Factors Affecting the Turnaround Time at the Emergency Room for Obstetrics and Gynecology Patients in a Tertiary Hospital in Fairview, Quezon City

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ABSTRACT

Background: The emergency room is a complex and integral component of a healthcare facility. It provides immediate and specialized care to patients with acute medical conditions. There may be factors that can affect the turnaround time in this area that will have an impact on the quality of care.
Objective: This study aimed to determine the association of factors that contribute to the turnaround time in the emergency room of the Department of Obstetrics and Gynecology in a tertiary hospital.
Methods: This is a cross-sectional, prospective study involving 480 participants, who consulted at the emergency department and triaged under Obstetrics and Gynecology. Information gathered included time spent at each stage of emergency room consultation. Other data obtained were age, gravidity, parity, type of consult, urgency of condition, number of conditions, diagnostic work-up area, payment schemes, patient disposition, time shift during consult. Analysis included univariate analysis, frequency distribution, chi-square, and logistic regression.
Results: Mean turnaround time in the emergency department was 133 minutes (108 to 306 minutes). Prolonged length of stay experienced by 10.8% participants. Delay in laboratory and imaging results (mean 71.93), assessment of resident/medical specialist (mean 19.43), as well as decision-making regarding patient disposition (mean 17.32) were associated with prolonged turnaround time.
Conclusion: With the associated factors that prolong turnaround time at the emergency room identified, strategic plans and review of current emergency room policy may be imperative to address such factors.

Key words: turnaround time, emergency room, length of stay

Emergency care is a crucial part of public health. The emergency department is a medical facility that specializes in acute care of patients needing immediate attention. More complex problems, particularly those patients with multiple comorbidities, may require greater demand for care and management. Hence, such scenario may have an increased length of stay in the emergency department. Subsequently, this can lead to overcrowding in the emergency room. Overcrowding is considered as a global dilemma and signifies worldwide crisis that may affect access to health care and quality of service to patients.[1] Different countries have different rate of length of stay in the emergency department, this may be based on the difference on the management system, the status of the facilities, and the protocol of each hospital.

Prolonged emergency room length of stay has been found to be associated with increased risk of patient harm and reduced quality of care.[2] Subsequently, this may result to adverse outcomes such as increased morbidity, complications and even mortality.[3] On the other hand, shorter hospital or emergency room department stay reduces unnecessary medical fees and upsurge of patient turnover which enables the medical team to serve more patients in need of medical attention.[4] In this institution, the emergency room patients are attended based

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on severity of medical condition. Furthermore, the institution's policy[5] regarding turnaround time at the triage level is based on the level of acuity. The policy recommends that the triage stage should be less than 5 minutes for emergent, less than 15 minutes for urgent, and less than 30 minutes for non-urgent cases. In this policy, the time frame for assessment should be less 5 minutes for emergent, less than 15 minutes for urgent, and less than 60 minutes for non-urgent cases. For disposition, the turnaround time at the ER is set at 120 minutes. Hence, the overall turnaround time at the ER of this tertiary private medical center is set at 130 minutes (2.10 hours) for emergent, 150 minutes (2.5 hours) for urgent, and 210 minutes (3.5 hours) for non-urgent cases. In 2018, this institution found that a number of patients from different clinical departments had a length of stay in the emergency room of more than 2 hours.[5] In line with this, the emergency department has identified problems that contributed with the prolonged turnaround time; room availability, inadequate number of equipment such as intubation sets, delayed laboratory results, delayed patient/ relative decision making, and lack of emergency room personnel. However, the investigation conducted by this institution's emergency room department was done in general. They did not specify which department had prolonged turnaround time at the emergency room.

Thereby, in this study, the authors provided information regarding turnaround time as well as identified factors that contribute to the time spent in the emergency room specifically under the Obstetrics and Gynecology Service. The study specifically answered this query: "What are the factors affecting the turnaround time of Obstetrics and Gynecology patients in the emergency department of this tertiary hospital?". Providing information on the factors affecting the turnaround time of Obstetrics and Gynecology patients in the emergency room, will allow the department to recognize the bottle-necks that potentially contribute to the length of stay in the emergency room. It is important to elucidate and address these factors in order to prevent the adverse impact that may be associated with it. Furthermore, the result of this study may help improve the policies implemented at the emergency department level and ultimately improve quality of health care delivery among patients. This will ensure faster recognition of the patient's condition, better patient satisfaction and reduction in unnecessary medical fees. Ultimately, this will translate to improving the delivery of timely and appropriate care to Obstetrics and Gynecology patients.

