

# A Pilot Study Using Nominal Group Technique to Assess Residents' Perceptions of Successful Attending Rounds

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**BACKGROUND:** Ward attending rounds are fundamental for internal medicine residency training. An improved understanding of interns' and residents' perceptions of attending rounds should inform training programs and attending physicians.

**OBJECTIVES:** The aim of this study was to assess residents' perceptions of successful attending rounds.

**DESIGN:** We convened two groups of interns and two groups of residents, to elicit their perceptions on attending rounds.

**SUBJECTS:** Participants were recruited by e-mail and conference announcements from the 49 interns and 80 residents in the internal medicine and medicine-pediatrics residency programs.

**MEASUREMENTS:** The nominal group technique (NGT) uses a structured group process to elicit and prioritize answers to a carefully articulated question.

**MAIN RESULTS:** Seven interns (14%) identified 27 success factors and ranked attending approachability and enthusiasm and high quality teaching as most important. A second group of six (12%) interns identified 40 detractors and ranked having "mean attendings," receiving disrespectful comments, and too long or too short rounds as the most significant detractors. Nine (11%) residents identified 32 success factors and ranked attention to length of rounds, house staff autonomy, and establishing goals/expectations as the most important success factors. A second group of six (8%) residents identified 34 detractors and ranked very long rounds, interruptions and time constraints, and poor rapport between team members as the most significant detractors).

**CONCLUSIONS:** Although there was some overlap in interns' and residents' perceptions of attending rounds, interns identified interpersonal factors as the most important factors; whereas residents viewed structural factors as most important. These findings should assist attending physicians improve the way they conduct rounds targeting both interns and residents needs.

**KEY WORDS:** attending physicians ; interns; nominal group technique; residents; ward rounds.

J Gen Intern Med 23(7):1060-5

DOI: 10.1007/s11606-008-0668-z

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## INTRODUCTION

Internal medicine attending physicians, students and residents meet daily at teaching hospitals to conduct rounds. During these rounds, attendings, residents and students discuss the care of inpatients. Depending on the time allocated to teaching, attending rounds can be categorized as to three general types: teaching rounds, work rounds or work-teaching rounds.<sup>1,2</sup> Regardless of how they are categorized, ward attending rounds remain the cornerstone of internal medicine clinical education.<sup>1,3</sup> The crucial role attending rounds play in the education of residents and students is reflected in the number of hours dedicated to round-related activities (preparing for rounds, rounding, and working on decisions made during rounds) as well as in the amount and quality of teaching that takes place during rounds.<sup>4</sup>

During rounds, attendings: 1) assume various roles including patient care, teaching and administrative tasks;<sup>5,6,7</sup> 2) lead a trainee team having unequal levels of knowledge, motivation and educational needs; 3) manage time and maintain the team's morale while confronted daily with new, many times life threatening, clinical problems; and 4) have a primary obligation of ensuring high quality patient care while simultaneously teaching diverse learners.<sup>7,8</sup> Competing demands - providing appropriate patient care, fulfilling daily patient care related administrative tasks and teaching residents and students - may create ongoing tension. Conducting successful rounds has become one of the most challenging tasks for attending physicians. Despite such challenges attending rounds provide an exceptional opportunity for clinical education.

Across institutions, medical students, residents and faculty can identify attending rounds which span the spectrum from most successful to least successful. The attending rounds literature has primarily described characteristics of excellent attending teachers.<sup>9-12</sup> Beyond the attendings' teaching characteristics, less is known about other specific factors that influence the environment, process and overall outcome of rounds. Moreover, since these studies from the early 1990s, ward attending rounds have evolved, influenced by recent changes in the Accreditation Council for Graduate Medical Education (ACGME) work hour requirements. Therefore, we

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Presented in part at the Southern Regional Meeting of the Society of General Internal Medicine in New Orleans, LA, in February 2005 and the Society of General Internal Medicine Annual Meeting in New Orleans, LA, in May 2005.

posed the question: "What makes attending rounds successful"? Because interns and residents remain the main educational targets of attending rounds and constitute critical stakeholders, we designed our study to 1) identify the specific characteristics internal medicine trainees believe contribute most to successful attending rounds and 2) compare perceptions of attending rounds by year of residency training.

