Assessment of reporting and recording system of communicable diseases in Jeddah Region

Marwan A. Bakarman, *MBChB, FFCM,* ***Rajaa M. Al-Raddadi,*** *MBChB.*

ABSTRACT

Objective: To determine the rate of reporting communicable diseases in Jeddah region, and to compare the recording system between the governmental and private sector.

Methods: This is a review of records study, in which the reports of communicable diseases from all hospitals and health centers (with or without cases) were studied, during the period of study; 1st to 25th international weeks 1999, and the reporting rate was calculated. A simple random sample was collected from these international weeks to evaluate the quality of recorded information.

Results: The reporting rate was 74%. Private hospitals have the highest rate in reporting (87%) and polyclinics have the least (67%). The recording rate was above 90% for administrative data. Personal data was complete except for patient name (76.5%), address (20%), and occupation (73%). The most prominent defect in the disease data was found to be in recording the mode of infection (13%), followed by previous vaccination (29%), date of symptoms (89%), and date of diagnosis (98%). Mode of infection was recorded in (40.5%) of cases by primary health care centers, but in polyclinics in only 1% of cases. Previous vaccination was recorded better by governmental sectors; (29%) by governmental hospital and (49%) by primary health care centers while in the private sectors the rate was (21%) by polyclinic and (25%) by private hospital. Date of symptoms was recorded in 90% of cases in all sectors except in governmental hospitals where it was only (50%). Date of diagnosis was recorded in more than (95%) in all sectors. The results show a statistical significant difference between different health sectors in recording data where government hospitals were least in recording doctor's name and in putting an official stamp in the form ($p< 0.001$); primary health care centers were the best in recording patient name and occupation ($p< 0.001$); polyclinics were least in recording mode of infection and previous vaccination ($p< 0.001$); for recording date of symptoms private hospitals were the best ($p< 0.001$).

Conclusion: The reporting rate in Jeddah region was 74%, but its usefulness was diminished because of the incomplete, absent or incorrect personal and disease data.

Keywords: Communicable diseases, reporting rate, recorded data, primary health care, control, health sectors.

Saudi Medical Journal 2000; Vol. 21 (8): 751-754

Notification is an important source of epidemiological information. Once an infectious disease has been detected (or suspected) it should be notified to the local health authority, whose responsibility is to put into operation control measures.[1] The first step in the control of a communicable disease and emerging of a new disease is prompt recognition and identification; this involves the use of the system of reporting.[2] Reporting of communicable diseases allows public health officials to describe new diseases and the mode of transmission, so preventive measures can be developed and implemented.[3] Also, it is important in the planning and evaluation of disease prevention

From the Joint Program for Postgraduate Family and Community Medicine, Jeddah, Kingdom of Saudi Arabia.

Received 25th December 1999. Accepted for publication in final form 25th April 2000.

Address correspondence and reprint request to: Dr. M. Bakarman, Consultant Family and Community Medicine, Lecturer in the Joint Program for Postgraduate Family and Community Medicine, PO Box 8252, Jeddah 21482, Kingdom of Saudi Arabia. Tel. +966 (2) 6725232. Fax. +966 (2) 6292986.

and control. All hospitals and health centers routinely send their reports to the Communicable Disease Control Department (CDC) in the Primary Health Care (PHC) Directorate, Jeddah. Some diseases must be reported within 24 hours, they are immediately notified to the department as soon as they are suspected. Other diseases are reported weekly or monthly. The weekly reports are based on international weeks recommended by the World Health Organization (WHO) for all the year. Jeddah region has 4 sectors that provide health services; these are 14 governmental hospitals (G.hosp) and 30 Private hospitals (P.hosp), 40 primary health care centers (PHCCs) and 128 polyclinics. The total is 212. This study was conducted to assess the reporting system of the weekly reportable communicable diseases in terms of quality and quantity.