The study objective was to determine the association of factors that contribute to the turnaround time in the emergency room of the Department of Obstetrics and Gynecology in a tertiary hospital.

MATERIALS AND METHODS

Study Design

This is a prospective cross-sectional study that identified the factors affecting the length of stay of Obstetrics and Gynecologic patients in the emergency department of a tertiary hospital.

Population and Setting

The study was conducted among Obstetrics and Gynecology patients who sought consult at the emergency department of a tertiary medical center.

Inclusion Criteria

Those women seen at the emergency room with the following were included:

1. All pregnant women regardless of age
2. Non pregnant women, aged 18 and above who were triaged under the service of Obstetrics and Gynecology

Exclusion Criteria

Excluded from this study were those who:

1. Signed a temporary hold order for management and procedure form.
2. Signed a refusal for management and procedure form.
3. Initially triaged to other departments and referred to the Obstetrics and Gynecology department.

Withdrawal Criteria

Women triaged to the OB GYN department but referred to other departments for co-management or clearance.

Overview of Methodology

The women who consulted at the ER and triaged under the Department of Obstetrics and Gynecology of this institution, following the inclusion criteria were included in the study. Those that fell under the exclusion and withdrawal criteria were excluded.

The recruitment process commenced on admission at the ER. An informed consent form following the WHO format was given and explained to the patient. Once informed consent was signed, the patient was given a number code and patient's consult information such as age, type of consult, urgency of condition, diagnostic work-up, payment schemes, time on each stage of emergency room consult, disposition, and time shift of consult were recorded. In emergent cases, when an informed consent was not obtained on arrival at the ER, a verbal consent was sought from the legal guardian. The informed consent was signed by either the patient or legal guardian once the condition of the patient was stabilized.

A standard data collection tool was used to collect the participant's data which was based on the form developed by Martin, et al[6] that was modified by Kusumawati, et al.[7] The data gathered were age, gravidity, parity, urgency of condition, number of conditions considered, diagnostic work-ups, disposition, time shift, and time spent for each stage of the emergency room consult. The OB GYN ER resident on duty conducted the collection of data during their duty when the patient was seen at the ER.

The participation of the patient culminated upon the patient's discharge or admission to the ward/labor room.

Sample Size

The sample size calculation was computed based on age. According to Driesen et al., the turnaround time of more than 4 hours was highest in proportion among those aged more than 65 years old accounted to 38.7%.[8] Hence, with the proportion, p of 0.387, the sample size required was 365.

The second computation was based on patient disposition. The prolonged turnaround time of more than 4 hours was associated with those that were discharged from the emergency room noted in 48.2% participants.[8] With proportion, p 0.482, the required sample size was 384.

The third computation of sample size was based on the urgency of the patient's condition. According Jimenez, et al., urgent conditions were associated with prolonged turnaround time, accounting for 65%.[9] Hence, the proportion, p 0.653, the computed sample size was 349.

Another computation was based on the time shift at the Emergency Department. The afternoon shift has the greatest proportion in turnaround time involving 42.4% of the participants.[9] The proportion, p 0.424, yielded sample size of 376.

The required sample size utilized in this study was the one with the largest computed value which was 384 participants. This computed sample size was adjusted for those participants who withdrew from the study, accounting to 20%. Hence, the final sample size for this study was 480.

Data Analysis

In the data analysis, Microsoft Excel was used for data entry and encoding. The stat version 9.0 was used. Univariate analysis such as mean, range and standard deviation was used to describe continuous variables such as age, age of gestation, gravidity, parity, number of conditions being considered, time spent on each stage of the emergency room consult, and total length of emergency room stay. Frequency distribution was used to describe categorical variables such as categories of the turnaround time, reason for consult, urgency of the condition, number of conditions considered, diagnostic work up, payment scheme and time shift at consult.

The continuous variables that were analyzed according to the turnaround time at the emergency room was analyzed using t-test. For the analysis of categorical variables as to turnaround time at the emergency room, chi-square and logistic regression were used. The level of significance is at 0.05.

