

## EDUCATIONAL RESEARCH

### QUALITY

#### Clear, Realistic & Important goals 5 pts

- Is researcher's line of research important to the field?
- Are research goals specific & obtainable?

#### Adequate Preparation and Self-Reflection 10 pts

- Is researcher qualified to conduct research effectively?
- Does researcher take advantage of educational research and development opportunities?
- Does researcher solicit and effectively use advice from colleagues/mentors?

#### Appropriate Methods and Materials 15 pts

- Are designs of studies appropriate?
- Do studies have sufficient statistical power?
- How do peers regard process and perceive outcomes?
- Were new research methods used that were accepted nationally?

#### Quality of Presentation of Results 35 pts

- Do the research studies lead to outcomes worthy of publication in the literature?
- Were the results published?
- Do peer reviewers for grant, journal and/or educational awards find the presentation of results understandable and credible?
- Are write-ups of research results credible to local, regional, and/or national audiences?
- How novel or creative are the works?

### QUANTITY/BREADTH 35 pts

Number of specific questions examined, number of initiatives associated with each question, number of disseminations – publications, workshops, etc.

Number of different thematic areas, different types of questions focused on different educational issues and/or learner populations, different types of research methods and different venues for disseminating results. Depth and scope may also be counted as breadth here



**Personal Statement:**

**Appendices:**

Please attach supporting documents, including letters of support, appreciation, awards, positive evaluations etc. Please do not attach lesson plans or presentations.

## EXAMPLE

### Educational Research Structured Summary

Anne Jones, MD, Clinical Department

| <b>Personal Statement</b>                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal Goals                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>To design and conduct meaningful, high quality educational research</li><li>To gather and use data to determine changes to the educational process.</li></ul>                                                                                            |
| Personal Preparation                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>Attended the Association of Professors of Gynecology and Obstetrics (APGO)/Solvay Scholars Program</li><li>Attended a short course at the fall, 2000 AAMC Annual Meeting entitled "Designing Medical Research for the 21<sup>st</sup> Century"</li></ul> |
| Personal Reflection/ Process for Improvement                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"><li>I discuss these projects with colleagues and carefully consider their feedback and ideas.</li><li>I reflect on results and how they impact my long term goals.</li></ul>                                                                                 |
| <b>Research Effort</b>                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                |
| Theme: Medical Instrumentation/Procedures                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                |
| 1. Can a simple, inexpensive device be used to train residents with less injury to patients and with increased adequacy of pathological specimen acquisition in the loop electrical excision procedure (LEEP)?                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                |
| 2. What is the perceived proficiency in endoscopic techniques among senior Obstetrics and Gynecology (OB GYN) residents?                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                |
| Theme: Resident Selection/Attrition                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                |
| 1. Does the current residency selection criteria predict performance in an OB GYN residency?                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                |
| 2. How many residents nationally are leaving OB GYN residency programs and why?                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                |
| Theme: Residency Curriculum                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                |
| 1. & 2. Should formal rotations in neonatology and anesthesia be reintroduced into the curriculum? If so, what should be the content of the curriculum?                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                |
| <b>Contributions to the Dissemination of the Research Results of Other Investigators</b>                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                |
| 1. Reviewer, <i>Journal of Gynecological Education</i> , 1999-present.                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                |
| 2. Planning Committee, 2002 APGO/CREOG Annual meeting, Dallas, Texas.                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                |
| <b>Discussion of Breadth</b>                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                |
| I have studied multiple issues related to graduate medical education, including a way to better train residents to perform a difficult, invasive procedure; studied the perceived proficiency in endoscopic techniques among senior residents; analyzed the residency selection criteria vs performance; reviewed the attrition of residents; and engaged in research which fostered change in the residency curriculum. |                                                                                                                                                                                                                                                                                                |

