# Basic Science Educator

## A Publication of the AAMC:GEA's Basic Science Education Special Interest Group

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## MESSAGE FROM THE DIRECTOR

My baccalaureate Microbiology class began this semester as it always does, with a brief overview of the history of this discipline. I spoke of the Dutch dry-goods merchant, Antony Van Leeuwenhoek, regarded as the Father of Microbiology since in 1674 it was he who first saw and described the. world of microbes. He, like other shrewd merchants of the day, ground his own lenses. True, he had greater curiosity than most, and combined his lenses to make microscopes of unparalleled quality - but the more practical purpose for this skill was inspecting cloth for purchase. Through his lenses he could clearly see the number of threads and their quality, and thus judge the value of the product.

I began thinking about this as a metaphor within the Basic Science Education Forum (BSEF) and our AAMC Group on Educational Affairs (GEA) Special Interest Group (SIG). Through lenses of our own making we are continuously inspecting the threads which construct the fabric of our organization. This issue of the *Basic Science Educator* is a prime example of how this fabric is being woven into something of great value to many.

The tasks with which we are most involved address the needs of both basic science education and educators in North American medical schools. Our many projects (several of which are discussed through articles within this issue) constitute the horizontal threads of our organization. Through this semi-annual publication, regional and national SIG meetings, MICRONET telecommunications networking, etc., we strive to guide basic science educators to become even more effective at conveying their discipline to first and second year medical students, and indeed to students and residents throughout the continuum of medical education. We are besieged by issues concerning information overload, integration of the clinical and basic sciences, the technological management of information, and enhancing methods of adult learning. Although these are issues of international concern, the major efforts of both BSEF and SIG continue to be focused on North America. Frequently it seems these tasks are beyond the realm of our training and expertise as basic scientists, and thus the threads we spin sometimes will be coarse. Perhaps that is why those who attempt to shape the preclinical sciences as a foundation for medicine in the 21st Century must often do so at personal sacrifice to their own careers.

We are pleased to have the support of Dr. Jordan Cohen, President of the AAMC, who points out in his article *The Basic Scientist and the Generalist, Natural Partners for Educational Reform* that basic scientists have an important role to fulfill in the changing needs of medical education.

But to weave a cloth, the vertical threads must also exist. These threads are the activities of our growing international component of the Basic Science Education Forum. In this issue, we are particularly pleased to offer translations into English of two contributions written for the *Basic Science Educator* by BSEF colleagues in Russia. In another article, I share with you my personal experiences from this fall when I traveled to Russia to consult with BSEF members and exchange information about our respective educational systems. During my visit to the State Medical Institute in Izhevsk and the Pavlov Medical University in St. Petersburg, I was warmly received by many faculty who were anxious to participate with us in the BSEF's mission of global cooperation. I would especially acknowledge the graciousness of my hosts Yurii Victorivitch Gorbunov at Izhevsk, and Vladimir Lazarevich Bykov at St. Petersburg. Both went to great lengths to ensure not only that I met key individuals in their respective schools, but also provided me with opportunities to experience their country in a manner few Americans have done. Through the generosity of

Ms. Addeane Caelleigh *(Academic Medicine)* and Ms. Bonnie Lawlor *(Current Contents)*, I was able to present one-year gift subscriptions to these medical facilities, as well as copies of the AAMC *ACMI-TRI Report* describing the status of medical education in North America. Each was formally presented as a gesture of good will from every member of the Basic Science Education Forum, and with the sincere desire to establish collaborative exchange of information for the enlightenment of us all.

With this issue we celebrate our increasing relationships with basic science faculty throughout the world. Twenty-one nations are now involved with the BSEF and its goal of exchanging information (see page 8). With such expansion comes the threads of even greater ambition. On page 6 there is a brief outline of preliminary plans for the BSEF to sponsor an unprecedented intercultural event: an East-West Conference on *Educational Strategies for the Preclinical Sciences.* Hosted by our Russian membership, the goal is for all nationalities in attendance to become aware of current and innovative methods in use for teaching the fundamental sciences of medicine, and despite language barriers, to strengthen the bond of multicultural collegiality of faculty together in a common cause.

It takes no special lens to see that together we are weaving a great tapestry; and through an unprecedented and growing network of colleagues this tapestry becomes richer and stronger with every new member who joins. We invite everyone with an interest in basic science education to become a part of this unique and important cause.

ACKNOWLEDGMENTS

1 de Kruif, P Leeuwenhoek: First of the MicrobeHunters. In: *Microbe Hunters*, Harcourt, Brace & Co.,New York. pp3-24. 1926

2 Friedman, C.P. Of Warps and Woofs: The Tapestry of Medical Education. Academic Med. 68: s50-s54. 1993.

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# A JAUNDICED VIEW FORM THE EDITOR

## COMMON SENSE IN MEDICAL EDUCATION

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Born a Catalonian, I guess I am entitled to have inherited what all Catalonians claim to be a genetic trait - *seny*, loosely translated as "common sense". I don't know if it is a matter of genes or a matter of always having had difficulties accepting anyone else's "truth", but I am certainly bewildered (and often irritated) by some of the common "truths" waged by those involved in medical education. Let me sample a few.

**1. We need to write goals and objectives for every course and every lecture**

I went to medical school in the sixties. At that time, no one was writing goals and objectives. Interestingly enough, I never had any question about the goals and objectives of each course nor of the instructors: learn the "material" identified in class and in recommended texts. Actually, it worked well, because at a very early stage I had to make my own decisions about what I thought was important and needed more attention. There is no question that from day one I became responsible for my own education -with lecture contents as my only guidance. I can understand the point about writing general goals for our courses. We always have some goals, even if we don't try to articulate them. So why not try to put in writing what has always been in our mind? This may be actually useful when general philosophies of different courses are compared, or when courses are reviewed by external panels. But what about the detailed behavioral objectives for the course, and even for every lecture? Are we trying to define exactly what the students are responsible for? What if a question appears on the exam which is not clearly covered by the objectives? What happens if we try to be all inclusive? Do we rewrite the book or the syllabus in "objectives" format? And who is going to provide the students with such detailed behavioral objectives in the clinical years, and more importantly, in real life?

Not long ago, this trend was even extended to textbooks, some of which started each chapter with some objectives. Fortunately, sanity prevailed in the publishing world and the practice has been all but abandoned. But there is still pressure emanating from accreditation committees and other well intentioned regulatory or advisory bodies run by bureaucrats who believe a course can be judged by its paper trail.

Going back to my medical school years, I remember well that my perception of different courses was widely different, and had nothing to do with stated or perceived goals and objectives, but a lot with the personality of the instructor. My first enthusiasm was pathology, and in no small measure was due to excellent faculty. My second love was cardiology, again following the role model of one of my instructors, who happened to be an excellent cardiologist. My final choice was research, having nothing to do with role modeling but just with my own experience and my own decision - one tends to grow up. The faculty that influenced me as a student were ex-cellent teachers, some gave excellent lectures, others were better in small groups (nothing is new under the sun), but all of them contributed to the good quality of the courses they ran or took part in. And none of them wrote a list of objectives, ever. Indeed, if anyone wishes to judge a course, he/she needs to take it as a student, sit through lectures, participate in small groups, and take the tests. Most paperwork exercises are useless wastes of time, and writing detailed behavioral objectives is second to none.

**2. Lectures are useless**

Having expressed my reservations about lectures in this platform, let me now defend lectures for a moment. There are lectures and there are lectures, depending on who gives them and on the student who listens. I never thought that attending a good lecture was wasting time. I took detailed notes, and most of my learning happened in the classroom. I know of others like me, we must be good visual and auditory learners, and by taking notes we concentrate on the events and tend to remember the facts and contents of the lecture for a reasonable amount of time. Why is it so difficult to recognize that there are some problems with lectures that have nothing to do with the format? Number one, a boring lecture is a waste of time. So is one so detailed that it is beyond the level of understanding of the audience. It is also wrong to go to a lecture with a passive attitude, waiting for entertainment. Lectures should not become one-act skits for the sake of those ill prepared to concentrate. Having said so, my common sense position is simple: lectures should always be trusted to competent lecturers, should be general and conceptual, and the students should be actively involved - by that I mean the old fashioned methods of taking notes, asking and answering questions! A judicious blend of good lectures and active learning formats is the recipe for success in medical education, in my opinion -- based on 20 years of experience as a teacher, and zero years of experience as a professional educator.

**3. It is better to teach someone to fish than give him a fish to eat**

I know of nothing as dangerous as trying to see the truth in proverbs, Chinese or otherwise. Even more dangerous are inane proverbs, such as the fishing proverb. Let me clarify that I have nothing against learning how to fish... I once went out to the lakes with an experienced fisherman, and I learned how to catch fresh water fish with plastic worms and how to rig a hook to avoid entangling it on weeds. But when I tried to translate this learning experience on my own, fishing at the ocean surf, I met with unmitigated frustration. With time I realized that every -thing I had learned was useless when it comes to fish in the ocean surf. Ocean fish could not care less about plastic worms or any plastic bait in general. I sought the advice of experienced salt water fishermen and I was advised to use shrimp as bait, but since I would rather eat the shrimp myself I tried other types of bait. Cut mullet and small minnows worked to some extent. What I ended up catching were small sand sharks, ocean catfish, the occasional stingray, and very, very rarely, an edible fish. If I had to survive on what I fish, I certainly would have 'to change my feeding habits. So, can we really apply this fortune-cookie proverb to medical education, trim the expo -sure to factual information to a bare minimum, and expect the students to become able to dig facts they never heard of, to think of diagnoses they never read about in a textbook (rare diseases, who cares?) etc. etc.? I say go easy on the fishing proverb....

