

Access Block: A Comparison Between 2008 And 2010

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Citation

M B Ismail, Y P Wen, H M Fadhly Bin Yahya, N B Mohd Nasir. *Access Block: A Comparison Between 2008 And 2010*. The Internet Journal of Emergency Medicine. 2013 Volume 8 Number 1.

Abstract

Purpose:

Access block is a situation where patients can't access an inpatient bed from emergency department within a reasonable timeframe. Since the recognition of access block in 2008, Emergency Department of Hospital Melaka had adopted open ward system, discharge lounge and assigning nurse bed manager to combat the problem. This study aims to review the phenomenon and establish the effectiveness of approaches taken.

Methods:

The time when admission for a patient was planned and when he/she was admitted to ward were noted daily by staff nurse in charge in the census book. The data was then compound to be monthly census of the department. Comparative analyses were performed with data from monthly census of years 2008 and 2010 in order to study the waiting hours for admission and access block of emergency department.

Results:

Despite of the increase in mean total admission (mean difference = 909.97, 95% CI 407.41-1412.53, p-value 0.001), the percentage of patients gain direct admission in 2010 was more than 2008 (71% in 2008 and 75% in 2010). The waiting time for inpatient beds in emergency department had been improved where most of the lodgers were admitted within 2 hours in 2010 (61%). In 2008 only 29% of them admitted within 2 hours. Majority of lodgers in 2008 admitted to the wards within 2 to 6 hours (42%).

Conclusion:

The three measures taken here proved to improve access block in emergency department.

INTRODUCTION

Malacca General Hospital (Malay: Hospital Besar Melaka) is a government-funded public hospital situated in the state of Malacca, Malaysia. As a tertiary and specialist hospital, it serves as a referral centre for patients from primary and secondary health centres in the state as well as the northern part of Johor and the Tampin district of Negeri Sembilan. As a result, the hospital is generally busy with an ever increasing workload. On occasion bed occupancy rates in some wards exceed 100%.

According to administrative data collected in Emergency Department Hospital Melaka, the number of admitted patients awaiting inpatient beds in the department had doubled from 2007- 2008. Some factors had been recognised through local experience. For example, bed shortage, ambulance availability for transferring patients and discharged patients occupying inpatient beds while waiting for family member to bring them home. In view of that, the department had implemented measures to combat the increment of access block since 2008. The main measures

taken are open ward system, assigning nurse bed manager and discharge lounge.

The primary end points of the study are to review the phenomenon of access block in emergency department Hospital Melaka and the effectiveness of the measurements taken to overcome access block.

METHODOLOGY

The reference population for this study was all the patients who were admitted from the Emergency Department Hospital Melaka throughout the year of 2008 and 2010. All patients who fulfil the inclusion and exclusion criteria during the study period were included in this study.

We included all the patients who were admitted from the department of Emergency and Trauma except psychiatric patients, paediatric patients, patients admitted to Intensive care unit or Coronary care unit as well as patients who decided for at own risk discharge. According to Hospital policy, cases of psychiatry, paediatrics, intensive care unit and coronary care unit had to be admitted to their respective

wards only. Thus, they were excluded from the study. This study was carried out by retrospective analysis on monthly census of the Emergency department Hospital Melaka for the calendar years of 2008 and 2010. The time when admission for a patient was planned and when he/she was admitted to ward were noted daily by staff nurse in charge in the census book. The data was then compounded to be monthly census of the department. From the monthly census, patients who requested to be discharged at own risk in emergency department were excluded from the study. The remaining data were categorized using different time frames indicating different patients' waiting time in emergency department before going to the ward. Comparative analyses were performed from the categorised data.

Sampling

All cases fulfilling the inclusion and exclusion criteria were included in the study. There were a total of 72241 cases included in the study, 38384 patients from year 2008 and 33857patients from year 2010.

We used the following terminologies for the study:

Access Block: Access block is defined as a situation where patients are unable to gain access to an inpatient bed from emergency department within a reasonable timeframe (after the decision to be admitted is made. Different countries have different time frames for access block; it is 8 hours or more in Australia¹, 4 hours or more in United Kingdom³.

