

# Innovation and Entrepreneurship

## Entrepreneurial Training to Promote Careers in Academic Dentistry

Filling dental faculty positions isn't getting any easier. A recent article in the *Journal of Dental Education* reports that the number of vacant budgeted full-time faculty positions remained almost unchanged from 2001 to 2003 at 280.<sup>1</sup> According to that article, retaining dental faculty isn't getting any easier either. The report notes that of the 921 faculty departures in 2002 to 2003, 46% involved entering private practice. The article called for "foresight" and "planning" to deal with this problem.<sup>1</sup>

The continued shortfall implies that graduates of US dental schools are not choosing careers in academic dentistry. In response to this crisis, the National Institute of Dental and Craniofacial Research (NIDCR) introduced a number of programs to encourage dental students to enter academic careers. One is a debt forgiveness program, and another is a grant program to support new initiatives in curriculum development. My colleagues and I at the University of Connecticut School of Dental Medicine recently submitted a proposal for one of these innovative curriculum grants.

In designing the proposal, we were guided by findings from our pilot program Workshop Course to Promote Dental Technology and observing the already overcrowded dental school curriculum. This latter observation implied that our proposal should focus on one curriculum change and that this change should be introduced as an elective.

The workshop at the university in November 2003 consisted of lectures involving

the conversion of a laboratory idea into a chairside product. Table 1 lists the workshop faculty members, their affiliations, and the titles of their talks.

The efficacy of the workshop was evaluated using a preworkshop survey of participants' expectations and a postworkshop survey to evaluate the level of comprehension of lecture content. The results of survey evaluation suggested that participants, including dental students, recognized the importance of the entrepreneurial sciences for the successful transfer of laboratory ideas to chairside and for career choices. A manuscript describing the workshop program and these results was submitted to the *Journal of Dental Education* for publication.<sup>2</sup>

Based on the findings from the workshop survey and on the recommendations of an NIDCR report, according to which competency in entrepreneurship, technology transfer, and management would be advantageous in training the next generation of dental scientists,<sup>3</sup> a curriculum module was developed that incorporated the lectures presented in the workshop and listed in Table 1. In addition, the module included an entrepreneurial seminar series and an externship program.

Mindful of the difficulties in introducing additional courses to the existing dental school curriculum, "elective" time was identified and



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### Conference on Integrating Biotechnology With Clinical Dentistry

A number of my readers have sent me e-mail messages requesting a progress report on the development of biotechnology-based products for the dental profession and an update on the time frame for the introduction of these products into clinical practice. In response to these requests, the Planning Committee of the 2005 American Biodentics Society (ABS) annual conference has recommended the following session topics: caries and periodontal vaccines bioscaffolds, stem cells for growing teeth, and calcium-phosphate restorative materials. If you are interested in learning more about the ABS annual meeting, as well as requesting registration materials, or if you would like to suggest other topics to the Program Committee, please send me an e-mail message at [erossoma@nso2.uhc.edu](mailto:erossoma@nso2.uhc.edu).

**Table 1—Workshop Faculty, Affiliations, and Lecture Titles**

Faculty	Affiliation	Lecture
<b>Edward F Rossomando, DDS, PhD, MS</b>	Professor and Director, Center for Research and Education in Technology Evaluation, University of Connecticut	Successful Transfer Within the Dental Industry
<b>Susan Runner, DDS, MS</b>	Branch Chief, Dental Devices Branch, Center for Devices and Radiological Health, Food and Drug Administration	Food and Drug Administration, Regulatory Issues and Clinical Trials
<b>Bernard W Janicki, PhD</b>	Former Special Assistant to President, Dana-Farber Cancer Institute	Mechanisms of Technology Transfer Support
<b>Julia Hart, Esq</b>	Patent and Licensing Attorney	Patents for Protecting Inventions
<b>Frederick Eichmiller, DDS</b>	Director, Paffenbarger Research Center, National Institute of Standards and Technology	Making the Deal
<b>Barry M Datlof, BA, MBA</b>	President, BirchBob Inc	Product Development: Business Press
<b>Ralph Green, DDS, MBA</b>	Executive Vice President, Reach Out Health Care America	Growth Strategies

used for the components of this module. For example, the University of Connecticut dental school curriculum for first-year students sets aside 4 weeks between the conclusion of the first year and the beginning of the second academic year. We propose to use this time to present the expanded version of the workshop lectures. In addition, the school allows students to spend 4 weeks on electives during the 4 years. This time, or part of it, could be used for the externship program. Two components of the entrepreneurial module are described in more detail below.

