Promoting the Specialty Through Science

Each day general dentists make decisions that affect your practice productivity. Endodontists may think they have limited ability to influence these choices. But science is a powerful tool to promote the value of saving teeth.

The AAE Foundation’s highest priority is to develop a funding strategy that will supply the best scientific evidence of the efficacy of root canal treatment. The goal is to secure the well-being of endodontists and to ensure the advancement of the specialty.

Turning to Science
How do microbes and molecules help practitioners meet the daily challenges of patient care? In fact, what happens in the laboratory has an increasing impact on what happens in the dental chair. A decade ago, when it came to treatment planning, practitioners were firmly in the driver’s seat. Over the last 10 years, the health care environment has changed dramatically.

Like so many “industries” dentistry has entered the era of the informed consumer. For better or for worse, on the Internet, the doctor is always in. Patients today expect to fully understand their diagnosis and treatment choices. They are knowledgeable about options, concerned about quality and prepared to take a more active decision-making role.

As patient awareness has grown, so has scrutiny from other sectors. Rising health care costs and increased litigation have put the bean counters on red alert. Policy makers, insurance companies, administrators and finance managers require that providers justify every reimbursable expense.

Accountability is the watchword of the day. To meet this demand, the specialty must evolve. Patient care is a significant part of every practitioner’s knowledge base. Your office records probably include hundreds of cases that you know were successful. But experience and education are only part of the equation. Without comparative data, controlled circumstances and uniform benchmarks, anecdotal evidence won’t stand up in court. Science provides the answer.

As a specialty, our success must be unquestionably qualified and quantified.

Delivering the Evidence
The need for a more objective decision-making process has revived interest in a century-old philosophy. Evidence-based medicine is thought to have originated in post-revolutionary Paris. In keeping with the cultural zeitgeist, forward-thinking clinicians rejected the rote teachings of their predecessors.
Dear Colleagues:

The Annual Meeting is just a few weeks away. In addition to being a time for camaraderie and fellowship, this event marks the culmination of many Association activities. It is especially exciting to celebrate the conclusion of the Foundation’s 2004-2005 fundraising campaign.

The meeting is an opportunity to recognize donors and to acknowledge hard-working volunteers. One way we say “thank you” is by displaying the Donor Honor Roll at the AAE Oasis. It is very gratifying to watch that list grow and to see members moving to higher levels as a result of increasing their support. The Honor Roll is a powerful symbol. The length of the list is a measure of the commitment that AAE members have to their specialty. Each name represents an endodontist who is making a difference in the specialty’s future.

Currently, 64 percent of Active AAE members are included on the Honor Roll. Although that is an exceptional record of philanthropy for any Association, I believe that the AAE can, and must, do better. There are several important goals which we need everyone’s help to meet.

In the long term, we want to have a $20 million fund by 2007. Based on our funding policy, with $20 million invested, we could allocate $500,000 to education and $500,000 to research annually. This seems like a lot of money, but it matches the size of our ambitions. The Foundation is preparing to sponsor clinical outcomes studies. These projects are expensive. At $1,500 to $2,000 per patient, a two year trial involving 2,000 patients can cost as much as $4 million. Even in a research partnership with other organizations, the price tag would still be hefty.

In the short term, we want to raise $1.1 million by the close of the Dallas meeting. We have a steep hill to climb before we can celebrate that achievement, and I hope that you will consider bringing us a bit closer. A pledge of $2,000 (just $400 a year, over 5 years) will add your name to the Honor Roll. You will also receive a pin and a thank you ribbon to wear at the meeting. These items are small tokens of appreciation. The real benefit of pledging lies in the pleasure of giving and the knowledge that the specialty is growing stronger as a result of your generosity.

Sincerely,

Charles L. Siroky, D.D.S.
President
A Great Year for Giving

Successful fundraising and strong financial markets in 2004 made 2005 a great year for giving. Based on its investment policy, the Foundation allocates five percent of the total amount of the endowment fund at December 31 to grants in the coming year. A small portion of these funds are also designated for operating expenses that are not covered by the Foundation’s cost sharing arrangement with the AAE.

