Quantification of Call and Visit Volumes to the Obstetric Triage Department

Final Report

Submitted to:

Terri Murtland, RN: Certified Nurse Midwife
Anne-Marie Piehl, RN: Perinatal Clinical Nurse Specialist
Jackie Lapinski: Children and Women's Project Manager

University of Michigan Health System
Program and Operations Analysis

Richard J. Coffey: Director, Program & Operations Analysis
University of Michigan

Prepared By:
Rachel Davis (radavis@umich.edu)
Laura Kneale (lkneale@umich.edu)
Melissa Plotkowski (mplot@umich.edu)
Jessica Roubal (jroubal@umich.edu)

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Executive Summary

The Obstetrics Triage (Triage) department in the Women’s Hospital Birth Center (WHBC), located on the fourth floor of the University of Michigan Hospital, is responsible for emergency care for pregnant and postpartum women who are part of the University of Michigan Health System. Currently, there is a concern that women are calling and visiting Triage unnecessarily and this is therefore hindering patient flow and making the high level of quality patient care more difficult to attain. This feeling of being overcrowded may be attributed to the rise in demand, as patient volume in Triage has been increasing while the physical capacity (three patient rooms) has remained the same. For example, the number of visits to Triage has increased from 7262 in 2003 to 7761 in 2005. The number of calls coming into Triage has also increased, rising from 9466 in 2003 to 11053 in 2005. Although these numbers may be somewhat understated due to the implementation of Trace Vue, these figures depict the increasing volume of patients calling Triage.

There are multiple ways a patient is referred to Triage. In no particular order they are:

- Patient sees Triage number on front page of You, Your Baby and Us and calls
- Health Center Nurse cannot answer specific question and instructs patient to call Triage
- Doctor refers patient to go to Triage if a specific ailment does not go away
- Health Center is closed for the day or weekend and patient must call Triage to receive an answer for her concern
- Patient goes to the Emergency Room and is sent to Triage

The objective of this project was to quantify the volume of calls and visits coming into Triage, identify which health centers and providers are referring these patients, and categorize the reasons these patients are contacting Triage. We did not evaluate any processes that occur after a decision to admit the patient or any non-patient related phone calls or visits to Triage. Additionally, we did not collect any data regarding the health centers which offer obstetrics care.

The data analyzed includes all phone calls into Triage throughout January, February, and March 2006 and the visits into Triage throughout March 2006. Information recorded during data collection was the time, date, day of week, reason for the call or visit, provider and clinic. In total, 2,812 calls were recorded over the three months as well as 487 visits. Additionally, in collecting data pertaining to the visits, we encoded the patient identification number to correlate those patients who both call and visit OB Triage. Data were collected during the month of March by examining the call logs (Appendix X) and the visit logs (Appendix X). Data were analyzed by using Excel, Minitab 14 and Access. Issues were broken down into smaller sections to determine possible root causes.

In summary, the most common reasons for calling Triage include postpartum questions, bleeding, contractions and questions about medicine. The most common phone call was made by women in their third trimester of pregnancy (32.3%) and the largest group of all
calls was Women’s Health patients (40%). Calls were relatively evenly distributed throughout the week and the most common hours for calling are between 11am and 7pm. This patient profile is also the most common for those who visit Triage, however the most common reason for visiting Triage is to rule out labor. It was found the majority of patients are calling and visiting Triage with necessary issues, however, there is still room for improvement in patient education.

Since most patients visit and call Triage during their third trimester, we recommend that there be a third trimester consultation with the patient, provider, and/or nurse to reacquaint the patient with issues that are common to this time of a woman’s pregnancy. At the very least this will improve the high quality of patient care that WHBC strives for, but it will also likely eliminate a small percent of women who are contacting Triage unnecessarily during their third trimester. The average total amount of time nurses spend on the phone and entering the patient data into Trace Vue was 8.7 minutes.

