

# Understanding communication between emergency and consulting physicians: a qualitative study that describes and defines the essential elements of the emergency department consultation-referral process for the junior learner

Teresa Chan, MD\*; Donika Orlich, MD\*; Kulamakan Kulasegaram, BHSc<sup>†</sup>; Jonathan Sherbino, MD, MEd\*

## ABSTRACT

**Objectives:** To define the important elements of an emergency department (ED) consultation request and to develop a simple model of the process.

**Methods:** From March to September 2010, 61 physicians (21 emergency medicine [EM], 20 general surgery [GS], 20 internal medicine [IM]; 31 residents, 30 attending staff) were questioned about how junior learners should be taught about ED consultation. Two investigators independently reviewed focus group and interview transcripts using grounded theory to generate an index of themes until saturation was reached. Disagreements were resolved by consensus, yielding an inventory of themes and subthemes. All transcripts were coded using this index of themes; 30% of transcripts were coded in duplicate to determine the agreement.

**Results:** A total of 245 themes and subthemes were identified. The agreement between reviewers was 77%. Important themes in the process were as follows: initial preparation and review of investigations by EM physician (overall endorsement 87% [range 70–100% in different groups]); identification of involved parties (patient and involved physicians) (100%); hypothesis of patient's diagnosis (75% [range 62–83%]) or question for the consulting physician (70% [range 55–95%]); urgency (100%) and stability (74% [range 62–80%]); questions from the consultant (100%); discussion/communication (98% [range 95–100%]); and feedback (98% [range 95–100%]). These components were reorganized into a simple framework (PIQUED). Each clinical specialty significantly contributed to the model ( $\chi^2 = 7.9$ ;  $p$  value = 0.019). Each group contributed uniquely to the final

list of important elements (percent contributions: EM, 57%; GS, 41%; IM, 64%).

**Conclusions:** We define important elements of an ED consultation with input from emergency and consulting physicians. We propose a model that organizes these elements into a simple framework (PIQUED) that may be valuable for junior learners.

## RÉSUMÉ

**Objectif:** L'étude visait à définir les éléments importants des demandes de consultation aux services d'urgence (SU) et à élaborer un modèle simple du processus.

**Méthode:** De mars à septembre 2010, nous avons posé des questions à 61 médecins (21 urgentologues [urg.], 20 chirurgiens généralistes [CG], 20 internistes [int.], 31 résidents, et 30 médecins titulaires) sur la façon dont il faudrait enseigner le processus de consultation aux SU aux jeunes apprenants. Deux chercheurs ont examiné, chacun de leur côté, les transcriptions des groupes de discussion et des entrevues à l'aide de la théorie ancrée dans des données empiriques afin de générer un index de thèmes jusqu'à l'atteinte du point de saturation. Les divergences de points de vue ont été réglées par consensus, ce qui a donné lieu finalement à la formation d'un corpus de thèmes et de sous-thèmes. Toutes les transcriptions ont été codées en fonction de cet index de thèmes; 30 % des transcriptions ont été codées en double afin de déterminer le degré de convergence.

**Résultats:** Au total, 245 thèmes et sous-thèmes se sont dégagés de l'exercice. Le degré de convergence entre les

From the \*Division of Emergency Medicine, Department of Medicine, and †Health Research Methods Program, McMaster University, Hamilton, ON.

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**Correspondence:** Dr. Teresa M. Chan, McMaster Clinics Room 254, 247 Barton Street East, Hamilton, ON L8L 2X2; teresa.chan@medportal.ca.

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examineurs était de 77 %. Les thèmes importants du processus se sont établis comme suit: préparation et revue de l'exploration initiale par l'urgentologue (appui global: 87 % [plage: 70–100 % dans différents groupes]); détermination des parties intéressées (patient et médecins concernés) (100%); hypothèse sur le diagnostic (75 % [plage: 62–83 %]) ou question à l'intention du médecin consultant (70 % [plage: 55–95 %]); urgence (100 %) et stabilité (74 % [plage: 62–80 %]); questions du médecin consultant (100 %); discussion/communication (98 % [plage: 95–100 %]); et rétroaction (98% [plage: 95–100 %]). Ces éléments ont été réorganisés en une structure simple (PIQUED). Chaque spécialité clinique a joué un rôle important dans l'élaboration du modèle ( $\chi^2 = 7.9$ ; valeur  $p = 0.019$ ), et

chaque groupe a participé de manière particulière à l'élaboration de la liste définitive des éléments importants (pourcentage de participation: urg., 57 %; CG, 41 %; int., 64 %).