The December 31, 2004, fund balance was budgeted at $14.6 million. Based on the budget estimate, $671,678 was allocated for philanthropy. Of that amount, $260,000 was slated for research, $307,481 for education and $104,197 for Foundation directed grants.

“The actual total dollar amount in the fund at year-end was $15.7 million, giving us about $56,000 more to spend,” said Foundation President Charles Siroky. “We will have the pleasant task of reviewing the audited numbers at the Annual Meeting and making some upward adjustments in our giving.”

This solid financial report translates to the ability to make significant awards. The following grants were approved at the Interim Board Meeting in October 2004:

- $78,761 approved to support the AAE’s 2004 Educators’ Workshop
- $86,000 approved to support the AAE’s 2005 Educators’ Workshop

Strengthening educational programs and providing support to educators are two of the most critical concerns for the Foundation. The Educators’ Workshop specifically addresses these issues. This annual summer event targets a different segment of the academic community each year. The goal is to provide educators knowledge and skills that enable them to be more effective teachers and administrators. Participants gain expertise that enhances the overall quality of endodontic education at their institutions and across the country.

- $10,000 approved to support Advanced Programs in Clinical Endodontics Symposium, APICES

APICES, the first seminar designed for endodontic residents by endodontic residents, is an opportunity for students to learn more about their specialty, to participate in organized dentistry and to develop the skills they need to be the specialty’s future leaders. The inaugural

Annual Session Preview

Annual Session is a special time of year for the Foundation. After all the conference calls, networking and fundraising, the meeting is a chance to celebrate accomplishments, reflect on progress and encourage one another for the work that lies ahead. It’s hard to imagine a year has gone by since Anaheim, but it’s that time again. There is much to be proud of and to anticipate as we gather in Dallas.

Friends -40 Bring New Energy to Campaign

The Friends -40 campaign has created momentum for the Foundation’s Friends, Ambassadors and Trustees. Launched last fall and spearheaded by Foundation Trustees Donna Mattscheck and Kirk Coury, this group of young fundraising volunteers has generated new energy and new pledges. It is exciting to receive so much support from the AAE’s newest members. They have a vested interest in building a stronger Foundation for themselves and for the future of the specialty.

Infinite Generosity Through the Perpetuity Plan

The Perpetuity Plan was initiated in Anaheim last May by Foundation President Charles L. Siroky, who was also the Plan’s first member. To date, 13 members have joined. This option for giving allows donors who have completed a pledge to contribute a set amount annually until retirement or for life. Members of the plan can be identified at the Annual Session by a special ribbon bearing the infinity symbol. The infinity symbol was chosen to represent the Plan because of the infinite generosity its members have demonstrated to the Foundation. Feel free to ask members about their decision to join.

Triple Bargains and Triple Auction Fun

Live and Silent Product Auctions

Most of all, Annual Session is a time to have fun and advance the Foundation’s mission. Returning this year is the Live Auction, one of the Foundation’s most exciting events. Thanks to the donations from

Participants enjoyed the live auction in Anaheim and raised more than $67,000 for the Foundation.
The event took place in August 2004 at Boston University. More than 150 students from across the country attended. The University of Illinois at Chicago will host in 2005. The weekend, August 12–14, promises to include stimulating academic and clinical lectures and exhibitions of the newest endodontic products, as well as social events. The goal is to ensure that APICES will be affordable for every resident who wishes to attend. Residents pay only for travel and incidentals. All other expenses are offset by contributions from the endodontic community and industry.

