EDUCATIONAL ADVANCES

Efficient Communication: Assessment-oriented Oral Case Presentation

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Abstract

Objective: To introduce and assess the time savings from and effectiveness of assessment-oriented (AO) oral case presentation as a model of interphysician communication. **Methods:** This was a prospective, interventional study of all 10 on-site faculty and 36 residents in a postgraduate year 1 to 3 format emergency medicine residency training program. Residents were requested to perform all oral case presentations in either the traditional or AO formats. Presentations were timed, and residents and faculty rated essential measures of oral case presentation effectiveness: data content, expression of decision making, organization, and overall satisfaction. **Results:** A total of 199 oral case presentations were sampled—112 traditional and 87 AO. Mean length of presentation for traditional presentations was 117 seconds versus 71 seconds for AO presentations ($p < 0.001$), a clinically significant difference, without significant differences in the essential measures of case presentation effectiveness. **Conclusions:** AO oral case presentation may provide a means for emergency medicine residents to ''get to the point'' and to communicate effectively and efficiently. **Key words:** academic emergency medicine; medical education; graduate medical education; communication; clinical competence. ACADEMIC EMERGENCY MEDICINE 2003; 10:842–847.

As an interpersonal skill, physician communication has been recognized by the Accreditation Council for Graduate Medical Education (ACGME) as one of the medical core competencies.[1] Most discussion about physician communication concerns physician–patient communication, and interphysician communication is addressed less frequently. Oral case presentation is a fundamental clinical skill taught to trainees as a means of communicating information to other physicians. The oral case presentation is the essence of the teaching moment in emergency medicine training and is the preceptor's most reliable opportunity to assess a trainee's abilities and fund of knowledge.[2] It is the means for trainees in the clinical setting to inform, persuade, and gain license to establish a diagnosis and plan[3] at the same time that they show their competence.[4] In medical school curricula and in literature on the topic, oral case presentation is presented in the familiar traditional format: chief complaint; history of present illness; past medical, social, and family histories; physical examination; ancillary data; assessment; and plan.[5] This old and immutable format,[6] particularly regarding presentation of patient symptoms and history,[7] was derived from the inpatient ward setting, and its suitability in other settings has been questioned.[6]

The emergency department (ED) is a challenging environment in which to teach residents. Instructional time is limited because of the high patient acuity and patient census. In the ED, brevity is rewarded, and assessment and intervention, such as stabilizing treatment, are paramount and often precede and may preclude history taking. Just as the emergency medicine style of practice differs from that of other specialties, so too might this specialty's optimal communication strategy.

With the unique ED environment in mind, we propose an alternative style of presentation, called *assessment-oriented (AO) presentation*, which is based on work by Cunningham et al.[6] This format consists of patient identification, assessment and management/therapeutic plan, and limited justification of the assessment and plan based on historical and examination information. Rather than presentation in a stylized order, this information is integrated into an outline of the analysis (Table 1). AO presentations reflect the skill of the expert, in which there is ''order without recourse to rules,'' based on the participants' assessment of the situation[8] and resulting in a streamlined and holistic case presentation that is the trainee's verbalized medical decision-making process.

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TABLE 1. Comparison of Traditional (T) and Assessment-oriented (AO) Formats for Oral Case Presentation

T	AO
``Traditional'' format	Presentation only of data synthesis and medical decision making
Starts with chief complaint	Starts with diagnosis or assessment and plan
Continues with selected data from:	
History of present illness Past medical history Social and family history Review of systems Physical examination Laboratory data	Continues with data in variable order, including positives and negatives from history and physical examination as they contribute to assessment (e.g., ``thinking out loud'')
Then	
Concludes with diagnosis or assessment and plan	
May be as brief or involved as the presenter wants	May be as brief or involved as the presenter wants

We undertook this study to introduce the AO presentation format to emergency medicine residents and faculty and to evaluate the impact of the AO format. We primarily hypothesized that AO oral case presentations would yield substantial time savings over traditional presentations. Secondarily, we hypothesized that AO presentations would adequately possess the essential characteristics required of oral case presentation—the inclusion of sufficient information and organization of thought processes toward assessment and conclusion. Lastly, we hypothesized that residents and faculty would be satisfied with the precepting encounter when presentations were performed in the AO format.

METHODS

Study Design. We undertook a prospective convenience sampling of the ten on-site faculty and 25 residents in a postgraduate year 1 to 3 format emergency medicine residency, who were scheduled to work in the ED in July and August 2000. Because of scheduling, one resident took part in both arms of the study. The study was approved by the institutional review board at the University of Chicago. All faculty and resident subjects gave written consent before participation.

Study Setting. This study was conducted at a tertiary care urban university teaching hospital ED with an average annual census of 40,000 adult patients.