## **Personal Statement – Anne Jones, MD, Clinical Department**

The importance of research in medical education has recently been reaffirmed for me in a very strong way. I met with a potential residency candidate who was participating in an elective in our department. Before I could meet with her, I was contacted by 3 residents, who had worked with this individual, to put me on “alert.” I was told she was a fantastic candidate. Through our meeting, I learned that she was graduating 6 months late. She attends a medical school that has introduced significant curricular changes while simultaneously having serious financial difficulties. In my opinion, this upheaval had the direct result of inadequately preparing her for the USMLE Step 1. She had left the school for 6 months to “relearn” the material or, as she clearly stated, “learn it for the first time.” This action resulted not only in her passing the USMLE, but scoring well above the mean on Step 1 and Step 2. This case is anecdotal; however, it highlights the danger of introducing new curricula without measuring outcomes. This educational experiment could have resulted in a catastrophe for this very bright medical student, and will have some long lasting implications for her ability to match to a top notch program.

My own involvement in research in medical education was initiated through an unusual circumstance. I had the opportunity to “leave” medicine for two years between medical school and residency. This gave me the opportunity to mature and to reflect on my undergraduate experience. After two years, I returned to start my residency. Because of personal family issues, I transferred residency programs in my second year. The teaching style of the first program was considerably more structured than that of the second program, and I constantly questioned, (mostly to myself) “Why do we do this way? Why does our call have to be like this? Why are we not taught surgical techniques in a classroom prior to the operating room?”

After graduating from the residency program, I stayed with the department and began implementing and testing curricular changes. This activity began with simple investigations to determine if text search was useful for residents in training or if this information was taught in medical schools and was redundant. As is often the case, the most important thing I learned was not what I originally questioned, but additional information gleaned through the research. I found that text search was useful to some but not all residents, but physically requiring them to go to the library was beneficial to all. Since that time, I have worked in conjunction with others on a variety of educational projects including creating models for teaching surgical technique in basic labs, conducting and studying evaluations of the curriculum, and most recently trying to better understand why the surgical specialties have such high attrition and how to advise program directors to handle the financial and emotional cost of this particular “failure.” Many of the projects were designed to specifically evaluate information for my program, but have been generalized to others.

Both my department leadership and my professional association have provided guidance and encouragement to me. In 1999-2000, I participated in the APGO/Solvay Scholars Program in which over an 18-month period a project is initiated and mentored, and a minimum of 40 classroom hours are spent looking at various aspects of educational research and teaching techniques, and gaining exposure to some of the brightest medical educators. In retrospect, I can see where I have used the information that I gained from this experience to refine my skills. I also attended an all day workshop at the fall 2000 AAMC Annual meeting entitled “Designing Medical Research for the 21<sup>st</sup> Century.”

Also through the support of my department leadership, I have been able to develop the Division of Medical Education. This group of physicians and one educator have worked together to take the educational mission of our department to a new level. We are teachers first, and physicians second, as the name implies. We have recently introduced a skills lab which has improved morale, encouraged interaction between faculty and residents, and given us the ability to document procedural competencies as mandated by the ACGME. We find it a great success, but to avoid mistakenly patting ourselves on the back, we are evaluating each skill with a validated scale and having the residents answer a questionnaire to find out, "Is it really useful? Should we do it again?" Although this is on a much smaller scale than the scenario I discussed in the introduction, it is important to "test" and not to go with a hunch.

The true test in the academic pursuit of medical education is to see the outcomes of the research projects implemented in residency training. Sometimes the gains do not appear for a period of 4 years or so, as that is the length of one residency training class. At the end of a project, immediate statistical results are attained which then must be translated into long-term goals. It is at this time that I pause to reflect, to wait, and look for the outcome of the practical application. I discuss these projects with various colleagues around the country for feedback and sometimes it comes unsolicited as confirmation of success. It is incredibly rewarding, for example, when a colleague tells me at a national meeting that he/she has implemented our loop training device in his/her curriculum and it has been a success.

Perhaps the rigor that is required of scientific research has not been previously demanded of education, but the climate is changing. The appreciation for educational research has not been in the forefront of academic medicine, and it has been undervalued. These characteristics seem very oppositional. Intuitively, it would seem that we should test the techniques of teaching, at the very least; in order to produce the most prepared clinicians, researchers, and teachers in medical education.