Many patients who called regarding medicine issues did not need to speak with a nurse in Triage to find the answer to their question. The majority of these calls can be answered by the health centers and therefore we recommend that a sticker with the patient’s health center contact information be placed on the cover of You, Your Baby, and Us that would act as a quick reference for the patient. Additionally, the answers to 64% of these calls regarding medicine are found in this book, but they are imbedded within lots of text. A possible solution to this would be to include a quick-reference medications table that can be added as an insert into this book. If this table eliminated 80% of these phone calls, 51% of the total medicine calls would be reduced. According to our time estimates, this would save Triage nurses’ 50 calls during the three months and give them a little over 7 more hours (435 minutes).

Some ideas for future projects relating to patient flow through Triage include gathering data from the individual health centers and interviewing the patients. This will provide more information regarding how health centers deal with obstetrics related calls, as well as provide more insight into the patient experience.
Introduction

Obstetrics (OB) Triage of the Women’s Hospital birth center, located on the fourth floor of the University of Michigan Women’s Hospital, admits women in labor and provides emergency treatment for pregnant and postpartum women. There is a concern that an unnecessary population of patients and phone calls is hindering the Triage process. Through this project, the team quantified call and visit volumes in the Obstetrics Triage department of the University of Michigan Hospital and identified which health centers and providers are referring these patients. The purpose of this report is to provide final analysis and recommendations as a result of our data analysis.

Background

Within OB Triage, three rooms are fully equipped to accommodate any patient, including those who are at high risk. Triage is open 24 hours per day with one or two nurses handling phone calls (after a clerk initially answers the call) and caring for patients. The current volume of phone calls coming into Triage is approximately 1,000 calls per month, while the number of patient visits is about 800 per month. Our call data collected for January and February, which totaled 1316 is relatively consistent with this average expected number of phone calls per month. However, this number is less than the 800 (1600 total for two months) and is not fully accurate as the implementation of Trace Vue took place in late 2005, which may account for misplaced data and phone calls. (See Appendices A and B for flowcharts relating to activities in triage. These flowcharts reflect information gathered during observation.)

Most patients seen in Triage have a primary OB physician that practices at one of seven health centers. The seven University of Michigan Health Centers that offer obstetric care are open during normal business hours to see patients and answer phone calls. These Health Centers employ nurses who answer an unknown number of phone calls and either advise the patient or direct the patient to go into Triage at the University of Michigan Women’s Hospital.

Goals and Objectives

To determine areas of improvement regarding the OB Triage process, we tracked all calls from January through March and we tracked visits to Triage throughout March 2006. From this information we have analyzed this population and developed recommendations to help Triage take their next steps in determining how to lower calls. Through data collection we have:

• Identified and described visits to Triage
• Quantified and described calls to Triage

This information has enabled us to describe the impact of an unnecessary population on patient flow and daily nurse activity in Triage.
Scope of Project

We have retrospectively collected data from all patient incoming calls from January and February 2006. Data collected included all incoming calls from patients and others who call on behalf of patients.

We have also collected data for the month of March. This data includes all initial phone calls, the amount of time that the nurse spends on the phone, and all patient visits from March 1-16. Although data was collected through March 21, this was not included in our analysis due to errors that occurred during data collection. The call and visit information collected from March 17-21 was drastically different from the previous data, and including these dates in our analysis would produce outliers and skew our data. Included in our data analysis of March, it was noted which patients visit without previously calling OB Triage.

We did not evaluate any processes that occur after a decision to admit the patient. We did not record the following non-patient related occurrences:

- Visitors asking for directions
- Visitors asking to have parking validated
- Callers asking to speak with a patient
- Callers not asking about specific OB patient related issues
- Other miscellaneous issues not relating to patient issues

Furthermore, we did not evaluate the rotation of nurses and those working in each department. We did not collect data from the seven health centers.

Key Issues

The perceived key issues which created a need for this project include:

- Nurses are spending time away from patients due to the volume of phone calls.
- Patients and nurses are spending time "playing phone tag."
- Patients are unnecessarily being sent into OB Triage.