Methods. The reports from all hospitals and centers (with or without cases) were studied, during the period of study that was from the 1st to 25th international weeks 1999, and the reporting rate was calculated. A simple random sample was collected from these international weeks to evaluate the completeness of the recorded information. This sample included the following weeks 5, 15, 18, 19 and 21. The available forms in these 5 weeks were 776, while the expected number is 1060. From the 776 forms 395 have no cases, the other 381 had positive results. Of these 381 reports, 6 reports from governmental hospitals were excluded because their forms were different. Thus the final number included in this study was 375. The data was collected from the forms to assess the completeness of the recording system. The form includes administrative data, personal data and data about the diseases reported. The data from the 375 reports was collected and analyzed using the Statistical Package for Social Sciences (SPSS) program. Chi-square test was used to test the statistical significant difference between health sectors and recorded data.

Results. ***Analysis of the reporting system.*** Of the 212 hospitals and health centers, 40 (19%) did not participate in the reporting, the other 172 (81%) sent their reports, but not on a regular basis. In the 25 international weeks of the study period, the actual collected number of reports was 3914 while the expected number was 5300 reports, this accounts for 74%. Table 1 shows the distribution of reports by health sectors. From the received reports there were 452 late, which accounts for 11.5%, the other reports reached the department on time. It is clear that the best sector in the participation in the reporting of the communicable diseases is private hospitals, which sent 87% of their reports, while polyclinics reported only 67% which is the lowest. The governmental hospitals sent 83% and the PHCCs 83%. Figure 1 shows the percentage of received reports out of the expected ones in each health sector during the 25 international weeks. From the 3914 received reports, only 1745 reports have cases that account for 45%, the other 2169 reports were negative (no cases). From those positive reports, private sectors have the highest percentage; for polyclinic it was 45.5% and for P.hosp 25%, but governmental sectors reported 18% for PHCCs and 11% for G.hosp. Figure 2 shows the percentage of positive and negative reports by the health sectors.

Analysis of recording system. From the 375 reports which were collected in the 5 international weeks included in this study, administrative, personal and disease data were analyzed as follows: The administrative data: It includes hospital name, week number, week date, official sign, official stamp, file number and doctor's name. The hospital name was mention in 99%, week number in 99%, week date in 99.5%, official sign in 99.7%, official stamp in 89%, file number in 92% and doctor's name in 92.5% of the reports. So the administrative data was almost complete and this is because it is an official

Table 1 - Distribution of reporting by health sectors, during 1-25 international weeks.

	P. hosp (n=30)	G. hosp (n=14)	PHCCs (n=40)	Polyclinics (n=128)	Total (n=212)
Health sector reporting	29 (97%)	12 (86%)	37 (92.5%)	94 (73%)	172 (81%)
Expected reports	750	350	1000	3200	5300
Actual reporting	655 (87%)	292 (83%)	832 (83%)	2135 (67%)	3914 (74%)

P.hosp - private hospital; G.hosp - Governmental hospital; PHCC - Primary Health Care Center

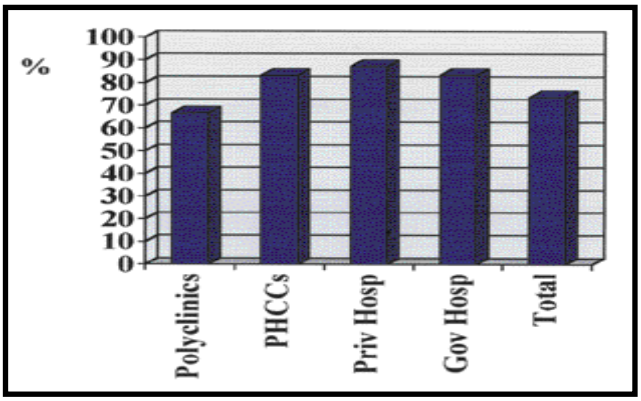

Figure 1 - Percentage of received reports during 25 international weeks. PHCCs - Primary Health Care Centers, Priv - Private, Gov - Governmental, Hosp - Hospital.

