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Engaging Health Professional Students in Substance Abuse (SA) Research: Development and Early Evaluation of the SARET Program

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Abstract

Objective—There is a need to build the ranks of health professionals engaged in substance abuse (SA) focused clinical research. The authors simultaneously developed and evaluated SARET, the Substance Abuse Research Education and Training program. The fundamental goal of this interprofessional program is to stimulate medical, dental and nursing student interest and

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Disclosures

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Ethical approval

The New York University School of Medicine Internal Review Board most recently approved the Substance Abuse Research Education and Training Program protocol on 09/15/2010 for research in the following locations: NYU School of Medicine, NYU College of Dentistry, & NYU College of Nursing. A waiver of documentation of Informed Consent has been granted in accordance with 45 CFR 46.117 (c); since the study presents minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside the research. Additionally, the only record linking the subject to the study would be the consent form document and the principal risk would be the potential harm resulting from a breach in confidentiality. Identifiable protected health information will not be used or disclosed in this research study therefore authorization to use protected health information is not applicable.

Previous presentations

Data presented here has not been published elsewhere but has been presented in abstract and workshop form as detailed below.

1. Truncali A, Lee JD, Gillespie C, et al. A Web-Based Module on Neurobiology to Engage Students in Substance Abuse Research. Oral Presentation at: *34th Annual Association for Medical Education and Research in Substance Abuse (AMERSA) National Conference*, 2010 Nov 4–6; Bethesda, MD.
2. Truncali A, Lee JD, Gillespie C, et al. Creating Interprofessional Substance Abuse Research Education and Training (SARET): Agonies, Ecstasies and Lessons Learned. Skills-Based Workshop at: *34th Annual Association for Medical Education and Research in Substance Abuse (AMERSA) National Conference*, 2010 Nov 4–6; Bethesda, MD.
3. More, FG, Kalet, A, Naegle, M, et al. Substance Abuse Research Education and Training: interprofessional education in addiction research and education for dental, medical and nursing students. Poster at: *American Dental Education Association (ADEA) 2011 Interprofessional Education: Teaching and Learning Together for Better Health Conference*, 2011, Mar 12–16; San Diego, CA.

experience in SA research. Evaluation aims to understand program feasibility and acceptability, and to assess short term impact.

Methods—SARET is comprised of two main components: stipend-supported research mentorships and a web-based module series, consisting of six, interactive, multi-media modules addressing core SA research topics, delivered via course curricula and in the research mentorships. Authors assessed program feasibility and impact on student interest in conducting SA research by tracking participation and conducting participant focus groups and online surveys.

Results—30 early health professional students completed mentorships (25 summer, 5 year-long) and 1324 completed at least one web-module. SARET was considered attractive for the opportunity to conduct clinically-oriented research and to work with health professionals across disciplines. Mentorship students reported positive impact on their vision of SA-related clinical care, more positive attitudes about research, and in some cases, change in career plans. Web-based modules were associated with enhanced interest in SA (35% increase, $p=0.005$, in those somewhat/very interested for Neurobiology module) and SA research (+38%, $p<0.001$ for Activation, +45%, $p<0.001$ for Personal Impact, +7%, $p=0.089$ for Neurobiology).

Conclusions—The SARET program stimulates SA clinical and research interest among students of nursing, medicine and dentistry and may be disseminable in whole or in part.

Substance abuse (SA) exerts profound impact on individuals and society. More effective approaches to prevention and treatment that recognize the problem's complex biological, psychological and social determinants (Kalant, 2010) are urgently needed, from the development of novel therapies to changes in health service delivery. (IOM, 2000; Miller, 2006; Glasner-Edwards, 2010; Volkow et al, 2011) In spite of this, the number of health professionals who dedicate their careers to research in this field falls far short of acknowledged needs. (NIDA, 2004; Cottler et al, 2009) This, and related gaps in other fields, have fueled calls for more attractive career options for investigators across health professions, including medicine, dentistry, and nursing, (NIH, 1997; IOM, 2001; NRC, 2005) and suggests the need for supplemental education in topics such as biostatistics and epidemiology, more focused research-oriented mentorship (Nathan, 1998; Lenfant, 2000), and attention to interprofessional education. (Pellmar TC and Eisenberg L, 2000; WHO, 2010)

