Written Feedback to Observed Medical Teaching Faculty:
Perspectives of the Observed Participants

BY

Lily C. Pien

BS, Northwestern University, 1981
MD, Northwestern University, 1983

THESIS
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Thesis Committee:
Ilene Harris
Janet Riddle
Elaine Dannefer, Cleveland Clinic
This thesis is dedicated to my husband, Frederick S. Frost and to my children, Emily, Evan and Laura. Their support and belief in me are unwavering.
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<tr>
<td>ACGME</td>
<td>Accreditation Council on Graduate Medical Education</td>
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<tr>
<td>DE-1</td>
<td>Distinguished Educator Level One</td>
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<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
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<td>LCME</td>
<td>Liaison Committee of Medical Education</td>
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Summary

Purpose: Direct observation and feedback to medical trainees in the authentic workplace setting is considered by many medical educators to be the “gold standard” for teaching and assessing performance. Direct observation of medical faculty teaching and feedback can also be used as a faculty development method to improve faculty teaching skills and reflection. In this study, we explore the perspectives of medical teaching faculty to identify what they gained with direct observation and written feedback, by their faculty development instructor, as the concluding activity of a faculty development longitudinal certificate program.

Method: From June 2014 to August 2014, at one academic healthcare institution, semi-structured interviews were conducted with medical teaching faculty who were observed teaching and who had received written feedback on their teaching performance. This qualitative study was conducted using the constant comparative method associated with a grounded theory approach, to identify themes from the transcribed interviews.

Results: Eighteen (18) observed medical teachers [median age, 40 years (range 32-62 years), median years of employment, 5 years (range 3-46 years) at the institution] were interviewed. Comments were coded into 14 themes and then categorized into 2 broad domains of perceived outcomes and process-related comments. Outcomes of increased knowledge and skills in teaching, more positive attitudes about teaching, increased reflection about teaching and increased interest in professional development were described. The participants valued the experiential learning opportunity as it allowed them to apply learned teaching skills in their specific settings and to receive formative feedback from a trusted and experienced medical educator, and to obtain a certificate that provided recognition of their efforts to
enhance their teaching skills. Unexpected outcomes described included increased awareness of the
process of feedback, increased confidence in self-assessment skills, increased awareness of institutional
support and expectations, and transfer of teaching strategies to other contexts. Participants recalled the
process as a memorable event, based upon their relationship with the faculty development instructor and
the credible aspects of the written evaluation.

Conclusion: Medical teaching faculty who were observed and received written feedback felt supported
and validated in their roles as teachers. Their perceptions of the value of direct observation and written
feedback indicate that this faculty development strategy is valued by the participants. When designing
and developing faculty observations and feedback, this study’s findings can help guide the design and
implementation of faculty development programs, faculty teaching observations and feedback to faculty.
I. Introduction

Providing high-quality education in medical institutions is a priority and is mandated by two accreditation bodies, the ACGME and LCME. One major approach to achieve excellence in education is with faculty development, a critical component in the learning environment of any education institution.\(^1\) In a systemic review of the faculty development literature from 1980 to 2002, Steinert et al. provided a framework to analyze practices, interventions and their effects.\(^2\) Programs were classified as workshops, seminar series, short courses and longitudinal programs, with a wide variety of instructional methods, such as role plays, lectures and videotaping of participants with review and feedback. Direct observation of teaching with feedback has been used as both an instructional method as well as a method for formative assessment of learners and for program evaluation. When this method is used to provide formative assessment to medical faculty, its purposes are to promote growth and reflection about their roles as educators and to contribute to their development of education expertise.\(^3\)-\(^5\) While observational review of faculty teaching has been done in academic medicine for at least three decades,\(^6\) research on the value of this faculty development method continues, with a focus on the need, design, development, and implementation of this strategy.\(^7,8\)

Observation and feedback of teaching skills has been used for several purposes: for teacher evaluation, for program evaluation and for academic promotion.\(^6,7\) There are differences in design of the observation and feedback experience, depending on the type of model used, such as peer-review, a formative developmental model or an expert evaluation model.\(^3\) Focusing on the formative developmental model, some identified benefits of observation and feedback are improvement of learner-centered teaching, opportunities for reflection, support for teachers, and usefulness in the development of medical educators.\(^9,10,11\) Identified challenges for observing teaching faculty include observed faculty anxiety, lack of time, superficiality of feedback, and the potential punitive use of observations if there is poor
teaching performance. Careful planning of the observation and feedback activity of medical teachers’ teaching skills can help to avoid these problems.

Feedback is thought to be the “crucial step in the process” of observation of teaching. Feedback is an essential component to the practice of reflection and self-regulation. Feedback, in general, is a complex process; formative feedback has several variables that affect learning and transfer. There is controversy about the type of feedback delivery method, the timing of feedback and the balance in providing feedback of identified areas of strengths and areas for improvement. While effects of immediate versus delayed feedback are still debated, Shute has provided some guidelines for formative feedback. One of the recommendations is to “try to avoid delivering feedback orally” because “when feedback is delivered in a more neutral manner (e.g., written or computer-delivered), it is construed as less biased.” In addition, there is literature support for delayed feedback because it may promote transfer of learning and be more useful for performance improvement. Therefore, the methods of feedback, as it applies to faculty development and the development of educator skills, still need to be studied.

The purpose of this study is to explore the perspectives of medical teaching faculty who participated in a direct observation and written feedback activity as part of the longitudinal faculty development program at one academic health center. The goals were to obtain participants’ perspectives about the benefits of the observation and feedback experience, and their perspectives about the learning associated with the activity, and the negative aspects of this experience, if any. It is hoped that the findings from this study can inform the process of faculty development with medical teachers, and provide insight about the specific activity of observing medical teachers and giving written feedback, to assist in the design of this type of activity.

Research Questions
The primary research question is:

- For the activity of observation and written feedback as part of a longitudinal faculty development program, what do the observed medical teaching faculty perceive as the benefits, the associated learning and the negative aspects, if any?

Sub-questions are as follows:

- What do study participants recall about their attitudes and feelings about the activity of being observed in their teaching and receiving written feedback before, during and after their participation?
- What, if any, knowledge, skills or attitudes did the study participants perceive were developed in relationship to the experience of being observed and receiving written feedback, based upon an observation of their teaching?
- To what extent did the study participants perceive that there was increased reflection about teaching after the observation and written feedback experience?
- To what extent did the study participants perceive that they had an increased interest and activity in their professional development after the experience?
II. Methods

Design

We designed and conducted a qualitative study, using in-depth semi-structured interviews to obtain a better understanding of the faculty development activity of direct observation and feedback of medical faculty teaching.