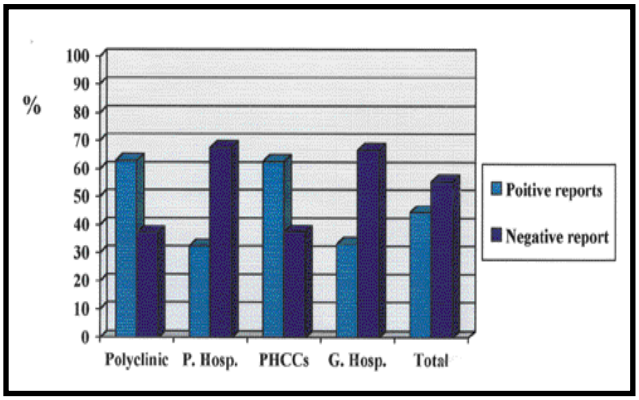

Figure 2 - Percentage of positive and negative reports by health sectors. P - Private, Hosp - Hospital, PHCCs - Primary Health Care Centers, G - Governmental.

requirement. The personal data includes patient name, age, sex, nationality, occupation, and file number, address and telephone number. The age, sex and nationality were mentioned in 100% of the forms, the file number in 92.5%, the occupation in 73%, the telephone number in 80% and the patient name (3 names) was mentioned in 76.5% and address in 20%. The disease data: For all sectors, the mode of infection was recorded in 13% of the cases, and the previous vaccination in 29%. This data with patient address has the lowest percentage among all data. The date of symptoms was recorded in 89% and the date of diagnosis in 98%. Table 2 reveals statistical significant difference between different health sectors in recording data as follows: Government hospitals were least in recording doctor's name and in putting an official stamp on the form ($p< 0.001$); PHCCs were the best in recording patient name and occupation ($p< 0.001$); Polyclinics were worst in recording mode of infection and previous vaccination ($p< 0.001$); for recording date of symptoms private hospitals were the best ($p< 0.001$). The results however did not indicate any significant difference in regard to other data which includes hospital name, week number, week date, official signature, file number, date of diagnosis, telephone number and address of the patient ($p> 0.05$).

Discussion. Notification is an important source of epidemiological information. It helps in early detection of disease outbreaks, so the health authority can plan the preventive measures to control their spread. This study was conducted to assess the reporting and recording system in Jeddah region. It shows that the reporting rate was 74% during the period of study (25 international weeks). The best sector in reporting communicable diseases is hospitals (83%-87%), this could be partly due to the awareness of the staff in the hospitals of their responsibility to report communicable diseases. The

Table 2 - The difference between health sectors in recording administrative, personal and disease data.

Recording data (N = 375)	P. hosp (N=92)	G. hosp (N=34)	PHCCs (N=84)	Polyclinic (N=165)	Chi square (P value)	
Administrative data:						
1. Hospital name	92	34	79	165	15.2	(0.210)
2. week number	92	32	84	165	9.7	(0.201)
3. week date	92	34	82	165	6.0	(0.111)
4. official stamp	92	04	74	165	245.5	(0.000)*
5. doctor name	90	19	78	160	74.5	(0.000)*
6. official signature	91	34	64	165	2.8	(0.420)
Patient personal data:						
1. age	92	34	84	165	2.8	(0.420)
2. sex	92	34	84	165	---	**
3. nationality	92	34	84	165	---	**
4. file no.	85	29	81	151	4.5	(0.213)
5. occupation	69	19	75	112	18.9	(0.000)
6. tel no.	79	23	62	135	7.5	(0.058)
7. patient name	61	31	79	119	20.3	(0.000)*
8. address	11	06	22	35	6.0	(0.109)
Disease data:						
1. mode of infection	07	06	34	02	79.0	(0.000)*
2. previous vacc.	23	10	41	35	21.6	(0.000)*
3. date of symptoms	82	17	77	158	61.5	(0.000)*
4. date of diagnosis	88	34	83	161	3.5	(0.321)

P.hosp - private hospital; G.hosp - Governmental hospital; PHCC - Primary Health Care Center
* - statistically significant at $p<0.001$; ** - no statistics are computed because sex and nationality are constant

