Defining and implementing interprogram research and clinical programs

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I am probably the luckiest presenter at this meeting because I have the freedom to "play" with an idea that may or may not have any direct and timely consequences on us as directors of graduate programs. According to developmental psychologists, any activity defined as "play" has beneficial attributes that contribute to an individual's or group's assimilation and manipulation of concepts. Often, the concepts are highly valued by a society or profession. I'm going to play with the concept of interprogram research, although I've learned that it's more reality than fantasy. Hopefully, you will value the concept by giving it your full consideration.

In just a few moments I will report the results of a survey of postgraduate pediatric dentistry program directors on the issue of interprogram research. As a preview, I will tell you that the majority of program directors indicated an interest in the concept of interprogram research. But for now, let's play with a vision of interprogram research.

A vision of the future of postgraduate programs in pediatric dentistry, as dictated by accreditation standards, may appear like the following encapsulated and abbreviated statements:

Research requirements in postgraduate pediatric dentistry programs will be accomplished either within a program or through a process of exchange of ideas, resources, and students among programs. In addition, faculty with specialized skills in techniques and analyses concomitant with the scientific approach will be expected to contribute to and promote the process. The outcome of the process will be significant facilitation in the development and broadening of knowledge in well-defined tracts of research endeavors, thus supporting the educational aspect of the program and refining the profession's goals. Secondarily, and possibly more importantly, the opportunity for the development in students and residents of a critical attitude toward discriminating among certainty, opinion, and the still unproven, in the delivery of quality care and the appraisal of literature, will become uniform and widespread.

The essence of these statements is already occurring to some degree in our programs. The possibility of sharing research and clinical experiences through interprogram exchange on a wide scale is intriguing and lends itself to some dreaming, be it subliminal desires for some or unattainable fantasies for others. No doubt, such a vision is a narcissistic, but altruistic, schemata of what postgraduate programs could be.

To gain an appreciation for how likely such a dream may become or is already a reality, let's take a look at the postgraduate program directors' responses to a questionnaire on *current* research requirements for advanced pediatric dentistry programs.

A questionnaire was sent to all directors of postgraduate pediatric dentistry programs in late 1995. It contained items designed to determine compliance with current standards for advanced specialty education programs in pediatric dentistry regarding research requirements and opinions related to the status of research endeavors in their program.

This report is based on the responses of 50 directors who returned the questionnaire. The following is a summary of responses to the items.

In rating the difficulty encountered in achieving the current standards for research requirements, 44% indicated they had no difficulty whereas 56% had moderate to extreme difficulty. The directors noted that in the last five years most of the students' research projects involved prospective clinical or laboratory investigations and very few retrospective analyses of clinical or laboratory data.

The distribution of directors estimating percentages of graduates who, in the last five years, submitted papers for competition in the AAPD Graduate Student Research Award was: 0-5% (21 [43.8%]), 6-20% (18 [37.5%]), 21-40% (3 [6.3%]), 41-60% (4 [8.3%]), 61-80% (1 [2.1%]), and 81-100% (1 [2.1%]). This finding suggests that very few programs consistently have a majority of graduates competing in the AAPD Graduate Student Research Award. Comparatively, the distribution of directors estimating percentages of graduates who, in the last five years, submitted papers for publication as a result of their research was: 0-5% (7 [15.2%]), 6-20% (17 [37.0%]), 21-40% (10 [21.7%]), 41-60% (10 [21.7%]), 61-80% (0 [0.0%]), and 81-100% (4 [4.3%]).

The difference between these two distributions implies that a larger percentage of graduates tend to publish papers rather than compete in the AAPD Graduate Student Research Award program. The reason for this discrepancy

is not entirely clear. It was impossible to determine if those who successfully competed in the award program were also successful in publishing their work.

Eleven program directors (22.9%) indicated that they are currently involved with interprogram research projects; however the majority (37 [77.1%]) are not. Of those who do, the two most frequent problems encountered are communication between programs and the funding or budgetary issues. Interestingly, the majority of directors who were not participating in interprogram research expressed interest in having their students participate in such an experience. This finding, in light of the fact that a majority of programs, indicating moderate to extreme difficulty in meeting the research requirement, suggests that interprogram research is a desirable endeavor to pursue.