**Conclusions:** Nous avons défini les éléments importants du processus de consultation aux SU à partir de suggestions faites par des urgentologues et des médecins consultants et avons proposé un modèle d'organisation de ces éléments en une structure simple (PIQUED), susceptible d'être très utile aux jeunes apprenants.

**Keywords:** communication, consultants, emergency medicine, interphysician communication, referral and consultation

Consultations and referrals are an integral aspect of physician practice. For emergency physicians in North America, the consultation rate is approximately 38 to 40%, including both inpatient and outpatient referrals.<sup>1,2</sup> A systematic review revealed that there is a preponderance of opinion-based literature on this topic.<sup>3</sup> To date, only one other study has attempted to clarify the specifics of the consultation process,<sup>4</sup> and no study to date has specifically incorporated the views of residents in such an endeavour.

The purpose of this study was to determine the key elements of an emergency department (ED) consultation request and to use this information to develop an explanatory model to assist junior learners in understanding the process.

## **METHODS**

### **Study design**

This was a mixed-methods study that used semistructured interviews or semistructured moderated focus group discussions. Approval was granted by the Faculty of Health Sciences/McMaster University Research Ethics Board. All participants provided written, informed consent.

### **Study setting and population**

Our setting was the four academic teaching hospitals in Hamilton, Ontario. A convenience sample of resident and attending physicians from three services (emergency medicine [EM], general surgery [GS], internal medicine [IM]) was solicited through e-mail via a modified Dillman approach.<sup>5</sup> Recruitment requests were sent via e-mail to eligible faculty and residents.

A convenience sample of approximately 10 volunteers from each subgroup was recruited: 11 EM residents from a pool of 23 approached; the first 10 EM attending physicians from a pool of 67 approached; all 10 internists approached; and 10 general surgeons from a pool of 23 approached. Attending interviews were conducted in a one-on-one format, whereas resident questioning was conducted in focus groups of up to eight participants. All residents had completed at least their first year of residency (i.e., had to be at least in the second year of residency) and had to have worked in the ED environment (either as an EM resident or a resident performing ED consultations) within the last 12 months. Attending physicians had to have practiced on inpatient teams while taking ED consultation requests or in the ED within 6 months of the interview or focus group.

### **Study protocol**

The interview template was based on input from content experts and then piloted on a small sample of nonparticipating faculty members and residents. See Appendix 1 for the questions asked of both emergency and consulting physicians. Pilot participants' feedback was incorporated into the question list.

During a 6-month period from March to September 2010, interview and focus groups were conducted. The interviews or focus groups lasted between 20 and 96 minutes. These interviews were recorded, transcribed, and deidentified prior to analysis.

### **Data analysis**

The transcripts of the interviews were analyzed using grounded theory principles.<sup>6–9</sup> Transcripts were independently reviewed by two investigators (T.C., D.O.)

to create a single registry of codes until a saturation point was reached and no new codes were generated. Each list of codes was continuously and iteratively reviewed and merged by consensus into a final master registry. The complete data set was then coded by a single investigator using the master registry, producing an inventory of themes that comprise an ED referral.

Thirty percent of transcripts were coded by two investigators using the master code. The agreement was calculated between the coded transcripts. Disagreements were resolved by consensus.

The frequency of themes was calculated and analyzed. From each unique group, all items with over 60% endorsement were considered “important themes” and used for further analyses. We triangulated our findings further through comparison with other studies in the area.<sup>4,10</sup>

### Statistical analysis

To detect differences in priorities, the proportion endorsing “important themes” was compared across specialties and across levels of seniority using the Pearson chi-square test. All analyses were performed with SPSS version 17 (SPSS Inc, Chicago, IL).

## RESULTS

Sixty-one participants were recruited. Table 1 shows the demographics for the study participants. The average age of residents was 29.5 years, and the average age of attending physicians was 42.7 years. Males comprised 67% of the group. Forty transcripts (30 interviews of attending physicians; 10 focus groups) were coded, yielding 245 data points.

The agreement between the two investigators was 77%. There were 46 important themes, which were categorized into four key components and two modifiers. Components were defined as themes around content or substantive elements that added to the structure of consultation requests. Modifiers were subthemes that altered the behaviours of either the emergency physician or the consulting physician during the consultation process.