Expanding the pipeline of SA researchers will require a combination of approaches, with attention to pre-doctoral students who have not yet defined a specific career focus. Students' exposure to the field of SA must be enhanced (Fiellin et al, 2002), from core principles to cutting-edge challenges at the interface of neuroscience, behavior and health care delivery. Furthermore, since research mentorship is cited as the factor most important to investigator development, it is critical to provide such opportunities in the field of SA. (Kalfoglou AL, Sung NS, 2002) Finally, SA treatment transcends boundaries of established disciplines, and research advances must be informed by a broad spectrum of the health professions. (IOM, 2004; IOM, 2006)

We therefore sought to design and implement a program that would stimulate interest and provide SA research experience to medical, nursing and dental students, by combining curricular exposure to core aspects of SA research with opportunities to conduct mentored research in the field. Here we detail the development of this interprofessional educational program and provide initial evaluation of its impact.

Methods

Program Description

The Substance Abuse Research and Education Training (SARET) Program was initiated in 2006 with funding from the National Institutes of Drug Abuse (NIDA). The program has two components: a modular web-based curriculum, and stipend-supported research mentorships.

Modular Web-Based Curriculum (Table 1)—We developed a series of six, interactive, multi-media modules addressing core topics in the field of SA. An initial Activation module engages students in diverse aspects of the field. Subsequent modules address Epidemiology, Neurobiology, Screening, Personal Impact and Treatment. Each begins with the presentation of a compelling topic, profiles related research by prominent local investigators, and includes core content addressing research methods applicable to the topic area. The modules ‘satisfy’ educationally by exposing students to new knowledge as well as by providing opportunities to interact with the material and grapple with real-world questions and solutions.

Modules are accessed through an open-sourced, interactive web platform called Learning Activity Management System (LAMS, <http://www.lamsfoundation.org>) and are intended to serve as both a recruitment tool into the mentorships as well as a resource for educators who might use them to fill content gaps or elaborate upon concepts addressed in their courses. A web-based platform was selected to allow asynchronous learning and facilitate integration across schools. The full 6-module series was completed in time for the summer 2010 research mentee cohort to participate while individual modules have been integrated into course curricula at our dental, nursing, and medical schools as they were individually completed. Uptake at the schools varied according to module readiness, topic area, and incentives for completion provided by course leaders (Table 1).

Mentored Research Experiences (Figure 1, Table 2)—SARET offers both summer and year-long research mentorships (12 and 3 positions/year, respectively). These experiences pair an individual student with a seasoned SA researcher who has committed to spending a minimum of 1-hour/week in dedicated one-on-one mentoring with the student as well as engaging with them specifically in the work they are doing. Students may also have additional support and interaction with other member’s of the mentor’s team. There is a stipend and modest research-related support, and students are required to report their hours (minimum 35 hours/week on-campus).

During the 9-week summer program, inter-disciplinary group activities complement work with individual mentors. While the program undergoes minor adaptations with each iteration, common components include a seminar series on core topics in SA research, field trips and cyber-learning experiences. The program culminates with a research poster session describing each students’ project. Year-long participants supplement their individual mentorship with attendance at research seminars as well as semi-annual meetings with core SARET faculty focused on developing and refining goals for the year.

Program Leadership

An Executive Committee comprised of core faculty from each participating health professional school (medicine, nursing and dentistry), a program manager and evaluator, meets monthly to direct all aspects of the SARET Program. Internal and External Advisory Boards meet annually to provide strategic guidance about program development and dissemination.

Evaluation

An initial evaluation was designed to assess SARET's acceptability and short-term impact on participants' interest in SA research. We tracked module and mentored research participation during years 1–3 of recruitment, and conducted focus groups and online surveys about the quality and impact of program components. Evaluation activities were approved by the New York University School of Medicine Institutional Review Board.