### A Joint Venture Between Industry and Academia

To encourage dental students' interest in entrepreneurship, the university established the Dental Student Entrepreneurial Externship Program and incorporated it into the entrepreneurial module. For the 2004 to 2005 academic year, externships have been funded by Premier Dental Products Company, Plymouth, PA; Centrix Inc, Shelton, CT; and the Harry J Bosworth Company, Skokie, IL.

Students who participate in the externship program will be expected to present their experiences to faculty and fellow students. At the dental school, a venue already exists for this purpose. Student Research Day occurs once each year for students in the medical and dental schools to present the results of their research experiences. Traditionally, these are poster presentations that describe results from

basic and clinical research laboratories. We propose to have the externs present the results of their entrepreneurial research experiences at the 2005 Student Research Day.

### The Entrepreneurial Seminar Program

The Entrepreneurial Seminar Program (ESP), the third part of the new entrepreneurial curriculum module, does not require the use of "official" dental school curriculum time. These seminars are presented at noon (lunch time). Traditionally, this "free hour" is used for the faculty to invite outside speakers to present seminars in basic or clinical sciences.

Although the ESP uses the same time slot, the students select the speakers to present on the entrepreneurial topics. The speakers and their affiliations for the 2003 to 2004 academic year are listed in Table 2. The speakers were recruited from both small and large dental companies. They were asked to relate their experiences as entrepreneurs, especially the issues they faced in developing their business and product line. An effort was made to recruit women entrepreneurs as speakers to encourage women dental students, who now comprise 51% of the entering class at the school, to participate in the program.

### The Entrepreneurial Module and Promoting Dental Academic Careers

Success in an academic institution requires the pursuit of scholarly activities, evidence of which usually means involvement in a research

**Table 2—Entrepreneurial Seminar Topics and Speakers for 2003**

Date	Topic	Speaker	Position/Title
05/15/03	Biodontics: Integrating Molecular Biology and Biotechnology With Clinical Dentistry	Edward F Rossomando, DDS, PhD, MS	Director, Center for Research and Education in Technology Evaluation
06/06/03	Working With the Dental Laboratory	Kamilla Siekierski	Certified Dental Technician, Dentek, Inc
06/13/03	A Business Look at the Industry Called Dentistry	Ralph Green, DDS, MBA	Executive Vice President, Reach Out Health Care America
08/22/03	Industry and Academia: A Working Partnership for Improving Oral Health	Mildred M Goldstein, MBA	President, Harry J Bosworth Company
09/05/03	Industry and Academia: Partnering for Improving Oral Health	William P Dragan	Vice President, Centrix, Inc
09/26/03	Women in Charge: Running a Successful Dental Company	Kate E Liddle, MBA	Corporate Manager, All DentalProX
10/03/03	Brand Names: Advertisers Use Them to Influence Your Choice	Richard Malinsky	Former Advertising Director, Wyeth Laboratories
10/17/03	Women as Minorities Within the Dental Industry	C Yolanda Bonta, DMD, MS	Associate Director, Clinical Research, Research and Technology, Colgate-Palmolive

program and the publication of the research results in peer-reviewed journals. In almost all dental schools, research activities are of 2 types: basic biological research and clinical research. Therefore, to consider pursuing an academic career at a dental school, one must be interested in either basic or clinical research. Given this requirement, it is possible that dental students avoid careers in academic dentistry because they are not interested in either basic or clinical research. However, this does not imply that the students are not interested in any type of research.

Translational research is related to moving basic science discoveries from the research laboratory to clinical trials. It involves product development and, therefore, requires competency in the entrepreneurial sciences.

During and after presenting our workshop, we asked the participants whether they had conducted research in basic science laboratories. Those who responded “yes” explained that, though interesting, the research questions and results lacked relevance to the practice of

dentistry. A research experience, they explained further, that poses questions regarding product development and, therefore, is more relevant to dental practice would be of interest.

These responses suggest that the students are not adverse to a research experience but rather are more interested in research that is product oriented. If translational research was offered as an optional career path, students might consider a career in academic dentistry.

## References

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2. National Institute of Dental and Craniofacial Research. *Research Opportunities and Investigator Competencies in the 21st Century: Report of the NIDCR Blue Ribbon Panel on Research Training and Career Development to Meet Scientific Opportunities of the 21st Century.* Bethesda, MD: National Institute of Dental and Craniofacial Research; 2000. Available at: [http://www.nidcr.nih.gov/research/blueribbon/career\\_brp.asp](http://www.nidcr.nih.gov/research/blueribbon/career_brp.asp). Accessed April 26, 2004.
3. Rossomando EF, Benitez H, Janicki BW. Workshop course to promote dental technology: a pilot study to develop competency in research management, entrepreneurship and the technology transfer process. *J Dent Educ.* In press.