Direct admission: A situation where patient gains access to an inpatient bed once the decision to be admitted is made by healthcare professional in emergency department.

Lodger: A situation where patient remained in emergency department after the decision to be admitted is made due to unavailability of inpatient beds.

Open ward system: A system where patient can be deposited to any available bed in any wards irrespective to the element or unit at the time of admission from emergency department.

Nurse Manager: A sister in emergency department who is assigned for inpatient beds arrangement of new admission.

Discharge lounge: A place where discharged patients can wait and rest before going home.

Instruments

The instruments used in the study were pens, paper, computer, clock at the emergency department.

Data analysis

Data analysis was performed using SPSS version 20. Mean and standard deviation of number of patients per month was calculated based on the different waiting timeframe in emergency department. Mean difference between data 2008

and 2010 was performed with 95% confidence interval. Independent T-test and p-value were calculated.

RESULT

As shown in Table 1, total admission was increased from 2008 to 2010 (mean difference = 909.97, 95% CI 407.41-1412.53, p-value 0.001). despite that, 75% of total admission was admitted directly to the wards in 2010 compared with 71% in 2008. Table 2 showed that most of the lodgers was admitted to the wards within 2hours in 2010 (62%), while in 2008, most of them gained admission to the wards within 2-6hours(42%), only a fraction of 29% was admitted within 2 hours.

Table 1

Direct-Admission, Lodgers and Total Admission of 2008 and 2010 from Emergency Department Hospital Melaka

Variable	Year 2008		Year 2010		Mean difference (95%CI)	t-statistic (df)	P-value
	Mean number of patients per month (SD)	%	Mean number of patients per month (SD)	%			
Direct admission	2264.75 (518.03)	71	3119.08 (269.48)	75	854.33 (497.95,1210.72)	5.07 (16.55)	<0.001
Lodger	933.92 (250.98)	29	1030.73 (237.63)	25	96.81 (-115.70, 309.32)	0.95 (21)	0.354
Total admission	3198 (697.98)	100	4108 (409.82)	100	909.97 (407.41-1412.53)	1.97 (21)	0.001

Table 2

Waiting Hours of Lodgers In 2008 And 2010 in Emergency Department Hospital Melaka

Waiting hours of Lodgers	Year 2008		Year 2010		Mean difference (95%CI)	t-statistic (df)	P-value
	Mean number of patients per month (SD)	%	Mean number of patients per month (SD)	%			
Admission less than 2hr	266.5 (108.19)	29	643.73 (220.37)	62	377.23 (228.75, 525.71)	5.28 (21)	<0.001
Admission within 2hr to 6hr	388.90 (99.95)	42	295.00 (154.72)	29	-93.90 (-205.45,18.45)	-1.74 (21)	0.097
Admission within 6hr 12hr	256.08 (97.44)	27	64.45 (69.33)	6	-191.63 (-265.60,-117.65)	-5.39 (21)	<0.001
Admission within 12hr to 24hr	22.83 (6.31)	2	15.73 (19.58)	2	-7.11 (20.58,6.37)	-1.15 (11.90)	0.273
Admission within 24hr 48hr	00.00(00)	0	11.82 (37.24)	1	11.82 (-13.20,36.83)	1.05 (10.00)	0.317

DISCUSSION

Emergency medical service is an important part of national healthcare system where acute care is provided 24 hours a day. The service can be easily accessible through emergency department in various hospitals across the country. Due to the unplanned schedule and nature of attendances, emergency departments are designed to maintain a constant flow of patients⁴, where after providing acute care, patients are diverted to other appropriate departments for further

definite management. This dynamic environment in emergency department ought to be maintained in consideration of delivering emergency medical service effectively and managing patients efficiently.

Access block had become a worldwide problem of healthcare facility. In United State of America, it is reported that there were about 209 emergency department visits every minute across the country⁵. A study funded by Australasian College for Emergency Medicine (ACEM) on 2008 shown that the number of patients in emergency department who were under treatment and waiting for inpatient beds was on average more than the number of people waiting to be seen⁴. About a quarter of patients admitted to the hospital from an emergency department in America spent more than 6 hours in the emergency room⁶.