Participant Characteristics—The Activation and Neurobiology modules were most widely implemented early on and thus allow the most comprehensive view of participants. We used data collected through participation in these modules to describe students' baseline interest in SA research, degree of research experience, and perceptions of the adequacy of prior SA-related clinical and research education.

Module Evaluations—Modules were delivered to students at the medical, dental, and nursing schools as they were developed. (Table 1). Assessment drew on immediate pre- and post- questions embedded in the modules and/or follow-up surveys delivered by e-mail following completion. All surveys assessed the primary outcome of change in interest in SA research (using a 4-point scale of Not At All, Only A Little, Somewhat, Very Interested), while some sets of questions were unique to a given module. Finally, the full module series was piloted with the third cohort of summer students who provided an in-depth assessment of module quality and ease of use via immediate online, pre/post survey.

Research Mentorships—The summer mentorship program was evaluated through end-of-program focus groups led by the program evaluator (CG). Groups were audio-taped, transcribed, and content analyzed to identify overarching themes and recurrent and unique suggestions for improvement. Questions explored students' choice to participate in SARET, program strengths and weaknesses, and perceptions of impact. Responses were categorized as changes in knowledge and attitudes, clinical practice, and career interests, and further separated by whether the change related to research interest specifically or to SA more generally. Exemplar quotes are provided within this matrix, with inclusion of only one comment per student.

Results

Module Evaluation

Participant Characteristics—Almost all students completing modules were in the first two years of their health professional training. A total of 948 students were surveyed of which 42% were dental (n=395), 49% nursing (n=461) and 10% medical (n=92). Nursing and dental student data was obtained after participation in the Activation Module, while medical students provided reports with completion of the Neurobiology module. Among the nursing and dental cohort, prior research experience was reported as absent in 53%, limited in 21% and substantial in 27%. 38% of students reported inadequate training in SA and 24 % reported such in research design and methods. 45% of medical students reported no prior exposure to SA treatment or research.

Participation and Impact on Interest in Substance Abuse Research—Table 1 reports the module completion rates for each module delivered. We evaluated the experience of a portion of these groups with pre/post survey response rates described in Table 3. All evaluated groups were found to have an increase in SA research with module completion (Figure 2).

Individual Module Assessments—Of the 856 students responding to the Activation module survey, 72% indicated that the featured videos “sparked [their] interest” in SA research, and that their understanding of the field was enhanced by the module’s interactivity (80% some or a lot versus a little or not at all or), videos (88%), and text (85%). Twenty two percent expressed interest in participating in a mentored research placement. Responses to immediate pre/post questions particular to the Neurobiology module showed an increase in interest in the broad field of SA (29% somewhat or very interested pre, 45% post, $p<.001$). In addition, students endorsed “somewhat” or “fully” understanding “how neurobiology research has shaped treatment for addiction” (73%), “relationships between addiction and reward pathways” (81%), and “neurological pathways through which drug abuse affects decision making and inhibition” (90%). Among the 22 students responding to an additional four-month follow up survey, 91% reported moderate or great impact (versus a little or none) on understanding of course material (91%), exam performance (91%), attitudes about addiction (68%), and interest in SA research (68%) and treatment (77%).

Full Module Series Assessment—The cohort of summer students who viewed the full module series ($n=11$) was generally positive in its review, indicating that the “subject matter was of interest”, “covered most of the expected topics” and proceeded in a “clear, logical and orderly fashion” with the “right balance of multimedia”. Agreement with these statements ranged from 78–100% (scale: strongly agree, somewhat agree, somewhat disagree, strongly disagree), depending on the module. The modules enhanced students’ perceived confidence in the subject matter (percent somewhat or strongly agreeing: Epidemiology - 75%, Neurobiology - 100%, Screening - 67%, Personal Impact - 100%, and Treatment - 100%). Students expressed the most enthusiasm for the Personal Impact narrative which they described as “moving” and “relevant” to their work in health professions.