Study Protocol. Traditional and AO oral case presentation formats were presented and shown to all participants in a one-hour conference and in 30-minute individual workshops. The first-year residents received this instruction as a formal educational session during their orientation week. Second-year and third-year residents received this instruction as part of the formal weekly core content conference series. Any residents who missed these lectures received one-on-one instruction with the principal investigator (CLM). After a demonstration, the residents and the research assistant participated in an intensive workshop session with the principal investigator, in which they heard and presented sample cases in both formats to ensure understanding and competence with each format. The principal investigator also performed remedial instruction every two weeks throughout the study and as necessary with individuals who expressed confusion regarding the formats. Residents were requested to use the traditional format during the first month (July) and AO format during the second month (August), regardless of such factors as clinical problem, confidence in diagnosis, experience, or ED patient volume. Reminders were provided weekly during resident conferences. Additional reminder notices were displayed prominently in the ED to remind residents of the requested presentation format and to show the format. Faculty were aware of, but not requested to ensure, compliance with this request. Before the second month, the principal investigator reeducated all residents on the AO format during the weekly educational conference; showed the AO format; and addressed any questions, concerns, or points of confusion.

A single research assistant was trained by two of the investigators (CLM and DSH) to recognize the beginning and end of case presentations and to distinguish between the two presentation formats. We tested the assistant's skills at distinguishing these formats, with reinforcement by the investigators until the assistant correctly and consistently identified the styles. The research assistant directly observed all oral case presentations that occurred during his presence in the ED, which was scheduled by convenience. For each observation, the assistant timed the oral case presentation from beginning (first discussion of case information) to end (end of clinical discussion and separation of parties), identified which presentation format had been used, and collected self-assessment evaluations from resident and attending. Residents and faculty simultaneously and independently assessed each presentation for data content, expression and organization of medical decision making, and overall satisfaction (the evaluation forms are available as an online Data Supplement at www.aemj.org).

Measurements

Data Content. Participants rated oral case presentation data content, based on a need to supplement or disregard information justifying the residents'

conclusions, as "insufficient," "appropriate," or "excessive." We used a 1- to 7-point scale in which 4 was the ideal. We chose this scale because this variable can deviate from the ideal in two ways (i.e., too much or too little information).

Expression of Medical Decision Making. Participants rated expressed thought process as "superficial," "appropriate," or "protracted" for a case of similar complexity on the same 1- to 7-point scale in which 4 was the ideal rating.

Organization. Participants rated organization on a 1- to 9-point scale (9 = ideal) according to difficulty of organizing and following thoughts, clarity of conclusions, and need for redirection.

Satisfaction. Participants rated overall satisfaction with the oral case presentation interaction on a 1- to 9-point scale (9 = ideal). Participants rated how well they thought the residents' performance showed their clinical reasoning abilities and whether energies were diverted from teaching or feedback to clarify information or impressions.

Instrument Development and Validation. The survey instrument was revised after an initial trial period in December 1999, which included a series of resident and faculty focus groups. We expected each resident to complete 10 forms per day and each faculty member to complete 20 forms per day; all attempts were made to diminish respondent burden. As a result, parameters of interest were narrowed to four: 1) data content, 2) expression of medical decision making, 3) organization, and 4) overall satisfaction. Explicit descriptive anchors were added to assist respondents. The final survey underwent a small trial of faculty and residents who thought this form was sufficient to express their evaluations and was brief and familiar enough to minimize respondent burden.

Data Analysis. The sample case presentations first were described using standard descriptive statistics. Interactions were divided into two groups according to the research assistant's observation: those in which the oral case presentation was performed in the traditional format and those in which it was performed in the AO format. Student's t-test was used to compare the difference in mean length of presentation and in mean assessment scores between the traditional and AO formats. A p-value of 0.05 was considered statistically significant. Stata 7.0 (College Station, TX) was used for all statistical analysis.

RESULTS

During the study period, 203 oral case presentations were observed. Four were excluded, three because of incomplete surveys and one because the resident surveyed was an ineligible non–emergency medicine resident. Of the 199 included samplings, 112 were in the traditional format, and 87 were in the AO format. Participants' years of experience are summarized in Table 2.

Mean length of presentation in the AO format was 71 seconds versus 117 seconds in traditional format ($p < 0.001$). Regardless of format of oral case presentation used, residents believed their expression of data content and expression of medical reasoning were nearly ideal (Table 3). Similarly, faculty failed to detect significant differences in data content or expression of medical reasoning between traditional and AO formats (Table 4).

Table 3 also shows that residents perceived themselves to be slightly more organized when using the AO format and were more satisfied with the overall presentation encounter when using the AO format. Conversely, there was no statistical difference in the faculty's ratings on organization and satisfaction with the encounter when the residents used the T format (Table 4).