## METHODS

### Nominal Group Technique

The nominal group technique (NGT) is a well-established structured, multi-step, facilitated group meeting technique used to elicit and prioritize responses to a specific question.<sup>13</sup> NGT involves the following steps: 1) silent, written generation of responses to a specific question, 2) round-robin recording of ideas, 3) serial discussion for clarification, and 4) voting on item importance. The highly structured format of an NGT session promotes even rates of participation and equally weights the input from all participants, controls the extraneous and evaluative types of discussion that frequently occurs when groups are convened, and minimizes the process loss and inefficiencies of unstructured and interactive group meetings.<sup>13-15</sup> The data generated by this process is quantitative, objective, and prioritized.

The development of the study question(s) is a critical step prior to conducting NGT group sessions. In our study five faculty members, four clinician-educators and a health services researcher, met for five one-hour sessions to clarify the research objectives and develop the study questions for accuracy and clarity. The questions were carefully worded in an effort to capture components of the rounding environment that went beyond the attendings' individual characteristics. We pilot tested the questions with chief medical residents and based on their answers, refined the questions.

### Study Design and Participant Recruitment

After obtaining institutional review board approval, participants were recruited from the University of Alabama at Birmingham Internal Medicine (45 interns, 68 residents) and Medicine-Pediatrics (four interns, 12 residents) residency program. Invitations to participate were sent to the entire class via email and announcements in noon conference. Participation was voluntary.

We convened four separate NGT sessions with two groups of interns and two groups of residents between September and November of 2004. All NGT sessions were conducted by an experienced facilitator not directly involved with the residency training program. We asked one group of interns and one group of residents to identify factors that they believed contribute to the success of attending rounds (success factors) using the following question: *What are the factors/elements that contribute to the success of attending rounds?* We asked a second group of interns and a second group of residents to identify factors that they believed detracted from the success of attending rounds (detractors) using the following question: *What are the factors/elements that detract from the attending rounds experience?*

### Nominal Group Technique Sessions

Participants were informed that the purpose of the session was to learn about their unique insights, knowledge, and experi-

ences with attending rounds. They were given a brief description of the NGT process. Each participant was asked to work independently for approximately five minutes to develop a list of brief responses to one of the above questions. They recorded each of their responses on a worksheet. To promote the generation of a comprehensive array of responses, the facilitator encouraged participants to think broadly about all factors that had potential to influence the success of rounds. Each group member then presented a single response to the group using a "round-robin" format to ensure everyone had equal opportunity to nominate responses. To promote open disclosure and increase response volume, we told participants that they should simply read a single response from their list and not give a rationale for their response or relate it to other responses. We recorded each response verbatim on a flip chart visible to the group.

The round-robin nomination process continued until all members presented their entire list to the group. Participants in each group were given an opportunity to briefly discuss the nominated responses for the purpose of clarification, not evaluation, to ensure each response was understood from a common perspective. During each discussion phase, there was response elaboration and a small number of responses were added to the lists. The final phase consisted of a prioritizing exercise where each participant anonymously selected three factors from the group generated list that they felt were the most important. Then, they ranked their three factors in terms of relative importance (1 = least important to 3 = most important). The ranks for each of the selected responses were summed across participants to derive a group level result. Each of the four sessions lasted approximately one hour.

## RESULTS

Of the 49 interns and 80 residents in the Internal Medicine and Medicine-Pediatrics residency program, 13 (26%) interns and 15 (19%) residents participated in the NGT sessions. Forty-three percent were women; 93% were from the Internal Medicine program; and their mean age was 28.5 (SD=2.33).