Research Mentorship Evaluation

Participant Characteristics—Dental and medical students in the program were typically pre-clinical, between years 1 and 2 of their education, while participants from the College of Nursing were early masters or PhD level, with one or more years of clinical practice experience.

Participation—Eight students/year (mean) participated in summer mentorships (range 6–11, increasing each year). Of these, 20% voluntarily continued work on their projects beyond the summer period. Five year-long mentored research positions were filled. Examples of student projects are provided in Table 2.

End-of-Program Evaluations—Results of qualitative evaluations from end-of-summer focus groups illuminated strengths and suggested improvements that were incorporated into the design and implementation of the following year’s curriculum. 19 of the 25 summer students in the first three years participated in a focus group.

On Decision to Participate in SARET—Only a handful of students (about one/year) reported being interested in the field of SA *prior* to SARET. These four students saw SARET as an opportunity to more deeply explore this interest (e.g., “*I really wanted to understand what goes into deciding on treatment options, what’s the underlying biochemistry and neurobiology of substance abuse and treatment.*” Nursing student). 15 of the students reported participating because they wanted to obtain clinical as opposed to basic science research experience but did not have an explicit interest in SA. Almost all the participating students cited the integration of research experience with clinical topics and exposure as especially compelling, with some reporting that they knew they “should” get

research experience but had not found anything aligned with their interest in clinical experience until SARET. Finally, several students told us that the interdisciplinary nature of the program motivated them to become involved.

Program Strengths and Weaknesses—When asked to report on the strengths of the SARET program, participants focused on the breadth and depth of their experiences, reporting that they learned about and were involved in actually conducting the spectrum of research activity from conceptualizing a question to submitting an IRB application to conducting systematic literature reviews. The program's integration of research and clinical aspects of SA was consistently cited as a strength with one student, for example, noting that collecting data helped them better understand "people's struggles with smoking" and another discussing how this integration "really stimulated me and reinforced learning in both areas." More than half (11/19) of the students reported that the chance to observe clinician-researchers as clinical role models and learn about clinical aspects of SA were central strengths of their experience. The opportunity to meet and work with students and faculty from different disciplines was also cited as a strength. Several dental students reported never having met a medical student before and students in each of the focus groups engaged in a lively discussion about how much they had learned about the other disciplines and how that would shape their future clinical interactions and career plans.

Weaknesses were openly discussed and primarily involved curriculum components that fell short of their potential. These included two online interactive activities, cyber classrooms and the health policy wiki, both of which students liked in principle but felt required further development before becoming valuable learning experiences. Some students also suggested that tighter alignment of the seminars, field trips, and research experiences would have fostered additional learning.

Program Impact—Students described the impact of SARET in terms of interest in conducting research and in SA more generally. They reported that SARET experiences positively changed their attitudes towards research and in some cases their career plans. They also expressed that the range of experiences they gained would make them better clinicians, and some described dramatic changes in their attitudes about patients with SA problems. Quotes exemplifying these descriptions are provided in Table 4.

Discussion

We describe a novel program that blends modular on-line curricular content with mentored research experiences to stimulate interest in SA research among students in the fields of medicine, nursing and dentistry. This interprofessional program is structured to provide participants with at least some measure of the ingredients which, according to one expert committee, predict successful careers in science, including "inspiration" and "connection" to the field; involvement in science; knowledge and skill development; opportunities for role modeling and mentoring; and a scientific community with peer engagement.(NRC, 2005) Results from this initial evaluation demonstrate enhanced participant interest in SA research.

Because the SARET program was launched only four years ago, it is too soon to be able to determine whether it will manifest years later with a focus on SA research. Two key early findings are a cause for optimism, however. First, students in all three disciplines endorsed a positive impact of the modular curriculum on their level of interest in SA research. Second, positive mentorship experiences predict career success in research,(NRC, 2005) and SARET provided many such opportunities. These early findings are strong indicators that the program is en route to having its intended long-term impact.