Table 2 shows the important themes endorsed by each specialty group; Appendix 2 shows the important themes endorsed by residents versus attending physicians. Overall, the elements determined as “important” for the referral-consultation process were as follows:

1. Components (substantive elements that added to the structure of consultation requests):
  - a. Initial preparation and review of initial work (e.g., investigations, management) (87% [ranging from 70 to 100% in different groups])
  - b. Clinical communication about involved parties (100%), including identification of involved parties such as the physicians and informing consulting physicians about the patient (100%) and the patient’s clinical case (100%)
  - c. Questions (100%), including the clinical question for the consulting physician (70% [range 55–95%]), hypothesis of the patient’s diagnosis (75% [range 62–83%]), and anticipating questions that might be asked by the consulting physician (84% [range 70–85%])
  - d. Discussion after the referral (98% [range 95–100%]), including topics such as giving feedback about the patient’s progress (98% [range 95–100%]), closing the loop (68% residents), feeding back to addressing mistakes (69%

**Table 1. Demographics of the participants**

Level of training	Overall	EM participants	GS participants	IM participants
Residents	31	11	10	10
Attending staff	30	10	10	10
Average age (yr)	36	35.2	38	35.5
Residents	29.5	30.5	29	29.2
Attending staff	42.7	40.2	47	41.1
Gender (%)	67 M	62	70	65
Residents	61 M	64	60	60
Attending staff	70 M	60	80	70

EM = emergency medicine; GS = general surgery; IM = internal medicine; M = male.

**Table 2. Important themes and subthemes and their endorsement by specialty group**

Theme/subtheme	Overall frequency (%) (n = 61)	Comparing by specialty: EM to consultants (GS, IM) (%)		
		Most frequent EM themes (n = 21)	Most frequent GS themes (n = 20)	Most frequent IM themes (n = 20)
Initial EM preparation	87	100	70	90
Investigations	51		60	
EP reviews	52	91		
Clinical communication about parties involved (physicians and patient)	100	100	100	100
ID of yourself	98		95	100
By your name	84	100	75	85
Rank (resident, AP)	75	91	65	80
Resident's service/AP	34	81		
Identify colleague	75		65	80
Let others introduce themselves	43	81		65
Identification of patient	82		75	75
Priority/stability	64	95		75
EP's hypothesis re: diagnosis	75	67	80	85
Pertinent clinical findings	93	62	100	100
Current vital signs	28	81		60
Summary of investigations	56		60	65
Confirms consultant will see patient	59	62	75	
Questions	98	95	100	100
Clinical question from EP	70	95		60
Reason for referral	54	71		
Timing of questions	84	62		100
After the EP finishes	52			70
Intercalated throughout encounter	44		65	65
CP asks questions	84	86	70	95
To clarify missing information	64		60	75
To ask more about patient	46			65
EP asks questions	57	76		
Discussion after the referral	98	95	100	100
Feedback	98	95	100	100
Closing the loop	59		60	65
EP displayed interest	67			75
To address/warn about a mistake	69			80
CP thought EP would like to know	49			80
To educate EP	66			70
To improve the process	62			70
To ask more information	39			60
Urgency expressed	100	100	100	100
Need directness for urgent case	64		85	70
States concern using verbal cues	74	62	80	80
Uses trigger words for urgent case	74	62	70	70
More information is needed on urgent case	77	71	70	90
Details on management initiated	48			70
CP acts when hearing urgent case	43	71		
CP attends quickly	39	67		
Educational modifications	80	100	80	60
To teach around the case	80	100	80	60
CP gives feedback to EM learner	74	71	70	80
EP supervises juniors making referrals	72	100	70	
EP observes learner	26	62		

**Table 2. Continued**

Theme/subtheme	Overall frequency (%) ( <i>n</i> = 61)	Comparing by specialty: EM to consultants (GS, IM) (%)		
		Most frequent EM themes ( <i>n</i> = 21)	Most frequent GS themes ( <i>n</i> = 20)	Most frequent IM themes ( <i>n</i> = 20)
EP gives feedback	49	81		
Altering expectations based on involvement of learner*	54			

AP = attending physician; CP = consulting physician; EM = emergency medicine; EP = emergency physician; GS = general surgery; IM = internal medicine.  
 Column 2 shows complete statistics for overall frequency of the responses, although each group shows only the statistics for any theme or subtheme that was deemed most frequent (reaching 60% frequency). All items on this final list reached 60% endorsement by one of the subgroups (IM, EM, GS) or overall.  
 \*This theme was endorsed by > 60% of residents (and therefore was important).