Setting and participants

At the Cleveland Clinic, an academic tertiary healthcare center, we offer a faculty development program, “Essentials of Clinical and Classroom Teaching and Assessment” (Essentials Program) that is designed with the goal of enhancing educator knowledge, skills, and attitudes related to their roles as teachers. All Essential Program participants attend a half-day introductory retreat which focuses on learning theories and teaching styles, followed by attendance at learner-selected workshops. Examples of topics addressed in the Essentials Program include: observation and feedback, clinical teaching methods, interactive teaching methods, assessment, and self-regulation. Examples of some of the teaching methods used are: pre-session readings, role-plays, and interactive small group discussions.

The Essentials Program participants are medical teaching faculty who are involved in teaching a wide variety of health professional learners at the Cleveland Clinic. Typical learners are medical school students, residents in-training, allied health professional students and Cleveland Clinic physicians and allied health professionals. Essentials Program participants may obtain a Distinguished Educator’s Level One (DE-1) Certificate by completing two requirements: 1) attend at least 5 of 16 ninety-minute Essentials Program workshops and 2) be directly observed by one of two members of the Office of Faculty Development during a teaching session and receive written feedback. The process of observation and written feedback provides an opportunity for Essentials Program participants to apply the concepts.
and skills learned in the Essentials Program, to receive specific feedback about their skills and to obtain the DE-1 Certificate; this is known as the DE-1 Certificate Program. Participants are asked to write a short description of the teaching setting for the observation, to identify a learning theory or teaching strategy learned during the Essentials Program that they will be using during the observation and to schedule a teaching observation. Common observation settings where DE-1 certificate program participants (hereafter referred to DE-1 participants) are observed are the outpatient ambulatory clinic, the hospital, and various classrooms and lecture halls. Some examples of specific areas identified for feedback are: use of interactive lecturing strategies; the alignment of goals and objectives with the lecture presentation; and the delivery of feedback using a learner-based reflection model called “Ask-Tell-Ask”.

In addition, the observer from the Office of Faculty Development pays attention to the DE-1 participant’s creation of the learning environment, and other pertinent aspects of teaching, dependent upon the teaching setting. Teaching observations are arranged any time after the Essentials Program participant fulfills the DE-1 Certificate criteria; the observation needs to be completed within one year of the last attended Essentials Program workshop. Additional information provided to the DE-1 participants are that the observer will be observing quietly, that an explanation about the teaching observation can be helpful for the trainee(s) if the teaching setting is intimate, that there will be no immediate oral feedback, and that the written feedback will be e-mailed within two weeks after the observation. The structure of the written feedback typically includes: the date of the teaching, a description of the teaching setting, the quality of the learning environment that the teacher created, areas of general teaching strengths and areas for improvement. An example of the written feedback is provided (Appendix A).

In 2012-2013, there were 32 DE-1 participants. DE-1 participants were invited to participate in this study because they had most recently completed the program and we wished to decrease recall error. The DE-1 participants were invited by e-mail to participate in the study. A second e-mail request was
sent two weeks after the initial request. There was no compensation for participation in the study. The
Cleveland Clinic IRB and University of Illinois-Chicago IRB both approved the study.

Interview Guide: The interview guide was designed and developed by the authors (LCP, IH) based on review of the literature and their experiences as medical educators. It was piloted with three DE-1 participants who were not involved in this study. The interview guide was then revised and further refined by the authors (LCP, ED, IH, JR) to determine the DE-1 participants’ perspectives about the observation and written feedback activity, using open-ended questions. Demographic information regarding gender, age and number of years at the healthcare center were obtained. Eight of the interview guide questions are relevant to this study. They were:

1. What was the teaching setting and activity for which the observation occurred?
2. What do you recall about being observed? (Prompts: Thoughts, Feelings)
3. What reactions did you have to the written feedback? (Prompts: Thoughts? Feelings?)
4. What were the benefits, if any, of the observation and feedback? (Prompts: Increased confidence in teaching, improved teaching skills, changes in attitudes about teaching, increased reflections about teaching, continuing professional development and participation in faculty development activities) Follow-up question if needed: If there were no benefits to this activity, what would have made the activity more worthwhile?
5. What changes, if any, have resulted from participating in the observation and feedback activity? (Prompts: Changes in thoughts, attitudes, feelings, behaviors (teaching and otherwise) and specific actions)
6. What negative aspects, if any, were associated with the activities of observation and feedback?
7. What role did the observation and feedback activity play in your participation in the faculty development Essentials Program? (Prompt: Was the observation and feedback a necessary component to the program? If so, why?)

8. Please share any other comments or recommendations concerning any component of the observation and written feedback activity.

Procedure

Face-to-face interviews, lasting from 30-60 minutes, were conducted by one of the authors (LCP) in the study participant’s office from June 2014 to August 2014. Notes were taken during the interviews and interviews were audiotaped and transcribed verbatim in a de-identified manner. Transcripts were checked by LCP for accuracy and audiotapes were then destroyed.

Analysis

Transcripts were reviewed as soon as interviews were conducted and transcribed. Using the analysis approach of constant comparative analysis associated with grounded theory, three coders (LCP, CYC, IH) independently analyzed the transcripts of three interviews to identify themes. Two of the coders (CYC, IH) have been trained in and have experience in qualitative research and have a non-medical background. One of the coders (LCP) was familiar with the study participants as she was an instructor in the Essentials Program, had performed seven of the observations, and provided the written feedback. This individual also had obtained the DE-1 Certificate in 2006 when the DE-1Certificate Program was first conceived. It was felt that this level of involvement would not interfere with and/or influence the participants’ response to the questions, as the interview was conducted with adherence to the interview guide. Consensus about themes was reached through discussion amongst the team members. There was re-examination of transcripts to ensure that the agreed-upon coding structure was appropriate and that there was saturation of themes. Coding of the remainder of the participating DE-1 educators’ transcribed interviews was then performed by one of the authors (LCP) using the agreed-upon coding structure. Themes were then integrated into a framework to explain and interpret the collected data.
Trustworthiness was enhanced, using member checking, by emailing the themes identified from the interviews to all 18 study participants to check for accuracy and to determine agreement with the interpretation of their perspectives. Participants were asked to respond to the email if they had additional suggestions and/or disagreements with the themes.
III. Results

Of the 32 DE-1 participants that were recruited for study participation, 9 had left the institution and 5 did not reply to the e-mail solicitation. The remaining 18 DE-1 participants (hereafter referred as study participants) agreed to be interviewed (18/23, 78%). Six (33%) were male and 12 (67%) were female, with a median age of 40 years (range 32-62 years) (Table I, Appendix B). The study participants had a median of 5 years of employment at the institution (range 3-46 years). Fourteen (14) of the study participants were physicians and 5 had a PhD, with one physician having both degrees.