A collateral benefit of the program was to interest future healthcare providers in clinical aspects of SA. For example, dental students endorsed a commitment to treating nicotine addiction, nursing students reported a deeper understanding of the pharmacology behind SA treatments in which they participate, and students across disciplines acknowledged a more sophisticated understanding of addiction. Such knowledge may protect against the cynicism towards substance abusers that can develop during physician residencies. (Lindberg et al, 2006)

Further, the SARET experience enhanced interdisciplinary awareness. Through early introduction to other disciplines, students have new insight into the background and perspectives of future care- and research-team colleagues.

Widespread dissemination of the modular web-based curriculum could significantly expand its impact. Participation in these modules, whether voluntarily or by requirement, has been well received and appears associated with enhanced motivation to conduct SA research. For the Neurobiology module, initial data support a positive impact on related coursework. Development of the SARET program has involved unique challenges that reflect its content area and interprofessional nature. While the subject area, SA research, is not primarily clinical, our goal of appealing to early health professional students necessitated provision of some background knowledge to both attract participants and to enable them to extract the most from the experience. The interprofessional dimension also raised unique challenges. (Reeves et al, 2010) These ranged from the concrete (*how to run a summer-long mentored research program across schools when the summer schedules are only partially aligned*) to the more conceptual (*should curricular content be tailored by discipline?*). Additional challenges we confronted are summarized in Appendix 1.

Limitations

Replication of this program will vary based upon the setting. While the web-based modules alone may be readily shared with other schools, research experiences require the availability of mentors and administrative support. Although our evaluation suggests impact on interest in substance abuse research, this is based upon moderate survey response rates among students who completed the assigned activities. Medical student participation was lower than for the other groups as the evaluated activities were voluntary. This limits interprofessional comparisons and conclusions about potential impact with mandated participation. In addition, data regarding interest in SA research are based upon self-report, rather than on actual career choice. How this will translate into future research involvement will be influenced in part by availability of funding and mentors for SA research. The program does appear, however, to have ‘primed’ students who were otherwise minimally interested in research to avow interest in future SA research opportunities. Longer term follow-up surveys will assess SARET effects on career intentions and early career choices and allow comparison with normative data on comparable graduating students and alumni.

In conclusion, the SARET program appears a promising response to the need for a more extensive health professional SA research workforce. Early evaluation suggests that participation stimulates interest among medical, nursing and dental students in clinical and research aspects of SA, while enhancing awareness of other health professionals. The potential for broadening impact through dissemination is compelling. The preliminary assessment of impact presented herein suggests the significant potential of the SARET initiative to stimulate interest in the crucially important yet under-subscribed field of substance abuse research.

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Appendix 1

eTable 1: Lessons Learned About Developing an Interprofessional Education Program

Challenge	Potential Solution
Cross institutional grant sharing. <i>Identifying partners is not straightforward as within institutions.</i> <i>Numerous structural barriers on how to channel funding</i> <i>Leadership is diffuse because of multiple 'upper level' team members.</i>	Excellent networking required. Program manager has proven critical to navigating the different systems. In reality, responsibilities and influence are tied most strongly to the originator of funding .
Scheduling <i>This is a concrete but substantial challenge.</i> <i>Working across physical spaces and with a variety of schedules hinders meeting and teaching opportunities.</i>	Asynchronous teaching methods have proven critical. i.e., web-based modules, cyber-classrooms. Also protected one block of time weekly for summer program.
Developing a meaningful 'generic curriculum' <i>Teaching across disciplines expands the potential learning content enormously. A meaningful experience requires deciding where there is a common learning edge.</i>	Identify and revisit the common goal(s). For SARET, the main goal is to promote interest in SA research, not to teach how to treat SA. We continuously revisited this goal which was not intuitive for this team, but important for deciding upon content. I.e., the treatment module focused on developing treatment for opiate dependence through comparison of methadone and buprenorphine as opposed to describing how these treatments are delivered. Interactive sessions best fostered learning about collaborative care and research, i.e., highlighting what are the different perceived roles in care, professional culture, incentives to identify and treat SA, incentives to do research.
Mentoring Across Disciplines <i>Personal biases about differences between professions can hinder the experience;</i> <i>Difficult to mentor about career options/path in another discipline.</i>	Acknowledge biases and focus on potential for 'cross-pollination' to develop novel approaches. Recognize limitations to extra-disciplinary mentoring. This was typically addressed by ensuring that students had access to SARET faculty of their same discipline.