Ethical Consideration

This study was implemented after the approval from the technical and ethics review board of the institution was granted. The research data obtained from the Emergency Room database was included in the quality management data of the institution. An approval was granted by the Chief Medical Officer, Emergency Room Head, and Data Privacy Officer.

Confidentiality and anonymity was maintained all throughout the study process and the text of the research paper. The names, addresses, and other data of the participants included in the study did not in any way appear in the analysis, and results of the study. Anonymity was ensured by assigning a corresponding code on the data collection tool of each participant. The data gathered were stored in a computer file that is password-protected, while the data collection tool and master list was kept in a lock protected cabinet. Only the primary investigator has access to these stored files. After two years from completion of the study, all research data will be destroyed and deleted.

All the data gathered for this study involved basic information gathered routinely in the emergency room department. In line with this, no additional information that may be sensitive nor any risk was incurred by the participant during the course of the study. Permission from the office of the data privacy officer was still sought to have access to the data.

The participation in the study did not involve any monetary or material compensation. Likewise, the participant did not gain any direct benefit. The results of this study may aid in improving the policies in the health care delivery system at the emergency room level. In line with this, the actual benefits of this study may be translated to the subsequent patients seeking consult at the emergency room. This improvement in the health care delivery system, can result to better patient satisfaction and encourage them to have better health care seeking behavior.

RESULTS

A total of 480 patients were seen at the emergency room and included in this cross-sectional study after exclusion. The participants has a mean age of 34 (± SD 9.7), with a range of 15 to 72 years old. More than half, 58.75% (282/480), were within the age bracket of 15 to 34 years old. In terms of gravidity, it ranged from nulligravid to gravida 11 with a mean of 1.8 (± SD 1.6). For parity, the mean was 1.1 (± SD 1.4), which ranged from nullipara to para 11. Majority of the participants were multigravid (49.79%, 239/480) and nullipara (49.79%, 239/480). The mean gravidity and parity of women with shortened turnaround time is statistically greater as compared to those with prolonged stay in the emergency room. With regards to age, there was no statistically significant difference on the emergency room turnaround time, as shown in Table 1.

The factors that affect the turnaround time of patients' consultation in the emergency room were identified. In women who were triaged under OB GYN department, about 42.7% (219/480) have obstetrical cases and 54.4% (261/480) have gynecologic complaints. These patients were also triaged based on the acuity of consult. About 79.6% (382/480) of women had non-urgent, 18.1% (87/480) urgent, and 2.3% (11/480) had emergent conditions during consult. The number of conditions being considered during the ER consult was also investigated. Two hundred five out of 480 (42.7%) had single condition or problem. Thirty six percent (173/180) had two conditions and 21.3% (102/480) three or more conditions. In addition, diagnostic procedures are done in different areas, clinical laboratory, diagnostic imaging center, and women's health center. A total of 69% (331/480) of participants underwent diagnostic test done by the clinical laboratory, distributed into different tests such as, hematologic 10.9% (36/331), blood chemistry 0.9% (3/331), clinical microscopy 9.4% (45/331), and microbiology 1.2% (4/331). Among these, 73.4% (243/331) had a combination of tests done in the clinical laboratory. On the other

Table 1. Association of patient-related factors with the emergency room turnaround time.

	Shortened ≤ 4 hours Mean (± SD)	Prolonged > 4 hours Mean (± SD)	p-value
Age	34.1 (9.7)	33.4 (9.4)	0.605
Gravidity	1.84 (1.59)	1.02 (1.06)	<0.001*
Parity	1.10 (1.44)	0.65 (0.967)	0.0035*

**statistically significant p value <0.05.*

hand, 14.2% (68/480) of the participants underwent procedures in the diagnostic imaging center, namely, chest Xray with 23.5% (16/68), ultrasound with 42.6% (20/68), and CT scan with 29.4% (20/68). Only 4.4% (3/68) had a combination of diagnostic imaging done and 7.2% (38/480) of women underwent ultrasound in the women's health unit. In terms of payment scheme, majority of the participants (53.8%, 258/480) settled their bill as out-of-pocket, whereas, 46.3% (222/480) paid using a health maintenance organization insurance card. About 51.7% (248/480) were sent home while 28.3% (136/480) were admitted and 20.0% (96/480) were transferred to another health facility. More than half of the population (55.2%, 265/480) were seen at the emergency room during the dayshift and 44.8% (215/480) during the night shift.