## Structured Abstracts

*Anne Jones, MD, Clinical Department*

### **Theme: Medical Instrumentation/Procedures**

**Research Question 1:** Can a simple, inexpensive device be used to train residents with less injury to patients and with increased adequacy of pathological specimen acquisition in the loop electrical excision procedure (LEEP)?

Investigation: (1997-1998) Residents need to be able to use loop excision of the cervix to evaluate and treat cervical dysplasia. While training inexperienced residents in this technique, patients have been burned. In addition, this practice should occur away from apprehensive patients where instructional and constructive criticism can be given.

Methods: An empty cardboard bathroom tissue roll with a piece of sausage at one end was devised to teach this technique. Touching the side of the cardboard tube with the hot wire loop resulted in a burn or char, quickly and graphically illustrating why the vaginal sidewall is to be avoided.

Results & Impact of Findings: There has been an 85% decline in complication rates and a 50% increase in adequacy of pathological specimens when “pretraining” with this inanimate model as compared with past methods for this training. I have been told by many colleagues at national meetings that this type of training is now used at institutions across the nation.

#### Contributorship:

- Dr. Anne Jones collaborated in the development of the clinical apparatus, gathered data, and wrote and edited the paper.
- Dr. K. O. Rogers collaborated in the development of the clinical apparatus.
- Dr. Roger King analyzed the data.

Dissemination 1: Jones A, Rogers K, King R. A Simple, Inexpensive Device for Teaching the Loop Electrical Excision Procedure. *Obstet. Gynecol.* 94(3):474-475, 1999.

Dissemination 2: Results presented to the Department of Obstetrics and Gynecology, 1998.

**Research Question 2:** What is the perceived proficiency in endoscopic techniques among senior OB GYN residents?

Investigation: (2000) This investigation was undertaken to assess current training methods in laparoscopic surgery employed in US OB GYN residency programs, the level of proficiency in various minimally invasive surgery procedures amongst senior OB GYN residents, and possible ways in which training in minimally invasive surgery can be improved.

Methods: A survey was sent to all accredited OB GYN programs in the United States. The subjects were all fourth-year residents in these programs.

Results & Impact of Findings: Responses were received from 133 programs and 295 residents. Of these, 67% of residents thought emphasis on laparoscopic surgery training should be increased or greatly increased; 87% thought laparoscopic skills were

important for building a successful practice. As a result of this investigation our department has increased the number of hours residents spend training in laparoscopic surgery by more than 50%.

Contributorship:

- Dr. Anne Jones was the PI, helped conduct the survey, and wrote the paper.
- Dr. J. I. Evans conducted the survey.
- L. Tsu assisted in data collection.
- Dr. H. Young, performed statistical operations.

Dissemination 1: A. Jones, M.D., J. I. Evans, M.D., L. Tsu, and H. Young and Gynecology Residents. J Am Assoc Gynecol Laparosc 9(2): 158-164, 2002.

Dissemination 2: Results presented to the Department of OB GYN, 1998.

**Theme: Resident Selection/ Attrition**

**Research Question 1:** Does the current residency selection criteria predict performance in an OB GYN residency?

Investigation: (1999) This investigation was undertaken to establish that the system for ranking resident applicants in the OB GYN residency program is predictive of resident performance, to determine which factors in the residency selection process most adequately predict performance in residencies, and to help ensure selection of resident applicants most likely to succeed.

Methods: A retrospective evaluation of resident applicants that matched in our residency program was conducted. Thirty-three residents that had completed greater than 2 years of the program were included. Variables included numbers of publications, research experience, USMLE scores, and attendance at a top 10 medical school in women's health.

Rank position on the rank list at this institution and data derived from the interview were also tabulated. Resident performance score (RPS) was calculated by a new assessment technique. A team of five faculty members was created to evaluate each resident individually. Rank order was compared to RPS to determine if the system used at SIU is predictive of resident performance.