A slight majority of directors who responded (28 [56%]) indicated their programs have some area of expertise. Expertise was defined as either a relatively large number of special patients or a faculty member with special training (e.g., ortho-pedo trained or statistical expertise).

The three most frequently identified issues associated with graduate students completing the American Dental Association (ADA) standard for research were in descending order: time, funding, and faculty with expertise in research. Yet, an overwhelming majority of directors (45 [95.7%]) believed that research experiences are beneficial to their students and the program because they provides an avenue for instilling a critical attitude in students toward the literature and in their clinical activities.

Finally, in responding to the question of what activities in their program are most or least important, the program directors indicated that clinical experiences for students were clearly most important and research experiences generally the least important. Service commitment by the faculty and financial management were considered fairly important activities and program administration was viewed as comparatively unimportant.

In taking some liberty in interpreting and summarizing the findings of the questionnaire, the majority of program directors expressed some difficulty in complying with the research requirements of the ADA Commission on Accreditation's Standards for Advanced Specialty Education Programs in Pediatric Dentistry. The issues of time, both a) within the structure of the program and b) as a competitor of clinical activities; resources of monies for financing research activities and in maintaining solvency of the program; and faculty talented in research enterprises, are dominant considerations contributing to a director's ability to comply with research requirements. Nonetheless, the majority of directors believe that research activities are important elements in honing the clinical skills and perceptions of their graduate students. If the issues of time, resources, and talented faculty for conducting research are commodities that a program cannot support, maybe the program should not exist in its present format.

I would add that research activities and skills are also related to the issue of "the graying of academic faculty", which has been bantered about for the last four or five years in various meetings, including this one. Unless a mechanism can be established to adequately replace the current aging academicians, myself included, with individuals who are savvy with and can effectively use research, our specialty's umbilical cord will be severed prematurely resulting in a dying profession. In my opinion, we are already bleeding.

Most directors are either currently using interprogram research opportunities or believe such opportunities are valuable. Some key questions are: What type(s) of model, if any, would afford equal opportunity for all programs to participate in interprogram research? What personnel, fiscal, and programmatic resources would be necessary first to plan and develop the opportunities and then continually support the model? Who, in terms of leadership, would be responsible for promoting initiatives to accomplish such a Herculean task? What frame of time would be needed to transform the model into a functional reality? Will the outcome, in terms of all the effort associated with bringing the model to fruition, be measurable and a worthy venture for our specialty? Finally, and most probably we should ask, is it all just an idealistic dream? I'd have to say "not entirely". Those of you who truly know of my pervasive, and some may say perverse, idealistic philosophy will probably appreciate the fact that I am highly motivated by the following paraphrased statements: "if you can dream it, you can accomplish it." "All things come to s/he who waits, as long as s/he works like hell while they wait." Now, let's get back to my assigned presentation here today.

Defining interprogram research

Even though interprogram research may have several meanings, defining it will be much easier than suggesting how it could be implemented. The most simple and broadest definition for us to comprehend would be the following: interprogram research would involve the development and utilization of shared resources between two or more independently functioning programs with the goal being to promote student and/or faculty investigatory activities mutually beneficial to the programs and designed to contribute to the development or expansion of knowledge in an area of inquiry. Important corollaries would include a) minimizing the financial, clinical and programmatic impact on the involved programs and b) recognizing the scope of interprogram research may be limited to localized interdisciplinary activities or broadly encompass multiple and geographically distant intra-disciplinary activities or both.

Implementing interprogram research

Implementing interprogram research is a more difficult challenge. Networking seems to be a vital feature in any successful undertaking of this nature. John Ferguson's comments today may have provided us with at least one starting point by describing the economy and power of electronic networking. Through the efficiency of electronic networking and communication, it would seem wise to establish a common electronic address where program directors or students may make inquiries regarding the availability of resources for conducting a study. The scope of resources is limited only by the number of knowledgeable participants and the cost/risk ratio of electronic networking is minimal.