- $260,000 was approved for grants to research. In addition, the Foundation will provide two special $500 awards for the best proposals from a student and a nonstudent.
MT
2% chlorhexidine gluconate, REDT
biofilm following 1- and 5-minute exposures to 6% NaOCl, 1% NaOCl,
numbers of viable bacteria in the treated and untreated samples will be
followed by serial dilution and plating on Todd Hewitt agar. The
solutions, the bacterial biofilms will be disrupted by vortexing in PBS
the negative control. To quantitatively assess the effectiveness of the test
1 minute and 5 minutes; phosphate-buffered saline (PBS) will be used as
flow cell system on porcelain coupons and submerged in test irrigants for
using a novel
efficacy of contemporary root canal irrigants against
Bacteria can grow as biofilms in the root canal system; such biofilms are
more resistant to antimicrobial agents used in root canal treatment,
including irrigants and intracanal medications. This study compares the
efficacy of contemporary root canal irrigants against *E. faecalis* biofilms
using a novel in vitro testing system. Bacterial biofilms will be grown in a
flow cell system on porcelain coupons and submerged in test irrigants for
1 minute and 5 minutes; phosphate-buffered saline (PBS) will be used as
the negative control. To quantitatively assess the effectiveness of the test
solutions, the bacterial biofilms will be disrupted by vortexing in PBS
followed by serial dilution and plating on Todd Hewitt agar. The
numbers of viable bacteria in the treated and untreated samples will be
determined. All experiments will be done in quadruplicates. The null
hypothesis states that there is no difference in percent kills of *E. faecalis*
biofilm following 1- and 5-minute exposures to 6% NaOCl, 1% NaOCl,
2% chlorhexidine gluconate, REDTA, Smear Clear™, and BioPure™
MTAD™.

**Spring**
- Dwayne D. Arola, $18,770, University of Maryland
  *An Evaluation of Fatigue Crack Growth in Nonvital Dentin*
- Deborah Ann Connor, $5,425, University of North Carolina
  *Long-Term Healing Outcomes in Necrotic Teeth with Apical Periodontitis Treated With A Repeatable Evidence-Based Endodontic Protocol*
- Paul M. Creer, $4,500, University of Texas Health Science Center, San Antonio, *Resistance of Bacterial Penetration in the Coronal and Apical Halves of Teeth Obturated With Synthetic Polymer Base Root Canal Filling Material (Resilon)*

**Winning Abstracts**
The Foundation’s goal is to foster scientific excellence. To that end, in 2004 a special $500 award for the best student and nonstudent proposals was initiated. The winners were Thomas R. Dunavant in the student category and George T.J. Huang in the nonstudent category. Special congratulations to these outstanding scientists. Their winning abstracts follow:

**Comparative Evaluation of Contemporary Endodontic Solutions Against E. Faecalis Biofilm**
T.R. Dunavant, J.D. Regan, G.N. Glickman, E.S. Solomon, A.L. Honeyman
Baylor College of Dentistry, Dallas, TX

Bacteria can grow as biofilms in the root canal system; such biofilms are more resistant to antimicrobial agents used in root canal treatment, including irrigants and intracanal medications. This study compares the efficacy of contemporary root canal irrigants against *E. faecalis* biofilms using a novel in vitro testing system. Bacterial biofilms will be grown in a flow cell system on porcelain coupons and submerged in test irrigants for 1 minute and 5 minutes; phosphate-buffered saline (PBS) will be used as the negative control. To quantitatively assess the effectiveness of the test solutions, the bacterial biofilms will be disrupted by vortexing in PBS followed by serial dilution and plating on Todd Hewitt agar. The numbers of viable bacteria in the treated and untreated samples will be determined. All experiments will be done in quadruplicates. The null hypothesis states that there is no difference in percent kills of *E. faecalis* biofilm following 1- and 5-minute exposures to 6% NaOCl, 1% NaOCl, 2% chlorhexidine gluconate, REDTA, Smear Clear™, and BioPure™ MTAD™.

**Pulp Tissue Engineering**
George T.J. Huang, D.D.S., M.S.D., D.Sc.
University of California, Los Angeles

This study seeks to regenerate pulp-like tissue in teeth of large root canal space and foramen. The ultimate goal is to engineer pulps capable of generating desired dentin in humans. Due to restricted blood supply from only one end of the root canal system, currently, pulp tissue regeneration may only be possible for apexification and apexogenesis cases in which wide open apices provide rich blood supplies. The possibility of pulp tissue regeneration needs to be explored because of a clinical problem: devitalized immature anterior teeth treated with apexification and conventional root canal treatment result in a weak root with little dentin structure. Therefore, the therapeutic capacity to regenerate pulp/dentin of the root could be clinically useful.