Methodology

The methodology for this project consisted of going through all of the call records available from January to March. Visit records were also recorded.

Approach

Our approach included quantification and identification of all incoming OB calls and patients. The ten steps we followed to quantify and identify the population of calls and visits to OB Triage are as follows:
1. Observed OB Triage flow
2. Developed flowcharts mapping OB Triage process
3. Conducted literature search
4. Collected call data for January and February 2006 by recording date, time, issue, due date, service, and physician into an Excel spreadsheet
5. Interviewed five nurses and one clerk who are responsible for taking incoming calls and admitting patients in OB Triage
6. Recorded March phone calls and visits by recording date, time, issue, due date, service, physician and encoded patient identification number into an Excel spreadsheet; correlated arrivals with prior phone calls using the patient identification number
7. Analyzed 2,812 call records and 487 visit to collect specific data regarding call and visit volume to OB Triage
8. Discussed preliminary recommendations with clients and coordinator
9. Developed conclusions and recommendations

We have recorded 2,812 calls; however, not all of these satisfy the requirements to be included in our data set. The requirements for inclusion in the data set were that the record must have all of the following information complete: date, time, service, physician or midwife, EDC, issue.

In addition, five nurses were selected to track the phone call length for each callback to a patient. These nurses were asked to collect this data for seven shifts; each shift is twelve hours. They were also asked to track the number of times that had to call a patient before actually talking to the patient about the issue. These tasks were completed throughout March.

**Data Quantification Methods**
Triage uses phone and visits logs (Appendix D and E) for all patients. To collect data, we used Excel to transfer all relevant information from these logs. After all data was collected and patient sensitive information was encoded, we used several programs to quantify patient population. Among these programs, we used Microsoft Excel, Microsoft Access and Minitab 14.

**Qualitative Findings**
Along with analyzing the collected data, the team also performed three qualitative studies in order to better understand the current process and conditions in Triage.

**Observation**
Fifteen hours of observation was spent in the Triage clerk office at the beginning of the project. Each team member observed the total process and performed informal preliminary interviews to better understand the department. Two flow charts were constructed from the information received (Appendix A and B).
**Literature Search**
A literature search was also conducted in order to better understand the possible complications that can occur during pregnancy. Medical Journals such as the *Journal of Obstetrics and Gynecology* were referenced. This information was used to help the team better understand the common complications that can occur during all trimesters. In addition, it helped pinpoint common occurrences that were no cause for alarm such as Braxton-Hicks contractions.

The books, *What to Expect When You’re Expecting* and *You, Your Baby, and Us* were read in order to understand what educational material women have available during their pregnancy. *What to Expect When You’re Expecting* has sold over 10 million copies and is referenced in the book *You, Your Baby, and Us* which is given to all patients at their first prenatal visit to a UMHS provider.

The information collected during the search was not used to determine the difference between unnecessary and necessary calls and visits. Our team felt it was most appropriate for a clinical specialist to make these distinctions.

**Interviews**
In total three Triage nurses, one Triage coordinator, and one clerk were interviewed (See Appendix C for interview questions). These questions only reflect initial conversation starters as detail orientation questions were also asked.

Most interviewees stated that Triage is limited by its physical capacity and is currently seeing more patients than the service can hold. The Health Insurance Portability and Accountability Act (HIPAA) also seemed to be an important issue among most of our interviewees, as they believe Triage is overcrowded, especially in the clerk’s area.

With regard to patients coming in unnecessarily, most nurses agreed with the following:

- Patients are not receiving adequate pre-natal education and instructions
- Patients are frequently referred to Triage from some health centers because they are unsure of the answers to some OB related questions
- Patients stop in to Triage when they are in Ann Arbor for cervix checks
- Patients sometimes call regarding non-OB related questions such as installing carpet, wearing high heels, etc.
- Patients come in well after their discharge date (6 weeks postpartum)

The interviews were fairly consistent and the majority of those working in Triage feel that patients are calling and coming in unnecessarily.