Settings of the teaching observations were varied, reflecting the various types of teaching done by the study participants (Table II, Appendix C). Thirteen (13) observations were of lectures, with 10 lectures based on clinical topics and 3 lectures on basic science topics. Five observations were clinically oriented with patient interactions, with three in the outpatient clinic setting, one in the inpatient hospital setting and one in the operating room.

Fourteen (14) themes were identified from the study participants’ interviews; themes were then organized into 2 broad domains: the outcomes of the observation and written feedback experience and the process of the experience (Table III, Appendix D). Outcomes studies, as defined by Fitzpatrick et al., are “concerned with describing, exploring or determining changes that occur in program recipients, secondary audiences (families of recipients, coworkers, etc.) or communities as a result of a program.” This definition is expanded further as ranging “from immediate impacts or outputs (for example, achieving immediate learning objectives in a lesson or course) to longer-term objectives, final goals and unintended consequences.” This study’s outcomes are defined as changes that the study participants described as a result of the observation and written feedback experience. Expected outcomes are themes that have been identified previously for faculty development programs and observation of teaching. Unexpected outcomes are results from the experience that were not originally planned in the design and implementation of the activity, that have not been consistently described in the literature.
and that “focuses on actual outcomes rather than intended program outcomes” that Scriven described for “goal-free evaluation”\textsuperscript{15}. Process studies, as defined by Fitzpatrick et al., “describe how the program is delivered” and may describe “the nature of delivery and the successes and problems encountered.”\textsuperscript{15} It has been suggested that more research to examine the processes of faculty development programs are needed, using qualitative study methods.\textsuperscript{2} In this study, process-related themes are comments of the study participants that describe the elements of the observation and written feedback activity, characteristics and the nature of the activity, and areas of strength and problems.

**GENERAL OUTCOMES**

**Expected outcomes included the following.**

**Increased knowledge, skills and confidence regarding general and specific teaching skills.** Outcomes related to increased knowledge, skills and confidence in general teaching skills, after completion of the observation and written feedback, were described by all study participants. Increased confidence was clearly described as follows: “My confidence goes up, just again, because I feel like that I can continue to pursue that style and that exercise and, you know, take all the things I have done in the past, all these lectures and things that I've put together” (I-2) “It was a new level of confidence, really, as far as the way I taught and being able to focus on what I felt was important in a way that allowed students to participate more than the traditional sorts of lectures.” (I-10) Also, participants described increased knowledge and skills in teaching, such as, “The non-focused or quiet student in the background that I didn't engage, I'm never going to forget that. I will always try to work on that weakness of teaching and the reinforcement of trying to have better learning retention by using something hands-on, a video and something else, is helpful.” (I-1) “That’s the part of the teaching (use of the feedback model) that I actually have made a major commitment to incorporate into my practice and has made a big difference.” (I-15)

**Increased reflections about teaching and education.** The majority of study participants also describe increased reflections about teaching, with examples of comments: “I reflect
more on how I did when I walk out of the room than I did before.” (I-5) “You know, it’s a good thing periodically to, you know, take that on and to give yourself a chance to reflect about what we do.” (I-16)

**Increased interest and activity in professional development.** Several study participants described increased interest in professional development after participating in the observation and written feedback activity. Areas for continued professional development described were varied, with some individuals focusing on more development of teaching skills, such as, “I have continued to have different people try to come watch some of my lectures, and I'm trying to be very specific in asking them what to look for, and if I haven't been specific in the beginning to ask them to look for, trying to be specific at the end, to see if they notice anything. So I would say that that's definitely changed; that's something I had not done before.” (I-7) Others commented about further faculty development, such as, “I'll be starting a medical education fellowship.” (I-8) Others pursued development in administrative aspects of their careers, such as “I’ve become the medical director of the unit” and “The observation and feedback actually inspired me to maybe see what else I can do for educating students and residents. I actually have just got an appointment with the College of Medicine.” (I-9)

**Opportunity to apply knowledge and skills learned in their specific teaching setting.** All study participants described the opportunity to apply knowledge and skills they learned in the classroom setting to a specific personal and authentic teaching setting. For example, participants described the opportunity to practice and apply skills learned in the workplace setting, such as “To have a personalized review of just what you're doing in your context … for pathology teaching, I mean, pathology is relatively a small part in the whole hospital, so really that's not something that I would expect the course to consider. The kinds of things that I have to teach my residents or the way of looking at things is a little bit different than from what they would have to do. So this way, it was personalized not just to me, but to my environment of teaching, which happens to be very different from what somebody else might be doing.” (I-8) “You can sort of participate in class and you're sort of surrounded by a bunch of other participants, but then when it's you up there and you're sort of tasked with teaching...
your course matter and then have somebody watching you and stuff like that, you will see you have sort of really learned what they're supposed to learn.” (I-10) “I have all the knowledge, but when it comes to performance, am I actually able to deliver the goods, so I think this was useful from that perspective.” (I-18) One participant commented that the observation and feedback opportunities in the faculty development classroom setting are “not real … In the office is what’s real because… it is more pressure in the office because Epic, the nurses coming in, the patients are late, you’re running late” (I-16) and that the observation activity was performed in her actual workplace setting.

**Value of obtaining a DE-1 certificate.** All study participants commented about the value of obtaining a DE-1 certificate, as it provided a personal validation of their role as a medical teacher and recognition of their identity as a medical teacher. It was a viewed as a reflection of the effort, intention and energy that DE-1 certificate holders put forth to distinguish themselves as medical teachers, with comments such as, “On my CV I have a benefit … it’s as a career-building activity, it's very different for me, and it's been a good way for me to show versatility in not just being buried in my research and actually doing other things important for, you know, educating the next generation of doctors and researchers.” (I-5) “I think it’s nice to have the certificate for your resume. It just kind of lets other people know if you changed careers, you know, what you’ve accomplished and that there has been some sort of, you know, formal training in teaching and direct observation.” (I-13) “It’s always nice to get some positive reinforcement of, you know, that we value the time you spend teaching.” (I-16)

There was recognition that only with participating in the observation and feedback activity would one obtain the DE-1 Certificate, motivating the participant to schedule the activity. A participant commented, “The observation was obviously part of getting the certificate at the end, so after I took all the courses, the observation was part of that.” (I-5).

