Patient Satisfaction as a Function of Emergency Department Previsit Expectations

Ghazwan Toma, MD, MPH
Wayne Triner, DO, MPH
Louise-Ann McNutt, PhD

From the Albany Medical College, Department of Emergency Medicine (Triner), University at Albany, School of Public Health (Toma, Triner, McNutt), Albany, NY.

Study objectives: This study measures the effect of meeting emergency department (ED) patients’ expectations for diagnostic and therapeutic interventions on patient satisfaction.

Methods: This was a cross-sectional study of consecutive patients during block enrollment periods surveyed at the beginning and end of their ED visits. On arrival patients or their surrogates were surveyed about the specific interventions they expected during their visit. After completion of ED care, they were surveyed about their level of satisfaction with the entire encounter, assessment of their provider’s interpersonal skills, impression of time spent waiting in the ED, and perceived waiting time. Satisfaction was assessed with categorical responses. The degree of concordance of interventions expected and interventions provided was analyzed to determine their effect on overall ED visit satisfaction.

Results: Nine hundred eighty-seven patients presented during enrollment periods, 821 met inclusion criteria, and complete data were collected on 504 patient encounters. Twenty-nine percent had no previsit expectations of diagnostic or therapeutic interventions, 24% had a single reported expectation, 47% had multiple intervention expectations. After adjusting for potential confounders, we could not demonstrate a relationship between fulfillment of expectations and satisfaction. We did find a very strong relationship between highly ranked provider interpersonal skills and ED satisfaction (probability ratio of being “very satisfied” 8.6; 95% confidence interval 4.7 to 15.6). Other factors associated with high ED encounter satisfaction were adequate explanations for waiting times and perception of total time in the ED.

Conclusion: Overall satisfaction was strongly correlated with patient’s assessment of the physician’s interpersonal skills and was not correlated with whether the physician had met expectations about diagnostic and therapeutic interventions. [Ann Emerg Med. 2009;54:360-367.]
patient expectations. For example, in a clinic setting with presumably well-established physician-patient relationships, treating physicians overestimated their patients’ expectation of antibiotics for upper respiratory infections.\textsuperscript{14,15} It is poor medical practice to provide unnecessary care, and particularly dysfunctional if mistakenly done so to enhance patient satisfaction.

Goals of This Investigation
The goal of this study was to determine the contribution of meeting patient’s previsit diagnostic and therapeutic expectations to overall satisfaction with an ED visit. We also sought to determine the relative effect of factors that other investigators have shown to influence satisfaction.\textsuperscript{1-6}

MATERIALS AND METHODS
Study Design
We performed a cross-sectional study of patients during their visit to an ED. This study was approved by the sponsoring facility’s institutional review board.

Setting
Our study was carried out in the ED of an urban academic teaching hospital with an emergency medicine residency. This ED has an annual census of 65,000 patient visits, with an admission rate of 20%. The hospital is a trauma and pediatric center for a population of 2.4 million urban, suburban, and rural inhabitants.

Selection of Participants
The study population consisted of consecutive patients treated in the ED during periods of block enrollment between June and September 2006. Blocks were defined by proportional allocation of discrete areas within the ED, as well as day, evening, week, and weekend periods. We excluded prisoners, the critically ill or injured, those who chose not to participate, and those who were unable to effectively communicate because of language. If a patient was unable to provide the necessary data (children, cognitively impaired, language barrier) and was accompanied by someone who could complete the collection of data, the person accompanying the patient, if willing, was used as a surrogate for the patient. We had no occurrences of repeated sampling of the same patient on different visits. We designed our survey to be anonymous and self-administered by the patient or their accompanying surrogate. If a respondent or patient required assistance in completing the survey, a research associate was available to help. The survey was developed and piloted during 16 hours of data collection. The effectiveness and readability of the survey were determined by the amount of input required of the research associate and incomplete responses on the survey. There were no formal outcome measures used for evaluating the instrument during the trial, but areas requiring clarification were identified and modifications were made. Our third draft appeared to be readable and required little input from the researchers for respondents to complete. Data collected with the third draft was included in our study analysis because this draft became the final survey instrument. Data were collected by one of the authors (G.T.) and trained research associates. ED providers were aware that a survey was taking place but were not aware of the nature of the survey.