Some other important information we received through our interviews were:

- Patients are coming in without calling
- Nurses are overwhelmed when trying to care for patients and calls in a “timely manner” and deciding who are the most urgent patients
- Patients are perceived to not be using the book *You, Your Baby, and Us* properly
Overall, the staff is pleased with the implementation of TraceVue and believes it will be very helpful to the department once everyone overcomes the initial "mental hurdle" of correctly using the program.

Although most nurses said they sometimes feel overburdened with the patient load and calls to Triage, the clerk interviewed stated she does not feel overwhelmed because it is all "part of the job". She also stated that she can usually tell when a patient is calling or coming in unnecessarily, but it is not her place to say, as all calls and visits must be referred to a nurse.

Quantitative Findings

The following sections will review specific data findings on calls, including unnecessary and necessary calls. This section also has visit findings and the correlation of patients calling in before visiting Triage. After collection was complete, the issues recorded were divided into shorter, one to four word titles. This allowed for a smaller scope of issues. These one to four word titles are called short issues.

Calls into Triage

From January to March 2006, 1,357 calls had a specific provider mentioned. The ten most common providers whom most of the phone calls originated from are listed in Table 1, along with the percentage that they represent from this data set. As shown in this table, a little under half of the entire data set came from these ten providers.

<table>
<thead>
<tr>
<th>Provider</th>
<th>Number of Patients</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tremper</td>
<td>88</td>
<td>6.5%</td>
</tr>
<tr>
<td>Szekely</td>
<td>86</td>
<td>6.3%</td>
</tr>
<tr>
<td>Chames</td>
<td>81</td>
<td>6.0%</td>
</tr>
<tr>
<td>Marzano</td>
<td>65</td>
<td>4.8%</td>
</tr>
<tr>
<td>van de Ven</td>
<td>58</td>
<td>4.3%</td>
</tr>
<tr>
<td>Berman</td>
<td>57</td>
<td>4.2%</td>
</tr>
<tr>
<td>Nicholson</td>
<td>55</td>
<td>4.1%</td>
</tr>
<tr>
<td>Perry</td>
<td>55</td>
<td>4.1%</td>
</tr>
<tr>
<td>Chambers</td>
<td>54</td>
<td>4.0%</td>
</tr>
<tr>
<td>Griffith</td>
<td>48</td>
<td>3.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>647</strong></td>
<td><strong>47.8%</strong></td>
</tr>
</tbody>
</table>

Each call in this data set was further categorized into trimesters in order to determine when in their pregnancy women were calling most frequently. Table 2 shows the results of our analysis.
Table 2. January-March Calls: Top 10 Providers by Trimester

<table>
<thead>
<tr>
<th>Provider</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Post-Partum</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berman</td>
<td>2</td>
<td>5</td>
<td>25</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Chambers</td>
<td>3</td>
<td>1</td>
<td>30</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Chames</td>
<td>5</td>
<td>5</td>
<td>34</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Griffith</td>
<td>3</td>
<td>5</td>
<td>22</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Marzano</td>
<td>1</td>
<td>10</td>
<td>32</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Nicholson</td>
<td>9</td>
<td>5</td>
<td>26</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Perry</td>
<td>5</td>
<td>4</td>
<td>24</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Szekely</td>
<td>7</td>
<td>12</td>
<td>40</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tremper</td>
<td>5</td>
<td>5</td>
<td>43</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>van de Ven</td>
<td>5</td>
<td>4</td>
<td>20</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>58</td>
<td>299</td>
<td>74</td>
<td>35</td>
</tr>
</tbody>
</table>

The largest number of phone calls occurred during a woman’s third trimester. The third trimester calls were further broken down into call issues. Table 3 shows the breakdown by issue of the top ten calls from the top ten providers. For all issue analysis, we grouped the long issues recorded during data collection into one word categories.