**Unexpected outcomes**

There were a number of unexpected outcomes.
**Increased awareness of the process of providing and receiving feedback.** A few study participants commented that they had increased awareness of the process of providing and receiving feedback, such as, “It's a good way to learn how to give feedback too. Because as professional educators who were teaching me, not only does it benefit me as far as receiving the feedback, but also it's real feedback. You understand the importance of it and sometimes how to deliver it too.” (I-1) and “You learn from receiving the feedback … how you would want to give feedback to someone else.” (I-13) and “I think going back to my feedback, like the way I approach feedback, now I think about okay, what are the constructive aspects of it? What are the positive aspects of it? How do I deliver it? How do I actually get meaningful assessments out of it, and all that is from the course.” (I-18) This outcome is unexpected in that during the observation and feedback process, we indicated that only written feedback would be provided and that additional dialogue about the feedback could be scheduled if desired. Reflection about the process of giving and receiving feedback was not a defined goal of the observation activity.

**Increased confidence in self-assessment skills.** Another unexpected outcome that resulted from the observation and written feedback activity was the study participants' increased confidence in their self-assessment skills, skills that are necessary for life-long learning. The observation and written feedback activity provided participants with some external evidence for the accuracy of their self-assessment of their teaching skills, with comments such as, “It reinforced the things that I think I did right. It gave me some positive feedback on the areas that I wasn't sure of to help me decide, is that right or not? Is that style or technique okay? Do I need to keep working on it or did I…was it ‘good enough?’ ” (I-2) and “Confirming that I was doing some things right, (laughter) and there are some things that I need to work harder just to kind of make sure that I’m doing each time consistently.” (I-13) Another participant commented, “It was comforting that, okay, my insight into where my areas of improvement and where my strengths are were really similar to what (the observer) thought.” (I-18)
Increased awareness of institutional support and expectations of medical teaching faculty. Some study participants described as benefits, increased awareness of institutional support and expectations of medical teaching faculty, with comments such as “I take pride to say…my friends at XXX don't have it (observation and written feedback experience)...it makes us better just because we work here, but we all have to get up and talk, and then everyone here is a teacher sometime in life, so this really is a great fringe benefit for me … I truly appreciate it.” (I-6) “I'm one of the newer staff, so, you know, it's a learning curve for us to learn how to become a good, I guess, staff member, and do, you know, not just patient care, but other elements too, and I think if you're working in an academic medical center, you do have to worry about the other elements because it's an expectation.” (I-4) “I was validated as being, you know, a leader in education here at the Cleveland Clinic so that I just felt that all these years that I've taught other places, apparently, the Cleveland Clinic thinks it's okay for me to do it here too.” (I-17) These comments demonstrate that the observation activity promoted deeper reflection and appreciation about ways the institution views faculty teaching, as the activity and the resources needed to perform observation and feedback are provided, in addition to resources needed for the Essentials Program.

Transfer of acquired teaching strategies to other contexts (home environment, administrative positions). Surprisingly, some of the study participants described how skills learned in the Essentials Program, and reinforced during the observation and written feedback activity, were transferable to situations outside of their teaching situations in the institution. One participant who learned about a feedback model, and asked for specific feedback on his use of the model during his observation, commented, “I would sort of say it helped in my own kids…I've got young kids, 5 and 3, and I think I've gotten away from or it's made me get away from telling them that they did a good job when they show me something and ask them how they feel about it.” (I-3) Another study participant commented, “One other thing about the Essentials Program that I found is some of those classes have helped me, not necessarily within teaching, but just in organizing my thoughts better for other issues…we are going through this major overhaul in the way we issue blood, and we have a very short time line
for that and we're working with Nursing.” (I-8) Another participant commented that teaching skills learned in the Essentials Program, and reinforced in the observation and written feedback activity, helped her in planning administrative work in her specialty department. Another participant felt that the knowledge, skills and attitudes that were enhanced with the faculty development program assisted him in reflecting about issues with his son, commenting: “I think that helped me be a better teacher and probably a better dad to help sort of understanding my own son and his issues with education.” (I-10)

**PROCESS**

Several themes were identified regarding the process of the teaching observation and written feedback activity.

**Memorable experience.** All study participants had definite recall of the activity, commenting that the observation of teaching and receiving the written feedback was a memorable and emotional event. All participants were able to recall the observation, remembering the exact setting and the trainees that they were teaching. Participants mentioned emotions, such as being “nervous”, “excited”, “apprehensive”, and “happy”, with recall of these events.

**Described characteristics of the evaluator.** All study participants described characteristics of the evaluator, emphasizing the importance of the evaluator’s status, that the evaluator had credibility as an expert educator and the fact that there was a trusting relationship of evaluator/teacher to the student.

**Evaluator status and credibility:** Study participants commented about the evaluator's status and credibility, such as, “It makes such a difference when it's somebody that’s in education that has the background, that it’s…so that you can trust some of the feedback and not only how the feedback is given, but with the content of the feedback.” (I-7) “I was looking forward to getting it because I want to know…because I respect her so much, I really wanted to know how she thinks.” (I-9) “I think if you really want to get better at something, you need to be willing to expose yourself to somebody who is an
expert and has the training and experience in that field and say, ‘Okay, what do you think?’” (I-10) “This would be good feedback from (the observer) who is gifted and talented in this particular area.”(I-18)

**Relationship of teacher and student:** Study participants describe the importance of the evaluator/teacher and student relationship, such as, “See how I'm sort of comporting with a desire to make a global change in what you do, much like changing your tennis swing or changing your golf swing. You can play all kinds of games and obviously, you can, during those games, revert to what you did, so it's always nice to touch base with a teacher to see how you're actually implementing those changes.” (I-3)

“I found it helpful to have a second set of eyes and saying, you know, yeah, this is what you're doing well and these are other things you could try to improve on, but, yeah, I think it's necessary. I think it's good to have someone not in your department or someone in the education institute … observe and say, you know, just when you're doing your normal work day like yeah, this is what's going well and these are some things you could improve on … to see if you're applying some of the things that you hopefully learned, right? So I think it's good to do that.” (I-4)

**Specific characteristics of feedback.** All study participants were able to recall specific details about the written feedback that made it valuable. These characteristics described were:

**Balanced:** Participants commented about the balance in the feedback, such as, “I think it was a fair assessment … I mean she told me things that I did well and she told me things I could have done better, and I think that I was already aware, myself, of what I could do better, certainly, but I’m glad that she pointed out something that I did do well because sometimes I just think maybe many of us are more critical of ourselves than we need to be.” (I-8)