4. **Multiple choice exams are terrible evaluation tools.**

In my medical school all exams were oral, mostly one shot at everything as a final, all encompassing exam. Talk about pressure! But one does what one has to do, passed them with variable success, and no long-lasting harm happened to me. When I first became exposed to multiple choice exams, it immediately struck me that they had some great advantages: everyone took the same test, everyone was graded equally. Only those that lived on a diet of oral exams may appreciate how important those advantages are. To this day, no format has been developed that can boast of these two attributes. But we keep hearing the education folks coming down hard on multiple choice exams. Indeed, I have seen some terrible examples of multiple choice exams, but the solution appears to be working to improve the items and develop questions that probe for other than mindless memorization, still based on the multiple choice format. The National Board of Medical Examiners has given the example of continuously working to improve the questions, and everyone could learn from their excellent staff, willing to share their experience with anyone that wants to listen. And there is something else we should never forget: all Board exams (in medical school and afterwards) have at least a very significant multiple choice component (if not exclusively based on a multiple choice exam). So what good will it do the students to train them in all types of test formats that they will never encounter on a meaningful exam? Again, a dose of pragmatism is urgently required.

**5. There's too much science in the first two years**

This is the basis of the paranoia surrounding medical education reform. There is a feeling that someone is trying to do away with all the courses run by nerdy scientists and promote early exposure of the students to real life docs; let's emphasize inter-personal skills, humanism, ethics, etc. The rest, they will get as they need. Well, in case someone really thinks this way, I beg to dissent. I think we teach science too superficially to a group of students with very diverse backgrounds (many schools have dropped all requirements for pre-medical courses). For some students, the exposure to basic sciences in medical school will be all the organized exposure to science they will get in their years of higher education. It is almost impossible to train naive students in the scientific method and to give them a true appreciation of the impact of research and scientific knowledge in medicine within the framework of the first two years of medical education. If this time is to be used otherwise, then we have to make sure that the students get their science education in college and that even some of the classical contents of medical courses are transferred to pre-medical education. But the idea that a student who majored in political science (as an example; there are many others) can truly become a thinking physician with minimal exposure to science is preposterous. Medical School is not trade school, and it is in the interests of patients, students, and professionals to strive to expose students to the most updated and comprehensive basic science experiences that can be fit into the constraints of our curricula. Adding additional constraints will inevitably lead to graduation of physicians unprepared to think scientifically, to understand the basis of their actions, and unable to keep up with developments which will bring molecular mechanisms more and more into the forefront of our clinical practice.

So, this is a short digression into a crowded minefield, picking apart just a few of the obstacles. My intent is to be provocative, to open up arguments. These are important topics and we need to discuss them. Otherwise, more and more of the decision malting concerning our courses and curricula will be transferred to individuals with limited practical experience in medicine or in the teaching of medicine--which is cause for great concern.

## ARTICLE

# MICROBIOLOGY: ITS PLACE AMONG THE FUNDAMENTAL SCIENCES

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***INTRODUCED BY: Roger W. Koment, Ph.D.***
*BSEF Director*

As our readers know, most articles submitted to the *Basic Science Educator* (outside of our featured columns) are generally presented without introduction. But being a Microbiologist (Virologist) myself, I considered it a special privilege to meet Professor Kozminih when I visited Russia, and to benefit from the hospitality of his Department in a special way. Through my interpreter, we spoke at length about the discipline of microbiology in both Russia and the United States, noting our differences and similarities. In this article, Professor Kozminih provides a brief description of the Russian system for teaching microbiology to medical students and offers his ideas for improving student retention of material. Such concerns seem very familiar to many of us.

I would prepare the Western reader only with this information: 1) While we are most accustomed to a 4 year course of undergraduate medical education, in Russia it is 6 years (for a more detailed description, see the article on page 19 by Professor Gorbunov); 2) Even before the breakup of the Soviet Union, Russia has always been geographically divided into many different Republics. Udmurtia is one of these and its capital is the city of Izhevsk; 3) Medical education is quite uniform throughout Russia, being established by authorities in Moscow. This allows for very little independent variation from the established protocols (Professor Kozminih indicates 13-15%); and 4) a *caveat:* I must personally assume responsibility for any inaccuracies due to translation errors in editing the English version which follows.

Lastly, may I convey to our Microbiology Colleagues in the United States and Canada Professor Kozminih's desire to establish collaborative ties with those having interest in the epidemiology of tick-borne (viral) encephalitis and the use of genetics in the diagnosis of infectious diseases. Please contact me for further information if you as an individual, or as a department, have interest in exploring a collaborative arrangement.

Izhevsk State Medical Institute is located in the capital of Udmurt Republic, but is under the authority of the Ministry of Public Health of Russia. It was founded in 1933 and is regarded as being among the five leading medical institutes of Russia for teaching and research. Our former students are situated in different regions of Russia, but some work in Germany, Israel and the United States of America.

According to our teaching program, second year medical students are taught Microbiology with a section in Immunology and Virology. They study these subjects concurrently with Anatomy, Physiology, Histology, and Biochemistry. This program has been recommended by the Administrative Department for High and Special Medical Schools of the Ministry of Public Health of Russia, but can be changed within the limits of 13-15% depending on the local conditions. In such a way it is accepted as a "teaching program" by the administration of our institute, and it is the basic document (authority) which regulates the teaching process.

During the academic year, the whole course of microbiology is divided into two parts: General and Medical Microbiology. In "General Microbiology" students study morphology and physiology of bacteria and viruses, their activity in the pathogenesis of diseases, as well as questions of immunity. In "Medical Microbiology", the microbiological characteristics of some infectious diseases, including the properties of pathogenic agents, their role in the pathogenesis, the peculiarities of immunity, methods of laboratory diagnostics, and principles of specific prevention and treatment are taught. In our institute, the teaching program in microbiology consist of 72 hours of lectures, *105* hours of laboratory classes, and 7 hours of examinations, for a total of 184 hours.

Lecture is the basic teaching process, where students acquire theoretical knowledge. These lectures are delivered not only to second year students but to graduates as well when their theme is *Microbiological Diagnostics of Infectious and Non-Infectious Diseases, and Hospital Infections.* Attendance of lectures is compulsory for second year students because of additional material given which pertains to the laboratory classes following the lecture. This information includes accident prevention and safety procedures, since students work with living cultures in the laboratory. Frequently these microorganisms are the causative agents of infectious diseases and are the actual discharges and other materials derived from our patients. All students are instructed in safety procedures before working in the labs, and we can say with assurance that no one has been infected in our laboratories since the year of the institute's founding. These instructions on biological safety were elaborated by the World Health Organization (1983, 1990).

Control computer tests are held in the forms of concluding sessions. Students' knowledge is scored with marks on a scale of 1 (low) to *5* (high). One third of all students in the second year and some senior students carry out research not only in our labs but also in labs of therapeutic and surgical teaching hospitals. Our *(13-15%* limited) modification of the program includes research into the following questions: a detailed study of tick born encephalitis, hemorrhagic fever, the natural foci of this infection in the territory of the Udmurt Republic, microbiological diagnostics of oncological diseases, and computer and genetic diagnostic of infectious diseases.

In the process of studying microbiology, every student is required to learn fixed practical skills and abilities. Each skill should be perfected during several lab classes and exhibited in the final exam, which is conducted at the end of the second year in oral form. This practical exam is given during the concluding sessions, which makes it possible to score students' knowledge objectively.

The discipline of microbiology occupies a special place in the system of a physician's training. This is the science that gives medical students thorough biological knowledge and provides a solution of such problems as microbial diagnostics. The acquisition of knowledge specific to prevention and treatment of infectious diseases gives this science a definite applied character.

As stated previously, microbiology is taught during the second year, that is, in the theoretical course of training, but the clinical training begins at the end of the second or in the third year. Such a gap has a negative effect on the students' retention of knowledge and in the system of medical education in general. The Ministry of Public Health of the Udmurt Republic and the administration of our institute made the decision that microbiology will be taught during the fourth and fifth semesters with the final exam being in the third year. But we consider this only a partial solution of the problem. Our suggestion is that "General Microbiology" should be taught in the second year as it is now, but "Medical Microbiology" should be considered in each clinical department. Such a program of teaching existed in the 1960s and '70s.

In general, our department has a high authority rate among both students and graduates of our institute. Laboratories of our departments have good equipment from both Russian and foreign manufacturers, and the activity of our instructors is greatly appreciated by the Ministry of Public Health and Education of the Udmurt Republic and of Russia

## ANNOUNCEMENT

### BSEF SPONSORED EAST-WEST CONFERENCE

*Educational Strategies for the Preclinical Sciences*

JUNE, 1996 ST. PETERSBURG, RUSSIA

The BSEF is developing plans to sponsor a unique and unprecedented intercultural experience of learning and sharing educational strategies with our basic science colleagues in Eastern Europe. This event will be co-hosted by two Russian BSEF member schools. Pending grant support, 14 basic science educators from the United States and Canada will be invited to travel to St. Petersburg (all expenses paid) for this 4 day conference. Fourteen Russian basic science counterparts will be selected by our hosts. Together, these 28 individuals will present and debate the merits of both Eastern and Western methodologies for teaching the fundamental medical sciences before -- and with

-- an audience of up to 300 faculty from medical schools throughout the independent nations of the former Soviet Union. Simultaneous translations of all presentations and debates will be in at least three languages (English, Russian, and German). We are scheduling daily "cultural" activities and engaging multilingual interpreters so that all participants may interact informally as they experience the treasures of this "Venice of the North". Our goal is for all participants to become aware of existing methods for teaching the basic sciences and to experience an interchange of cultural diversity.

Selection of U.S. and Canadian participants likely will be influenced by program content, and all applicants will be evaluated by a Selection Committee. If you would like to be considered as one of our 14 representatives, at this time we ask only that you send a *brief* note indicating why, and describing your major areas of interest and expertise. Once it is formed, the Selection Committee most likely will request additional information. Send your initial statement of interest to Roger W. Koment, Ph.D., BSEF Director (see address on page 26).