There were two factors found to be associated with the emergency room turnaround time, these were the type of consult and the area were diagnostic work up was done. A statistically greater proportion of women with obstetric (93.61%) and gynecologic conditions (85.44%) have shortened as compared to those with prolonged turnaround time (p=0.004). Although, more gynecologic (14.56%) than obstetric cases (6.39%) had prolonged stay at the emergency room. With regards to diagnostic work-ups conducted during the ER consult, those participants undergoing a single clinical laboratory test specifically in the blood chemistry (100%) showed a statistically higher proportion of having shortened than prolonged turnaround time (p<0.001). In the diagnostic imaging center, there were 4.2% (20/480) participants who underwent CT scan imaging. Out of these 20 participants, 60% showed statistically significant proportion of women who had prolonged turnaround time (p<0.001). While a statistically higher proportion of participants having chest Xray (68.75%), and ultrasound (58.62%) had shortened turnaround time (p<0.001). The rest of the consultation-related factors such as urgency of condition, payment scheme, patient disposition, and time shift during consult did not show any significant association with the ER turnaround time. (Table 2)

Logistic regression analysis was used to evaluate the association of independent variables on the emergency room turnaround time as shown in table 3. After all other factors were considered, the factors that significantly increased the risk of having prolonged turnaround time were having diagnostic procedures in the clinical laboratory (RR=1.34, p<0.001), diagnostic imaging center (RR=2.64, p<0.001), and women's health center (RR=5.18, p<0.001) during an emergency room consult.

The description of the time spent of each patient at each stage of emergency room consult is presented in table 4. These stages include time at triage, initial evaluation, assessment, diagnostics, and disposition. The stage wherein the participants had the longest time spent during their emergency room consult was with the diagnostics stage with a mean of 71.9 minutes, followed by assessment stage at a mean of 19.4 minutes, and the third was during disposition having a mean of 17.3 minutes. The time spent at the stages of triage and initial evaluation were both less than 15 minutes.

The overall average time spent at the ER by the 480 participants in this study was 133 minutes (SD$\pm$75.6) with a range of 108 to 306 minutes. This is still below the cut-off set for the turnaround time at the ER which was 4 hours. A total of 52 participants, which represents the 10.8% (52/480) of the study population had prolonged, and 89.2% (428/480) had shortened turnaround time at the emergency room.

DISCUSSION

Length of stay is defined as the time from patient registration to departure from the emergency department.[10] It is a vital indicator in the evaluation of the efficacy, quality of patient care, and organizational management of health care system. Analyses may vary from country to country, the difference may be attributed in the variations in organizational structures, culture, administration, and health care system of the institution.

In recent years, flow of patient and quality of care in emergency departments have improved worldwide. According to the National Emergency Access Target (NEAT) initiative, the proportion of patients admitted or discharged from the emergency room must be within 4 hours from presentation.[2] Likewise, in the Philippines, the Department of Health together with the Philippine Society of Emergency Care Physicians and Philippine College of Emergency Medicine recommended that the maximum waiting time in the emergency room be set at a maximum of four (4) hours, as the standard waiting time for a patient to be seen, examined, and within which an appropriate disposition has been made.[1] Currently, in the present setting, a prolonged turnaround time is considered

Table 2. Association of consultation-related factors with emergency room turnaround time.