Although it was intended that all presentations in the first month would be in the traditional format, 65 of the 107 oral case presentations were in the traditional format, a compliance rate of 60%. During the second month, 45 of 92 oral case presentations were in the AO format, a compliance rate of 49%. Compliance by level of training is shown in Table 5. In the second month, first-year and second-year residents used the AO format more, although far less than intended. Third-year resident compliance was poor; these residents used the AO format for 55% of oral case presentations, regardless of which format was requested.

DISCUSSION

The ACGME has determined that communication, as an interpersonal skill, is a core professional competency.[1] As the primary tool of interphysician communication, oral case presentation must be taught to and performed well by trainees. The Council of Emergency Medicine Residency Directors Consensus Conference, *The ACGME Core Competencies: Getting Ahead of the Curve*,[9] stressed efficiency and effectiveness in the gaining, provision, and transfer of clinical information. To our knowledge, this study is a first effort to examine the emergency medicine oral case presentation in the

TABLE 2. Participants' Years of Experience

Faculty	Total	10
	Average years' experience:	15.7
Residents	Total	25
	PGY 1	7
	PGY 2	10
	PGY 3	8

PGY = postgraduate year.

TABLE 3. Mean Resident Evaluations for Each Parameter

	T	AO	p
Content (1–7, 4 = ideal)	4.0	3.9	0.11
Expression of decision making (1–7, 4 = ideal)	4.0	4.0	0.72
Organization (1–9, 9 = ideal)	7.0	7.8	0.0003
Overall satisfaction (1–9, 9 = ideal)	7.3	7.9	0.002

T = traditional; AO = assessment-oriented.

clinical setting. The implications of a style of oral case presentation uniquely suited to emergency medicine and the future directions for researching the emergency medicine oral case presentation are exciting. In this preliminary study, we show that AO presentations are, on average, 40% shorter than presentations in the traditional format, the current standard for oral case presentation.

The AO format's mean time savings of 46 seconds was statistically significant and, more importantly, represents a clinically significant period of time during which fruitful discussion may take place or during which attention may be transferred to patients or other trainees. Some concerns about this presentation format have been that trainees either would forget or would fail to learn how to do a "complete history and physical," reach premature conclusions, and lead the preceptor to an incorrect conclusion.[6] It was not the aim of this study to assess whether trainees were correct in their diagnostic impressions. We could not assess the actual diagnosis of the patient because the diagnosis may change or be established during the inpatient stay, in follow-up, or at autopsy. Instead, we chose to focus on characteristics of oral case presentations, as they are perceived in real-time teaching encounters. We believe that much of the information included in traditional presentations may obfuscate what is otherwise a clear conclusion.[10] This may misdirect the clinician with unnecessary false trails.[11] Our data indicate that briefer presentations do not leave the preceptor wanting for more information. Just as "medical students should be taught how to do a complete history and physical but must also be taught never to do one,"[9] we insist that trainees must be taught never to *present* one. Despite the brevity of AO presentations, our evaluations of this style of presentation showed adequate data content, expression of medical reasoning, and organization of thoughts and conclusions compared with traditional presentations. Residents and faculty were adequately satisfied with AO case presentations. Although there were small discrepancies between presenters and preceptors in favor of one style of presentation over another, some of them statistically significant, these distinctions are unlikely to represent clinically significant variations.

TABLE 4. Mean Faculty Evaluations for Each Parameter

	T	AO	p
Content (1–7, 4 = ideal)	3.9	3.9	0.94
Expression of decision making (1–7, 4 = ideal)	4.0	4.0	0.98
Organization (1–9, 9 = ideal)	7.5	7.1	0.09
Overall satisfaction (1–9, 9 = ideal)	7.4	7.2	0.23

T = traditional; AO = assessment-oriented.

TABLE 5. Compliance with Study Procedures

Resident Level	Block 1 Compliance (% T)	Block 2 Compliance (% AO)
R1	72	40
R2	81	47
R3	46	55

T = traditional; AO = assessment-oriented.

The variation in study compliance across years was perplexing. Second-year residents proved the most flexible, having been the most compliant with the traditional format and performing almost half of presentations in the AO format when so requested. First-year residents were less compliant than second-year residents with the traditional format and performed only 40% of presentations in the AO format when so requested. Senior residents seemed to be less willing to change their presentation style, using the AO format for 55% of their presentations, regardless of which style was requested. This finding may represent the progress of our residents toward expertise. The Dreyfus model of skill acquisition, in which trainees advance through five stages (novice, advanced beginner, competent, proficient, expert), was developed through studies of pilots and chess players but has been applied to health care personnel.[12] In this model, the novice uses rules and adheres to protocols independent of context as a safe means of understanding and expressing clinical situations. In this study, the familiar traditional format was the safe protocol for oral case presentation, particularly for first-year residents. As trainees become advanced beginners and then reach competence, they respond to their experiences and observations of their instructors and role models, modifying their use of rules and protocols. On this steep portion of the learning curve, the advanced beginner becomes the competent sophomore, willing and able to try new techniques and learn from their successes and failures. Our second-year residents, most compliant with both arms of the study methodology, seem to represent this phase. Proficiency is the result of that learning and is marked by holistic perspective. Skills become the means toward the end of patient care, not the ends themselves, and the trainee develops his or her personal style as he or she becomes

expert. Our senior residents seem to have reached this point, their style involving a consistent 55% rate of using the AO format of oral case presentation.