**Targeted and specific:** Study participants described the feedback as targeted and specific, such as, “I thought the written feedback went great. It was very thorough. It was very targeted, very specific. So everything that feedback is supposed to be … it was just wonderful. I thought that it was also very helpful in terms of what I asked her to look for; she was able to highlight ways that I was already doing that and talked about ways that maybe I could enhance it.” (I-7)
Offered suggestions for improvement: Study participants commented that the evaluator provided suggestions for improvement, such as, “This was the first time ... I had received feedback that detailed, I think. You know, normally feedback would be so superficial and I really appreciated feedback that was thorough, the things that I could do better on, and the things that I did well on. So that was really good for me to know and because we teach all the time, it just made me more aware of what I could really work on in the future.” (I-9)

Timing: Study participants commented about the timing of the feedback, such as, “Really timely with getting the written feedback returned which I think is important because you can actually kind of remember, you know, what exactly were they talking about at this moment when the written feedback comes back and you don’t always get that when you get feedback. If it’s a month later you’re going... I don’t remember exactly what she’s talking about; it’s not as helpful.” (I-13)

Format: Study participants commented about the written format of the feedback, with comments such as, “I think it's nice to have something written. That's for sure. Something written that you can refer back to and induce in your own development.” (I-5) “I felt like getting it in written form showed that the time and effort and thought was put into it to make it complete. So I liked that part of it.” (I-7)

Stand-alone activity versus closure activity of DE-1 Certificate Program. Study participants were divided about the inclusion of the observation and written feedback activity as a stand-alone learning experience as distinguished from a capstone/closure activity for the DE-1Certificate Program. The majority of study participants accepted the activity as a “capstone” activity, as it was a requirement for obtaining the DE-1 Certificate and they felt the activity was beneficial as the last Program teaching activity. Comments included, “Brought the picture together. You saw a model, you got to practice and use it, and then you got to hear about how you're applying it.” (I-3) “I think that it was part of the certificate. If you didn’t do that other piece, you didn’t get the certificate.” (I-16) “It's hard for me to distinguish the observation event from the whole course, but in general, yes, because I think the whole
course, including the observation, raises awareness of the particular teaching strategies that are available.” (I-5)

Others believed that the observation and written feedback activity could have been a program unto itself and/or could have been incorporated at several points in time during the Essentials Program to provide more formative feedback. Comments included, “I don't know that I would have known to ask for it if it hadn't been part of the series or the certificate, right? Having said that, maybe that might be something that would be worth it, is to make it more knowledgeable to people that it is something that one can ask for, even without having it be part of your certificate.” (I-5) “It's a necessary component because it makes you aware that it's there, and it's really helpful, and I think it should be part of the program, but I do also think that a lot of people would benefit from it anyway or at least know that it's an option that they can ask for if they are comfortable with it or if they're interested in getting better at teaching.” (I-5) “I think it probably would be helpful to be incorporated into the non-certificate program.” (I-14)

Areas for improvement in the process. Participants made comments regarding areas for improvement for the activity.

More feedback opportunities. Participants would have appreciated more opportunities for feedback, with comments including, “More critique/feedback, because I need more opinion, more observation, make it better.” (I-6) “I wonder if having some sort of observation in the middle of all of this, what that would be like. So if you can, you know, be observed in the middle of the core certificate in terms of what you're going through and then at the end.” (I-7) “I think each encounter is a little bit different and to be able to get really a broad scope of how someone interacts in different situations or, you know, kind of over the time span, it would be nice to have observational feedback for either a longer day or even just come back on different days with different students or, you know, when there are different patients.” (I-13)
Feedback delivery immediately and orally after observation. Some study participants would have appreciated immediate oral feedback immediately after the interviews, with comments including, “Immediately right after the session for 10 or 15 minutes, or again proximate to when I did it, say within that first week, just sitting down.” (I-18) “The timing of the feedback is one point. I felt the written feedback was pretty – I mean, when it did happen – it was really comprehensive, but yeah, I think just the immediate verbal feedback is helpful too because you can kind of react to it on the spot and just kind of mentally note some things that were highlighted.” (I-1) “I think in the moment feedback is best and then written feedback is probably necessary to either expand on it or to document, you know, but obviously, I think they’re both needed.” (I-16)

Explicit goals and objectives. Some study participants recommended having explicit goals and objectives for the observation and feedback, commenting, “It would have been nice to know how you were going to be evaluated and I think…so that you could make sure that you were best prepared because I think a lot of people may not be used to that in more of an academic setting and being critiqued by somebody in academia.” (I-17)

Logistical issues such as easier scheduling. Some study participants commented about logistical and scheduling issues, such as, “There was a little bit of back and forth about working on a day and then, you know, it not being a great day for her and a little bit of a busy day, you know … just the logistics of sort of having a hard time getting a time frame down.” (I-3)
IV. Discussion and Conclusion

The purpose of this study is to elicit the perspectives of medical teachers who have participated in a longitudinal faculty development certificate program that included a direct observation of their teaching with a written feedback activity to conclude their learning experience. The results of this study demonstrate that participants in this activity perceived and identified the positive outcomes of: increasing their general and specific pedagogical knowledge, skills and confidence; increased reflection about their roles and skills in education; and increased interest in developing their professional roles in the areas of medical education and healthcare administration. These findings are consistent with other studies exploring the benefits of faculty development programs.\textsuperscript{2,4,9} Some unexpected benefits of the observation and written feedback activity, in the context of the literature, were: increased awareness and skill in the process of the feedback, both in receiving and/or delivering feedback; increased confidence in self-assessment skills regarding teaching; recognition of institutional support of their teaching efforts; and the transfer of pedagogical skills into other domains, specifically their personal life and administrative responsibilities.