Table 3. January-March Calls: Top 10 Most Common Issues

<table>
<thead>
<tr>
<th>Call Issue</th>
<th>Number of Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractions less than 5 minutes apart</td>
<td>42</td>
</tr>
<tr>
<td>SROM</td>
<td>26</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>25</td>
</tr>
<tr>
<td>Pain</td>
<td>25</td>
</tr>
<tr>
<td>Contractions</td>
<td>23</td>
</tr>
<tr>
<td>Contractions 10 minutes apart</td>
<td>19</td>
</tr>
<tr>
<td>Bleeding</td>
<td>13</td>
</tr>
<tr>
<td>Cramps</td>
<td>12</td>
</tr>
<tr>
<td>Meds</td>
<td>12</td>
</tr>
<tr>
<td>Discharge</td>
<td>11</td>
</tr>
<tr>
<td>Spotting</td>
<td>10</td>
</tr>
</tbody>
</table>

Between the services treating Triage patients, Figure 1 shows the breakdown of all calls. Women’s Health service had the most phone calls at 737 patient calls. This is consistent with information provided by our client regarding the overall volume of patients that each service provides. In order of largest volume to smallest they are: Women’s Health, UMOG (including high risk/diabetic patients), CNM, MFM, and FMB.
Figure 1 January-March Calls: All Services

There are a variety of reasons that patients call into Triage. To determine the main issues, we looked at the top 15 reasons that people called into Triage, which in total, account for 69% of all the calls coming into Triage. Figure 2 shows the issue and the number of calls relating to that particular issue. These top 15 reasons comprise over half of all calls (59%).
Figure 2. January-March Calls: Top 15 Most Common Reasons for Calling Triage excluding Miscellaneous

The most prevalent unnecessary reason for calling Triage is medicine questions. During the data collection period, 99 patients called regarding medications ranging from Tums and Tylenol to stronger antibiotics. The patient’s provider, rather than Triage could handle many of these calls; however, this is dependant on time of day and specific medicine question. In order to determine if these calls were appropriate, medicine questions were stratified by specific questions asked. As shown in Figure 3, questions about a cold were the most common.
In the book *You, Your Baby, and Us* information about common illnesses is given. We went through each medicine question category and determined if the information was already available in this book. Figure 4 shows that 63.6% of all calls received could have been answered by referencing *You, Your Baby, and Us*.

Figure 3. Types of Medicine Questions

In the book *You, Your Baby, and Us* information about common illnesses is given. We went through each medicine question category and determined if the information was already available in this book. Figure 4 shows that 63.6% of all calls received could have been answered by referencing *You, Your Baby, and Us*. 
Figure 4. Medicine Questions Answered in You, Your Baby, & Us

The next step was to determine the number of patients calling about medications by their service. Figure 5 shows 37.4% of the patients are coming from Women’s Health.

Figure 6 breaks down the Women’s Health patients into the provider. This figure shows that Szekely has 7 patients asking questions about the medications they can take.
Figure 5. January-March Calls: Medicine Questions by Service

Figure 6. January-March Calls: Medicine Questions-Women's Health by Provider
Figure 7 divides the patients from Women's Health calling regarding medicine into trimester they were when they called. The most calls for medications occur during the third trimester of pregnancy, but the first and second trimesters have similar percentages to each other.

![Pie chart showing trimester distribution of calls](image)

**Sample Size: 37**  
**Source: All WH medicine calls**

**Figure 7. January-March Calls: Medicine Questions-Women’s Health by Trimester**

**Total Time Nurses Spend a Patient Phone Call**
In addition, a group of nurses were selected by our client and asked to record how much time they spend on a particular phone call and charting the call in Trace Vue. This data was used to determine how much time the nurses were wasting due to unnecessary phone calls. We received 17 phone calls with this data. In total 148 minutes were spent on the patients between the call and Trace Vue. The average time a nurse spent with a particular patient phone call was 8.7 minutes and this includes the amount of time spent on Trace Vue.