**PROCEEDINGS**

# SEVENTH ANNUAL BASIC SCIENCE EDUCATION SIG MEETING

The Seventh Annual Basic Science Education Special Interest Group (SIG) meeting was convened on Monday October 31, 1994, in the Boston Marriott Hotel. Roger Koment, Director, formally welcomed the assembly of 46 faculty/staff and 6 invited student participants and described the purpose of this SIG and our autonomous global organization, the Basic Science Education Forum (BSEF). He noted that the SIG now has 1,041 members who represent every allopathic medical school within the AAMC and many osteopathic and podiatric schools. Our activities continue to attract medical faculty to national and regional AAMC Group on Educational Affairs meetings by providing programs in basic science education. He introduced the four Regional SIG/BSEF Directors, noting in particular Penny Hansen (Northeast) and Gary Rosenfeld (Southern) as the new incoming Directors for their regions. Outgoing Directors Alix Robinson (Northeast) and Dick Hyde (Southern) were recognized for accomplishments during their terms in office with a commemorative plaque for each which read: *"In Grateful Appreciation for Dedicated Service to the Basic Science Education Forum ________ Founding Member and ___________ Regional Director 1990-1994"*.

Turning to issues of the Basic Science Education Forum, Roger reminded the assembly of the upcoming Second Biennial Conference of the BSEF, this June 24-27, 1995, on *Strategies for Integrating Clinical and Basic Sciences.*

The BSEF~ has expanded dramatically since we began our Global Outreach Program in 1992, doubling the number of countries involved each year (4 in 1992, 9 in 1993, and 20 in 1994), and our goal is to continue this effort by establishing a presence in 40 countries by the end of 1995. Clearly, the BSEF has positioned itself to be a global resource for all faculty concerned with basic science education. Roger announced that for the past several months, he and the BSEF Executive Committee have been planning our first venture into this global arena, which will be to sponsor an East-West Conference on *Educational Strategies in the Preclinical Sciences.* This will be hosted by our Russian colleagues in June of 1996, most likely in St. Petersburg. The purpose is to present and debate the merits of both Eastern and Western methodologies before and with an audience of up to 300 Russian and Eastern European medical faculty. Although contingent upon government funding, we will shortly be seeking 12 to 14 U.S. and Canadian basic science educators willing to travel to St. Petersburg for five days (all expenses paid) to present the Western portion of this program.

Roger then turned the program over to Murray Saffran, Central Regional SIG/BSEF Director, who guided the student presentations and audience discussion on the topic of *Student Perceptions: Student-to-Faculty Feedback*

## STUDENT PERCEPTIONS: STUDENT-to-FACULTY FEEDBACK

Organizer: **Murray Saffran, PhD**
Reporter: **Judith Saffran, PhD**
Authors of this report: **Dev Sangvai and Murray Saffran**

**What do medical students think of the Student-to-Faculty feedback in their schools?**

The most often used indicator of course and teaching quality is student-to-faculty feedback. Six students from 5 different medical schools presented their opinions on the process and value of feedback systems used at their respective schools. The student participants were:
**Mary Jo Lechowicz** and **Barbara Sherman**, SUNY Health Science Center at Syracuse NY; **James Parker**, Mayo Medical School, Rochester MN; **Chris Raispis**, Medical University of South Carolina, Charleston SC; **Walter Rush**, Dartmouth University School of Medicine, Hanover NH; and **Devdutta Sangvai**, Medical College of Ohio, Toledo OH.

In most schools, student feedback takes the form of **end-of-course questionnaires** designed and distributed by faculty. The rate of return of the questionnaires is seldom good, although attempts at better return, such as distribution with the final examinations, are frequently used. The questionnaires usually request ratings on a 5-point scale, from strongly disagree (1) to strongly agree (5), of statements about the course and its teachers. There is also room on the form for free-form comments.

At **Dartmouth**, unlike most other medical schools, the students design the questionnaire and organize its distribution and analysis. The results are then given to the professors. The response rate was poor, but improved when the questionnaires were distributed immediately after the final examination. A standardized questionnaire is used to enable courses to be compared with each other. As an experiment, an evaluation form with only 3 questions was distributed to the class very early in the course, and students were asked to complete the short form after every lecture. The evaluations also had space for free comments. The completed evaluations were given to the faculty at the end of the course.

In a course on Ethics and Medicine in Society at **SUNY Syracuse**, students not only rated the course, but also participated in the planning of the course and in the design of the evaluation instrument. The course was planned in curriculum committee meetings every two weeks. The course took the form of whole class sessions and small group meeting of 12 students with two faculty, one basic scientist and one clinician. The curriculum committee met with the course director every two weeks to evaluate progress and to modify the course if necessary. Changes in the course have been made based on feedback from the students. Other courses at SUNY Syracuse are contemplating similar evaluation programs, but the two students stressed that the system is valuable only if the course is responsive to student feedback.

At the **Mayo Medical School**, a new course in Pathophysiology is evaluated by questionnaires distributed to the entire class at the time of the final exam. A committee of 6 students gathers the information and writes a Consensus Statement on the course to give to the faculty. The exercise contributes to student satisfaction with the course because the faculty take the student feedback seriously.

At the **Medical University of South Carolina**, every course has its own end-of-course questionnaire. Ratings scales are used, along with room for free comments. Few free comments are written. Again, the students want evidence that the faculty are responsive to student feedback.

At the **Medical College of Ohio at Toledo**, evaluation forms are not used. Instead, groups of 8-12 students are assigned to write narrative reports on the courses and teachers they encounter in a week of the basic science curriculum. The reports are composed by the entire group and are handed in at the end of the week for distribution to the course directors. The frequent feedback makes mid-course corrections possible, which cannot occur with the end-of-course evaluations. Moreover, the MCO reports are entirely narrative, thereby providing more detailed feedback than a number on a 5-point scale.

All student participants in the symposium agreed that faculty response to student suggestions is essential for the maintenance of confidence in the value of the reporting system. Some evidence of change in response to student suggestions provides the best incentive for student participation in the reporting process.

This audience of 46 faculty and education administrators participated in a lively exchange with the presenting students and seemed to profit from the information provided by the students about the value of feedback. In spite of the perceived imperfections of the various forms of feedback, the participants and audience agreed that feedback is essential to the maintenance of quality teaching in medical schools. The audience voiced their approval of the opportunity to hear about student perceptions of what is generally a faculty-run evaluation system.

# BASIC SCIENCE EDUCATION FORUM

Membership in the Basic Science Education Forum has now exceeded the 1200 mark. Geographically we are distributed throughout 21 nations of the world:

| | |
|---|---|
| Australia | Netherlands |
| Azerbaijan | Nigeria |
| Brazil | Philippines |
| Canada | Russia |
| Chile | Singapore |
| Croatia | Spain |
| Ecuador | Switzerland |
| Israel | United States |
| Jordan | Venezuela |
| Korea | West Indies |
| Mexico | |

# ARTICLE

# THE BASIC SCIENTIST AND THE GENERALIST:

## Natural Partners for Educational Reform

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By now most medical educators have reconciled themselves to the widespread perception that our country needs more generalist physicians and fewer specialists and subspecialists. Disagreements remain about precisely how much of a shift will be required in the mix of specialty choices made by our students to bridge the gap, but virtually everyone acknowledges the need for some correction in the current pattern.

In some quarters, the required shift in the "products" of medical education has been lamented in the belief-altogether misguided I think-that a more balanced emphasis on educating generalists somehow portends a retreat from our traditional commitment to science-based education. Many who hold this view believe that a career as a generalist physician is less intellectually demanding than a career as a highly focused specialist and hence, conclude that less of a basic science foundation is required. Proponents of this view fear that medical schools that respond to the call for more generalist physicians will perforce reduce the curriculum time and emphasis devoted to the basic sciences and will be loosening their standards as they consign all their students to a less rigorous educational program. This line of thinking has led some basic science chairs and other faculty leaders to resist efforts to commit their schools to the goal of increasing the fraction of their graduates who elect generalist careers, as advocated by the AAMC and numerous other organizations.

Is there any truth to this point of view? Quite obviously, I think not.

First, a commitment by the academic medicine community to produce more generalist physicians does not entail any deviation whatsoever from the longstanding *educational* goal of the undergraduate years, as reinforced in the GPEP report: to focus on the general professional education of the physician, thereby preparing those awarded the MD degree for *any* career path they might choose. The task of medical schools has always been to graduate such undifferentiated "proto-generalists," capable of succeeding in any residency training program because they have had a firm foundation in basic sciences, in basic clinical reasoning, and in basic clinical skills. We have never before questioned the necessity of a science-based education to meet this task and there is certainly no reason to do so now.

Second, as the miracle of molecular medicine continue to revolutionize medical practice at an ever more dizzying pace, the ability of generalist physicians to orchestrate the clinical care of their patients in a cost-effective and intelligent way will almost certainly track with their understanding of the fundamental scientific principles underlying those miracles.

Third, the generalist physicians' most prized clinical skill is arguably the ability to make decisions under uncertainty. A future characterized by resource constraints, with limited access to consultants and expensive testing, means that generalists must rely even more heavily than now on deductive reasoning rooted firmly in their knowledge of the basic sciences. Thus, far from reducing the academic rigor required of undergraduate medical education, educating the future generalist will place an even higher premium than in the past on a thorough grounding in all of the classic sciences basic to medicine.

Fourth, the new competencies required of the generalist physician in a reformed health care system mean that our students must acquire a foundation in the basic sciences that is not only deeper but broader •than that now established in most schools. Among these new competencies are management of large databases, quantitative decision making, leadership of health care teams, evaluation and utilization of clinical outcomes data, effective functioning in large administrative structures, and the ability to take full responsibility for the care of a defined population. Equipping our students optimally to meet these new challenges will require a firm foundation in the basics of information science, the theoretical underpinnings of decision analysis, the fundamentals of group dynamics, the principles and methods of clinical epidemiology, the essentials of organizational behavior and the elements of population-based science.