### Residents' and Interns' Perceptions of Success Factors

In the first NGT session, nine residents generated 32 responses to the question used to elicit attending round success factors. However, in the course of the clarification discussion, this group indicated that nine responses overlapped and combined them. The final list for the prioritization exercise consisted of 27 success factors (Table 1). Twelve of the 27 factors were selected by at least one resident. The relative importance of each success factor is reflected by the number of residents selecting a given factor and the sum of the ranks given to that factor. Giving house staff autonomy (not micro-managing), paying attention to length of rounds and establishing goals/expectations at the start of rotation were relatively more important than the other selected factors.

A group of six interns identified 27 factors perceived to contribute to attending round success (Table 2). Interns selected 13 factors for further ranking. Based on the number of interns selecting a given factor and the sum of the ranks given to that

**Table 1. Residents' Ranking of Factors Contributing to the Success of Attending Rounds**

Responses Generated by the Residents*	Number of Residents Selecting Response	Sum of Ranks†
Giving house staff autonomy—not micro managing, but focusing on big/key issues	5	17
Paying attention to the length of rounds	7	11
Setting goals and expectations at beginning of rotation/month	2	6
Teaching that includes explanation of attending's thought process	2	4
Being conciseness/efficient - not belaboring issue	2	3
Allowing time on rounds for residents to meet other duties/responsibilities	2	3
Having some component of rounds at bedside/ demonstrating key physical findings	1	2
Having a balance between comfortable environment and asking challenging questions	1	2
Defining time for organized teaching (chalk talks)	1	2
Having sit down rounds before seeing patients	1	2
Providing a comfortable environment for discussion and questions	1	1
Following appropriate rules (set by program)	1	1
Organizing and structuring data so everything flows well		
Providing short meaningful lessons		
Not having house staff watch you write notes		
Having team members show enthusiasm		
Constructive feedback with an understanding that there are no stupid questions		
Timeliness and efficiency with patient encounters (attending)		
Showing interest in teaching service—being on rounds		
Minimizing external interruptions		
Being on time (attending)		
Being prepared and having team ready for rounds		
Involving all students/team members in discussion and having a collaborative environment for rounds		
Being aware of house staff's fatigue		
Not having busy work just for sake of teaching		
Having a standard time for rounds		

\*Based on responses from nine residents

†Calculated by summing the ranks (3 = most important, 2 = second and 1 = least important) assigned to the response. The higher the score, the greater the perceived importance

factor, attendings being approachable-not intimidating, showing enthusiasm, teaching throughout rounds, and sharing their thought processes when treating patients, were the most important success factors ranked by the intern group.

**Table 2. Intern's Ranking of Factors Contributing to the Success of Attending Rounds**

Responses Generated by the Interns*	Number of Interns Selecting Response	Sum of Ranks†
Being approachable—not intimidating	2	6
Showing enthusiasm	2	5
Teaching throughout rounds	2	5
Having the attending share thought processes when treating patients	2	3
Showing appreciation for team members for work performed	1	3
Explicitly stating expectations for residents/students	1	3
Not micro-managing	2	2
Teaching by example (having a good bedside manner)	1	2
Allowing team a degree of independence in decision-making (when dealing with gray areas)	1	2
Setting time aside to teach	1	2
Having a consistent and coherent plan of care in place when seeing patient	1	1
Having attending who is a good role model/demonstrates good patient care	1	1
Having succinct teaching points	1	1
Limiting the amount of time for rounds		
Having a consistent time for rounds		
Efficiency (rounds are quick with appropriate time spent with patient)		
Mutual respect between attending and team		
Not having attending retake patient history		
Having planned teaching topics		
Being focused-not tangential		
Asking questions/pimping		
Including breaks when dealing with a large volume of patients so we can put in orders		
Demonstrating physical findings/exams		
Listening to not only patients but also to team members		
Having sit-down rounds before seeing patients		
Citing evidence during rounds		
Having a punctual Attending		

\*Based on responses from six interns

†Calculated by summing the ranks (3 = most important, 2 = second and 1 = least important) assigned to the response. The higher the score, the greater the perceived importance