A few program directors already use e-mail to communicate and share various types and categories of information on a daily basis and the nature of such transmissions can be expanded to include research related issues. For instance, a computer file, describing the detailed steps needed in developing a general protocol, with overlays of individuals having expertise in specific areas, could be accessed by a student. Another example may include the agreement by two programs wherein a student or faculty member at one program sends data in the form of an electronic spreadsheet to another program where an individual with expertise in statistical analysis and research design could rapidly download, analyze, and return the results to the sender. Again, the opportunities and resources for interaction are apparently limitless.

Electronic networking is only one level of exchanging resources for research purposes. Another possibility is the actual exchange of individuals between two or more programs. Ideally, this option is very enticing; however, considerations of the interplay among the mechanisms of reciprocity, expenses, and logistics quickly complicate and obfuscate the goal of the exchange.

Thoughtfulness given to the mechanisms of reciprocity between programs will highlight how fiscal and logistics factors create some significant barriers to exchange. For example, if program A agrees to send a graduate student to program B for a period of 3 months to collect data for research, how does program A replace the loss of revenues that would otherwise be generated by the graduate student? What is program A to do about the logistics of maintaining equity in scheduling (e.g., call or rotations) for the remaining students? Can program B afford to alter its faculty's schedules to accommodate the time needed to counsel the student from program A?

Such issues are difficult to resolve, but the possibility of personnel exchange should not be discarded as an impossibility. In fact the concept may be quite successful if limited to a small group of programs. Since the ADA standards recommend a minimum of research time, an exchange may involve the arrangement of allotting the entire research time of a graduate student to a given concentrated period. For instance, the program may be lengthened beyond 24 months duration with the student's research option occurring after the first 24 months. In that situation, a new incoming student who is beginning his/her training would replace the student who left to do research. At least the program who lends the student would not incur a significant reduction in clinical production.

Resources or specialized mechanisms would be necessary to meet the basic living expenses of the visiting student doing research. Possible resources may include federal, state, and private agencies (e.g., funding from a NIH grant), the establishment of a subsidy program by the AAPD Research Foundation of student exchange for the purposes of research, and clinical studies that generate revenues to cover living expenses. We must remember that significant resources and opportunities for *clinical* research are present at each of our programs. They simply need to be harvested.

Model for implementing interprogram research

Let me suggest the following model as a viable approach to interprogram research.

1. *Identification of resources.* The first step in any interprogram research initiative is to identify the present resources that either exist or have potential to develop. The results of the survey of program directors suggest that considerable resources are already available. The scope of those resources may include faculty with special training, subpopulations of special patient groups (e.g., medically compromised patients), databases of currently existing information (e.g., compiled computer files listing variables on topics such as trauma, sedation, or pulp therapy), and facilities for conducting both laboratory and clinical studies.

Each program should evaluate its resources. The evaluation must be carefully conducted with attention given to such details as types and extent of resources available. This process should be facilitated by a committee of program directors formed to overview the implementing of interprogram research. The information about resources can then be forwarded to a central repository.

2. *Establishment of central repository.* The next step is to establish a central repository of information on the resources at individual programs with a contact individual identified to discuss the nature of the resources, as needed. The repository may be an electronic reserve at AAPD headquarters and access would be available to any program director or student. Perusal of the repository would permit students or faculty to gain an appreciation of what resources are available and whether the

resources meet the needs of the inquirer.

3. *Negotiations for exchange of resources.* Individuals who desire to exchange resources can bargain over details in accomplishing the exchange. Negotiations would be limited to the parties involved.
4. *Assessment of the exchange program.* An assessment of the exchange would be indicated to determine the outcome and address any issues injurious to the exchange process.

In conclusion, the accomplishment of research requirements appear to be a significant issue in the opinion of the majority of program directors. Since research requirements will continue to be a part of the ADA standards for training programs, facilitating the research requirements of programs would seem to be a propitious activity for program directors to undertake. The following are proposed objectives for consideration by this august group in meeting the goal of the ADA's standards for advanced postgraduate programs regarding research requirements:

1. Determine if the concept of exchanging resources among programs is a viable activity capable of reducing the stress of meeting required research standards.
2. Establish a committee of program directors to identify resources at each postgraduate pediatric dentistry program and further.
3. The committee should address potential economic, personnel, and logistic barriers and offer solutions to overcome and/or minimize such barriers.
4. Determine the best option for a central repository of resource information.
5. Disseminate an overview of the results of these efforts to program directors.

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