**Necessary vs. Unnecessary**
After analyzing a random sample of 543 calls out of the 2,812 recorded, a perinatal clinical nurse specialist determined that 39.3% of these calls were actually for unnecessary reasons. These decisions were made using her expert knowledge and considering the seriousness of the issue as it was recorded. Once all of the calls that came in on a Saturday, Sunday or after normal business hours were eliminated, the total number of unnecessary calls that should have not occurred is 82. This means that 18% percent of the entire random sample considered was deemed unnecessary by a clinical
specialist. As seen in Figure 8, the majority of these calls were for issues such as medicine questions, postpartum questions and pain.

In addition to the 39% of calls that are considered unnecessary (see Figure 9), an additional 8%, although considered a necessary issue for seeking treatment, should have been directed towards a patient's health center and not Triage. As seen in Figure 10, 47% of all calls analyzed in the random sample were for issues that could have been handled by a health clinic as determined by a clinical nurse specialist.
Figure 9. Unnecessary vs. Necessary Calls (Random Sample)

Figure 10 Health Center vs. Triage Issue
Although, 53% of the phone calls received could have been handled by the health center, some of these calls occurred when the health center was not open. Therefore, these calls were also deemed necessary. The percentage of unnecessary calls during non-business hours was 54.9% (Figure 11). Once eliminating these calls occurring during non-business hours, the number of inappropriate calls to Triage is 114 calls.

Visit to Triage
Visit data were recorded only for the month of March. During March, the clerks added extra information for data collection. Not only did they record the patient's Service, but they also added the Obstetrics Physician or Midwife. Additionally, they recorded if the patient had called before deciding to come to Triage. Please see Appendix 3 for the sample Visit Log.

First, the visit data was stratified by the patient's trimester on the date they arrived into Triage (Figure 12). About 76% of the patients were in their third trimester when they came to Triage.

The patient's were then divided into their services. Figure 13 shows the majority of patients are in the Women's Health Service, totaling 175 patients.
Figure 12. March Visits: Patients by Trimester

Figure 13. March Visits: Patients arriving to Triage from the above Services
Each visit was labeled with a short issue for the purpose of identifying and segmenting the reasons patient’s visit Triage. The top 10 reasons are located in the Figure 14. This figure shows the majority of women (54.8%) visit Triage to rule out labor (ROL).

Figure 14. March Visits: Top 10 Most Common Reasons for Coming to Triage

To see other important issues, ROL was taken out of the graph. Figure 15 shows the next 13 most common issues for visiting Triage. This number was chosen due to the same number of patients for some issues.
Using Figure 13, the majority of patients come from the Women’s Health services, the team looked at which physicians have the most patients coming into Triage. Figure 16 shows the number of patients by each physician or midwife. During the month of March, Szekely had 33 patients come to Triage.

Figure 15. March Visits: Common Reasons for Coming to Triage Not Including ROL
Figure 16. March Visits: Women's Health Physicians and Midwives

The days of the week that patients are coming into Triage were examined. As seen in Figure 17, Wednesday is the busiest day, on average, for Triage with 18.5% of the patients coming in.

After the busiest day was determined, patient volumes in Triage throughout any given day were determined. Many services are open 7:00 am – 5:00 pm, therefore, when breaking up a 24 hour day into four hour blocks we began with 7:00 am. The first block begins at 7:00 am. Figure 18, shows that 24.1% of the patients arrive between 7pm and 11pm.
Figure 17. March Visits: Bar Chart by Days of the Week

Comment: Please show bar chart - so you can see the flow throughout the week

Figure 18. March Visits: Time Blocks Patients Enter Triage Lobby
The next step was to integrate the data above and determine on the busy days what times patients come in. Figure 19 shows the times on Wednesday, Thursday, and Friday. Unlike the previous graph, there are a larger percentage of women coming into Triage during normal service business hours.