## Residents' and Interns' Perceptions of Detractors

To identify the factors that are perceived to detract from the success of AR, we conducted two more NGT sessions: one with six residents and one with seven interns who had not participated in a prior session. The resident group identified 34 factors they thought detracted from a successful attending round experience. After combining responses with substantial

overlap the final list consisted of 32 detractors (Table 3). This group identified having very long rounds; lack of rapport between the attending, residents and team members; interruptions; time constraints; and having other responsibilities

**Table 3. Residents' Ranking of Detractors from the Success of Attending Rounds**

Responses*	Number of Residents Selecting Response	Sum of Ranks†
Having very long rounds	4	9
Lack of rapport between attending, residents, and between residents themselves	2	6
Interruptions	3	5
Time constraints, having other responsibilities like morning report and clinic	2	3
Having an extremely high volume of patients	1	3
Staff not being interested in rounds	1	2
Being intimidating (attending)	1	2
Lack of teaching on rounds	1	2
Having poor ancillary staff	1	2
Acute patient care issues arise on rounds	1	1
Not trusting information (attending)	1	1
Showing up late (attending)		
Being post-call tired		
Not having a good attitude toward questioning or not explaining decisions		
Having an attending who personalizes too much or too little		
Being inattentive		
Not having post call breakfast		
Showing disrespect for interns and medical students		
Having to do busy work		
Poor quality of house staff		
Having an attending who does not remember BIG day-to-day issues		
Having excessive quizzing (not enough time)		
Lack of complete information gathering for making good decisions		
Lack of immediate access to data while on rounds		
Spending too much time in patient rooms (attending)		
Having a poor fund of knowledge (attending or house staff)		
Not feeling prepared		
Lack of flexibility on several issues		
Uninterested medical students		
Having patients scattered throughout the hospital		
Having inappropriate emergency room admissions		
Having a patient who is a poor historian		

\*Based on responses from six residents.

†Calculated by summing the ranks (3 = most important, 2 = second and 1 = least important) assigned to the response. The higher the score, the greater the perceived importance

like morning report and clinic as relatively more important than the other detractors.

The group of seven interns developed a list of 40 detractors with two overlapping responses (Table 4). The prioritization exercise indicated that the group perceived having mean attendings, receiving disrespectful comments from attendings and housestaff, having rounds that are too long or too short, and attending not being interested in teaching as the four most important detractors from successful attending rounds.

## DISCUSSION

The results of this pilot study suggest that housestaff perceive multiple factors as contributing to the success of ward attending rounds. Although many of these factors are related to previously described characteristics of the attending teachers,<sup>9-12</sup> the perceived success of this key component of medical education appears to be further influenced by the structure and process of attending rounds. Being an excellent teacher or clinician is no doubt very important but likely not sufficient in being able to conduct successful ward attending rounds. We found that interns and residents also placed importance on the ability of the attending to manage the ward team including managing time properly, giving appropriate autonomy to the team, and attending to housestaff needs such as goals and competing demands for their time.

Our study adds to prior studies of successful attendings and attending rounds in several ways. First, we used an alternative, non-evaluative and consumer-oriented approach to identify factors influencing the success of attending rounds,<sup>16-17</sup> the nominal group technique (NGT), instead of previously developed scale measures with their pre-defined structure and response formats. Second, our study was done after a decade of changes in internal medicine residency programs brought about by new ACGME requirements and demands of the managed care environment. Third, we attempted to focus attention on the structure and process of attending rounds.

Our study also suggests that interns and residents differ in the factors they consider most important for successful attending rounds. Residents appeared to value structural factors while interns felt interpersonal factors were most important. When compared to Kelly Skeff's seven attributes of excellent teaching,<sup>18</sup> residents identified elements related to control of session and communication of goals (respecting resident's time and autonomy, paying attention to length of rounds, and setting goals and expectations at the beginning of the rotation) as most important. These results are consistent with prior work reporting that residents desire substantial control of the agenda and teaching in rounds,<sup>10,12</sup> Greater than 50% of the residents' votes were allocated to these three elements suggesting that attendings' attention or lack of attention to control of session and goal setting can have a tremendous negative impact on rounds. On the other hand, although the success factors identified by interns also related to most of Skeff's teaching domains, their ranking of factors suggest that interns predominantly endorsed elements related to the learning climate (attending approachability and enthusiasm, being treated with respect). This difference could represent a developmental process of residency or an acculturation process interns go through as part of residency training. This difference also indicates that to conduct successful rounds