Factors	N	Shortened ≤ 4 hours n (%)	Prolonged > 4 hours n (%)	p-value
Type of consult				
a. Obstetric	219	205 (93.61)	14 (6.39)	0.004*
b. Gynecologic	261	223 (85.44)	38 (14.56)	
Urgency of condition				
a. Non urgent	382	339 (88.79)	43 (11.26)	0.489
b. Urgent	87	78 (89.66)	9 (10.34)	
c. Emergent	11	11 (180)	0	
Number of conditions considered	205	187 (91.22)	18 (8.78)	0.160
a. only one (1)	173	148 (85.55)	25 (14.45)	
b. two (2)	102	93 (91.18)	9 (8.82)	
c. three (3) or more				
Area where diagnostic work-up is done				
a. Clinical laboratory				
- Hematologic	36	35 (97.22)	1 (2.78)	<0.001*
- Blood Chemistry	3	3 (100)	0	
- Clinical Microscopy	45	44 (97.78)	1 (2.22)	
- Microbiology	4	2 (50)	2 (50)	
- Combination	243	201 (82.72)	42 (17.28)	
b. Diagnostic imaging center	16	11 (68.75)	5 (31.25)	
- Chest Xray	29	17 (58.62)	12 (41.38)	
- Ultrasound	20	8 (40.00)	12 (60.00)	
- CT Scan	0	0	0	
- MRI	3	2 (66.67)	1 (33.33)	
-Combination				
c. Women's health unit	38	28 (73.68)	10 (26.32)	
- Ultrasound				
Payment schemes				
a. with HMO	222	202 (90.99)	20 (9.01)	0.233
b. without HMO	258	226 (87.60)	32 (12.40)	
Patient disposition				
a. Admitted	136	122 (89.71)	14 (10.29)	
b. Sent home	248	221 (89.11)	27 (10.89)	0.961
c. Transferred to another medical facility	96	85 (88.54)	11 (11.46)	
Time shift				
a. Day shift	265	233 (87.92)	20 (9.01)	0.331
b. Night shift	215	195 (90.70)	32 (12.08)	

**statistically significant p value <0.05.*

Table 3. Logistic regression analysis on the association of independent variables on the emergency room turnaround time.

Factors	RR (95% CI)	p-value
Age group	0.62 (0.29-1.32)	0.22
Gravidity	0.60 (0.26-1.36)	0.22
Parity	0.99 (0.45-2.17)	0.97
Consult type	1.00 (0.38-2.66)	1.00
Urgency of condition	1.22 (0.54-2.76)	0.63
Number of conditions considered	1.33 (0.84-2.13)	0.23
Diagnostics: Clinical laboratory	1.34 (1.09-1.65)	0.005*
Diagnostics: Diagnostic imaging center	2.64 (1.94-3.59)	<0.001*
Diagnostics: Women's health unit	5.18 (2.06-13.03)	<0.001*
Payment schemes	1.17 (0.57-2.40)	0.66
Patient disposition	1.16 (0.70-1.92)	0.58
Time shift	0.81 (0.40-1.62)	0.55

**statistically significant p value <0.05.*

Table 4. Association of the emergency room stages of consult to the turnaround time.

Stages of Consult	Average time in minutes (± SD)
Triage	13.83 (3.93)
Initial evaluation	10.90 (9.16)
Assessment	19.43 (9.34)
Diagnostics	71.93 (13.26)
Disposition	17.32 (8.54)

when a patient's length of stay in the emergency department is more than four (4) hours.

In this institution, the turnaround time at the ER was set based on the acuteness of the patient's condition. In the latest emergency room policy in the 2018 nursing care standards and procedure on the care of the client in the emergency department[5], the turnaround time was set at 3.5 hours for non-urgent, 2.5 hours for urgent, and 2 hours for emergent cases. In the present study the average turnaround time was 2 hours for both non-urgent and urgent cases, while 1.5 hours for emergent cases. Hence, the turnaround time of the Department of OB-GYN ER consultations is at par with the policy set by the institution.[5] These sets of turnaround time include all stages of the ER consult, from triage to disposition. The triage stage involves the gathering of patients' general data, chief complaint, and vital signs. In the assessment stage, history and physical examination are performed, initial assessment given, and initial orders requested. The disposition stage includes the work ups, physician and patient decision-making, as well as final disposition.

This study determined the factors associated with the turnaround time of obstetrics and gynecology patients in a tertiary hospital's emergency room. Accordingly, it has been found that 10.8% (52/480) of these patients have prolonged length of stay at the

emergency room. This finding is similar to the study conducted in West Africa, wherein 8.2% (216/2627) of their study population stayed for more than 4 hours at the emergency department.[11] This similarity between the present study and that done in West Africa is the organizational process being implemented in both institutions and that their participants included those seen at the OB-GYN section of the ER. On the other hand, the studies done in Southern Ethiopia (91.5%),[3] Addis Ababa (84.3%),[12] and Canada (58.6%)[13] showed a higher proportion of patients with prolonged stay at the emergency room.