Participants in this study also commented about several aspects of the process of the observation and written feedback activity. All participants recalled details of the activity, perceiving it as a memorable event and evoking emotional responses. Receiving feedback from an expert educator who was also their teacher, an individual who was respected and trusted, was an important element. Credible feedback, from a credible expert, was crucial for study participants. Positive characteristics of the feedback that were described by participants were: the balance of comments that were both reinforcing as well as suggesting modifications; the specificity of the comments; the formative nature of the comments, including suggestions for improvement. These feedback qualities have been described by others as critical for effective observations of teaching and feedback to medical teaching faculty.\textsuperscript{16} Interestingly,
participants appreciated the written delivery of the feedback, which is supported by Shute,\textsuperscript{14} as it was a format that they could refer back to for reference and demonstrated that observer reflection and attention contributed to the feedback. While all participants appreciated that the observation and written feedback activity was the final component of DE-1 Certificate Program, some participants believed that the activity could be a stand-alone faculty development program for enhancing teaching skills. While this type of faculty development, observation of teaching skills with feedback, is supported in the literature, the fact that participants valued the observation as a closing activity and/or a capstone event is something to consider for longitudinal faculty development programs focused on pedagogical skill development. Also, the emphasis placed by participants in this study on the observer’s status and credibility needs further attention, as current literature emphasizes the value of peer observation.\textsuperscript{6,16} To effectively promote changes in skills and reflection in medical teaching faculty, other feasible methods, such as videotaping teaching sessions,\textsuperscript{17} or short mini-observations, to allow observation and feedback of teaching skills by a trusted teacher or coach with expertise in the education, can be studied to explore if one method is more effective than another.

Study participants also commented about areas for program improvement; these areas included the desire for more feedback opportunities in different settings, with a focus on additional teaching strategies; the possibility of receiving both immediate oral as well as written feedback; clarification of the goals and objectives of the activity beyond the goal of completion of the DE-1 Certificate Program; and enhancement of scheduling for the activity. These perspectives are useful for making changes in the DE-1 Certificate Program to further strengthen the impact it has on the program participants. The possibility of implementing some of these changes should be studied, with attention to effectiveness, cost and personnel to warrant the additional resources that may be required.
Paying attention to what is important about feedback to the observed faculty can assist in enriching faculty development programs, given that observation and feedback is resource- and time-intensive. Questions about which format of feedback delivery (oral or written) should be used, how soon it should be provided and who should provide it are still unanswered. Additional factors that should be considered are: the learners’ preferences for form of feedback, the goals for feedback (increasing awareness, deepening reflection, changing behavior), how much feedback and how often, and availability of resources. Studies of different formats of feedback can be conducted, with individualization of the observation and feedback. For a successful faculty development effort, we need to take into account the teaching level of the observed medical teaching faculty, their needs, and their specific goals, to effectively change their behavior. How observed faculty view feedback and its delivery can be critical in affecting their learning outcomes and in their professional identity as a medical teacher.

One of the challenges to this study is separating out the outcomes that can be directly linked to the observation and feedback activity to those outcomes expected from the Essentials Program. Some study participants had difficulty isolating their goals from participating in the Essentials Program from goals by participating in the DE-1 Certificate Program which had the requirements of the observation and feedback activity and attendance of a minimum number of workshops. This difficulty is understandable as the two programs are intertwined. Subtle differences between participants’ goals for the two programs may have been not appreciated, not considered and perhaps forgotten. What can be said is that the participants valued the observation activity because it allowed for application of teaching skills in their workplace teaching environment, with direct observation by their instructor, who then provided specific targeted, individualized feedback. This personalized instruction was not always available or possible in the Essentials Program, given the number of Essential participants (15-40), the
variability of the participants’ background and the diverse educational interests and goals of the participants. The power of individualized instruction is hard to capture, but is clearly remembered by the observed participants. We can speculate that memorable characteristics of the observation activity, and involvement in the process of such an activity, reinforce learning outcomes in a more meaningful and intense fashion than only attendance in a group faculty development program. A direct observation of teaching for medical teachers, because of its infrequency, may be considered by some, as a critical incident, which in turn, may promote longer-lasting effects upon one’s behaviors and beliefs. The written feedback also provided a tangible document to which DE-1 Certificate Program participants could refer back, reflect upon and use again to improve their teaching skills. This recall, however imperfect, and reflection about the observation and feedback activity, may have more influence on learning outcomes when compared to only participation in the Essentials Program.

There are limitations to this study. First the study was conducted at a single academic healthcare center that has had an established faculty development presence for several decades. The Office of Faculty Development has increased in importance in the past decade, with the creation of the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University in 2002. Not all institutions are able to support faculty development programs designed to enhance pedagogical skills and provide direct observation and written feedback by credible instructors. Second, while the response rate for the interviews was high (78%), there was no opportunity to interview DE-1 certificate holders who had left the institution and those who did not respond to the recruitment letter. It is possible that these individuals held different perspectives regarding the outcomes and processes of the observation and written feedback activity.
This study demonstrates that DE-1 study participants remembered and appreciated the direct observation and written feedback that was performed by a credible expert in medical education, one with whom they had developed a longitudinal and trusting relationship during a faculty development program. Participants appreciated that the activity provided formative feedback and was a closing activity for the DE-1 Certificate Program, an activity that allowed the acquisition of the DE-1 certificate, a credential which confirmed unambiguously their intention to improve their teaching skills. Overall, this study contributes and extends the existing literature in that an observation and written feedback activity, as part of the longitudinal faculty development program, is perceived as valuable by medical teaching faculty. The findings of this study can help guide the design and implementation of faculty development programs, faculty teaching observations and feedback to faculty.
V. CITED LITERATURE:


Appendix A. Example of Written Feedback to DE-1 Participant

Dear XXX:

It was my pleasure to observe your lecture “XXX” on Tuesday XXX XX, 2012 as part of the requirements for the “Distinguished Educator I Certificate” Program. When observing presentations, I look at the quality of the introduction and the environment that you create. In addition, you wanted feedback on your teaching style and how well your message gets across to the audience.

Strengths

- You provided a broad outline of the lecture at the beginning of your talk, which was very helpful in providing a road map for the audience. You also delineated specific objectives for the lecture (to distinguish xxx from xxx, review the xxx aspects of xxx and review the principles of xxx infections).
- Your slides were extremely attractive and colorful and demonstrated thought and care in your design and selection. The visual stimulus assisted in getting the residents’ attention and helped to maintain interest throughout the talk.
- You sprinkled clinical vignettes and pearls in your lecture which engaged the residents, making the content meaningful in the clinical context. You were also able to inject humor when telling your stories and the residents demonstrated their appreciation and understanding by chuckling and laughing. An example of one of your pearls was when you reviewed the xxx testing and said “just because a test is fast doesn’t mean it’s a good test…Consider the context for the testing.”

Areas for Improvement

- You had a tendency to speak very quickly, which is a common issue when lecturing. You may wish to slow the pace of your speech as it will allow learners to better understand and absorb the information. It is important to speak at an appropriate rate that permits learners to hear and process what is being said and to connect the information to their previous knowledge. One method you may wish to consider incorporating a method known as the “active pause” which means stopping for a few seconds and allowing the learners to write down some notes or concepts that they find important.