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Figure 1. SARET Summer Mentorship Curriculum

Students spend the majority of time on the research project but the program provides additional structure and support as illustrated.

Figure 2. Percent Reporting Interest in SA Research Prior to and After Completing Activation (n=856), Neurobiology (n=44) and Personal Impact Modules (n=97)

P values based upon Chi-squared testing

Scale: Not At All, Only A Little, Somewhat, Very Interested

Table 1
Web-Module Description and Integration

Description of the web-based modules, points of their curricular integration to date, and rates of module completion.

Module	Points of Curricular Integration*	Module Completion Rate
Activation Features NYU SA researchers discussing how they tackle problems through research and introduces the concept of building a research question. Goal is to “activate” interest in SARET	Dentistry: Dentistry as a Profession (2009, 2010 & 2011; required)	97% 545/561
	Medicine: Physician, Patient and Society (2009, 2010; optional)	19% 62/326
	Nursing: Mental Health & Population Focused Care (2009, extra credit); Theories of Nursing and Social Science (2009, 2010; extra credit); Professional Nursing, (2009, 2010; extra credit)	98% 753/768
Epidemiology Focuses on population data, introducing basic epidemiology about SA, cross sectional versus cohort studies, and exploring causality vs. association using the controversy about marijuana as a gateway drug.	Medicine: <i>Epidemiology Intersession (2012, optional)*</i>	--
Neurobiology Links the behavior of a cocaine-dependent man with associated neurobiology. Describes the neurobiology of reward, cue development and executive dysfunction. Includes discussion by prominent local researchers about the effect of basic science research on addiction treatment.	Medicine: Neuroscience (2010, 2012 optional)	48% 83/172
	Nursing: <i>Advanced Pathophysiology (2011, required)*</i>	--
Screening Reviews current standards of screening for substance abuse and leads students to consider whether health systems should routinely screen patients for illicit drugs versus only alcohol or tobacco. Included is in-depth teaching on screening related concepts of sensitivity, specificity and predictive values.	Medicine: Practice of Medicine (2011; optional)	--
Personal Impact A man with a family history of alcoholism details his own development of alcohol dependence. Introduces concepts of diagnostic criteria and risk factors for SA and provides learners with an understanding of risk expression including relative and absolute risk.	Medicine: <i>Ambulatory Care Medicine Clerkship (2011; optional)*</i>	--
	Dentistry: Ethical Foundation of Dentistry (2009, 2010 & 2011; required)	98% 490/501
Treatment Reviews the categories of treatment for SA problems with a focus on pharmacotherapy. Uses a case example of a patient with prescription opiate dependence to methadone and buprenorphine therapy. Describes how treatments were developed, what they mean for a patient and how randomized controlled and observational trials are used to test and compare treatments.	Medicine: <i>Psychiatry Clerkship (2011, required)*</i>	--

* *Italics:* indicates a planned point of integration planned, pending delivery.