Results & Impact of Findings: A significant correlation existed between rank order and resident performance, indicating that applicants ranking in the top category on the rank list had the highest RPS score, while those in the bottom third had the lowest RPS scores ( $p < 0.1$ ). As a result of this study the department will continue to use the current method to select and rank perspective residents.

Contributorship:

- Dr. Anne Jones designed the study and wrote the paper.
- Dr. J. Leveck compiled data and helped with the study design.
- Dr. H. Young performed statistical operations.

Dissemination 1: A. Jones, J. Leveck, H. Young, Abstract Presentation at the APGO/GREOG Meeting “Does Residency Selection Predict Resident Performance in an OB GYN Residency? What Factors in Residency Selection Most Accurately Predict OB GYN Resident Performance?” Orlando, Florida, March 7-11, 2001.

**Research Question 2:** How many residents nationally are leaving OB GYN residency programs and why?

Investigation: (2001) I was interested in investigating the percentage of attrition nationally of first year residents in OB GYN Residency Programs, the perceived etiology behind the attrition, and how current program directors assess the adequacy of the replacement pool.

Methods: A survey was constructed of 10 questions and was emailed and faxed to the program directors of the 277 approved residency programs (excluding military programs.) Only information for the 2000-2001 academic year was requested. If a program “lost” one or more residents then the cause of that loss was explored as to etiology; withdrawal, non-renewal, or dismissal. Ultimately the program director was questioned as to whether he/she was satisfied, somewhat satisfied, somewhat unsatisfied or unsatisfied with the applicant pool. Descriptive statistics were applied to collected data.

Results & Impact of Findings: Of the 277 programs, with a total of 590 residents, 116 completed surveys were returned. Thirty-five percent of the responding program directors had at least one PGY1 leave the program and 5% lost more than one intern in the calendar year 2000-2001. Eight percent of categorical interns left their parent program, 93% of these PGY1’s who left their programs did so of their own volition (of those residents 42% left for another program), 53% left for another specialty and no response was provided for two PGY1’s. Of those that had non-renewal of their contract or dismissal, two left the field of medicine, and one changed specialties.

Contributorship:

- Dr. Anne Jones designed the survey, analyzed the data and prepared the poster.
- Dr. J. Leveck compiled data and helped with the study design.

Dissemination 1: A. Jones, J. Leveck, Poster presentation at the APGO/CREOG Meeting, Dallas, Texas, March 6-8, 2002.

**Theme: Residency Curriculum**

**Research Question 1 and 2:** Should formal rotations in neonatology and anesthesia be re-introduced into the curriculum? If so, what should be the content of that curriculum?

Investigation: (2001) Several residents expressed a need for additional training in both neonatology and anesthesia based on conversations they had with volunteer and full-time faculty in the Texas Medical Center.

Methods: A needs assessment, using a 5 point Likert scale instrument, was conducted using an anonymous survey of full time and voluntary faculty in the Texas Medical

Center. Questions relating to current practice patterns were formulated for neonatology and for anesthesiology based on CREOG objectives and the 2001 Program Requirements.

Results & Impact of Findings: Based on an 80% return rate, it was determined that a two-week rotation in neonatology and a month rotation in OB GYN anesthesia be re-instituted. An overwhelming number of full-time and voluntary faculty concurred with the residents in the belief that it was important to reinstitute a neonatology rotation because of the frequency with which they dealt with neonates in their practices. The program directors of anesthesia and neonatology were given results of the survey, pertinent program requirements, and a curriculum, clearly delineating objectives prioritized with survey results.

Contributorship:

- Dr. Anne Jones designed the study and prepared the poster.
- Dr. A. Tims assisted with the study design.
- Dr. J. Downs assisted with the poster preparation.
- Dr. J. Leveck compiled data and assisted with the study design.

Dissemination: A. Jones, A. Tims, J. Downs, J. Leveck, Poster presentation at the APGO/CREOG Meeting, Dallas, Texas, March 6-8, 2002.