Seizing on the critical and expanded role for the basic sciences in the education of the generalist physician, basic science faculty can take the lead in redesigning the curriculum for all students to bring about many long-sought reforms. For example, by picking up the generalist gauntlet, those responsible for the early years of the medical school curriculum could engineer a fundamental reorganization of the classic basic science offerings. Now is the time to create visionary interdisciplinary course, to purge the curriculum of unnecessary redundancy, to rivet home the revolutionizing principles of the biomedical sciences, to introduce illustrative and motivational clinical material, and to deride fact grubbing and acclaim problem solving and self-directed learning. Similarly, now would seem to be an ideal moment to convince curriculum committees to assign meaningful curriculum space in the "clinical" years for more targeted and indisputably relevant basic science offerings designed to amplify and particularize the principles laid out in the "basic science" years.

And why should we stop with the third and fourth years of medical school? Now is also the time to consider seriously the integration of formal, prospectively planned basic science education into the postgraduate years of residency training, when the student's mind is truly focused and when relevant, cutting-edge concepts would be eagerly grasped. It is at this stage of the medical education continuum that basic science material, tailored specifically to the generalist and each of the more highly specialized disciplines, would have a predictably lasting impact on the quality of medical practice. Educators have long lamented the fact that first-and second-year medical students fail to engage the basic sciences as fully as they should because they fail to see the relevance of much of the material to their future practices. Here's our chance to fix that vexing problem.

For all of these reasons, I urge our basic science faculties to view not with disdain but with unbridled relish the prevailing accent on educating more generalist physicians~ Abundant opportunities are in the offing to strengthen the basic science curriculum with the conviction that students will grasp not only the inherent beauty of the sciences but also the relevance of "that stuff' to their future success.

*(Reprinted from Academic Medicine,* 69: 640, 1994)

# ANNOUNCEMENT

**1995 SPRING REGIONAL GEA MEETINGS**

NORTHEAST

Ottawa, Ontario — April 27-29, *1995*

*Socially Responsive Medical Curricula: Their Development and Implementation*

For details on Basic Science Education SIG activity phone:
Penny Hansen, Ph.D. Ph: (709) 737.6669

CENTRAL

Columbus, OH — March 30- April 2, 1995

For details on Basic Science Education SIG activity phone:
Murray Saffran, Ph.D. Ph: (419) 381-4133

SOUTHERN

Nashville, TN — April 29-May 1, 1995

For details on Basic Science Education SIG activity phone:
Gary Rosenfeld, Ph.D. Ph: (713) *792-5550*

WESTERN

Asilomar, CA — April 23-26, 1995

# INNOVATIONS IN BASIC SCIENCE TEACHING AND LEARNING
## ASSOCIATE EDITOR: Thomas M. Devlin, Ph.D.

Professor and Chair, Department of Biological Chemistry
Hahnemann University, Broad & Vine Streets
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The second segment of a two part article concerning Concept Mapping, by Drs. Howard Zeitz and Angelo Pinto, is presented in this issue. As stated before, the value of Concept Mapping in the educational process is firmly established and its use in a variety of settings has been demonstrated clearly. Concept Mapping should not be considered primarily as a tool in problem-based-learning but rather as a valuable tool to be used by individual students in reviewing material, in small group discussions in a lecture course, and even in lecturing. We hope that these two articles will help unfamiliar faculty to become aware of the pedagogic potential of Concept Maps. Try it! Note: The Editors of the Basic Science Educator continue to seek articles from readers concerning innovations in teaching and learning. Call me if you have an idea for an article. (215-762-7947).

# CONCEPT MAPPING: A *STRATEGY* FOR MEANINGFUL LEARNING (PART 2)


**Howard Zeitz, M.D.**
Rush Medical College,
Chicago, IL 60612
Ph: (312) 942-3189, Fx: (312) 942-2333

**Angelo Pinto, Ph.D.**
The Medical College of Pennsylvania,
Philadelphia, PA 19129
Ph: *(215)* 991-8378, Fx: (215) 848-2271


In the last issue of the BSE , we introduced concept mapping, a tool for meaningful learning. In concept mapping, one identifies the important concepts from a subject and describes the relationship between those concepts with linking words. In this issue we discuss strategies for helping medical students acquire concept mapping skills, the experience with concept mapping at various medical schools, and the ways basic science faculty can use concept mapping.

It has been our experience that a workshop is the best way to introduce concept mapping to students. In the workshop, students are introduced to meaningful learning and concept mapping, shown examples of concept maps and given a guide on how to construct a concept map. Students are then separated into pairs (or small groups of 3-4) and given a short (2-3 paragraph) piece to concept map. The resulting maps are posted, and there is a 15 minute time for participants to view the concept maps of others. This activity has two goals: 1) it gives firsthand experience with mapping; and 2) it illustrates the idiosyncratic nature of concept mapping: each map is different because it reflects the thinking and experiences of the author(s). This “hands on” activity is followed by a debriefing where participants are asked to comment on their experience, with faculty available to answer questions.

It is important to assign students to construct 3-4 maps immediately following the workshop, as most students need time to become comfortable with the technique. Also, faculty should be available to evaluate the maps as students are acquiring skill in concept mapping.

This new skill in concept mapping can be used by students in many settings. At the Medical College of Pennsylvania concept mapping has been evaluated (on a voluntary basis) as a tool to help students organize and integrate the concepts presented in a traditional second-year Medical Microbiology and Immunology course. A similar program was recently started at the University of Florida medical school. Students believe that making a good concept map requires a thorough understanding of the material and that the maps are useful in helping to learn and understand the course material. Most students use concept maps to reinforce and understand the significance of what they are studying. Maps are also used to see how broad concepts are integrated, and as a guide for deciding what is important to understand. For traditional students, the biggest obstacle in using concept mapping is deciding what level of detail is appropriate (i.e., what are the essential concepts). Most students think that concept mapping is too time consuming if the level of detail is too specific. One common complaint from students is that they are often tested on minute detail, not on their understanding of the concepts or the relationships between concepts. Therefore, if you are planning to

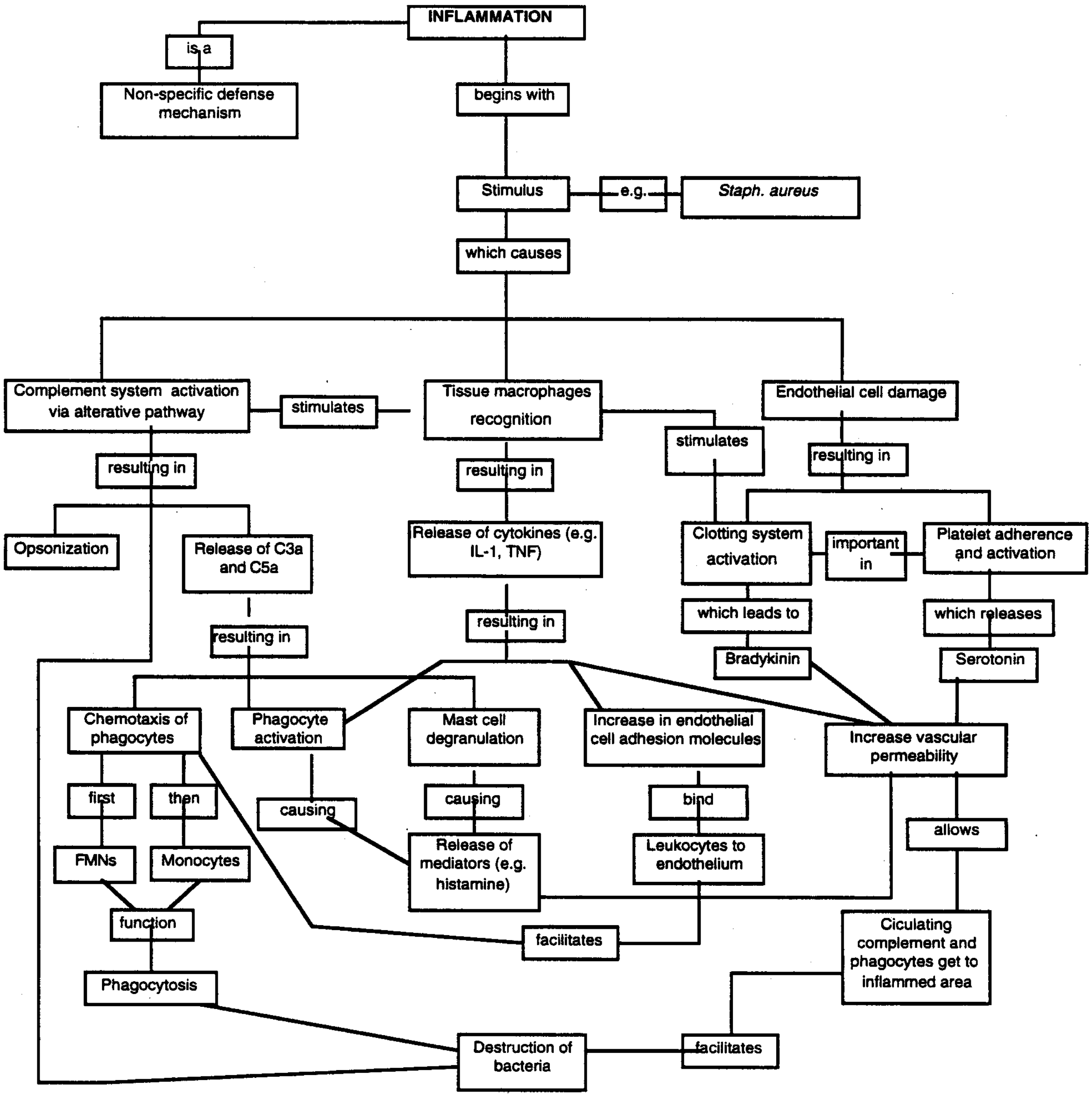


Figure 1. A model concept map on the pathogenesis of inflammation.

use concept mapping in a course, it may be important to also use it as an evaluation tool.