PHCCs report 83%, which is close to the hospital results, possibly because the prevention and control of communicable diseases is one of the elements of primary health care. A previous study evaluating a reporting system in the USA by Standaert et al[4] shows that the participation of hospitals in the reporting was 60%, but in this study it was more than 80%. Rushworth et al,[5] in their study in New South Wales shows that the PHCCs reported 20% of the cases, in the present study the forms with positive cases out of all positive forms was 18% by PHCCs. The administrative data was mentioned in about 90% in all sectors. This may be because it is an official requirement. Personal data and disease data reflects the health workers' knowledge of the importance of this information in the report, but the Department of Communicable Diseases Control faces big problems with the recording of some information in personal data and disease data. They found that the most difficult work is to find the patient. This is due to incomplete patient name, address and absent or wrong telephone number. Although the patient name and address are very important in the notification, as they help the epidemiologist to reach the patient and to apply the preventive measures to the contacts and the environment, the patient name (3 names) was mentioned in 76.5% and address in 20%. The causes of absent or incomplete address may be due to 2 problems, the first one was in the form itself that includes: 1- the space in the form is very limited and not enough to write the address and telephone number together. 2- The heading of the address is described between brackets by district and this lets the health worker who fills in the form write the address by the district only. The second problem is that the patient himself does not give the accurate address. The presence of the occupation in the form helps the epidemiologist carry out surveillance on the patients' contacts in the work place. In 20% of the forms there were no occupation, this may be because the patient is a child or a housewife. The most prominent defect in the disease data was found to be in the recording of mode of infection, although the mode of infection is very important as it helps in interruption of the disease transmission which is the major step in communicable diseases control, it was recorded only in 13%. The lowest percentage was found to be in polyclinics 1%, followed by private hospitals 8%, governmental hospitals 18% and the highest percentage in PHCCs 40.5%, which is still very low; these defects need more effort to improve. The next problem was found to be in recording previous vaccination which can help the epidemiologist to find any defects in the vaccine or the immunization technique, but it was recorded only in 29%. The date of symptoms and the date of diagnosis are important for secondary prevention (early diagnosis and prompt treatment) which is a main intervention of disease control. By secondary prevention we can stop the disease process and protect others in the community from acquiring the infection and this provides secondary prevention for the infected person and primary prevention for the contacts. Date of diagnosis was mentioned in more than 95% in all sectors, but the absence of date of symptoms diminishes the importance of it, that is because the difference between the 2 dates is the most important time for interruption of the disease transmission. The governmental hospitals have a defect in recording the date of symptoms, it was mentioned only in 50% of their reports, while in the other sectors it was around 90%. This defect needs to be discussed with the governmental hospitals.

In conclusion, the reporting rate in Jeddah region was 74%. But the usefulness of the reporting system was diminished because of the incomplete, absent or wrong personal data, that includes patient name, address, telephone number, and occupation and absence of some disease data such as mode of infection, previous vaccination and date of symptoms. It is recommended that: a) further studies are carried out to evaluate physicians' knowledge and practice in reporting the communicable diseases. b) identification of the causes of non-participation in the reporting of communicable diseases. c) Distribution of notifiable diseases lists to all doctors and health workers with clear instructions on reporting and recording system. d) The same forms must be used by all hospitals and health centers. e) The existing form needs some modification to make it more practical, like increasing the size of the address, and between brackets change the district to full address.

References

1. Park JE, Park K. Health information and basic biostatistics. In: Park K, editor. Textbook of Preventive and Social Medicine. 15th ed. Jabalpur (India): M/S Banarsidas Bhanot Publishers 1997. p. 575-585.
2. Farmer R, Miller D. Lecture Notes on Epidemiology and Public Health Medicine. 3rd ed. Oxford: Blackwell Scientific Publication; 1991.
3. Benenson AS, editor. Control of Communicable Diseases Manual. 16th ed. Washington, DC: American Public Health Association; 1995.
4. Standaert SM, Lefkowitz LB Jr, Horan JM, Hutcheson RH, Schaffner W. The reporting of communicable diseases. Clin Infec Dis 1995; 20: 30-36.
5. Rushworth RL, Bell SM, Rubin GL, Hunter RM, Ferson MJ. Improving surveillance of infectious disease in New South