In Malaysia, we are lacking the reliable research and data to address the problem. But high occupancy rate of hospitals especially public hospitals are well-known.

Various factors were thought as the factors leads to access block but study in Australia had shown that the fundamental problem is the availability of inpatients beds⁴. The ultimate solution will be reducing hospital occupancy and increasing the bed availability².

Studies done oversea suggested process improvement in admission and discharge for the purpose of increasing hospital capacity⁷. In United State, full capacity protocol was used. Patients awaiting admission are transferred to acute care hallway beds on inpatient units whenever their emergency department is overcrowded. According to American College of Emergency physicians, the protocol was acceptable to both patients and ED staffs. In addition, more than 50% of patient in hallway was putted in room within an hour.

From the experience of emergency department, some wards has higher occupancy rate than the others. Medical wards is always fully occupied while Others wards like orthopaedic or ophthalmologic are relatively more available. In this study, open ward system was implemented. In this open ward system, nurse Manager was assigned to look for available beds. He/she plays a role as a middle person between emergency department and wards. Nurse Manager will look for availability of beds across hospital. Once an empty bed is identified, nurse manager will transfer a lodger to that inpatient bed irrespective of their actual element or unit.

For patients who have been discharged, they are sent to a discharge lounge, enabling accessibility of the inpatient beds. Patients admitted within 2 hours were tripled with

these methods. They minimized miscommunication between wards and improve patients' flow in emergency department. Methodology limitation:

To combat access block, it is vital to know the causes behind it. The factors contributing to access block should be identified prior to addressing the effectiveness of a measure. Our study shown a significant reduction in waiting time for lodgers in emergency department but the individual cause and measure taken for each case in the access block was not investigated in this study.

CONCLUSION

The three measures taken here proved to improve access block in emergency department and could be used as a reference for other hospitals to combat the problem.

ACKNOWLEDGEMENT

First of all, we wish to thank the Director General of Health, Malaysia for permission to publish this paper. We would like to express our appreciation to all the staffs of emergency department Hospital Melaka for their commendable efforts in producing these data of access block.

References

1. Australasian College for Emergency Medicine. Policy document — standard terminology. *Emerg Med (Fremantle)* 2002; 14: 337-340
2. Australasian College for Emergency Medicine. Access Block and overcrowding in emergency departments. Victoria: ACEM, 2004 Apr. http://www.acem.org.au/media/Access_Block1.pdf (accessed Aug 2012).
3. Cooke M, Fisher J, Dale J, McLeod E, Szczepura A, Walley P, et al. Reducing attendances and waits in emergency departments. A systematic review of present innovations. London: National Coordinating Centre For NHS Service Delivery and Organisation Research and Development, 2005. http://www.netscc.ac.uk/hsdr/files/project/SDO_FR_08-1204-029_V01.pdf (Accessed Feb 2013).
4. Richardson DB, Mountain D. Myths versus facts in emergency department overcrowding and hospital access block. *Med J Aust* 2009; 190: 370-375.
5. Machlin ER. Expenses for a Hospital Emergency Room Visit 2003. Rockville, MD: Agency for Healthcare Research and Quality; 2006.
6. Carolyn M. Clancy. Emergency Departments in Crisis: Opportunities for Research. *Health Services Research*. 2007 Feb ; 42(1p1): 13-20.
7. Cameron PA, Joseph AP, McCarthy SM. Access Block Can Be Managed. *Med J Aust*. 2009 Apr 6;190(7):364-8.
8. Cameron PA. Hospital overcrowding: a threat to patient safety? *Med J Aust* 2006; 184: 203-204
9. Forero R, Hillman K, McCarthy S, Fatovich D, Joseph A, Richardson DW. Access block and ED overcrowding. *Emerg Med Australas*. 2010;22:119-135.
10. Forero R, McCarthy S, Hillman K. Access block and emergency department overcrowding. *Crit Care*. 2011; 15(2): 216.

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