[range 67–71%]), and feeding back to educate the emergency physician (80% IM)

2. Modifiers (subthemes that altered the behaviours of either the emergency or consulting physician):
  - a. Urgency of the consultation (100%) and patient stability (74% [range 62–80%])
  - b. Educational modifications (72% [range 45–100%]), such as teaching around the case (80% [range 60–100%]), the supervision of the learner making the consultation by the emergency physician (62% EM), and the incorporation of teaching from the consulting physician to the junior EM learner (74% [range 61–87%])

### **Differences between clinical specialties**

There was a significant difference between the three specialties in their endorsement of important codes ( $\chi^2 = 7.9$ , *df* = 1, *p* = 0.02). The differences in distribution between residents and attending physicians were also found to be statistically significant ( $\chi^2 = 11.8$ , *df* = 1, *p* = 0.001). These findings suggest that all specialties, residents, and attending physicians uniquely contributed to the final model. The percentage of contributions to the final index of themes by each specialty was EM, 57%; GS, 41%; and IM, 64%.

Specifically, the GS group differed from the IM group in the proportion of endorsement for important codes ( $\chi^2 = 9.9$ , *df* = 1, *p* = 0.002). Some examples of differences included providing feedback from consulting physicians to EM (70% GS v. 45% IM) and the necessity of summarizing all the investigations and management (100% IM v. 70% GS). EM physicians' lists of important codes did not vary significantly with those of the GS or IM group (*p* = 0.46 and 0.08,

respectively), suggesting that EM physicians may tailor their approach depending on the consultant service. Our study revealed that both consulting physicians (100%) and emergency physicians (95%) value some aspect of feedback.

With regard to the urgency of the consultation, both emergency and consulting physicians commented on using verbal cues to express urgency during the consultation (62% EM, 80% GS/IM). Most consulting physicians (72%) stated that EM physicians should be direct with regard to the urgency of a consultation. Emergency physicians (67%) expected prompt attendance of the consulting physician when hearing about urgent features of a case, whereas only 25% of consulting physicians explicitly stated that they would respond in such a fashion. The most important information sought by consulting physicians is the ED management completed or in progress (60% GS/IM).

### **Differences between attending and resident physicians**

Most attending physicians (60%) stated that expectations must be altered when dealing with a learner during the consultation process. A majority of attending physicians (72%) suggested that feedback to EM learners regarding their referral approach should come from EM supervisors. However, most attending physicians (73%) felt that the consulting physician could also provide feedback. A majority of respondents (both residents and attending physicians) indicated that a senior physician should assume a teaching role with respect to the consultation request (100% EM, 70% GS, 45% IM) when a junior learner is involved.

### **DISCUSSION**

This study is the first to use resident input to define an effective ED consultation that incorporates the



perspectives of those requesting the consultation [EM physicians] and those receiving them [GS and IM physicians]. Each group contributed different amounts to the common list of important elements of the referral process (percent contributions: EM, 57%; GS, 41%; IM, 64%), which suggests that each group helps elucidate a unique aspect of the consultation process.

### Main components

The themes and subthemes endorsed by the majority of respondents formed the consultation model shown in Figure 1. Highly endorsed themes and subthemes were grouped into four components and two modifiers that describe the consultation model (see Figure 1).