Data Collection and Processing
For each patient visit, we collected data in 3 phases: patient expectations immediately on entry to the ED, patient impressions measured immediately after completion of care, and retrospective chart review. The initial contact took place before any encounter with a physician, nurse practitioner, or physician’s assistant. During this period, the patient or his or her representative was surveyed to determine demographic features and specific expectations of diagnostic and therapeutic interventions. Responses were collected categorically (not sure, none, blood test[s], urine test[s], stool test[s], EKG, radiograph[s], ultrasonogram, computed tomography scan, magnetic resonance imaging, or specialty consultation, pain medications, medicine specific to your condition [e.g., inhaled bronchodilators], antibiotics, intravenous fluids, hospital admission).

Shortly after completion of ED care and before discharge or transfer to an inpatient unit, participants were surveyed to determine their overall satisfaction with the ED visit and other
elements shown to be associated with satisfaction. These included satisfaction with the diagnostic and therapeutic procedures done in the ED, physician interpersonal skills, explanation of diagnosis and management, total time spent in the ED, explanation of the excessive waiting time (if any was perceived), and the perceived time spent by the provider with the patient. These responses were collected with a 5-point categorical scale (anchored by 1 = very satisfied and 5 = very dissatisfied). We also asked the patients whether they believed that they received unnecessary diagnostic or therapeutic interventions. The survey instrument is available in Appendix E1 (available online at http://www.annemergmed.com).

Finally the ED medical record was reviewed shortly after the respondent left the ED to determine what interventions were performed or were scheduled through the ED. If questions arose, the patient’s provider was approached to verify information from the chart. Other information collected from the chart included day of week and shift of the visit, the time spent in the ED from triage to disposition, the final patient disposition, and diagnostic category (medical or surgical).

The sample size estimation was derived on a bivariate association between “expectation(s) met,” and being “highly satisfied” with the visit. We wanted a sample size sufficient to detect a modest strength of association that the probability of being highly satisfied when expectations were met would be 1.5 times higher than when expectations were not met. Our assumptions for carrying out the sample size calculation were that the probability of reporting “highly satisfied” with the ED visit would be 50% in the group with expectations met ($P_1 = .5$) and 33% in the group without met expectations ($P_2 = .33$). Assigning an $\alpha$ of .05 and seeking a power of 0.8, we calculated that we would require 143 patients per group. Anticipating effect modification and allowing for variations in percentage of patients whose expectations were entirely met, we planned to enroll 500 patients.

**Primary Data Analysis**

Data were entered into an EpilInfo (version 3.5; Centers for Disease Control and Prevention, Atlanta, GA) and imported into a SAS database (version 9.0; SAS Institute, Inc., Cary, NC). Our principle outcome measure was the level of satisfaction with the ED visit. From review of internal reports, we expected substantial patient satisfaction and thus planned to dichotomize satisfaction to “very satisfied” and “other.” Our analysis was designed to assess the association between expectations for interventions and overall satisfaction with the ED visit. Detailed bivariate analyses were conducted because expectation of interventions was a complex derived variable. First, the association for those expecting each specific intervention (regardless of other expectations) and satisfaction was computed. Second, the association between those expecting each specific intervention and satisfaction was computed, stratified by the number of interventions expected (0, 1, 2, 3, >3). Third, for those expecting 2 or 3 interventions, we reviewed the association between each exact combination of expectations and satisfaction. Although the numbers became very small, we focused on whether there was consistency in the direction of association or whether the relationship changed when different expectation combinations were viewed. We also looked for any evidence of effect modification. Although we had insufficient power to statistically detect effect modifiers that were not very strong, we visually inspected the data to identify evidence for moderate modification; none was observed.

According to the findings, a summary of 2 perspectives was developed. First, for those who had only 1 expectation, the association between meeting the expectation and satisfaction for each specific expectation was studied. We then studied the association of satisfaction in meeting the expectation for all patients with any single expectation. Second, we studied the association of meeting the proportion expectations met with satisfaction in persons expressing multiple expectations.

