2	47 -3	3 -0.1	83 -5.1
6	Chicken-pox	2 -0.1	44 -2.7	4 -0.2	50 -3
7	Leprosy	0	13 -0.8	9 -0.5	22 -1.3
	Total	81 -4.9	994 -61.5	538 -33.1	1613 -100

Table 4: Gender-wise analysis of reported notifiable diseases.

S.no	Notifiable disease	Male	Female	Total
		No. (%)	No. (%)	No. (%)
1	Tuberculosis	630(39.1)	277(23.4)	907(62.5)
2	HIV-AIDS	152(9.4)	139(8.6)	291(18)
3	Malaria	99(6.2)	53(3.4)	152(9.6)
4	Dengue	67(4.2)	41(2.5)	108(6.7)
5	Typhoid/Enteric fever	46(2.8)	37(2.3)	83(5.1)
6	Chicken-pox	7(0.4)	43(2.6)	50(3)
7	Leprosy	20(1.3)	2(0.1)	22(1.4)
	Total	1021(63.3)	592(36.7)	1613(100)

Table 3 shows age-wise analysis of the reported diseases, where in the economically productive age group 13-59 years contributes about 994 of the total 1613 (61.5%), followed by old age >60 years about 538/1613(33.1%). Tuberculosis ranks top with 32.8% followed by 22.8% in 13-59 years, >60 years respectively. There are no cases of pediatric HIV cases reported in the study. The cases of HIV reported 13.4% in 13-59 yrs followed by 4.6% in >60 years. The prevalence of malaria is 5.3%, 3.2% in 13-59 years and >60 years respectively. The prevalence of dengue is 1.4%, 3.5%, 1.7% among the various age groups studied. The prevalence of typhoid is 2%, 3%, 0.1% respectively in the age groups studied. There is no incidence of childhood leprosy.

Table 4 depicts the gender-wise analysis of the reported notifiable disease where there is a male predominance in TB, HIV-AIDS, malaria, dengue, leprosy and there is female predominance in chicken-pox cases.

DISCUSSION

The present study was conducted in a tertiary care hospital and the most common reported Notifiable diseases- Tuberculosis followed by HIV-AIDS, malaria, dengue and chicken-pox. Less commonly reported diseases include- typhoid, leprosy, measles and infectious hepatitis. As the institution does not have, provision for molecular diagnostics – laboratory confirmed data on influenza and acute diarrheal diseases are not available.

The present study highlights the fact that, infectious diseases are more common among adults aged 13-59 yrs when compared to children and old age. This might be due to the fact that, 13-59 years age people have more out-door activity.

Tuberculosis still ranks the top place in reported notifiable disease. According to experts in India, there occurs about 2 deaths every 3 minutes, which is highly alarming.⁴ The government has to allot more funds in

early case detection, follow up of cases etc. Nearly half of the cases reported were found to be treatment defaulters and the remaining was found to have relapsed either by MDR strain or INH-resistant strains.

HIV-AIDS list second among laboratory confirmed cases. National adult (15–49 years) HIV prevalence is estimated at 0.26% (0.22%–0.32%) in 2015. India is estimated to have around 86 (56–129) thousand new HIV infections in 2015.⁵ There seems to be negligible entry of pediatric AIDS. Though there is a trend in decrease in new cases and annual death from HIV, it still amounts to considerable morbidity. It is of much concern because more people in this area are affected with TB and the next one is HIV-AIDS.

Malaria and dengue are both vector borne diseases and continue to pose a major public health threat in different parts of the country. Increasing human activities, such as urbanization, industrialization and construction projects with consequent migration, deficient water and solid waste management and indiscriminate disposal of articles (tyres, containers, junk materials, cups, etc.) create mosquitogenic conditions and thus contribute to the spread of vector borne diseases.⁶

Chicken-pox (varicella), a viral exanthematous fever, was considered a disease of childhood. But now there is a progressive increase in prevalence with age. High infection rates in early adulthood and beyond suggest that most of them have not acquired the disease in childhood. In depth analysis of the reported cases suggest that, the cases clustered around cooler months of the year. It appears that seasonal variation do exist for this disease with peak rise in cooler months and dropping off in summer months.⁷

Leprosy stills continues to persist in Tropical countries, India alone accounted for 58.85% of global burden. Thirty three states/ UT have achieved a level of elimination; however some areas still forms pockets of endemicity. The annual prevalence rate as on April 2014 in SEAR region was 0.68/10,000 population and new case detection rate of 8.38/1,00,000 case which is higher than the current study, where the new case detection rate is 1.38.⁸

There seems to exist a difference in gender in the current study on reported Notifiable disease. Males tend to have a higher disease rate when compared to female. This varies from country to country and region to another region, basically the immune response to pathogens differ from between the sexes. Overall the prevalence of infection is higher in males when compared to female because males engage in more outdoor activities when compared to females.

Hence the objectives of IDSP are to identify cases and cluster of cases that are of public health importance and thereby prevent further transmission.⁹ The reporting unit

includes primary health care centres, district hospitals and taluk hospitals and medical college hospitals. This system will work efficiently only when the private medical practitioners and NGO's play a key role in notifying the diseases.^{10,11}

CONCLUSION

To conclude, majority of Notifiable diseases were reported in productive age group and children. Tuberculosis still remains the top killer in developing nations, followed by HIV-AIDS in the study area, a proportion of cases are vector borne (malaria and dengue). To prevent the spread of epidemic, the health care personnel must be adequately trained to identify the disease and notify the higher authorities.¹²

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