The technique of concept mapping also has been used in problem-based learning (PBL) programs at Rush Medical School and at the Medical College of Pennsylvania. Concept mapping lends itself beautifully to small group problem solving activities. First, students in PBL create a case specific "case model" (similar in many ways to a factual basic science concept map) to relate case data to hypotheses; each PBL group (4-6 students) will try to develop a preliminary model that relates the case data to their proposed hypotheses. This helps them to fully rationalize their hypotheses and to identify learning issues. Secondly, PBL students also use group and individual basic science concept maps to discuss basic science learning issues generated from the case. Finally, the technique is used is to revise the model for the case. This is usually a revision of the day one model and incorporates all of the case-specific data, the revised hypotheses and the most relevant basic science learning issues.

Basic science faculty also can benefit from concept mapping. As an example, a teacher can organize a lecture by making a concept map to use as a teaching guide. This will give a conceptual flow to the lecture and help the teacher pinpoint what he/she feels is important for students to understand. Such maps may be shared with students but this needs to be done cautiously; the tendency is for students to memorize the map, which does little in helping them to understand or integrate the material. The map may be given as a guide to help students see the organization and integration of the important concepts. Some students may want to build or expand on these maps. Secondly, maps can be used to obtain feedback; having students concept map a lecture you give can be an eye opening experience about what students think the important concepts in a lecture are and how they are related.

CONCEPT MAPS

At this point, the reader may wonder: What does a typical basic science concept map look like? Figure 1 is a map summarizing key aspects concerning the concept of inflammation. Note that the map presents things in a general hierarchical structure, uses examples and has both horizontal and vertical relationships.

SUMMARY

To date, concept mapping has been used in a variety of educational settings. It is a valuable learning tool to incorporate into medical education. Concept mapping can be used as an adjunct to other study methods, helping students organize and integrate information, gain new insights and detect areas where there are misunderstandings. Since concept maps represent the thinking and experiences of the map maker they can act as a visual mnemonic, helping one retrieve information. Finally, concept mapping can promote interaction between students who share maps or who make maps together, and between students and faculty who evaluate student maps and provide feedback.

SOURCES FOR ADDITIONAL INFORMATION ON CONCEPT MAPPING


1. Deschler, D. Conceptual mapping: Drawing charts of the mind. In: Fostering critical reflection in adulthood: A guide to transformative and emancipatory learning (J. Mezirow et al., (eds). Jossey-Bass Publishers, San Francisco, 1990.
2. Moreira, M. 1979; Concept maps as tools for teaching. Journal of College Science Teaching , 1979; 9: 283-286.
3. Novak, J. D. Clarify with concept maps. The Science Teacher, 1991; *58:45-49.*
4. Novak, J.D. Concept maps and vee diagrams: Two metacognitive tools to facilitate meaningful learning. Instructional Science, 1991; 19:1-25.
5. Novak, J.D. and Gowin, D.B. Learning How to Learn. New York: Cambridge University Press, 1984.
6. Stewart, J., J. Van Kirk, and R.M. Rowell. 1979. Concept maps: A tool for use in biology teaching. American Biology Teacher, 1989; 41:171-175.
7. Watson, G.R. What is.. .concept mapping? Medical Teacher, 1989; 11:265-269.


# ANNOUNCEMENTS

## EIGHTH ANNUAL MEETING BASIC SCIENCE EDUCATION SIG

**October** 27 - **November 2, 1995** **WASHINGTON, DC**

The Eighth Annual Meeting of the AAMC:GEA's Basic Science Education Special Interest Group will be held in Washington, DC during the Annual AAMC Conference scheduled for October 27 -November 2, 1995. Our topic this year will be *The Educator's Portfolio for Basic Science Faculty.* If you have interest in contributing to this program, please contact Jay Menna, Ph.D. at TEL: *(501)* 686-6680; FAX: *(501)* 686-8160; E-Mail: jmenna@comdeanl.uams.edu

## CALL FOR NOMINATIONS

The Editorial Board of the *BASIC SCIENCE EDUCATOR* is seeking nominations for the position of Associate Editor to manage the column ***Social Issues in the Basic Sciences.*** Responsibilities of an Associate Editor include developing and coordinating an overall plan for continuity of the column, soliciting and promoting articles and authors who have expertise in the topic, and working with authors to develop their contributions within the context of the column. Associate Editors should be willing to serve in that capacity for at least one year (two issues). Please mail/fax/phone/e-mail your nominations to Roger W. Koment, Ph.D., BSEF Director FAX; *(605)* 677-5124. Self-nominations are welcome.

# SECOND BIENNIAL BSEF CONFERENCE
## *Strategies for integrating Clinical and Basic Sciences*
## Report of the Organizing Committee

**THE HOST SCHOOL**

A total of eight medical schools from across the United States had volunteered to host the Second Biennial BSEF Conference. From these, Roger Koment made the decision to accept the invitation of the Rush Medical College to host us at the Lincolnshire Marriott Resort, in Lincolnshire Illinois. Howard Zeitz, M.D. is the designated Site Coordinator who will be responsible for all logistical concerns of this conference. This decision was approved by the BSEF Executive Committee, who agreed that we should attempt to rotate the conference location from east (1993) to mid-west *(1995)* to west (1997), and then back again.

**THE COMMITTEE**

Thirty-eight individuals representing 30 medical schools had volunteered to serve on the Organizing Committee for the *1995* conference, and in May 1994, Roger and Howard selected a committee of five. Selection criteria included consideration of basic science discipline, previous involvement with the BSEF, experience in medical education, and gender. It was agreed that one of the five members be an "unknown entity" to the national scene of basic science education, as part of the internal mentoring program of the BSEF leadership. The committee is as follows:

| | | | |
|---|---|---|---|
| Denise Ferrier, Ph.D. | Biochemistry | Med Coll PA & Hahnemann Univ | Fx: *(215)* 843-8849 |
| Penny Hansen, Ph.D. | Physiology | Memorial Univ of Newfoundland | Fx: (709) 737-5190 |
| Lynn Romrell, Ph.D. | Anatomy | University of Florida | Fx: (904) 392-3940 |
| Gary Rosenfeld, Ph.D. | Pharmacology | UT Medical School - Houston | Fx: (713) 792-5911 |
| Gabe Virella, M.D., Ph.D. | Microbiology | Medical Univ of South Carolina | Fx: (803) 792-2464 |

**LOGISTICAL CONSIDERATIONS**

A major strength contributing to the success of the First Biennial Conference was the intimate atmosphere created by limiting that conference to 160 participants. Although understandably some will again be disappointed, we will continue with this practice in 1995, this year accepting only the first 190 registrants. Furthermore, to encourage the greatest number of medical schools participating, registration will be limited to a maximum of 4 individuals from each school until April 30th. If openings remain, additional individuals from the same school -- whose applications were submitted prior to April 30th --may be considered and will qualify for the early registration fee. ***Early registration*** will be $250, increasing to $275 after ***April 30th, 1995,*** and includes the Conference Reception, Breakfasts, Lunches, Refreshment Breaks, and the Sunday Dinner Theater. A block of rooms at the Lincolnshire Marriott has been reserved at a special conference daily rate of $112 each, single or double occupancy. Upon receipt of the registration fee, participants will be provided information concerning Discussion Session preferences, instructions for submission of poster and computer exhibit abstracts, hotel registration procedure, accompanying guests, requests for diet restrictions, optional social events, etc. This year only one program brochure containing the conference registration information was mailed in February.

POSTERS AND EXHIBITS

**Confirmed registrants** are invited to submit abstracts for posters and computer exhibits related to the topics listed under the *Poster Symposium*. Contact Dr. Lynn Romrell with your fax number and he will provide further details. The ***deadline for <u>receipt</u> of all abstracts is April 30th, 1995.*** If you wish to contribute to any section of this program, please send a fax request to the appropriate member of the Organizing Committee.

# *STRATEGIES FOR INTEGRATING CLINICAL AND BASIC SCIENCES*
# *Hosted by Rush Medical College*

**PRELIMINARY PROGRAM**

**SATURDAY - June 24th**

| | | |
|---|---|---|
| Noon | 6:00 | REGISTRATION |
| 6:00 | 9:00 | CONFERENCE RECEPTION |

**SUNDAY - June 25th**

| | | | |
|---|---|---|---|
| 7:30 | 8:30 | BREAKFAST | |
| 8:30 | 9:00 | **WELCOME and CONFERENCE OVERVIEW -- Roger Koment & Howard Zeitz** | |
| | | **PLANNING CONTENT INTEGRATION -- Denise Ferrier** | |
| 9:00 | 9:45 | **PLENARY SESSION** | |
| 10:00 | 11:00 | P-l | Why Integrate? |
| Concurrent | | P-2 | Problems in Planning |
| discussion | | P-3 | Planning Horizontal or Vertical |
| groups | | P-4 | Planning Large Scale Integration |
| | | *P-5* | Planning Small Scale Integration |
| | | P-6 | Planning Content Integration in Years 3-4 |
| 11:00 | 11:30 | Refreshment Break | |
| 11:30 | 12:30 | Repeat Sessions P-i toP-6 | |
| ***12:30*** | ***1:45*** | LUNCH | |