The factors associated with prolonged ER stay that were identified by the studies previously cited include older age of participants,[3,12,13] male gender, shortage of ICU beds,[14] inadequacy of in-patient beds, and emergency room overcrowding.[3] Among these factors, only the association of age with the emergency room turnaround time was evaluated in the present study. Results of the present study showed that age did not significantly alter the duration of the patients turnaround time at the emergency room. This is due to an almost similar mean age between those seen for a shortened and prolonged period of time at the ER. Since more than half of the participants were within the reproductive age group. In contrast with other studies, wherein their participants involved more of the geriatric age group since their population included all patients generally seen at the ER. Usually it is more of the older age group who were observed to have longer length of stay due to many reported comorbidities, less specific symptoms[14], and poor communication skills within this age group.[9,10,15]

There were other factors considered during the course of this investigation. Other than the age, the association of gravidity, and parity with the turnaround time at the emergency department were also evaluated in this study. In terms of gravidity and parity, majority of the participants were multigravid and nulliparous. In the present study, these factors were significantly associated with the turnaround time at the ER. The mean gravidity and parity were significantly lower among those with prolonged ER stay but when adjusted to all other factors, these were not found to be associated with the ER turnaround time. These findings were likewise reported in the study conducted in West Africa, which also showed no significant association of gravidity and parity on the turnaround time of the patients' who consulted at the emergency room.[11]

In this study, more than half of the population had non urgent conditions during their consultation at the emergency room. The remaining proportion of the population had urgent and emergent conditions. This is because more patients opted to consult at the emergency room rather than the ambulatory care services or out-patient department to avoid long waiting lines in the physicians' clinics. It was found that all patients regardless of the type of urgency of their condition had shortened length of stay and did not have significant association with the emergency room turnaround time. Compared to a local study by Jimenez, et al.,[9] the proportion of the non-urgent cases were constant on all time shifts of their emergency room consultation. These cases also had shortened time spent due to the shorter period of observation, diagnostics, and lesser need for referrals to other specialties.[9] On the contrary, the findings of the studies in Taiwan[5] and in France[16] showed a lower level of urgency among their participants, such that non-urgent cases are less prioritized for admission. Thus, have a longer length of stay at the emergency room.[10,16]

The type of consult in the present study was categorized as obstetric or gynecologic. Half of the participants (54.4%) included, had gynecologic complaints. A significantly greater proportion of participants with such concerns have a longer turnaround time since there were more participants (14.6%) who had prolonged stay at the ER than those with obstetric conditions (6.4%). While a higher proportion of participants with obstetric concerns (93.6%) had a shortened turnaround time than those with gynecologic conditions (85.4%). This may be due to greater time needed to complete pelvic examination with more diagnostic work ups required to guide the disposition for the patient's condition. The study of Patterson et al. supports this finding, wherein patients with gynecologic complaints, such as abdominal pain, and vaginal bleeding had longest examination time at the emergency room.[17] Although, in the present study, this type of condition did not show a significant difference between those with shortened and prolonged length of stay at the ER.

On the other hand, most of the patients who presented at the emergency room have only one condition being considered, followed by those with two and lastly, those with multiple conditions. This may be secondary to the age composition of the participants which belong to the younger

and reproductive age group. This population has less complex conditions and lesser concomitant comorbidities. The number of conditions being considered did not appear to have an association with participants' ER turnaround time. In the investigation of Kusumawati et al., patients presenting at the ER with only one condition resulted in a shorter ER stay as compared to those with multiple conditions. They have identified that in patients with a single condition, there was prompt diagnosis and lesser need for multiple diagnostic tests, as compared to those with multiple conditions.[7]

The patients consulting at ER of this institution have two payment options, out-of-pocket or through a third-party payer, which is a Health Maintenance Organization (HMO). In the present study, the majority of the patients paid through an out-of-pocket scheme, as compared to those who used a third party payer (HMO). This proportion is attributed to the location of the hospital which is within an urban household area. The out-of-pocket scheme group appeared to have a longer length of stay in the emergency room. This may be associated with financial constraints and hesitancy in consenting for procedures and management that may entail greater cost. Although, results of the present study showed no significant association between payment schemes and the turnaround time of the participants. This is similar to the study of Jimenez et al.,[9] wherein the patient decision-making on giving consent for procedures that entail higher cost delays response and management.[9] However, this study, conducted in a local private hospital, had a greater proportion of participants who utilized a third party payer (HMO) payment method.[9] This is due to its proximity to Business Process Outsourcing (BPO) Industries since it is located in a business district in Metro Manila. These BPOs, financed the health insurance coverage of their employees. Despite the greater number of HMO health card holders, the out-of-pocket option still statistically prolonged the emergency room turnaround time in their institution.[9]