Figure 19. March Visits: Time Blocks Patients Enter Triage (Wednesday, Thursday, and Friday only)

Correlating Calls and Visits into Triage
For the month of March, we recorded visits along with calls to determine whether or not patients are coming into OB Triage without calling first. The data for March was only collected from March 1 through March 21, and the connecting data (visits and calls) were only used through March 16 due to missing information and errors from March 17 to March 21. For analysis reasons, it was necessary for all points included in the analysis to contain the date, time of call or visit, and patient identification number. We were then able to correlate calls and visits by patient identification number. The total number of calls and visits recorded in March were 466 and 347, respectively.

By inputting our data into Microsoft Access and developing queries to link patient identification numbers across visits and calls, it was found that of 126 of 347 patients had called at least once before coming into OB Triage for treatment. Figure 20 shows that 36% of patients call before they come in.
Total calls and visits for March were also segmented by day of the week. The highest visit volumes occurred between Wednesday and Friday, and calls were randomly distributed throughout the week. Monday, Friday, and Saturday had much higher call volumes than visit volumes. Figure 21 shows the average number of calls and visits per day in March. It can be seen from this graph that visit volumes peak mid-week and taper off throughout the weekend.

**Table 4. March Calls and Visits by Day of the Week**

<table>
<thead>
<tr>
<th>Day</th>
<th>Total Calls</th>
<th>Total Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>68</td>
<td>36</td>
</tr>
<tr>
<td>Tuesday</td>
<td>57</td>
<td>49</td>
</tr>
<tr>
<td>Wednesday</td>
<td>63</td>
<td>64</td>
</tr>
<tr>
<td>Thursday</td>
<td>66</td>
<td>63</td>
</tr>
<tr>
<td>Friday</td>
<td>80</td>
<td>58</td>
</tr>
<tr>
<td>Saturday</td>
<td>85</td>
<td>39</td>
</tr>
<tr>
<td>Sunday</td>
<td>47</td>
<td>38</td>
</tr>
</tbody>
</table>
To categorize our results further we then combined call and visit analysis by day, and the whether the patients called or did not call before visiting OB Triage. Narrowing down the search shows a major discrepancy between patients calling before and not calling before visiting OB Triage on Sunday. Figure 22 below shows this data. Many more patients came in without forewarning the department. On the other hand, more patients called before coming in versus those not calling on Monday.
Visit volumes are greatest for Wednesday through Friday and this is shown above; however, the number of patients who initially called is relatively consistent throughout the entire week.

Visits for March data were then sectioned off by the time patients entered the OB Triage lobby. Times were divided into six four-hour blocks (Figure 23).
Figure 23. March Visits and Calls: Time Blocks by Whether Patient Called or Not

This chart shows roughly that the time of day when most patients’ call before coming in is from 7:00pm – 11:00pm. The greatest number of patients arrived in the lobby during the time slot of 3:00pm – 7:00pm.

Based on the number of total visits by call time, the largest percentage of patients who call before coming in is in the time block of 3:00pm – 7:00pm at 25%. Additionally, the lowest are from 7:00pm – 11:00 pm (16%).
Recommendations

Since 32% of all calls and 76% of all visits come during a women’s third trimester, it would be beneficial to have a third trimester consultation focusing on education. Understandably, most women needing Triage treatment are in their third trimester, but a mid-pregnancy information session could be helpful in acquainting and reacquainting a patient with what may happen during this time. It is likely that a patient who receives this information at the beginning of her pregnancy may forget those things that may happen six months down the road. A third trimester consultation held by a nurse may even be able to happen with a group of women so that nurses don’t become overburdened with a large increase in tasks to perform and it will not only eliminate some unnecessary calls, but it will also help to improve quality patient care.

