MEDICAL REPORT

Physicians to Patient Ratio in the Accident and Emergency Department of Salmaniya Medical Centre

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ABSTRACT

The average annual number of patients seen in Accident and Emergency (A/E) Department in Salmaniya Medical Centre (SMC) is 170,293, and the average time spent by the SMC A/E physician is 10.45 minutes/patient. The purpose of this study is to calculate the optimal number of physicians needed to look after these patients using the Bahrain Civil Service Bureau formula. Our figures indicated a need for a minimum of 33 physicians, but the Department is now run on 16 doctors only.

One of the most difficult questions to answer in emergency medicine is "How many physicians on an average do we need to cover our emergency department"? The answer to this question is complex and depends on many factors such as the qualifications and experience of the emergency physicians, the patients flow, the philosophic attitude towards treatment of patients in A/E, the acuteness of the illness, management procedure and the financial structure on which the Emergency Department physicians group is based.

An analysis of data of Accident and Emergency Department (A/E) of Salmaniya Medical Centre (SMC) from 1984 to 1992 shows that the average number of patients seen in A/E Department in SMC is 170,293 per year, whereas the number of patients visit per year in any A/E Department in any developed country is 30,000-35,000[1,2].

The average time spent by the physician per patient in A/E Department in SMC is 10.45 minutes per patient, whereas the internationally acceptable time is twenty minutes per patient[3].

The purpose of this study is to calculate the number of physicians needed for the work load at SMC to the ratio of the physicians available, and to compare it with other A/E Departments in Europe and the United States.

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METHODS

A retrospective review of the departmental statistics was carried out by analysing all the A/E Department Annual Reports from 1983 until 1992[4] (Table 1).

The work load on the doctors in the A/E Department was measured by using Government of Bahrain Civil Service Bureau (CSB) formula[3]:

$$\text{Required manpower} = \frac{\text{workload of the year in hours}}{\text{available working hours/doctor/year}}$$

This formula gives:

a) work load of the year in hours;

466 patients / day x 20 minutes per patient
(Internationally acceptable time = 9320 minutes)

$$\frac{9320 \text{ minutes} \times 365 \text{ days in a year}}{60 \text{ minutes of an hour}} = 56696.545 \text{ hours per year}$$

b) available working hour/physicians/year

365 calender days per year, minus 151 days (42 annual leave, 92 rest days, 14 public holidays, and 3 day time - off during Holy month of Ramadhan) = 214 working days /year[3,1].

214 days x 8 working hours = 1712 working hours/
physician/year

However internationally, there are two formulae to calculate the workload for the A/E department:-

1. 5000-7000 patients per doctor per year, ie an average of 6000 patients / year.

2. A certified emergency room doctor with 3-5 years of experience can evaluate 3 patients per hour[5], ie. 24 patients / doctor on an 8-hour work shift.

RESULTS

Retrospective studies show that the average time per patient/doctor in 1992 in SMC A/E Department was 8.49 minutes, whereas in A/E Department of any standard hospital in USA is about 20 minutes (Table 1 and 2). The number of doctors has also remained stationary at 16 over the last ten years.

Using the CSB formula the manpower requirement for SMC A/E Department is therefore 33.156 (average for all years) doctors per year. The international formulae give 28.38 and 33.158 doctors per year respectively.

DISCUSSION

The International formulae for the calculation of workload for A/E Department are based on the fact that emergency physicians need an average of 20 minutes to appropriately assess an individual patient. At SMC, the A/E Department physicians have such a large load that they are forced to spend only an average of 10 minutes/ patient. It is well documented that inappropriate staffing of A/E departments results in poor clinical care, long delays, inability to examine the patients fully, public

Table 1
The number of patients and doctors, and the average time encounter per patient at A/E SMC between 1984-1992

Years	No. of doctors	No of patients	Minutes/patient
1984	15	185,444	10.9
1985	15	173,158	10.6
1986	15	176,354	10.8
1987	15	176,528	10.8
1988	15	169,963	10.1
1989	15	157,461	11.0
1990	15	144,781	11.6
1991	15	161,262	09.8
1992	16	193,566	08.49

Table 2
Comparison between A/E, SMC and other international hospitals

Name of the hospitals	No of patients	No of doctors	No of Hrs/ doctor/yr	Mts spent patient
North Manchester General Hospital	55,000	9	2076	20
Manchester Royal Infirmary Hospital	55,000	9	2392	21.5
Salmaniya Medical Centre (1992)	193,655	16	1712	8.49

relations problems, and significant quality assurance and risk management problems[1].

Our results show that using the standard Government of Bahrain CSB formula, the A/E Department of SMC currently needs a minimum of 33 physicians. However, the Department is now running on 16 doctors.

Furthermore, as the aim of this study is to compare our results with those of other International Hospitals, we have compared our statistics with North Manchester General Hospital (UK), and Manchester Royal Infirmary Hospital (UK), (Table 2) where the type of the patients' visit is the same, except the working hours per year are more[5].

From the above data, we conclude that SMC, A/E Department is extremely understaffed in absolute terms and in comparison with A/E departments of other standard hospitals. According to the Bahrain CSB rules and the international formulae, the SMC A/E Department needs an average of 30 doctors to face the present workload.

The shortage of manpower and overload of the patients is one of the reasons for simply "making do" with the available resources to see the patients and move them through as quickly as possible. This "treat'em and street'em" approach is not providing and will not provide the patients and their relatives the interpersonal and psychosocial care they deserve in the emergency department. The time devoted to any individual patient is only about 10 minutes ie, half of the time required to meet the recommendations of any international standard formula.

Moreover, averaging the data of the last three years has shown an increase of patients load by about 10% per year. Therefore, the manpower should increase by an average of 10% every year to cover the Department load adequately.

REFERENCES

1.   Ministry of Health. Multidisciplinary Team Building Workshop. State of Bahrain:Salmaniya Medical Centre, 1992.

2.   Accident and Emergency Department. Annual Reports from1983 to 1992. Salmaniya Medical Centre, State of Bahrain.

3.   Habib MB. Human Resources Planning in the Accident and Emergency Department at Salmaniya Medical Centre. A project submitted in part fulfillment of the requirement for the Post Graduate Diploma in the Personal Management. Department of Management:Manchester Polytechnic, 1992.

4.   Holley JE, Kellermann A, Andrulis DP. Physician staffing in Emergency Department, Annals of Emergency Medicine. National Association of Public Hospital: Washington DC, 1992:53-65.

5.   Mayer TA. Emergency Department Staffing. In: Schwartz G, Cayten C, Mangelsen M, Mayer T, Barbara H, eds. Principles and Practice of Medicine. 3rd ed. Philadelphia/London:Lea & Febiger, 1992:3250-7.

6.   Van De Leuve JH. Physician Staffing. In: Van De Leuve JH, ed. Management of Emergency Services. Rook Ville, Mary Land: Aspen Publication, 1987:34.