**IMPLEMENTING CONTENT INTEGRATION -- Gabriel Virella**

| | | | |
|---|---|---|---|
| *1:45* | 2:30 | **PLENARY SESSION** | |
| *2:45* | *3:45* | I-1 | Implementing the Organ System Approach to Integration |
| Concurrent | | 1-2 | Implementing the PBL Approach to Integration |
| discussion | | 1-3 | Experiences in Implementing Course-Based Integration |
| sessions | | 1-4 | Experiences in Implementing Hybrid Curricula |
| | | I-5 | Logistics and Resource Problems in Integration |
| | | 1-6 | Implementing Content Integration in Years 3-4 |
| 3:45 | 4:00 | Refreshment Break | |
| 4:00 | *5:00* | Repeat Sessions I-1 to I-6 | |
| 6:00 | | LINCOLNSHIRE DINNER THEATRE | |

MONDAY - June 26th

| | | | |
|---|---|---|---|
| 7:30 | 9:00 | **BREAKFAST SESSION - CAI & INTEGRATION part 1 -- Lynn Romrell/ G. Virella** | |
| | | **EVALUATING CONTENT INTEGRATION -- Gary Rosenfeld** | |
| 9:00 | 9:45 | **PLENARY SESSION** | |
| 10:00 | 11:00 | E- 1 | Evaluating Programs Designed for Content Integration in Years 1-2 |
| Concurrent | | E-2 | Evaluating Programs Designed for Content Integration in Years 3-4 |
| Discussion | | E-3 | Designing and Using Clinical Vignettes for MCQs |
| Sessions | | E-4 | Designing and Using the Triple Jump |
| | | E-5 | Designing Basic Science Content of Objective Structured Clinical Exams |
| | | E-6 | Traditional PBL/Hybrid Curricula: Comparing Student Performance |
| 11:00 | 11:30 | Refreshment Break | |
| 11:30 | 12:30 | Repeat Sessions E-l toE-6 | |
| 12:30 | 2:00 | LUNCH | |

**MONDAY - June 26th (ctd.)**

| | | |
|---|---|---|
| 2:00 | 5:30 | **INNOVATIONS IN INTEGRATIVE INSTRUCTION -- Lynn Romrell** |
| | | **(Poster Symposium - Integration)** |
| | | PS-1 Computer Instruction |
| | | PS-2 Alternatives to Traditional Basic Science 'Wet Labs' |
| | | PS-3 Integrative Lectures: "Grand Rounds"/Case Presentations in the Basic Sciences |
| | | PS-4 Innovative Small Group Teaching |
| | | PS-S Using Creative Assessment Techniques to Direct Student Learning |
| | | PS-6 Promoting Self-Directed Learning |
| 6:00 | | DINNER (On your own; Optional Social Event -- TBA) |

**TUESDAY - June 27th**

| | | |
|---|---|---|
| 7:30 | 9:00 | **BREAKFAST SESSION - CAI & INTEGRATION part 2 -- G. Virella/Lynn Romrell** |
| | | **STRATEGIES FOR INTEGRATING EDUCATIONAL PROCESSES -Penny Hansen** |
| 9:00 | 9:45 | **PLENARY SESSION** |
| 10:00 | 11:00 | EP- 1 The New Lecture |
| Concurrent | | EP-2 Rethinking Clinical Rounds |
| discussion | | EP-3 Modernizing Textbooks |
| sessions | | EP-4 Innovative Integrative Electives |
| | | EP-S The Renaissance of Laboratories |
| | | EP-6 Finding the Way With Concept Maps |
| 11:00 | 11:15 | Refreshment Break |
| 11:15 | 12:00 | Plenary Session: 6 groups each report one great idea |
| 12:00 | 12:30 | **CONFERENCE CLOSURE -- Roger Koment & Howard Zeitz** |

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## MEETING REGISTRATION

PLEASE REGISTER AS SOON AS POSSIBLE - **ATTENDANCE WILL BE LIMITED TO 190 PARTICIPANTS**

### REGISTRATION FEE

**(Make checks payable to Rush Medical College)**

Prior to April 30, 1995 ***$250.00*** U.S.*

After April 30, 199S *$275.00* U.S.*

* Includes Reception, daily continental breakfast, lunch on Sunday and Monday, dinner theatre on Sunday, and refreshment breaks.

**Please complete this form and mail with check to:**

Ms. Kathleen Girardi
Rush Medical College
600 5. Paulina Avenue
Suite 524K AF
Chicago, IL 60612
Phone: (312) 942-8301 Fax: (312) 942-2333

**MEETING REGISTRATION**

NAME ______________________________

TITLE ______________________________

MAIL ADDRESS ______________________________

______________________________

______________________________

PHONE ______________________________

FAX ______________________________

E-MAIL ______________________________

ADDITIONAL INFORMATION

After your registration is confirmed, you will receive additional information from Rush Medical College concerning: break-out group preferences; meal restrictions; posters; optional social events; accompanying guests; travel; and hotel registration. The daily rate for the Meeting hotel will be $1 12.00/day (plus tax), single or double occupancy.

CANCELLATION POLICY

The Organizing Committee reserves the right to cancel this program at any time. In this event, the full registration fee will be returned to the registrant.

TRAVEL ARRANGEMENTS AIR TRAVEL

**Rex travel agency** has agreed to serve as the official travel agency for the meeting. Please contact them at 1-800-777 - 7739 for all your travel arrangements. The agency will spare no effort to make sure that your travel arrangements are as convenient and as inexpensive as possible.

GROUND TRANSPORTATION

Participants are responsible for their own transportation to and from the hotel. Taxis, limousines and rental cars are available at O'Hare International Airport for transportation to the Marriott Lincolnshire Resort. There is also a Hotel Bus available from O'Hare International Airport.

# ARTICLE

## CULTURAL DIVERSITY AND THE BASIC SCIENCES
## A Personal View From Russia

**Roger W. Koment, Ph.D.**
**BSEF Director**

It's 5:30 AM as I grab for the alarm clock and look out the window of this train, which since yesterday has been rattling slowly toward the Ural Mountains of Western Russia. The dawn glows deep red and I fumble to reach my video camera as we begin crossing the Volga River. Several barges and small boats already active come into view. Moments later and I'm dressed and ready for the two-minute stop on the outskirts of Kazan, where both grandmothers of my interpreter will meet us. Although my Russian is still insufficient to understand all their words, their smiles and animated conversation convey all the warmth of family; and their gestures of communication clearly indicate I am included without question. As with grandmothers everywhere, they have brought packages of food, for which there is barely time to pass from their hands to ours before the train lurches forward once again. That morning we feasted on cabbage-egg-and-fish pie, still warm from the oven, and a sack of freshly-picked cucumbers. Twenty hours by train from Moscow to Izhevsk, a total emersion in the culture of a people.

How is it possible for me to convey merely by written words, the feelings I experienced traveling for three weeks this September to visit Basic Science Education Forum members in Russia? This is a country which stretches for 6,000 miles from the Baltic Sea to the Pacific Ocean, traversing 11 time zones, and accounting for 20% of the world's land mass! There is an old saying that the visitor must see Russia with his heart, and I am enough of a romantic to believe that is true. I am the type of international traveler who still carries a weather-stained backpack to Bed-and-Breakfast accommodations instead of high-rise Americanized hotels; and I arranged this trip to be no exception. I chose to take Aeroflot's Ilyushin-62 jet service from Chicago to Moscow Sheremetyevo-2 for the shear experience, and to practice my Russian on a flight crew who spoke no English. For five days my interpreter and I lived in a small apartment in Moscow like tens of thousands of other Russians, riding the metro and trading our rubles for bread, cheese, and beer at the local markets. I walked through Red Square, where Communism fell, and viewed museums filled with the treasures of a people. So much has occurred just in this city alone that is inexplicably bound to the history of my own country. The Kremlin, Cathedral Square, the Bolshoi Ballet, Moscow Zoo, the Pushkin Art Museum, St. Lavra Monastery at Zagorsk, the Circus of the Animals -- words fail me.

Then on to Izhevsk as I have described, where I lived for another five days with the family of my interpreter, all of whom spoke less English than I did Russian! But what did it matter when we gathered at table to begin the evening meal by toasting each other's health with shot glasses of liquid fire? Vashe Zdorovie!! Boiled pelmeni with sour cream, pork-stuffed cabbage, blinis with a special treat of black caviar.., and the list of meals I consumed goes on. It was this wonderfully warm and passionate family who accepted me into their home that established most solidly the high regard for the Russian people I have today.

From Izhevsk I traveled to St. Petersburg (Leningrad), second largest city in Russia. This is the city which valiantly withstood the Nazi siege of nine hundred days at the cost of one million lives; a city where the visitor is awed by the grandeur of royal palaces, and the beauty of cathedrals. From 1712 to 1918 this was the capital of Russia and home of the Czars. I have been privileged to stand in Palace Square where the Revolution began on "Bloody Sunday" in *1905*, when hundreds of demonstrating workers were killed by palace guards firing their rifles into the crowd; and where in 1917 Nicholas II, last Czar of Russia, abdicated his throne ending the 300 year dynasty of the Romanovs. I have been to the cathedral of St. Peter and St. Paul, where lie the mortal remains of Peter the Great who founded this city to provide his land-locked country its route to the Baltic Sea, Catherine the Second who made Russia a world power, and Alexander who defeated Napoleon. All the Czars but two, are here interred.

And everywhere I went, I met with basic science faculty, department heads, rectors (deans), and vice-rectors. Each spoke proudly of the history of their department and/or school. But on a lighter note, I was amused to find that frequently communications with faculty required no interpreter, as the frustrations over administrative authority, lack of money, equipment, and space transcends all language as constants of the universe! Each expressed a sincere desire to learn more about systems of education used in other parts of the world, with the same objective in mind -- to find a new idea that would help them be more effective teachers within their own system of medical education.

But besides being just a traveler's tale, why do I consider it necessary to tell you of this? Why is it important that we learn about each other's history and culture as members of the Basic Science Education Forum? It is because the BSEF is not something you can touch or hold in your hand. The BSEF exists only as a concept in the human mind. It is a concept that binds people together through the very human quality of sharing with each other; sharing between medical disciplines and between cultures. BSEF members live in 21 nations of the world; each with a background as fascinating as I found in Russia And it is from their history that each country has evolved a system of medical education and a uniqueness for teaching the sciences fundamental to the practice of medicine. The richness of this variety like the richness of history itself, can benefit us all.