Before we find a means to generate dentin on the thin root, the first step is to prove that pulp-like tissue can be regenerated using available tissue engineering technologies in teeth with wide open apices. Our preliminary data showed that human pulp-like structure constructed in vitro planted in canals of human tooth fragments can be vascularized in the subcutaneous space of immunocompromised mice. Therefore, we

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and sought proof of treatment outcomes through the systematic observation of patients.

Evidence-based dentistry builds a bridge between what we believe and what we can substantiate. The guiding principle is that optimal patient care integrates clinical expertise with the best available clinical evidence and the patient’s needs and values. It strikes a balance between art and science. The practitioner evaluates the patient and identifies and consults the appropriate scientific literature. The literature augments and supports the practitioner’s recommendations. The category of literature that is identified provides an additional measure of validity. Case reports and case series represent the low end of the scale while random clinical trials are the gold standard of scientific proof.

Since the mid-1980s, medicine, and more recently dentistry, has been gradually incorporating evidence-based techniques into research and practice.

**Setting the Agenda**

Over the last five years, the AAE has become increasingly aware of the importance of the evidence-based movement and the need to ground endodontics in a broad spectrum of scientific research. In 1999, the Association initiated a program to train a group of members in evidence-based techniques. Learning to formulate scientific questions, search and categorize literature, and to evaluate data was the first step.

Building a scientific armamentarium is incremental. It begins at the bottom of the research hierarchy with case reports and gradually moves towards randomized clinical trials at the top. Currently, endodontics is balancing precariously halfway up the ladder. Although the literature contains ample studies at the less rigorous end of the spectrum, clinical trials are clearly lacking. There is particular concern about the limited amount of clinical research to demonstrate the success of root canal treatment. In a recent study to identify literature related to the success and failure of nonsurgical root canal treatment, out of 306 papers only six were randomized clinical trials.

**Identifying the Strategy**

Identifying the best strategy to achieve scientific goals is a complex process. Research is expensive, and the results can be unpredictable. In addition, there is no fast track to the truth. Answering scientific questions is a circuitous journey. The Foundation’s resources have grown impressively. More than $15 million is invested in the endowment fund, but without careful planning even such a large asset could be depleted in the process of implementing multicentered clinical trials. A clear understanding of the type of research that will deliver the most relevant data is critical.

To ensure that every dollar spent guarantees the maximum return, the Board of Trustees is committed to exploring all the issues before embarking on a funding strategy. Several initiatives are underway to gather information or solve problems that are relevant to identifying the final approach.

**Defining Parameters**

One ongoing conundrum for researchers and practitioners is the lack of an established definition for successful root canal treatment. It is difficult, if not impossible, to measure success without benchmarks. This becomes especially critical if the goal is to compare root canal treatment to alternative procedures, which may, due to inherent differences in treatment, have standards or criteria that do not lend themselves to a direct comparison.

To level the playing field, the specialty must outline what constitutes successful treatment. Recently the Foundation appointed a committee to draft a definition of success. The group began by surveying program directors to identify current standards. After evaluating and analyzing the responses, they developed criteria. The committee’s recommendation was presented to the Foundation Board at its 2004 Interim Meeting. The draft will be forwarded to the AAE Board of Directors at the Annual Meeting in Dallas. If approved, it will be presented to the membership.

**Framing the Questions**

Asking the right question can be as important as finding the correct answer. Over the last year, both the Foundation and the AAE have been working to identify appropriate scientific questions. The specialty seeks to investigate issues that will deliver the evidence to ensure a healthy and productive future. Once the questions are finalized, the research can begin. Part of the research strategy will be to develop requests for proposals. These documents outline specific protocols for how research must be conducted. They will be distributed to various institutions. Then, the responses will be evaluated, and the most qualified applicants will be selected to perform the investigations.