Table 2
Student Projects Years 1–4

SARET Student Projects Years 1–4 (select examples)		
Mentor	Project Title	Student Role
Adina Kalet, MD, MPH	Undergraduate medical education in substance abuse: a review of the quality of the literature *	In-depth literature review
Stephen Ross, MD	1. Psilocybin and treatment of acute anxiety in patients with cancer ** 2. Treatment of cocaine addiction using a vaccine	IRB protocol development and literature review
Joshua Lee, MD, MSc; Marc Gourevitch, MD, MPH	Effect of buprenorphine on hedonic tone	Survey design and delivery in outpatient primary care clinic
Donna Shelley, MD, MPH	Pilot study in a dental clinic evaluating a computer-based screening tool for alcohol and tobacco use	Literature review and patient screening
Sherry Deren, PhD	A Self-Report Instrument for Assessing Substance Use and HIV Risk Behaviors	Database development
Jennifer McNeely, MD	Patient-Administered Screening for Substance Abuse in Primary Care *	Development and pilot testing of screening tool
Kenneth Carr, PhD	The Effects of Chronic Food Restriction and Drug Reward: Exploring the Addiction Pathway	Wet-lab certification, monitored response to food restriction in lab rates.

* indicates the project has been published

** indicates the project has been presented

Table 3**Module Evaluation**

Evaluations for modules were undertaken in the following groups with survey response rates as described.

Module	Group Surveyed	Survey Response Rate [*]
Activation [†]	Dentistry: Dentistry as a Profession (2009, 2010; required)	72% (395/545)
	Nursing: Mental Health & Population Focused Care (2009, extra credit); Theories of Nursing and Social Science (2009, 2010; extra credit); Professional Nursing, (2009, 2010; extra credit)	61% (461/753)
Neurobiology	Medicine: Neuroscience (2010; optional)	53% 44/83
Personal Impact	Dentistry: Ethical Foundation of Dentistry (2009; required)	48% 97/199
Full Module Series	Summer Students (2010; required)	100% (11/11)

^{*} Proportion of module completers who completed pre/post online surveys.

[†] Medical student cohort not evaluated due to low participation

Table 4
Exemplar Statements of Impact of SARET Summer Program Participation (n=19, Program Years 2–4)

	Research	Substance Abuse
Knowledge and Attitudes	It was really eye-opening to see the kinds of research questions that could be addressed – SARET really changed my view of research. I found out about a whole area of research I knew nothing about!	In my classes so far, there might be one slide on SA and it's all in pieces so it never really comes together. SARET was an opportunity for me to understand the bigger picture of the problems and solutions of SA. I really didn't know much [...] about substance abuse, nicotine addiction. I just thought that if you wanted to stop, you could. [...] I saw a group counseling session and that really opened my eyes to how hard it is and that it's not just about choosing to smoke or not. I'd been very negative about people who didn't just quit and this made me think about it all in a whole new way. It really challenged and ultimately changed my whole way of thinking about addiction, about making judgments about addicts.
Clinical Practice	One of the amazing things was simply reading the transcripts from the interviews that were being conducted as part of the research project I worked on. I learned things I didn't know anything about and got a real sense of what rehab is like. While I probably will never actually <i>do</i> research, I will never look at the literature or consider evidence-based guidelines in the same way. I can now really understand what went into the studies and how difficult [...] it is to really have solid evidence.	I am going to prescribe lots of smoking cessation medications. And now I know where to refer people to get resources. I didn't even know that dentists could prescribe stuff like that. I see myself differently as a health practitioner. I have a broader view of my role and the kind of impact I can have on patients.
Career Interests and Plans	SARET definitely made me realize the importance of research to a career in medicine. I am more interested in doing research as a physician now than I have been in the past. I came into this program really totally focused on being a clinician. [...] But now, [...] I've been thinking a lot more about research. About how much of an impact I can have as a clinician and how much I can have as a clinician who does research. [...] My parents would kill me if they knew I was thinking about research. They think you can't do two things at once. But [...] SARET has really opened my eyes and I suspect it may have really ended up changing what I do. I can't imagine not ever doing research now. The SARET program made me think that I might like to become a professor and actually do research instead of just working clinically as a nurse.	While I am still unsure of what path I would like for my medical career to take, I realize that substance abuse is very important in any field of medicine. Still, I am not sure if I would necessarily focus on substance abuse. SARET helped me see how substance abuse issues will affect my clinical and therefore professional life.