# Improving access block in emergency department: an audit cycle

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**ABSTRACT**

**Introduction:** Emergency department crowding is a major problem worldwide and has been associated with a variety of deleterious patient care and outcomes. [1]Crowding has also been implicated in increased work load, burnout and staff turnover. ED is the common entry point to hospitals for nearly all patients with acute problems. Prolonged length of ED stay is the most common cause of patient dissatisfaction.

**Method:** Plan-Do-Study-Act (PDSA) cycle will be used. The barrier identified for first cycle was delay in access is due to delay in consultation, evaluation by admission team, and delay in transfer of patient to ward. There are two cycles of data collections. In first cycle. we identified a barrier and set an indicator to measure it. We did a first cycle, analysed and evaluated the data and did necessary interventions. Then did second cycle to see the improvement and consistency for various departments.

**Result:** In first cycle, average of length of overall ED stay of all admitted patients is 401.95mins (Median time-368.5min). Total numbers of patients analyzed were 165. 63.63% of patients were transferred to respected admitting departments within 8 hours of ED stay. In second cycle, average of length of overall ED stay of all admitted patients is 375. 01mins (median time-341.5min). Total patient analyzed were 161. 67.5% of patients were transferred to respected admitting departments within 8 hours of ED stay.

**Conclusion:** Delay in access is due to delay in consultation, evaluation by admission team, and delay in transfer of patient to ward.

**Keywords:** audit cycle, access block, PDSA

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**INTRODUCTION**

Emergency department crowding is a major problem worldwide and has been associated with a variety of deleterious patient care and outcomes.[1]Crowding has also been implicated in increased work load, burnout and staff turnover.[1, 2] Boarding (the practice of holding patients in the emergency department after they have been admitted to the hospital, because no inpatient beds are available)[3] and delayed consultation visit is a major cause of ED crowding in our hospital. Unfortunately, there is no single solution to ED crowding.[2]

ED is the common entry point to hospitals for nearly all patients with acute problems. Prolonged length of ED stay is the most common cause of patient dissatisfaction.[1,2]

**METHOD**

Plan-Do-Study-Act (PDSA) cycle will be used.[4] The barrier identified for first cycle was delay in access is due to delay in consultation, evaluation by admission team, and delay in transfer of patient to ward.[5]

In first cycle, we identified following indicators to measure the identified barrier. We recorded time of arrival and time of leaving ED by the patients who are admitted in our hospital. All patients who visited Patan Hospital ED and got admitted were identified from nursing admission record file and needed data were collected as described. Then we calculated the total time stayed in ED by the patients for respective departments. All these information were taken from the ED card and nursing register.

As data is lacking about length of stay in ED in our country, we set a standard of 80 % of admitted patients being transferred to the ward within 8 hours of their ED stay.

As most of the admissions were from medicine, surgery and pediatrics and our 80% standard were not met by medicine department admissions in our first cycle, we arranged interdepartmental meeting with medicine and agreed to come on rounds at least twice at day time and whenever ED calls as far as possible. We also talked to surgery HOD informally to come frequently in ED as far as possible. We also conducted a meeting with psychiatry and talked about improving the ED length of stay of psychiatric patients. Then we conducted second cycle to see the improvements in the department who has met the target after the above mentioned intervention. For the departments who had met the standard, we repeated the second cycle for the consistency.

First cycle was conducted at Patan Academy of Health Sciences, department of general practice and emergency medicine from 2075/12/12 to 2075/12/18(one Week) after taking permission from the department. Second cycle was conducted from 2076/08/12 to 2076/08/19 after necessary interventions discussed above in first cycle.

**RESULT**

In first cycle, average of length of overall ED stay of all admitted patients is 401.95mins (Median time-368.5min). Total numbers of patients analyzed were 165. 63.63% of patients were transferred to respected admitting departments within 8 hours of ED stay (Table 1 and Figure 1).

The minimum time for admission was from children ward which was 82 minutes. The maximum time for admission was from Psychiatry ward which was 175 minutes. Maximum number of patient admission was from medical ward followed by surgery and pediatrics. Median time for admission for medicine was 392.5 minutes. Median time for admission for surgery was 357.5minutes and for pediatrics was 399 minutes. The least median time was for PICU, which was 86 minutes.

In second cycle, average length of overall ED stay of all admitted patients was 375.01mins (median time-341.5min). Total patient analyzed were 161. 67.5% of patients were transferred to respected admitting departments within 8 hours of ED stay.