In addition, the specialty’s overall research capacity will be assessed to determine whether the human, technological and capital resources are adequate for the job at hand.

**Seizing the Opportunity**

Building the specialty’s evidence basis will be a tremendous undertaking, requiring considerable financial resources and continuing effort from many different individuals and groups in the Association. But it is an opportunity that must be seized. Activities to promote the specialty and put endodontics in the public eye—newsletters, brochures, patient information, media outreach—mean little without strong scientific legs to stand on.

Every endodontist has a stake in the specialty’s scientific growth. Many, through their contributions to the Foundation, already demonstrate their support. As the number of members who pledge increases, the Association’s influence in the scientific arena will become more significant and more powerful. No other organization can or should do this work for the AAE. Defining the scientific agenda defines the future, and the future must rest securely in this specialty’s hands.
hypothesize that pulp-like tissue can be regenerated in tooth via tissue engineering technology. In this proposal, we set out to test whether pulp-like tissue containing pulp cells, blood vessels and nerves can be regenerated in pulpless canals in vivo. There are two specific aims: Aim 1. To determine regeneration of pulp tissue in vivo in a mouse model. We will determine the regeneration of vascularity and innervation of the engineered pulp in vivo using SCID mice. Aim 2. To test pulp regeneration in a simulated clinical setting using a canine study model. Cultured dental pulp cells from dog teeth will be grown in collagen gel in vitro and planted back to the pulpless canal of the same dog to determine the pulp tissue revascularization and reinnervation. This proposal is highly original and potentially ground-breaking. It is the first step to test whether pulp tissue engineering is a possibility. Its success implies a fundamental breakthrough in clinical endodontic treatments using cell and tissue engineering therapy.
partners in the industry and to the engaging performance of auctioneer, Denis E. Simon III, the Live Auction has a great turn out and has been historically successful in raising money for the Foundation and instigating friendly competition among bidders. Last year, more than $67,000 was raised. The Live Auction takes place during the Exhibit Hall Happy Hour, on Thursday, April 7.

New this year, will be a two-day silent auction in the exhibit hall. Members will have a chance to peruse and bid on the latest products while visiting with various exhibitors. Register for the Silent Auction by filling out the form included in meeting registration materials. For information about the items and exhibitors participating in this year’s product auctions, visit the AAE Foundation Web site.

Alliance Silent Auction
On Wednesday evening during the Welcome Reception, the AAE Alliance will host the Silent Auction. On hiatus during the 2004 Annual Session, the silent auction is back and not to be missed! Items range from celebrity paraphernalia to bird-hunting excursions. The Silent Auction showcases members’ original artwork and various vacation packages. Special thanks to Co-Chairs Mrs. Rebecca Funderburk and Mahmoud Torabinejad and the Silent Auction Committee for organizing this event.

Put a Shine on the Specialty
The Foundation is pleased to announce the first-ever “Put a Shine on the Specialty” event. Kirk Coury and a select group of highly-skilled shoe shiners will be polishing for pledges at the Foundation booth located within the AAE Oasis. Coury says, “This is a fun way to put a shine on your shoes, have a laugh or two, and support your specialty’s future.”

Donor Honor Roll
The Donor Honor Roll is also located at the Foundation Booth. It provides a graphic illustration of this Association’s philanthropic spirit. Members can identify their names and the names of colleagues on the list.

Recognition Breakfast
Volunteers are the Foundation’s most precious resource. The Annual Session provides the context for recognizing their efforts and achievements. Much appreciated and worth noting are the lengths Friends and Ambassadors go to congratulate and encourage each other’s fundraising endeavors. The Trustees invite all Friends and Ambassadors to join them for breakfast in the Morocco Room on Wednesday, April 6, from 7 to 8 a.m. There is a special camaraderie that comes from sharing the same mission, vision and values.

The Foundation is pleased to recognize this year’s Friends, Friends -40 and Ambassadors. For a complete list, please see page 4.