Although we may have observed a natural history of the skill of oral case presentation, our residents had not received instruction in AO oral case presentation before this study. Exposure is not experience, and experience is not expertise. Our residents, exposed to the AO format and having been requested to use it, were all to a degree novices in consciously applying this format. In time and with experience, residents may develop specific expertise with this presentation format. A cohort of residents familiar with and instructed to apply the AO format might, as senior residents, use this format far more often than the 55% rate used by our senior residents.

LIMITATIONS

This study has several limitations, and many opportunities exist for future investigation. This was an unblinded study because the residents, faculty, and research assistant could identify easily which oral case presentation format was being used. Because of the necessity of having residents present cases in one format or another, it was impossible to blind them to the mechanics of the study. It was likewise impractical for faculty to be blinded to the nature of the study: faculty with a bias toward one format or the other could confound data collection by demanding one or another style of presentation. Institutional review board insistence on written informed consent from residents and faculty further precluded effective blinding.

This study followed a one-group pretest–posttest, or O_1-X-O_2 design.[13] This is a common design in educational research that is vulnerable to several confounding factors, including testing effects, instrument decay, history/maturation, and experimental nonisolation. The poor compliance with the study methodology may be symptomatic of some of these variables, yet also indicates exciting avenues for future investigations into the factors that determine how, when, and why emergency medicine residents present cases as they do.

Testing, or Hawthorne effects, did not seem to play a significant role in this study. A Hawthorne effect caused by the presence of a research assistant, if present, should have influenced each format's presentations equally. The study design, in which all traditional cases were to precede AO cases, may have served to reinforce the more ingrained traditional approach, however, over the first month after the initial training. We sought to counter this by individualized retraining sessions before the second month; however, even the best training is limited if behaviors are less practiced and reinforced.

The concept of instrument decay bears special consideration because the data indicated an absence of perceived difference in subjective measures. We believe the data reflect the perceptions of the participants. An alternate explanation would be provided, however, if participants, fatigued with daily surveying, habitually provided the same answers regardless of their actual perceptions. The 7-point and 9-point scales were derived to provide amply sensitive "room" in which responses could vary, and the survey was designed to minimize respondent burden.

History is considered a confounding variable when events occur between the preintervention and postintervention groups that influence outcomes. During this study period, no significant events occurred that would explain observed differences. The climate, patient volumes, and patient presentations did not differ significantly. The transition from July to August may represent a dramatic maturation process, particularly for first-year residents but less so for second-year and third-year residents. Because only one first-year resident was on-service for both blocks, however, the study month was the first emergency medicine rotation for the other six first-year residents.

Experimental nonisolation occurs when factors extrinsic to the study methodology influenced results or compliance. The variations in compliance with the study methodology beg the question: Would the usage patterns of these oral case presentation formats change throughout an academic year and throughout training? If seniors who had received only initial formal instruction in the AO format used it 55% of the time, would residents who have become more familiar with this format as an accepted style of presentation throughout training use the AO format more often? Or would they too use the AO format in 55% of presentations? If there is an inherent limit to residents' use of the AO format, is it due to variables that in this study went unmeasured—ED patient census, case complexity, and personal and interpersonal dynamics, to name a few? Although our study limited analysis to comparisons of key parameters, it is possible that longer study periods and broader survey parameters may reveal the factors that influence residents' choices of oral case presentation format. The small differences in subjective ratings between styles imply, however, that large sample sizes would be necessary to discern these influences with certainty.

CONCLUSIONS

Efficient communication is crucial to the emergency physician. In busy EDs, there is always a patient waiting to be seen while another patient's case is discussed. This environment demands brevity be-

cause protracted case discussion would pose a threat to patients' health and survival. Many trainees have drawn the ire of colleagues when attempting to present traditional presentations during the consultant's busy clinic hours or at 3 AM to a sleepy admitting physician. This preliminary study aimed to introduce formally an alternative style of oral case presentation and to evaluate residents' conscious efforts to apply it. We found that AO oral case presentation provided a means for emergency medicine trainees to "get to the point," to communicate efficiently, and to do so without a significant loss of content or organization.

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