In second cycle, minimum time for admission is 17 minutes from children ward and maximum time was 1211 minutes from gynaecology ward. Median time for admission for medicine is 322 minutes. The median time for admission for surgery was 90 minutes and for pediatrics was 688.5 minutes. The least median time was from surgery which was 90 minutes (Table 2 and Figure 2).

Most of the admissions were from medicine, surgery and pediatrics.

**Table 1. Cycle 1**

| SN | Admitting departments | Minimum time for Admission (min) | Maximum time for admission (Min) | Average time (Min) | Median time (min) | Total number of admissions |
|---|---|---|---|---|---|---|
| 1 | Children Ward | 82 | 778 | 382.87 | 399 | 39 |
| 2 | GPU | 165 | 605 | 403 | 525 | 5 |
| 3 | Gynae ward | 91 | 919 | 368.35 | 306 | 17 |
| 4 | MICU | 99 | 745 | 407.2 | 315.5 | 10 |
| 5 | Medical Ward | 97 | 977 | 419.65 | 392.5 | 44 |
| 6 | Ortho | 124 | 343 | 199.25 | 165 | 4 |
| 7 | PICU | 60 | 112 | 86 | 86 | 2 |
| 8 | Psychiatry Ward | 175 | 1400 | 605.5 | 507 | 6 |
| 9 | Surgery Ward | 83 | 1300 | 421.38 | 357.5 | 36 |
| 10 | Average | 60 | 1400 | 401.95 | 368.5 | 163 |