To assess the association between expectations met and overall ED satisfaction adjusted for potential confounders, we developed a model based on the satisfaction literature. Factors included in the model were proportion of total expectations met (100%, 50% to 99.9%, 0.1 to 49.9%, 0%), and the following potential confounders: day and shift (8 AM to 4 PM Monday to Friday, 4 PM to 8 AM Monday to Thursday, 4 PM Friday to 8 AM Monday), respondent (defined as either the patient, parent of a minor, or other), patient sex (male, female), age of respondent (18 to 21, 22 to 35, 36 to 50, 51 to 65, >65 years), race of respondent (white, black, Hispanic, other), health insurance (private insurance, no insurance, Medicare, Medicaid), education of respondent (high school and less, more than high school), and final patient disposition (admitted, discharged, other). Originally, a log-binomial model was selected for the analysis because the outcome (patient satisfaction) is mathematically common and thus the adjusted prevalence ratio must be estimated directly and not with an adjusted odds ratio (as is done with logistic regression). Because the log-binomial model did not converge, we analyzed the data with Poisson regression. The Poisson model with robust variance estimates also provides adjusted prevalence ratios with reasonable confidence intervals and test statistics. Our analysis of the proportion of expectations met as a predictor of satisfaction was carried out only on those expressing at least 1 expectation. Significance was defined with an $\alpha$ of 0.05. Interaction terms were not included in the model because descriptive assessment of the data did not identify strong candidates and the sample size was not sufficient to identify modest effect modification. Model fit focused on the primary exposure factor of interest (proportion of total expectations met) and influence measures. Each covariate pattern was dropped individually and the model parameters were estimated to determine whether any individual or small group of individuals had undue influence on the estimated strength of association between expectations and satisfaction. None were observed. The similarities between estimated unadjusted prevalence ratios and adjusted prevalence ratios, and similarities between predicted
probabilities and observed probabilities for covariate patterns with substantial numbers, suggested the model reasonably fit the data. All analysis was carried out with SAS version 9.0.

**RESULTS**

**Characteristics of Study Subjects**

There were 987 patients who came to the ED during 343 data collection hours; 821 (83%) met inclusion criteria and 504 (61%) participated in the study and had complete records (Figure). The characteristics of the study population and the presence or absence of expectations are shown in Table 1. Among all the respondents in the study, 29% reported having no expectations, 24% expected 1 diagnostic or therapeutic intervention, 26% expected 2 interventions, 11% expected 3 interventions, and 10% expected more than 3 interventions in the ED. Hispanics appeared to have had fewer previsit expectations. Of the 357 expressing at least 1 expectation, the most commonly mentioned diagnostic intervention was a blood test, followed by radiographs. Pain medicine was the most commonly expected therapeutic intervention.

The distribution of overall satisfaction scores among the 504 respondents was 50% “very satisfied,” 41% “satisfied,” 4% “neither satisfied nor dissatisfied,” 3% “dissatisfied,” and 2% “very dissatisfied.” Forty-six percent of those who did not expect any interventions in the ED reported being “very satisfied,” whereas 51% of those who had expected at least 1 procedure were “very satisfied.” For those who expected only 1 diagnostic intervention, there was a suggestion of greater satisfaction when the expectation was met. There was no association between having a therapeutic intervention met and patient satisfaction. Although the numbers were small for specific expectations, there was nothing to suggest important associations (Table 2). There was no association with encounter satisfaction or absence of met expectations in those with multiple expectations. When specific combinations of expectations were explored (eg, radiograph and pain medication), we were unable to appreciate any association between receipt of expected interventions and satisfaction. However, the numbers involved with each combination were small.

---

**Table 1.** Characteristics of respondents, including presence or absence of diagnostic or therapeutic expectations.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total, No. (%)</th>
<th>Those Without Expectations (N=146), No. (%)</th>
<th>Those With Expectations (N=358), No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day and shift of patient presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 AM to 4 PM (Mon. to Fri.)</td>
<td>257 (52)</td>
<td>70 (27)</td>
<td>187 (73)</td>
</tr>
<tr>
<td>4 PM to 8 AM (Mon. to Thu.)</td>
<td>91 (18)</td>
<td>24 (26)</td>
<td>67 (74)</td>
</tr>
<tr>
<td>4 PM Fri. to 8 AM Mon.</td>
<td>149 (30)</td>
<td>50 (34)</td>
<td>99 (66)</td>
</tr>
</tbody>
</table>

| Respondent                         |                |                                             |                                        |
| Patient                             | 384 (78)       | 107 (28)                                    | 277 (72)                               |
| Parent                              | 79 (16)        | 25 (32)                                     | 54 (68)                                |
| Other                               | 31 (6)         | 11 (35)                                     | 20 (64)                                |

| Sex of the respondent               |                |                                             |                                        |
| Male                                | 201 (40)       | 61 (30)                                     | 140 (70)                               |
| Female                              | 296 (60)       | 83 (28)                                     | 213 (72)                               |