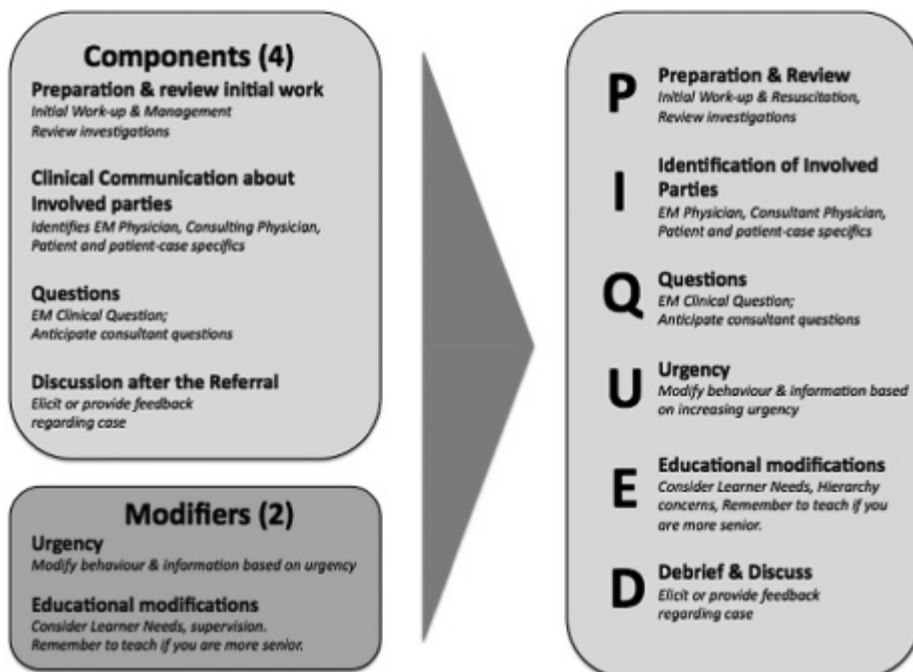
The main components noted in our study are consistent with other literature surrounding the transfer of care of patients from the emergency physician to the admitting physician.<sup>4,10</sup> However, this study offers new insight into how learners affect this process. In their 5C's model, Kessler and colleagues describe similar components to the consultation process, namely Contact, Communicate, Core question, Collaboration, and Closing the loop.<sup>4</sup> The main components we identified in our study were similar but extend the framework to include particular behaviours important for junior learners in the ED, such as

preparation (i.e., the initial workup, management, and review of key findings) and anticipating questions from consulting physicians.

The consultation conversation is not a simple one-way "handover" conversation as previously described.<sup>11</sup> Encounters may revolve around topics such as accepting responsibility, deciding on required investigations and further management for a particular case, and timing of the arrival of the consulting physician. Thus, interactions through questions and feedback after the initial referral were endorsed by all parties (98% total) as essential. Likewise, feedback was desired by all interviewed residents (100%), including EM residents (100%). This finding is consistent with that of a previous study.<sup>12</sup>

### Modifiers

Our study differs from previous literature in the exploration of two unique situations that necessitate changes in the consultation structure.<sup>3,4,10</sup> Our results suggest that emergency physicians make modifications to the consultation process when they need to express the urgency of a case to the consulting physician. Also, emergency physicians tend to make modifications to the consultation process when junior learners are included. Such changes include teaching around the



**Figure 1.** The PIQUED framework. The key elements (four components and two modifiers) are reassembled into a simple mnemonic to assist learners in conceptualizing the referral and consultation process.

case, observing the learner request the consultation, and providing feedback regarding their initial investigations and management.

### **Stages of development**

One of the most interesting findings from our study is that there was a statistical difference ( $p = 0.001$ ) between the resident and attending groups' lists of important themes (i.e., subthemes that altered the behaviours of either the emergency or the consulting physician). This suggests that the optimal consultation request differs between residents and attending physicians, which may impact communication between these two groups. Furthermore, such differences may reflect a developmental change in thought processes regarding consultation requests that occur throughout residency. This finding may also reflect differences expected of more junior learners versus their more senior counterparts.

### **Model**

Figure 1 shows the translation of the themes (four components and two modifiers) into a simple model that may be of benefit to junior learners without considerable experience in ED consultations.

### **LIMITATIONS OF THIS STUDY**

Due to operational feasibility, this study involved a single academic faculty of medicine and a convenience sample of willing volunteers. The residents were interviewed in focus groups because of limitations in resources (single interviewer). We attempted to interview residents of similar years to prevent issues around hierarchy; however, an inherent problem with focus groups is self-censorship by participants because of social influences. There are, however, advantages of focus groups such as increased discussion (which can reveal other unexpected and deeper examination of topics) and discourse and decreased researcher resources.

The generalizability of the consultation framework described may be different in community, nonteaching hospitals. We derived this model from interviews with the question of how best to teach junior learners. Additionally, the interviewer and coders were all emergency physicians, which may have resulted in inadequate metaposition (i.e., analytical distance) from the subject matter.

### **FUTURE DIRECTIONS**

This work lends itself to further study in two areas: educational impact and patient outcomes. There has been ample use of mnemonics for providing frameworks to teach learners about complex processes (e.g., SPIKES, SEGUE, 5C's)<sup>4,13,14</sup>; however, the underlying learning processes behind these and whether they are the best way to teach complex skills is not well studied. Further study will be required to determine whether mnemonic-based frameworks have the intended and lasting educational impact on learners.