Focus Area of Feedback: Teaching Style

- You asked for some specific feedback on your teaching style. As you may recall, the Essentials Program begins with a ½ day retreat, “Foundation in Education” when there are discussions about how people learn and teaching and learning styles. We introduce three main teaching styles: Formal Authority/Expert, Personal Model and Facilitator (Grasha AF. The Dynamics of One-to-One Teaching. Social Studies 2003; 94:179-187). During your lecture, your predominant style resembled that of a Formal Authority/Expert, as you are, indeed, an international expert in your field. You provided many facts that the residents need to know and shared some personal clinical experiences. This teaching style is very typical in the lecture setting.
There are advantages of this teaching style: a lot of information can be provided at one time to many people, and the “expert” practice (in your situation, running the Cleveland Clinic xxx) is presented. You were able to share your unique insights and valuable practices that you have gained through your experiences.

Disadvantages of being a Formal Authority/Expert and utilizing this teaching style are that your fund of knowledge can be intimidating and learners may not be able to admit that they do not understand all the concepts you have presented. Learners may be afraid to ask any questions and to disrupt the pace of the lecture. Some of teaching points may then be lost upon the audience. Again, consider slowing the pace of your speech, using a pause technique two or three times during a lecture and asking if there are questions about the information presented before the end of the talk. These tips can help learners in retaining and deepening their understanding of the material presented.

Overall

Your lecture was a comprehensive talk about xxx regarding mechanisms and principles for infection, key features of xxx testing and the importance of identifying xxx infections to assist physicians with diagnosis and treatment of patient illnesses.

You demonstrated expertise and were very comfortable presenting the material to the residents. You were familiar with some of the residents and called them by name, making the environment personable and friendly. Your slides were well-designed and provided much visual stimulation, capturing the residents’ attention. I’m sure that the residents will remember your pearls when they are involved with xxx testing.

If you would like to discuss any of these ideas, please give me a call and we will set up a time to meet.

According to our records, you completed the requirements for the Distinguished Educator Level 1 Certificate. Congratulations!

Sincerely,

XXXX
<table>
<thead>
<tr>
<th>Gender:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males: 6</td>
</tr>
<tr>
<td>Females: 12</td>
</tr>
<tr>
<td>Degree obtained:</td>
</tr>
<tr>
<td>MD: 14</td>
</tr>
<tr>
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</tr>
<tr>
<td>Age:</td>
</tr>
<tr>
<td>Median: 40 y/o (range 32-62)</td>
</tr>
<tr>
<td>Years at Cleveland Clinic:</td>
</tr>
<tr>
<td>Median: 5 years (range 3-46 years)</td>
</tr>
<tr>
<td>Specialty:</td>
</tr>
<tr>
<td>Internal Medicine, IM specialty or Family Medicine: 7</td>
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<tr>
<td>Surgical specialties: 3;</td>
</tr>
<tr>
<td>Lab-based medicine: 2</td>
</tr>
<tr>
<td>Others: Pediatrics: 1; Anesthesia: 1; Audiology: 1; Quantitative research: 1; Research immunology: 1; Physical Medicine and Rehabilitation: 1</td>
</tr>
</tbody>
</table>
## TABLE II

CHARACTERISTICS OF DIRECT TEACHING OBSERVATIONS

<table>
<thead>
<tr>
<th>Teaching setting</th>
<th>Classroom=13</th>
<th>Outpatient Clinic=3</th>
<th>Inpatient hospital=1</th>
<th>Operating room=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of used teaching method by DE-1 participant</td>
<td>• Lecture • Discussion</td>
<td>• Clinical experience • Role modeling • Reflection on experience • Feedback on performance</td>
<td>• Clinical experience • Role modeling • Reflection on experience • Feedback on performance</td>
<td>• Clinical experience • Role modeling • Reflection on experience • Feedback on performance</td>
</tr>
<tr>
<td>Basic Science topic</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical/Patient care topic</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE III

DOMAINS AND THEMES DESCRIBED BY DE-1 STUDY PARTICIPANTS

<table>
<thead>
<tr>
<th>Outcomes of the observation and written feedback experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expected Outcomes</strong></td>
</tr>
<tr>
<td>1. Increased knowledge, skills and confidence regarding general and specific teaching skills</td>
</tr>
<tr>
<td>2. Increased reflections about teaching and education</td>
</tr>
<tr>
<td>3. Increased interest and activity in professional development</td>
</tr>
<tr>
<td>4. Opportunity to apply knowledge and skills learned in their specific teaching setting</td>
</tr>
<tr>
<td>5. Value of obtaining a DE-1 certificate</td>
</tr>
<tr>
<td><strong>Unexpected Outcomes</strong></td>
</tr>
<tr>
<td>6. Increased awareness of the process of providing and receiving feedback</td>
</tr>
<tr>
<td>7. Increased confidence of self-assessment skills</td>
</tr>
<tr>
<td>8. Increased awareness of institutional support and expectations of medical educators</td>
</tr>
<tr>
<td>9. Transfer of acquired teaching strategies to other contexts (home environment, administrative positions)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Memorable experience</td>
</tr>
<tr>
<td>2. Described characteristics of the evaluator: evaluator status, credibility, relationship between teacher and learner</td>
</tr>
<tr>
<td>3. Specific characteristics of feedback: balanced, targeted, specific, suggestions for improvement, timing and format</td>
</tr>
<tr>
<td>5. Possible areas for improvement: more feedback opportunities, feedback delivery immediately and verbally after observation, explicit goals and objectives, logistical issues such as easier scheduling</td>
</tr>
</tbody>
</table>


VITA
LILY C. PIEN, M.D.

Education
School:  Northwestern University
College of Arts and Sciences
Honors Program in Medical Education
B.S., 1977-1981

Medical School:  Northwestern University
Chicago, IL
M.D.  1979 - 1983

Masters Program:  University of Illinois – Chicago
Masters in Health Professions Education
Currently enrolled July 2011

Post-Graduate Training
Institution:  Northwestern University
Residency:
McGaw Medical Center, Chicago
Internal Medicine, 1983-1986

Fellowship:
Northwestern University
Department of Allergy/Immunology
1986-1988

PROFESSIONAL APPOINTMENTS
Position/Rank:  Associate Director of Faculty Development, Cleveland Clinic Lerner College of Medicine of CWRU and Center for Educational Resources, Education Institute (2014 to present)

Chair, Clinical Competency Committee, Cleveland Clinic Allergy/Immunology Fellowship (2013 to present)

Associate Professor, Cleveland Clinic Lerner College of Medicine of CWRU (2013 to present)

Faculty Development Associate; Cleveland Clinic, Education Institute (2007 to 2014)