| Age of the respondent, y            |                |                                             |                                        |
| 18–21                               | 46 (9)         | 15 (33)                                     | 31 (67)                                |
| 22–35                               | 193 (39)       | 62 (32)                                     | 131 (68)                               |
| 36–50                               | 153 (31)       | 38 (25)                                     | 115 (75)                               |
| 51–65                               | 70 (14)        | 20 (29)                                     | 50 (71)                                |
| >65                                 | 35 (7)         | 11 (31)                                     | 24 (69)                                |

| Race of the respondent              |                |                                             |                                        |
| White                               | 298 (60)       | 93 (31)                                     | 205 (69)                               |
| Black                               | 143 (29)       | 32 (22)                                     | 111 (78)                               |
| Other                               | 28 (6)         | 8 (29)                                      | 20 (71)                                |
| Hispanic                            | 28 (6)         | 13 (46)                                     | 15 (54)                                |

| Primary health insurance of patient |                |                                             |                                        |
| Medicaid                            | 145 (29)       | 42 (29)                                     | 103 (71)                               |
| Medicare                            | 62 (12)        | 21 (34)                                     | 41 (66)                                |
| Private insurance                   | 228 (46)       | 60 (26)                                     | 168 (74)                               |
| No insurance                        | 60 (12)        | 23 (38)                                     | 37 (62)                                |

| Education level of respondent       |                |                                             |                                        |
| High school and less                | 229 (46)       | 73 (32)                                     | 156 (68)                               |
| More than high school               | 266 (54)       | 71 (27)                                     | 195 (73)                               |

Bivariate analysis of the proportion of expectations met (in those with more than 1 expectation) did not show an association with satisfaction. Those provider factors associated with being “highly satisfied” included highly ranked interpersonal skills, clarity of explanation of the diagnosis, satisfaction with total ED time, and satisfaction with the time spent by the physician. On the other hand, the respondent factors of black race, Medicaid as primary insurance, admitted patients, and failure to complete high school were all associated with less satisfaction. The timing of presentation, whether the patient or a surrogate was surveyed, sex, and age had minimal or no association with satisfaction (Table 3).
<table>
<thead>
<tr>
<th>Expected diagnostic interventions</th>
<th>Single expectation, N = 122</th>
<th>One or more expectations, N = 357</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number for Whom Expectations Were Met</td>
<td>Expectation Met, No. (%)</td>
</tr>
<tr>
<td>Blood</td>
<td>11</td>
<td>3 (43)</td>
</tr>
<tr>
<td>Radiograph</td>
<td>17</td>
<td>10 (83)</td>
</tr>
<tr>
<td>Urine</td>
<td>4</td>
<td>2 (33)</td>
</tr>
<tr>
<td>CT scan/magnetic resonance imaging</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Only 1 expectation</td>
<td>47</td>
<td>20 (64)</td>
</tr>
<tr>
<td>EKG</td>
<td>3</td>
<td>3 (100)</td>
</tr>
<tr>
<td>Consultation</td>
<td>3</td>
<td>1 (50)</td>
</tr>
<tr>
<td>Other (diagnostic)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Ultrasonography</td>
<td>5</td>
<td>2 (50)</td>
</tr>
<tr>
<td>Stool</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Only 1 expectation</td>
<td>47</td>
<td>20 (64)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected therapeutic interventions</th>
<th>Single expectation, N = 122</th>
<th>One or more expectations, N = 357</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number for Whom Expectations Were Met</td>
<td>Expectation Met, No. (%)</td>
</tr>
<tr>
<td>Pain medicine</td>
<td>23</td>
<td>10 (53)</td>
</tr>
<tr>
<td>Specific medicine</td>
<td>22</td>
<td>8 (38)</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>20</td>
<td>7 (64)</td>
</tr>
<tr>
<td>Intravenous fluid</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>4 (100)</td>
</tr>
<tr>
<td>Only 1 expectation</td>
<td>75</td>
<td>29 (52)</td>
</tr>
<tr>
<td>Hospital admission</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Only 1 expectation</td>
<td>75</td>
<td>29 (52)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnostic or therapeutic expected interventions</th>
<th>Single expectation, N = 122</th>
<th>One or more expectations, N = 357</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 1 expectation</td>
<td>122</td>
<td>49 (56)</td>
</tr>
</tbody>
</table>

CT, Computed tomography.

*Bivariate analysis of receiving or not receiving specific expectation with being “very satisfied.”
Multivariable analysis with Poisson regression also showed that the proportion of expected diagnostic or therapeutic interventions received did not improve the probability of a respondent reporting being “very satisfied” with the ED encounter (Table 3).