Most of the patients seen at the emergency room were discharged, others were either admitted in this institution or transferred to another medical facility. The majority of the participants in the three groups have shortened length of stay. In the present study, those who were discharged (n = 248) were mostly non-urgent cases (232/248) whose conditions were assessed, recognized and managed within 2 hours. Faster admission and transfer to the wards or labor room was also observed for participants with urgent, within 2 hours and emergent conditions within 1.5 hours, as there were enough available rooms and beds at the time the study was conducted. Most patients who were transferred to another medical facility chose to self-conduct, hence coordination to another institution was waived and decreased the waiting time of these patients at the ER. On the other hand, the findings of Chung-Hsien et al., reported that a significant proportion of their participants who had prolonged stay at the emergency room were those who were admitted (41,695/149,472). The main reasons for this result was due to the unavailability of rooms and long queues in the admitting section of the institution where the study was conducted.[10]

The time shift wherein the participants were seen at the ER was also evaluated. More than half of the population at 55.21% (265/480) was reportedly seen during the day shift. The explanation for the greater proportion of patients being seen at the ER during the day shift, may also be explained by having had a greater bulk of patients with non-urgent conditions (79.6%). They chose to consult at the ER to avoid long lines at the physicians' clinics. However, the authors did not assess the urgency of the condition according to shift of consultation. On the other hand, in the study of Jimenez et al.,[9] there were variations in the time shifts of consults in terms of the resultant turnaround time. They attributed the variation to local climate, and season during their study period.[9] They were able to make such assumptions because the study was conducted for one year. Unlike the present study which was completed within 6 months. Hence, such reasoning may not be applicable to the present study. However, in the present study, the difference in the time shift of consultation is not associated with the turnaround time at the ER.

The turnaround time in this study was significantly prolonged among those participants who underwent diagnostic work up in the clinical laboratory, diagnostic imaging center, and women's health center. The possible explanation for the longer turnaround time with diagnostic work ups included high volume of tests conducted, unavailability of laboratory test kits, lack of manpower, technical problems in the operating systems, low number of machines, long waiting line for in-patients and out-patients who utilized the same diagnostic machine, and operator availability. Similar findings were found in a cross-sectional study conducted by Getahun et al., wherein the increased length of stay of patients in the emergency department occurred due to delay

in radiologic services and inadequacy of different laboratory test profiles.[3] Other studies also noted a significant delay in the time allotted in issuing imaging test results secondary to the large bulk of patients during the day. Another factor is the overlapping of emergency room patients with the other patients in the hospital requiring these diagnostic tests at the same time.[7] Furthermore, during the night shift, the 'on-call' basis of the sonologists or radiologists, who will perform the procedure and interpret the results may contribute to the prolonged waiting time of patients requiring imaging procedures.[4,18]

A study done in Australia,[19] showed that the waiting time for a patient to be seen by a physician is related to a longer length of stay at the ER. This reduces the quality of care and patient satisfaction.[19] In the present study, the average time during the triage was 13 minutes. Hence, the average turnaround time for the triage among the OB GYN patients seen at the ER was within the 5 to 30 minutes time range that was set by our institution's ER policy. Although in the present study, the authors did not categorize the time spent during the triage period according to urgency of the participants' condition. This only reflects the efficiency of the emergency room medical triage staff, doctors, and process flow. The set-back was noted during the stages of assessment, diagnostics, and disposition. During assessment, the factors that prolonged the duration of this stage, included initial consultation which took 10 minutes in this study. At this segment, a medical intern usually conducted the initial evaluation for non-urgent cases due to the low manpower/lack of residents in relation to the increasing number of patients, and the need for resuscitation for emergent cases. This was likewise seen in the study conducted by Driesen et al. which associated the increased length of the assessment stage with the process involving hierarchy of referral, wherein the first line assessors were medical interns followed by residents and consultant.[8]

In the present study, the average time spent in the assessment stage was 10.09 to 28.77 minutes. However, the authors did not make a separate evaluation according to urgency of condition. Therefore, the authors cannot deduce that they were able to conform with the recommendation set by their institution, wherein assessment should be less than 5 minutes for emergent, less than 15 minutes for urgent, and less than 60 minutes for non-urgent cases.