Another suggestion to eliminate some unnecessary calls that come into Triage to provide stickers with a patient’s specific provider’s information on the front cover of You, Your Baby, and Us. This sticker should contain information such as a patient’s health center, provider, phone number and hours that the health center is open. If a patient sees their Health Center’s information at first glance, they will be more likely to call there instead of having Triage be their first instinct. A sample sticker may look something like the one in Figure 24 below.

Figure 24. Sample Provider Sticker

The 5th most common reason for a phone call to Triage is women inquiring about medications that they can or cannot take. Figure 2 in the Calls into Triage section shows the breakdown of the types of medicines that patients are calling about and one can see that questions about cold medicines occur the most frequently. Upon becoming a patient with The University of Michigan Health Center, a pregnant woman is given the book You, Your Baby, and Us which is organized by trimester and contains information pertinent to pregnancy issues. Surprisingly, the answers to 64% of all calls regarding medicine are found in this book. It is possible that women do not look in this book prior to calling Triage, or they look and are unable to find the answers to their questions because the information is embedded in paragraphs of text.

Considering this information, we suggest a quick-reference chart depicting symptoms, safe medications, and a page reference for more detailed information on the issues and specific treatments allowed. A sample of this reference table can be seen in Table 5.
Some other information that may be helpful to include on this chart are a column for which trimester these medicines are safe (if it varies) and if a patient should immediately contact a physician based on the symptoms that they have. As a means of implementing this recommendation promptly, it is possible to just put this information on a sheet as an insert in *You, Your Baby, and Us*.

**Table 5. Sample Quick Reference Medicine Table**

<table>
<thead>
<tr>
<th>Common Illnesses</th>
<th>Safe Medications</th>
<th>Page References</th>
<th>What to Expect When You Are Expecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal congestion</td>
<td>Sudafed</td>
<td>12-13</td>
<td>321-322</td>
</tr>
<tr>
<td>Common coughs</td>
<td>Robitussin, Vicks, all plain cough syrups</td>
<td>12-13</td>
<td>321-322</td>
</tr>
<tr>
<td>Aches, pains, temperatures over 100.6°</td>
<td>Tylenol</td>
<td>12-13</td>
<td>321-322</td>
</tr>
<tr>
<td>Diarrhea continuing longer than 24 hours</td>
<td>Kapectate</td>
<td>20</td>
<td>------</td>
</tr>
<tr>
<td>Heartburn/indigestion</td>
<td>Tums</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Future Project Ideas**

Since the Women's Health service treats the most patients and had the largest impact on Triage, a more in-depth analysis of this service may be able to show where a breakdown in communication occurs which results in women calling or visiting Triage unnecessarily.

Additionally, patient interviews may provide more insight into why patients are calling or coming in unnecessarily. It is very possible that there are specific issues that they feel uncertain about, but if known, they would not have even picked up the phone to Triage. OB Triage strives to maintain the best patient care possible, and through individual conversations with patients, it is likely that further recommendations for improvement will surface.
Appendix A: Triage Flow

Source: OB Triage Observations

Date: 2/28/06
Appendix B: Patient Flow

Source: OB Triage Observations

Date: 3/2/06
Appendix C: Sample Interview Questions

We began all interviews with a brief explanation of our project and project goals.

1. Do you get the sense that patients are calling and/or coming in unnecessarily to Triage?

2. Do you feel you could identify whether or not a patient is coming in for an unnecessary reason?

3. What do you feel are the top calls for coming in? Top calls for calling?

4. Where (if any) do you feel there is a breakdown in the process of patient flow leading to unnecessary calls and/or visits?

5. Are there any suggestions you have to help improve the patient flow into Triage?

6. What are your overall perceptions of Triage? Do you ever feel overwhelmed while working?

7. What is your opinion of TraceVue? How do you feel this implementation has affected Triage?

Source: Team Notes
Date: 3/06
Appendix D: Sample Visit Log

Source: OB Triage

Date: 3/06
Appendix E: Sample Call Log

Source: OB Triage
Date: 3/06