LIMITATIONS

Because we excluded patients deemed too ill to participate, our findings may not be valid for this group. Similarly, patients with inability to express themselves were also not sampled in our project. This subset of patients
would generally be expected to report lower scores on satisfaction.

Measurement of ED patient satisfaction is a complex endeavor. There are no widely accepted and validated instruments. Our measure of overall satisfaction was crude and may not fully capture all nuances of satisfaction. Nevertheless, our surveyed outcome measure resulted in findings similar to those of previous studies, including a skewed distribution toward high satisfaction and an association with provider interpersonal characteristics.

Although our sample size may be inadequate to detect a small association between meeting patient expectations for diagnostic and therapeutic interventions and satisfaction, we believe that it was adequate to detect an important association.

Last, we did not record provider-level characteristics and thus could not adjust for clustering of provider demographics. This likely resulted in smaller variances than would have been estimated had clustering been taken into account.

DISCUSSION

This study provides evidence that although patients often present to an ED with pre-established diagnostic or therapeutic expectations for care, the effect of meeting these expectations is not associated with overall ED visit satisfaction. The features that showed meaningful influence on satisfaction were the respondent’s report that they were “very satisfied” with the provider’s interpersonal skills, receiving an explanation for time spent in the ED, receiving an explanation of the medical condition, and the perceived time the physician spent with the patient. The age, race, insurance status, and education levels of the respondent had a demonstrable, but possibly clinically insignificant, effect on satisfaction.

We found, not surprisingly, that satisfaction is increased as perceived waiting times are reduced. Interestingly however, estimates of waiting time by patients may not be accurate.16,19,20 Our study reaffirms the findings that satisfaction is linked to waiting times and that adequate explanation for waits may be rewarded with higher encounter satisfaction.

Education and insurance status, often considered surrogates of socioeconomic status, were strongly correlated with satisfaction. As those before us have found, markers of lower socioeconomic status were associated with lower satisfaction scores.21-24 Additionally, ethnic discordance between patients and providers has been linked with lower encounter satisfaction.25 As is the case with most health care delivery settings, our provider group was heavily skewed toward nonblack and non-Hispanic ethnicities. Furthermore, our health care providers reside in the middle to upper middle socioeconomic strata. Though we did not demonstrate this, age may also be a factor in determining level of satisfaction. In our study, those aged between 18 and 21 years demonstrated a trend toward expressing lower satisfaction with their ED encounter.

The characteristics most associated with high satisfaction with ED care were highly ranked provider interpersonal skills, explanation of the medical condition, and the length of time the provider spent with the patient, each a measure of the effectiveness of communication during the ED visit. Although, by design, we did not measure a provider effect in this study, differences in communications skills among providers likely affect satisfaction. This is important because interpersonal and communication skills can be enhanced through experience, training, and feedback.26-30

The findings of this study suggest that investing in the development of interpersonal and communication skills would be one way to improve patient satisfaction with ED encounters. The act of ordering diagnostic or therapeutic interventions, beyond those indicated for the presenting medical conditions, does not appear to be fruitful in achieving this goal.

REFERENCES


APPENDIX E1. Albany Medical Center patient satisfaction survey.

Introduction:
We are carrying out a survey in the emergency department dealing with patient satisfaction. We would like to ask you some questions now and again when you are near the end of your emergency department visit. Your total time to participate should be about 5 to 10 minutes.

The purpose of this survey:
To assess your satisfaction based upon your expectations of the care you will receive while in the emergency department. We are also looking at the factors that influence your satisfaction. Thus, ultimately, formulating recommendations that can be applied to improve quality of medical care and patient satisfaction in the emergency department.

Your providers will not be aware of your responses to this survey. Participating in the survey will not influence the care that you receive while you are in the emergency department and your care will not be influenced if you choose not to participate in this study.

✈ Section 1 - questions at the ED entry:

1- Day of Week: M T W Th F Sa Su  Shift: Day Evening Night
2- Whose is answering: patient parent spouse adult offspring
                           friend medical caretaker other

3- Age of patient:
   □ 6-12
   □ 13-17
   □ 18-21
   □ 22-35
   □ 36-50
   □ 51-65
   □ > 65

4- Age of the respondent (if not the patient himself):
   □ 18-21
   □ 22-35
   □ 36-50
   □ 51-65
   □ >65
5- Race of the respondent:
- White
- African American
- Hispanic
- Asian
- Other
- Choose not to specify

6- Type of health insurance of the patient:
- Medicaid
- Medicare
- Private insurance
- No insurance
- Other