Staff; Cleveland Clinic Staff, Respiratory Institute, Department of Allergy (2006 to present)

Associate Staff; The Cleveland Clinic Foundation, Department of Pulmonary and Critical Care Medicine, Section of Allergy and Immunology (1993-2006)
Assistant Professor; Case Western Reserve University MetroHealth Medical Center Department of Medicine, Section of Pulmonary and Critical Care (1990-1993)

Senior Instructor; Case Western Reserve University Cleveland Metropolitan General Hospital Department of Medicine (1988-1990)

Instructor of Clinical Medicine; Northwestern University, Chicago Department of Medicine (1988)

CERTIFICATION AND LICENSURE
Diplomat: National Board of Medical Examiners, 1984. #276282

Diplomat: American Board of Internal Medicine, 1987. #107326 (time unlimited)

Diplomat: American Board of Allergy and Immunology, 1989. #3153

Diplomat: American Board of Allergy and Immunology, 1999. #3153.
Recertification: August 9, 1999; October 2009

State of Ohio:
Medical License #35-05-6688-P

HONORS AND AWARDS
1. AAMC-CGEA March 29, 2014 Best Poster in the Innovations in Medical Education Poster by a Student or Resident “Integration of Students’ Perceptions of the Electronic Health Record into a Relationship-Centered Communication Skills Curriculum” London D, Windover A, Isaacson JH, Pien LC.

2. Case Western Reserve University Scholarship in Teaching Award “Recognizing Faculty Educators” March 6, 2014 “Integration of Student’s Perceptions of Electronic Health Record into a Relationship-Centered Communication Skills Curriculum” London D, Windover A, Pien LC.

3. Cleveland Magazine Best Doctors 2014


5. Cleveland Magazine, Best Doctors 2013


8. Case Western Reserve University: Scholarship in Teaching Award “Recognizing Faculty Educators” March 1, 2012 “Facilitating Reflective Practice in a Competency-Based Medical School Curriculum.” Lee K, Dannefer E, Pien LC.


10. Cleveland Clinic Education Institute Resident Educator And Life-long Learner (REALL): Resident Development Award, December 2011.

11. Cleveland Magazine; Best Doctors 2011

12. Cleveland Clinic: Respiratory Institute, Section of Allergy and Immunology, Teacher of the Year, June 2010.


15. Cleveland Clinic Education Institute Resident Educator And Life-long Learner (REALL): Resident Development Award, October 1, 2008.

16. Cleveland Clinic Education Institute: Cleveland Clinic Distinguished Educator Certificate 1, June 30, 2006.

17. Cleveland Clinic Education Institute: Medical Education Fellowship Award 2005-2006.


20. America’s Top Doctors (Castle Connolly)

MEMBERSHIP IN PROFESSIONAL SOCIETIES
National Organizations
1. American Academy of Allergy, Asthma & Immunology
   Fellow 1998 to present
   Member 1986-1998

2. American College of Allergy, Asthma and Immunology.
   Member 1996 to present

3. American Academy of Communications in Healthcare
   Member 2005 to present

   Member 1995 to 2008.

5. American Thoracic Society
   Member 1994 to 2008.

Regional Organizations
Cleveland Allergy Society
Member 1989 to present
Positions held:
• President 1995 to 1997
• Vice President 1993 to 1995
• Secretary-Treasurer 1991 to 1993

PROFESSIONAL SERVICES
Editorial Boards: N/A
Ad Hoc Journal Article Reviewer:
• Patient Education and Counseling, 2006 to present
• Annals of Allergy, Asthma and Immunology, 2003 to present
• MedEd Portal, 2010 to present

Study Sections/Grant Review Committees: N/A

Advisory Groups
Northwestern University Medical School; Education Advisory Forum Member, April 2009-November 2013

COMMITTEE SERVICE
National:
American Academy of Allergy, Asthma & Immunology
Committee Positions:
• Committee Executive Member: Secretary, Newsletter Editor, Fellow-in-Training 1988-89,
• Committee Member, Government Advisory 1996-1999
• Committee Member, Women’s Affairs 1993-1996
• Committee Member, Sports Medicine 1989-1992
• Committee Member, Women’s Involvement in the AAAAI, 1997-2000
• Committee Member, Health Care Quality Education, Delivery and Management (HCQEDM) 2005 to present
• Committee Representative for Workshops Committee (HEDQ) 2007 to 2011
• Office of Medical Education Task Force 2013
• Office of Medical Education Committee Member 2014 to present

Cleveland Clinic
1. Respiratory Institute, Section of Allergy and Immunology
   Quality Assurance Officer 2007 to April 2010

2. Cleveland Clinic Women Professional Staff Association (WPSA)
   Leadership Development for Women in Healthcare Professions
   Organizing Committee 2006-2008

TEACHING ACTIVITIES
Curriculum/Course Development
Cleveland Clinic Education Institute
Director, Resident Educator And Life-long Learner (REALL) Program
May 2007 to present

Cleveland Clinic Lerner College of Medicine
Communication Skills Student Precepting Elective Course Director
August 2008 to present

Cleveland Clinic Lerner College of Medicine
Communication Skills Course Planning Committee Member

RESEARCH SUPPORT

BIBLIOGRAPHY
Peer-reviewed Articles


**Edited Books, Monographs or Journal Volumes**

2. Windover AK, Isaacson JH, Pien LC, Merrell J, Moore AS.(Eds.), Relationship-centered Healthcare Communication: An Advanced Topic Guide. The Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, Ohio.

**Invited, Non-Peer Reviewed**

**Book Chapters Published or In Press**


**Letters**

**Abstracts**

2. Safadi GS, Wagner WO, Pien LC, Melton AL. Latex-Induced Anaphylaxis following Routine Medical Examination. Abstract oral presentation. American College of Allergy, Asthma and Immunology; Dallas, TX, November 1995.


12. Inamdar SR, Pien LC. Multiple peri-operative mysteries presenting as latex allergy. Poster abstract presented at American College of Allergy, Asthma and Immunology; San Antonio, TX, November 16, 2002.


39. Gonzalez-Estrada A, Pien LC, and Lang DM. Perioperative anaphylaxis: antibiotics are the most common identifiable cause. American College of Allergy, Asthma and Immunology Annual Meeting, Baltimore MD November 2013.


43. London D, Pien LC, Windover A, Isaacson JH. Relationship-Centered Communication Skills and the Electronic Health Record: A Faculty Needs Assessment on the Need for Medical Student Education. AAMC-CGEA/CGSA/COSR Columbus, Ohio; April 2015.