Seven years ago I created this concept of a Basic Science Education Forum to be a mechanism by which faculty could share current and innovative ideas for teaching the preclinical sciences; and the rate of our continued growth, both at home and abroad, confirms the need for such cooperation. I most sincerely believe that, regardless of geographic or political boundaries, every BSEF member has the desire to produce the best possible physicians for his/her community and country. The BSEF can, and does transcend all political boundaries; and my experiences in Russia have only strengthened my resolve to guide this organization to greater interactions with our colleagues in distant lands.

The more I travel, the more I learn that people everywhere are the same. They all have grandmothers, and they all enjoy companionship over a simple meal. All have a history of which they speak proudly, and all have hopes for the future. We who believe in the concept of an open Forum for Basic Science Education must recognize and grasp this unique opportunity of bringing faculty from different cultures together for a greater good through the simple human value of sharing. Understanding and helping each other through medical education is a significant contribution to a lasting world peace, and I know of no greater goal to which we could aspire.

# ANNOUNCEMENT

## FOREIGN FACULTY FELLOWSHIP PROGRAM IN THE BASIC MEDICAL SCIENCES

### Applications Available -- January 1, 1995

This program enables teachers of the basic medical sciences in medical schools abroad to teach and study for one academic year in medical schools in the United States. Awards are intended to enhance the faculty scholar's knowledge and teaching skills in these sciences, stimulate international exchange of information in science and technology, and advance cultural understanding among medical educators. The fellowships are ***not*** intended to support research or a formal curriculum leading to a degree.

Candidates must have at least three years of teaching experience in the basic medical sciences, proficiency in the English language, and a guaranteed faculty position to return to upon completion of the fellowship. Fellows will be supervised by senior faculty at the U.S. host institution. The application may be submitted by a candidate or by the proposed U.S. host institution on behalf of the candidate. If a U.S. host institution has not been chosen, ECFMG will attempt to match the candidate with an appropriate U.S. institution. The candidate's home country institution must endorse the proposed fellowship and provide the fellow a leave of absence.

The award provides $3,500 to the U.S. host institution, $2,500 to the foreign medical school, a stipend of $2,000 per month and round trip travel for the fellow, health insurance for the fellow and any accompanying family members, and travel to one meeting in the U.S during the fellowship year.

Applicants for the 1995-96 program year will be available after January 1, *1995*. The deadline for ***partial*** applications (those for which a U.S. sponsor has not been chosen) will be July *15, 1995*. The deadline for ***complete*** applications will be December 31, *1995*. Awards will be announced in May, 1996. Contact:

Magdalena Miranda, M.S.
Director, Program Planning and Development
Educational Commission for Foreign Medical Graduates
2401 Pennsylvania Avenue, N.W., Suite 475
Washington, D.C. 20037
Phone: (202) 293-9320 Fax: (202) 457-0751

## INTERNATIONAL PERSPECTIVE
## INTERIM EDITOR: Roger W. Koment, Ph.D., BSEF Director

Featuring the methods of basic science education in different nations continues to be the focus of this column, and it is with special interest that we present the medical education system of Russia. Yurii Victorivitch Gorbunov was my most gracious host when I recently visited the Izhevsk State Medical Institute, and I am grateful to him for the time we spent together, and for introducing me to his Rector (Nicholai Sergeivich Strelkov) and Department Heads. He is the Dean of General Faculty and a physician in Internal Medicine, specializing in Gastroenterology. It is my great pleasure to introduce him as representing the first medical institute in Russia to join the BSEF.

Some preliminary explanation is necessary to understand the Russian programs, which have both similarities and differences from that of North American systems. In Russia, students are accepted into medical school following graduation from high school. They self-select into categories termed "Faculty", i.e. Stomatology (Dental) Faculty, Pediatric Faculty, General Faculty, and at some schools -- Spoils Faculty. For each group there is a Dean who oversees the educational process of his/her students (best equated to our system of Dean of Student Affairs). As expected, the General Faculty always has the largest number of students being as yet uncommitted to a particular specialty.

At Izhevsk State Medical Institute there are approximately 2,600 medical students divided over the 6 year course of study, with the General Faculty accounting for just over half of these. General Faculty classes of 225 students are divided into nine groups of 25 students each, and then further divided into two groups of 12 to 13. These 12-13 students constitute the core study groups and will remain together for all classes during the first five years of their medical training.

Once again my *caveat*, that I must accept responsibility for any inaccuracies of editing of this article through translation from the original Russian.

# ARTICLE

## SOME ASPECTS OF MEDICAL EDUCATION IN RUSSIA

**Yurii V. Gorbunov**
**Dean of General Faculty**
**Izhevsk State Medical Institute**
**RUSSIA**

The recent visit of Dr. Roger W. Koment to medical schools in Russia has become an important step towards removing the obstacles which~ have existed in sharing information between our countries. We are very pleased that Dr. Koment kindly offers us the opportunity to share with you the system of medical education in Russia. Although the following information is quite superficial, it might provide an index to the present status of the education in medical sciences in Russia. We hope that our future collaboration in sharing information about our systems of education will help us to find more effective ways of teaching in medical schools. We understand that it is impossible to find one universal way of teaching that would satisfy both students and faculty of different countries. The success of teaching for different medical schools is based mainly on their ability to fully use already existing ways of teaching and their combinations to reach the maximum effect.

The state system of medical education in Russia includes several stages. The post-high medical education is controlled by the Department of Post-High Education of Russia, and the health system is controlled by Ministry of Health System of Russia~ Our way is six years of required training, plus one year of internship, after which the Ministry of Health .System is also responsible for granting permission for medical practice. Post-high medical education is available for students of medical institutes and medical schools of our universities. Students are taught according to programs which are authorized by the Ministry of Education and Ministry of Health System of Russia.

Our system of medical education is specialized from the outset, with students selecting, upon entry, to study Dental Medicine, Pediatrics, or Therapy. Courses in years 1 and 2 are about the same for all students, but the content of sciences taught to each of these three groups is directed toward each particular specialty (e.g. for the Pediatric Faculty Microbiology emphasizes the microbiology of children; Anatomy emphasizes anatomy of children). These include instruction in such basic sciences as Gross Anatomy, Histology, Physiology, Biology, Chemistry, Physics,
as well as Language (English, German, or French), Physical Education, and some others~

Years *3-4-5* are to finish the preclinical training and begin greater emphasis on clinical training with students having direct contact with patients. At this point, students in the Pediatric Faculty focus their training within the children's hospital, while students of the General Faculty train in the general hospitals. During the course of medical education in Russia, hands-on practice takes a special place. Four weeks of nursing experiences at different clinics and hospitals is required of all third year students of the General and Pediatric Faculty as well as practice for fourth year students as physician's associates. After the fifth year, there is two months of practice on the three main disciplines of Therapy, Surgery, and Obstetrics/Gynecology.

Year 6 is termed the Subordinatura - in which students in the General and Pediatric Faculty specialize (further) in one of the basic fields of medicine. According to the existing state regulations the Subordinatura is available in three clinical disciplines: Therapy, Surgery, Obstetrics/Gynecology. During this year students receive intense clinical training under faculties of these respective departments. At the same time students improve their knowledge in related disciplines. Upon completion of year 6, students of the General and Pediatric Faculty are awarded a diploma indicating the completion of their course work in medicine~

Stomatology Faculty (dental students) finish training in five years.

The last stage of medical education (year 7) is a 1-year specialization, the Internatura or Internship, for students of the General and Pediatric Faculty. The purpose of this one additional year is to establish a base for further specialization. Most graduated students do their Internatura at the clinics and hospitals where they are assigned by a State Committee to determine young specialist distribution. These students do their internship under the Chairs of the departments of hospitals and clinics who have very high qualifications and long work experience. These specialists of a region, ministry of health system are responsible for the quality of training on the internship. Main specialists leading the respective work take part in the specialization of physicians, methodical help to the Chairs of departments of clinics and hospitals, coordination of the entire work on internship's training.

The final step in a physician's training is an examination at the completion of the internship. Upon passing this examination, s/he is granted permission by the Ministry of Health System to practice medicine in Russia.

REFERENCES:

1. S. Ya.Tchikin, Yu.F. Isakov, B.M. Tcheknev, G. D. Zhxtnitskn (1973) High medical school in USSR. "Medicine", Moscow.

# CURRENT SIG PROJECTS

Four topics have been defined which our SIG is addressing in various ways, each one being coordinated by a Regional Director. If you have interests, opinions and/or wish to work with others toward the resolution of one or more of the following, please contact the designated individual. Our long-term goal is to create workable solutions to these problems.

**TOPIC 1**

*Integration of the Curriculum: Defining the Role of Basic Scientists in the Clinical Educational Setting and Clinicians in the Basic Science Educational Setting.*

contact: Gary Rosenfeld, Ph.D.

**TOPIC 2**

*Information Overload: Defining Essential Curricular Objectives.*

contact: Penny Hansen, Ph.D.

**TOPIC 3**

*Problem Based Learning: Defining the Role of Basic Scientists in Optimizing Basic Science Content within a PBL Program.*

contact: Bill Galey, Ph.D.

**TOPIC 4**

*Defining Evaluation Standards. Criteria and Consistency.*

contact: Murray Saffran, Ph.D

## SOCIAL ISSUES IN THE BASIC SCIENCES
## INTERIM EDITOR: Roger W. Koment, Ph.D., BSEF Director

*Men fear death as children fear to go in the* ***dark;*** *and as that natural fear in children is increased with tales, so is the other.*
Francis Bacon

I confess to being unskilled in the subject of death and dying, and as a Virologist tend to view the human body as a living host which supports the pathogenesis of my (electron-) microscopic friends. Nonetheless, as Interim Editor of this column it is my responsibility to introduce this subject and our authors to the reader.