7- Level of education of the respondent:
- Less than high school
- High school
- Some college
- College graduate
- Post graduate
- Choose not to specify

Patient’s expectations about the ED management:

9- Do you have any expectations about what kinds of investigations you will receive in the ED?
- Yes
- No

10- If yes, what investigations do you think you will receive?
- Blood test(s)
- Urine test(s)
- Stool test(s)
- EKG
- X-ray(s)
- Ultrasound
- CAT scan or MRI
- Specialty consultation
- Other:__________
11- Do you have expectations about what kinds of treatment and medications you will receive in the ED?  
Yes  No

12- If yes, what kinds of treatment and medications do you think you will receive?  
- Pain medications  
- Medicine specific to your condition  
- Antibiotics  
- IV fluids  
- Hospital admission  
- Others: ____________________________

♡ Section II - Questions at the end of the ED visit:

1. Are you satisfied with the overall care you have received in the ED?  
1 2 3 4 5 6 7 8 9 10
Very dissatisfied  very satisfied

2- The total time spent in the ED was;  
Too long  long  about right  short  too short

3- The time you spent in the ED until you started to receive your initial treatment was;  
Too long  long  about right  short  too short

4- The time which the physicians spent with you to assess your condition?  
Too long  long  about right  short  too short

5- Have your expectations regarding overall management changed while in the ED?  
Yes  no  don’t know

6- If yes, were your expectations changed by the effect of other people in the ED?  
Yes  no  don’t know

6a- If yes to question 6, who changed your expectations?  
- Nurse  
- Physician  
- Other staff members  
- Others (patients and relatives … etc in the ED)

7- How clearly did your physician (or NP / PA) explain your condition and management?
8- Did the physician (or NP/PA) explain clearly and reasonably why you were waiting in the ED?
   Yes  no  don't know

9- The physician’s interpersonal skills and attitudes towards your illness and your opinions about the management?
   Very good
   good
   Neither good or poor
   poor
   Very poor

10- Your satisfaction with the physician’s diagnosis and/or treatment?
    Strongly satisfied
    Satisfied
    Neither satisfied or dissatisfied
    Dissatisfied
    Strongly dissatisfied

11- Do you think that you will follow their treatment and/or recommendations?
    Yes  no  don't know

12- Do you still think that some investigations should have been done but were not ordered?
    Yes  no  don't know

12a- If yes, what investigations do you still think were needed?
   Blood test(s)
   Urine test(s)
   Stool test(s)
   EKG
   X-ray(s)
   Ultrasound
   CAT scan or MRI
   Specialty consultation
   Other: __________________
13- Do you think that any investigations were unnecessary?
   Yes  no  don’t know

13a- If yes, what was unnecessary?
   - Blood
   - Urine tests
   - EKG
   - X-ray
   - Ultrasound
   - CAT scan or MRI
   - Specialty consultation
   - Other(s):

14- Do you still think that some treatment should have been given but was not?
   Yes  no  don’t know

14a- If yes, what treatment that you needed did you not receive?
   - Pain medications
   - Breathing medications
   - Disease specific medications
   - Antibiotics
   - IV fluids
   - Hospital admission

15- Do you think that the patient was given unnecessary treatment?
   Yes  no  don’t know

15a- If yes, what unnecessary treatment was given?
   - Pain medications
   - Medicine specific to your condition
   - Antibiotics
   - IV fluids
   - Hospital admission
   - Others:

16- The over all quality of care you received in the ED was:
   - Very good
   - good
   - Neither good or poor
   - poor
   - Very poor

17- Do you have any other comments and/or suggestions that can help the clinical practice at the ER?

Thank you so much for your time and cooperation which will help us to further improve our medical care in the ED.
Section III - Information from the patient’s ED charts

1- Triage category:

| 1 | 2 | 3 | 4 | 5 |

2- Primary ED diagnosis: ________________________________

Secondary ED diagnoses: ________________________________

3- Patient's final disposition:
- Discharged
- Left against medical advice
- AWOL
- Admitted
- Died

4- Patient's condition on disposition: Stable unstable critical

5- Investigations actually completed in the ED:
- Blood test(s)
- Urine test(s)
- Stool test(s)
- EKG
- X-ray(s)
- Ultrasound
- CAT scan or MRI
- Specialty consultation
- Other: ____________

6- Treatment actually received at the ED:
- Pain medications
- Medication specific to your condition
- Antibiotics
- IV fluids
- Hospital admission
- Others: ___________________________