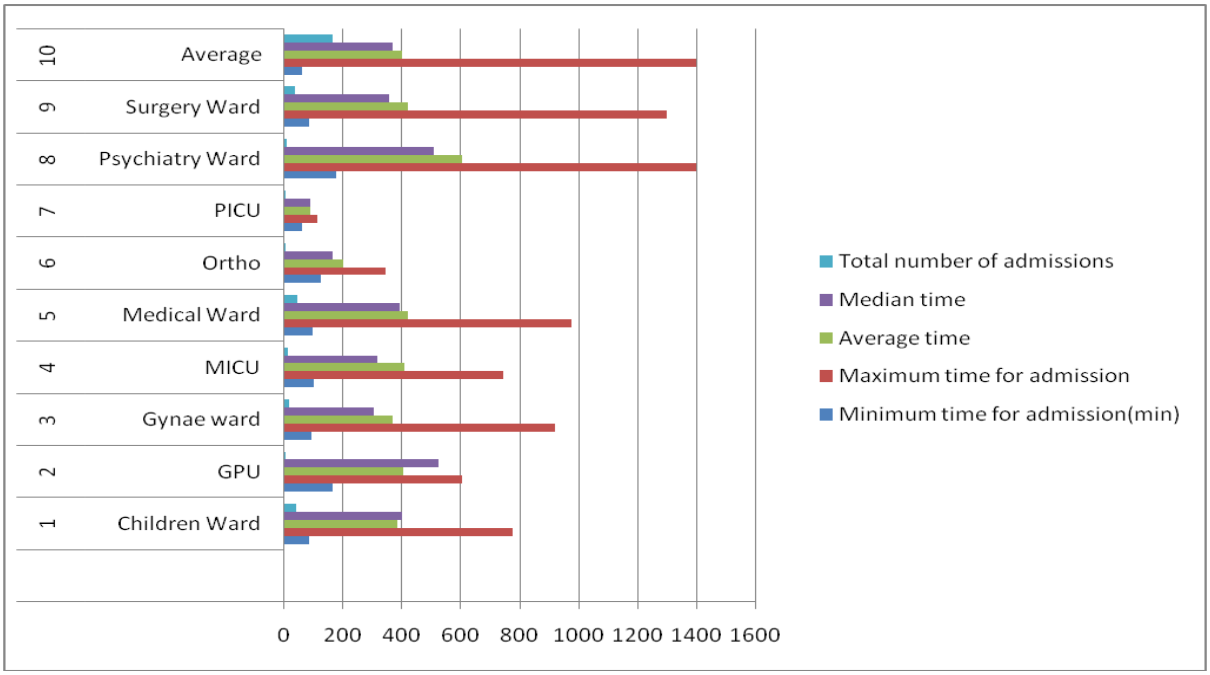


**Figure 1. Cycle 1**

**Table 2. Cycle 2**

| SN | Admitting departments | Min. time for admission(min) | Max. time for admission(Min) | Average time(Min) | Total no of admissions | Median time |
|---|---|---|---|---|---|---|
| 1 | Children Ward | 17 | 684 | 402.33 | 24 | 688.5 |
| 2 | GPU | 120 | 585 | 300 | 3 | 576 |
| 3 | Gynae ward | 43 | 1211 | 327.61 | 13 | 518 |
| 4 | MICU | 67 | 921 | 463.55 | 9 | 481 |
| 5 | Medical Ward | 26 | 1065 | 364.94 | 61 | 322 |
| 6 | Ortho | 120 | 636 | 325.09 | 11 | 185 |
| 7 | PICU | 576 | 576 | 576 | 1 | 576 |
| 8 | Psy Ward | 104 | 810 | 367.11 | 9 | 138 |
| 9 | Surgery Ward | 90 | 686 | 355.95 | 23 | 90 |
| 10 | ENT | 258 | 837 | 538.83 | 6 | 614 |
| | Average | 17 | 1065 | 375.01 | 161 | 341.5 |

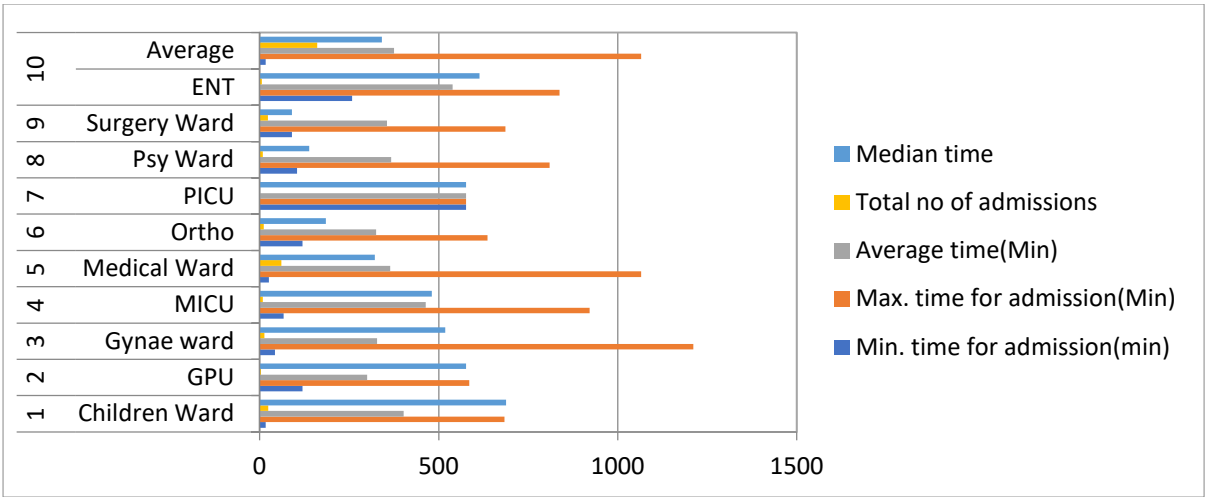


**Figure 2. Cycle 2**

## DISCUSSION

There is improvement from cycle 1 to cycle 2 but the data taken in first cycle was in busy season of the year where there were a lot of fever (Dengue) cases and the second cycle was taken when there were relatively less patients. These data will vary a little bit in different seasons of the year because of the patient flow, which significantly increases in summer and rainy seasons.

It is seen that most of the admissions were from three major departments-medicine, surgery and pediatrics. So the result will change according to the data from these departments. Therefore, we have to have a regular interdepartmental meeting for at least with these major departments. Also, these types of audit cycles should be done in a regular interval to check for consistency as access block causes overcrowding which leads to burnout of the health professionals causing dissatisfaction, aggression leading to mishaps.

There are studies indicating negative impacts on patient's outcome due to overcrowding in ED and significantly reduced patient satisfaction.[6,7]

We have to arrange regular formal and informal inter departmental meetings and continue this cycle for consistency for some departments and improvements in other departments.

## CONCLUSION

Delay in access is due to delay in consultation, evaluation by admission team, and delay in transfer of patient to ward. This can be decreased by at least twice at day round time by all departments regularly and whenever ED calls as far as possible.

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