Table 4. Interns' Ranking of Detractors from the Success of Attending Rounds

Responses*	Number of Interns Selecting Response	Sum of Ranks†
Having mean attendings	2	6
Receiving disrespectful comments from house staff and attending/belittlement of team members by other members	2	5
Having rounds that are too long/short	2	5
Attending not being interested in teaching	2	4
Experiencing multiple interruptions during rounds	1	3
Not making effective use of time	1	3
Attending/house staff lacking enthusiasm	1	3
Having a different attending everyday who does not know patient	1	2
Having patients with multiple attendings	1	2
Lacking a set time and flow for rounds	1	2
Having an attending who does not know system and how to work around it	1	1
Not having food post-call	1	1
Having an attending who makes all decisions	1	1
Having patients on floor during rounds	1	1
Not highlighting important teaching points/physical findings	1	1
Having a large census of patients	1	1
Not systematically reviewing plan, especially when team members cross-cover	1	1
Having difficulty hearing in a crowded patient room		
Being exhausted post-call		
Having multiple team members missing at a given time		
Attempting to get procedures done during rounds		
Having an attending with too many outside commitments (takes away focus)		
Being distracted during rounds (chasing rabbits)		
Attending wanting things done their way without explanation		
Having divided rounds		
Having to leave rounds to do work		
Presenting patients on the run without stopping to discuss case		
Not giving feedback early enough		
Having to discuss (non pertinent) housekeeping items everyday		
Having post-call rounds when the admitting resident/intern is not present		
Q &A sessions with patients for extended periods during rounds		
Personality conflicts between attending and other staff		
Attending taking a full history or physical on rounds		

Table 4. (continued)

Responses*	Number of Interns Selecting Response	Sum of Ranks†
Inability to place important consults		
Getting into lengthy esoteric discussions instead of focusing on patient		
Having an attending cut student off during presentation		
Having environments that are too hot or too cold during rounds		
Lack of sit-down rounds during post-call		
Making disrespectful comments to patients		

\*Based on responses from seven interns

†Calculated by summing the ranks (3 = most important, 2 = second and 1 = least important) assigned to the response. The higher the score, the greater the perceived importance

attendings should pay attention to both interns' and residents' needs and that these needs may differ.

Some limitations of this study should be noted. It was conducted in a single institution and represents only one style of rounds; therefore, the results may not be generalizable to other settings. We only included housestaff as participants and did not include other members of the team (students and attendings) who may have other perspective about factors contributing to rounds success. In addition, we conducted a limited number of sessions with a relatively small number of participants. However, given the formative stage of this research and the guidelines for using this NGT,<sup>19</sup> our four groups with participants at different stages of career development (13 interns and 15 residents) likely generated a reasonable list of factors related to successful attending rounds for this institution. The substantial number of responses and our experience with NGT suggests that the two meetings conducted to address each of our two questions were probably sufficient. We recognize that we may not have identify all the factors or reach "idea saturation". We felt the information obtained from an additional session would probably not warrant the additional effort and cost. Further research done at other institutions will likely determine if there are additional important factors missed in this pilot study and if these results generalize beyond one institution.

Our study represents an important step in the examination of attending rounds from the perspective of the housestaff. To our knowledge, this is one of a few studies designed to capture factors that go beyond attending characteristics. Successful attending rounds appear to be primarily a result of unique team dynamics determined by the attending's ability to manage the team (attention to time, autonomy, fulfilling different members' needs, etc), in addition to the quality of teaching and patient care provided. We propose that faculty development efforts across institutions, particularly for junior faculty, should include more instruction on management skills. This new understanding of determinants of successful attending rounds should aid training programs, inform attending physicians and enhance the residents' educational experience.

**Conflict of Interests:** None disclosed.

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