### **CONCLUSIONS**

Our research suggests that referral-consultation is a complex relationship. We present an evidence-based model for consultations from academic centre EDs that should include these key elements: preparation and the initial EM management; identifying the parties involved (the patient and physicians); incorporating/anticipating questions; and debriefing and discussion after the referral. Acknowledging situations that modify a consultation (urgency and educational considerations for involved learners) is also important. Together these elements form a framework (the PIQUED framework) that may be used to help junior learners conceptualize the complex process of ED consultation requests.

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## **APPENDIX 1: MAIN QUESTION PROMPTS USED IN FOCUS GROUPS OR INTERVIEWS**

### **Questions for emergency physicians**

What are the essential parts of a good emergency medicine consultation request?

What are the other techniques that you use to facilitate an effective consultation delivery/referral reception?

What information do you think is important to convey during the initial referral-consultation encounter?

What is the role of asking questions during the initial referral-consultation encounter?

What do you expect with urgent or emergent cases?

What would you consider is the satisfactory conclusion to the conclusion of your initial consultation/referral encounter?

Do you ever give or receive feedback regarding your initial referral-consultation encounter with the consulting physician?

What are the impediments to a good referral-consultation encounter?

How do pre-existing relationships affect the consultation process?

How do you cope or compensate for these impediments?

### **Questions for consulting physicians**

What are the essential parts of a good emergency medicine consultation request?

What are the other techniques that you use to facilitate an effective referral-consultation encounter?

What information do you think is important to convey during the initial referral-consultation encounter?

What is the role of asking questions during the initial referral-consultation encounter?

What do you expect with urgent or emergent cases?

What would you consider is the satisfactory conclusion to the conclusion of your initial referral-consultation encounter?

Do you ever give or receive feedback regarding your initial referral-consultation encounter?

What are the impediments to a good consultation-referral encounter?

How do pre-existing relationships affect the consultation process?

How do you cope or compensate for these impediments?



<b>Appendix 2. Important themes and subthemes and their endorsement by rank</b>		
Theme/subtheme	Comparing by rank: residents to APs (%)	
	Most frequent resident themes (n = 31)	Most frequent attending themes (n = 30)
Initial EM preparation	90	83
Investigations		
EP reviews	65	
Clinical communication about parties involved (physicians and patient)	100	100
ID of yourself	97	100
By your name	74	93
Rank (resident, AP)	84	67
Resident's service/AP	68	
Identify colleague	61	90
Let others introduce themselves		
Identification of patient	87	77
Priority/stability	65	63
EP's hypothesis re: diagnosis	81	70
Pertinent clinical findings	90	97
Current vital signs		
Summary of investigations		60
Confirms consultant will see patient		60
Questions	97	100
Clinical question from EP	65	77
Reason for referral		60
Timing of questions	94	73
After the EP finishes	68	
Intercalated throughout encounter		
CP asks questions	87	80
To clarify missing information	65	63
To ask more about patient		
EP asks questions		63
Discussion after the referral	100	97
Feedback	100	97
Closing the loop		63
EP displayed interest	77	
To address/warn about a mistake	71	67
CP thought EP would like to know		
To educate EP	71	60
To improve the process	65	60
To ask more information		
Urgency expressed	100	100
Need directness for urgent case		73
States concern using verbal cues	81	67
Uses trigger words for urgent case	77	
More information is needed on urgent case	71	83
Details on management initiated		
CP acts when hearing urgent case		
CP attends quickly		
Educational modifications	74	87
To teach around the case	74	87
CP gives feedback to EM learner	61	87
EP supervises juniors making referrals	68	77
EP observes learner		
EP gives feedback		

**Appendix 2. Continued**

Theme/subtheme	Comparing by rank: residents to APs (%)	
	Most frequent resident themes ( <i>n</i> = 31)	Most frequent attending themes ( <i>n</i> = 30)
Altering expectations based on involvement of learner*		60

AP = attending physician; CP = consulting physician; EM = emergency medicine; EP = emergency physician.  
 Each group shows only the statistics for any theme or subtheme that was deemed most frequent (reaching 60% frequency). All items on this final list reached 60% endorsement by one of two subgroups (attending physicians, resident physicians).