The causes for delay in the diagnostic and imaging results have been previously elaborated. During the diagnostic stage, longer waiting time was experienced with the ultrasound and CT scan imaging. These findings were parallel with the study of Morgan et al.[20] wherein women who underwent these diagnostic procedures were shown to significantly have a longer ER stay. They also reported that bedside point-of-care ultrasound by an emergency physician at the ER had significantly reduced the ER length of stay. They have compared this to those who had to transport out the patients from the ER to perform the procedure at the diagnostic section. The latter process, which is conducted in this institution, not only delays time and prolonging the turnaround time but also places potentially unstable patients away from the emergency room.[20] This is probably the reason why the diagnostic stage in the present study had the longest average time spent by the participants seen at the ER. The average time for diagnosis was 58.7 to 85.2 minutes.

Lastly, the decision to disposition is the stage at which an appropriate plan for a patient is made, such as a decision to admit, discharge, or transfer to another health facility. This process in the emergency room is complex and requires the involvement and coordination of different healthcare professionals. The residents or attending physicians may have to refer the patients to different subspecialties and work ups to arrive at a correct diagnosis and management. Kusumawati et al. elaborated that for patients with complex or multiple conditions being considered, more time was required for the doctors to decide on the appropriate diagnosis and management. The collaboration among these medical professionals may increase the turnaround time but is very crucial and important for the well-being of the patients.[7] In the present study, the disposition stage ranged from 8.8 to 25.9 minutes. In this institution, disposition includes diagnostics. Hence, putting this in consideration, the disposition time ranged from 67.5 minutes to 111.1 minutes. Although, authors' time frame still coincided with the turnaround time set at the ER for disposition which is 120 minutes.

Time is an essential component in the quality of care. Prolonged emergency department length of stay has been found to be associated with increased risk of patient harm and reduced quality of care. Subsequently, this may result in adverse outcomes which include increased morbidity, complications and even mortality. On the other hand, shorter hospital or emergency room department stay reduces unnecessary medical fees and upsurge of patient turnover which enables the medical team to serve

more patients in need of medical attention. However, the present turnaround time is still at par with that of this institution's recommendation. It is important to take note of certain factors that may possibly prolong the stay of OB GYN patients at the ER. Since the authors are part of this institution, they would like to fulfill the mission to develop a socially responsible health professional adhering to global standards in medical services with the vision of having globally competitive and exceptional health care services. Hence, adhering to the recommended turnaround time at the ER may help fulfill this mission-vision.

The are several limitations in the study. First, the authors were not able to determine the turnaround time for the type of consult, patient disposition, and time shift of consult according to the urgency of the condition which is part of the institution's ER policy. Other contributing factors such as availability of intensive care unit beds, reasons for admission of each patient, ER overcrowding were not also evaluated in the study. Since the study was only conducted for six months, variation of factors affected by local climate was not feasible.

CONCLUSION

The overall average turnaround time at the emergency room in our study is still within the time recommended globally which is 4 hours. The factors found to be associated with prolonged turnaround time among obstetrics and gynecology patients seen at the emergency department were gravidity, parity, type of condition at consult, and the area of diagnostic work-up required. In terms of time spent at the ER according to stage, it was longest in the diagnostic stage, followed by assessment and then disposition. This establishes that although our turnaround time is still at par with global recommendations, there are still challenges that need to be addressed. With recognition of the pertinent factors affecting the efficiency of the emergency care system, further improvement in the delivery of healthcare may be achieved as policies may be revised. Once the challenges have been resolved, rest assured the OB GYN department in this institution will be able to provide health care that meets the global standards.

RECOMMENDATION

To have a better assessment on the association of the factors that increase the turnaround time of the OB GYN patients at the ER, evaluation of the type of consult, patient disposition, and time shift of consult is recommended. Such evaluation should be according to the type of urgency of the patient. Through this, the turnaround time for each type of urgency in accordance to the ER policy of the institution and patients' safety can be elucidated. Longer study period is also recommended to evaluate the association of the local climate and season to the time shift and type of consult with the ER length of stay. Further study on other factors such as, availability of intensive care unit beds, reasons for admission of each patient, and ER overcrowding should also be done to further elucidate the reasons affecting the ER turnaround time.

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