In the following article, Professor June Penney of the Dalhousie University Faculty of Medicine brings to light the often hidden feelings within our medical students at the impending experience of human dissection. Importantly, she has discovered and developed means to address several issues regarding perceptions of death, including many of those which reside in us all. Our own fear of death and how each of us resolves that fear is one of these. Francis Bacon wrote: 'There is no passion in the mind of man so weak, but it mates *(conquers)* and masters the fear of death."[1] These fears are bound in mystery and uncertainties. They are bound in the age-old philosophical debates of the meaning of life. Most religions of the world teach that death is a natural part of life, and that a successful life is one that pursues a noble purpose beyond that of mere self-gratification. Perhaps the ancient Vedic writings[2] which depict man's search for the spiritual level state it most pragmatically by delineating the Four Principles of Material Existence: Birth, Disease, Old-Age, and Death. All are subject to their call, and neither accumulation of property nor wealth can alter this progression..

But for active physicians, there is little time to contemplate such weighty issues as the meaning of life and the role of death in its continuum. Physicians must function effectively within the realm of critical situations. Our special invited *Postscript* commentary by Loice Swisher, MD., vividly and eloquently demonstrates the immediacy and sometimes hopelessness of reality, yet the compassion of a physician's private thoughts.

As a Virologist I view the human being as a host; but as a man, I have resolved my struggles with these questions through a combination of internal strength, compassion, and faith. It is these human and spiritual qualities which we can impart to our students by example, and thereby help them provide the necessary strength and compassion to the dying patient and guidance to the attending family.

REFERENCES

1. Bacon, F. (1597) Essays or Councils - Civil and Moral. Essay II: Of Death
2 Bhagavad-Gita: The Song Celestial (401 BC) A Hindu devotional work in poetic form

## INTEGRATING CONCEPTS OF DEATH AND DYING INTO THE ANATOMY CURRICULUM

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Medical students arrive every September full of enthusiasm and idealism; lots of energy and anticipation. In general, they really care -- they want to help and to heal. They want to be the right kind of people.

They arrive very enthused, they also arrive very anxious. For the past few years they have been anxious about applying for medical school; how many applications? Will I get in? Then the question becomes will I make it? Can I cope? Suddenly they realize that *50%* of them will be in the bottom half of the class and they have never been there before, either in high school or university! They are often obsessive compulsive and about *50%* are women (mostly first-born females). They will find the work difficult and demanding; there will be an enormous amount of material to absorb, tremendous competition, and a fear of failure. It is important to recognize that in a class where the average age is between 24 and 25 most of them are entering a phase of major life changes and major decisions. Many will marry and become parents during their 4 years in medical school.

**Table 1. Results of the Anonymous Questionnaire Regarding Student Perceptions on Dissection (N =91 responses (96%)**

| FREQUENCY | PARAMETER |
|---|---|
| 81% | had never seen an actual cadaver |
| 67% | reported changes in attitudes after the dissecting experience including: gratitude to donors; thoughts about the death of their loved ones; questions about life after death |
| 57% | had expressed their anxieties about death and dissection to other people during their dissecting experience |
| 54% | indicated that dissection of face, head, neck produced greatest emotional trauma |
| 53% | requested more emotional preparation in the form of discussions on death and the opportunity to share their fears |
| 38% | thought more deeply about human life |
| 30% | saw a need to allow themselves to have emotions in order to relate to their patients, particularly dying ones |
| 23% | had nausea, fainting, loss of appetite, sleeplessness or nightmares |
| 12% | requested more information on donors and burials |

Let us look at the process of becoming a physician. Medical students experience a loss of many of the things that we would consider constitute a "normal life".

- They lose time for family and friends.
- They lose time for socializing.
- They have financial worries.
- They suffer fatigue from loss of sleep.
- They tend to lose confidence in their own abilities - because for the first time they may not be at the top.

All students in professional schools work very hard but in addition there are some specific stresses that have been identified for medical students. Two of them are their first visit to the anatomy lab, and the fear of death.

Educational processes are dependent upon good relationships, and we learn best from those we care about and who care about us. It may be accurate to say that if an anatomy teacher is more preoccupied with bones, muscles and tendons then with relating to his students, then students will not learn much anatomy; or if the teacher is keen to have his students achieve in order to enhance his own image he will see his students only as objects to be manipulated. The student is there to serve his ends. Our concern for our students' own needs may shape their future outlook and behavior. These needs are physical, emotional, psychosocial and spiritual. I suggest that the actual planning of a medical school curriculum should not be devised merely to cover the necessary material but also to meet the needs of our students.

But we do a very strange thing to new medical students. Usually during the first few weeks, we send them to the anatomy lab and expect them to begin dissecting a human body! For many this is their first experience with death, and in fact, most have never seen an actual cadaver before. This was one important finding which became apparent as the result of a study[1] using an anonymous questionnaire designed primarily to determine medical students' reactions to human dissection. In addition, it provided us with some insights into many other needs. Questionnaire response rate was 96% and our results are summarized in Table 1. From this study it appeared there were many concerns that could be addressed. This sampling indicated that our medical students expressed strong reactions to human dissection, that the experience had a profound effect upon their thinking about life and death; they were concerned about the need to balance objectivity and compassion; and importantly, they expressed a need to be better prepared for the experience. The strongest reaction appeared to be the anticipation of dissection!

As a direct result, an "Orientation to Dissection" program was created and introduced into our anatomy curriculum. This program consists of three parts. At their first anatomy lecture, students are given information on donors and receive copies of the printed material sent to prospective donors. Three questions are asked during this session: 1) Do you know of someone who has donated their body to this medical school recently? 2) Have you experienced a recent death? 3) Have you had any experience where you thought you were near death? If the answer to any of these questions is yes, the student is requested to contact the lecturer. In the case of a known donor, that cadaver is removed from the anatomy laboratory until the following year. If a recent death has been experienced it is arranged that the students work on a cadaver of the opposite sex to the deceased and preferably one of a different age. Students who have experienced any type of personal assault may need professional counseling.

In the second part of the program, the students are given an opportunity to see a cadaver prior to their first dissecting laboratory. Discussion groups of 12 students visit the dissecting room accompanied by an anatomy faculty member. They are seated around a wrapped cadaver which is rapidly unwrapped at the beginning of the session. During the session, students are encouraged to express their reactions and the anatomy faculty candidly share their own feelings. There is discussion about the factors which may influence their emotions, such as previous and recent experiences of death, previous dissecting experience and ethnic and religious backgrounds. Students are usually very aware both of the need to allow themselves to have emotions in order to relate to their dying patients, and the necessity to balance objectivity and compassion.

The third part of the program consists of viewing a videotape, made by two members of the Anatomy Department, which describes the techniques of dissection. This is shown at the first laboratory session just before students begin dissecting. All students are then encouraged to begin dissection and to encourage each other to do so.

This three-step program has been used at Dalhousie now for several years, and student feedback continues to be extremely positive. Death is a natural and important part of life, yet for most of us it still holds many fears and mysteries. Regardless of profession or station in life, each of us sooner or later must come to acceptable terms with a perception of death. It is important we recognize that for most medical students this time first comes in our dissecting rooms, and thus just prior to that experience is the most appropriate time to help them prepare. We have developed a rational and structured means for students to confront these fears and establish workable perceptions which will serve them in both personal and professional life. Becoming more comfortable with their own views of death, dying, and compassion for patients and family, many of our students are able to contribute meaningfully to an annual memorial service for donors and interact with relatives at the brief reception which follows.

REFERENCE

1. Penney, June C. Reactions of Medical Students to Dissection. Journal of Medical Education 60:58-60, 1985.

# POSTSCRIPT…

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It was six days before Christmas. All I had to do was turn the Emergency Department over to the incoming attending and I would be free for two days of shopping and wrapping presents. Suddenly, the call came in. Medics would be arriving in five minutes with a code -- a three month old. In those precious minutes, we readied the cardiac room for an infant resuscitation.

Everyone stared at the door in anticipation as the sirens drew closer and flashing lights appeared in the window. Bursting through the doors, a medic carried in his arms a beautiful lifeless baby. Amidst the ensuing flurry of activity, every effort was made to revive the child. But, despite our efforts, his young life was gone. The air of hurt hung in the room, but our work was not yet done. The family had to be told.

Hearing the agonizing news, the father let out a tortured cry. Running into the examination room he scooped his child tightly in his arms and from his pained lips came the question: WHY...??? However, there were no answers to his question. When I arrived home, I took my four month old in my arms and shed silent tears.

The code, a cardiopulmonary arrest, is a relatively common occurrence. Every student at some point during medical school will be there -- in the room -- watching, helping and learning. Through internship and residency each new doctor will have increasing responsibilities thrust upon him or her. First, it will be running the code, then notifying the family, and finally overseeing other less experienced physicians. The emphasis in training is to learn how to do it. Procedures are practiced and algorithms are drilled into each mind. But, the emotions, the fears and tears, brought about by being involved in these situations are not often openly discussed.

There are the general anxieties that most students feel at some point. Will I know what I'm supposed to do? Could I have done something to prevent this? What should I say to the family? How will they react? What if I don't know the answers to their questions? What if I cry? Then there are intense feelings which may come about in particular situations. The most common difficulties are when the events hit close to home. It may be the elderly woman dying of an acute heart attack who seems so much like a grandmother. It may be the teenager shot in the chest who is the same age as a brother. Or it may be the child who seems so much like your own.

All medical students will face encounters with death, and each is a personal and unsettling event which does not become any easier through repetition. The best we as faculty can do is to encourage students to explore their own feelings, and to do so early in their career. I applaud the efforts of Dr. June Penney at Dalhousie University to approach this issue head on, and to do so in a structured and supportive manner. Introduction to the cadaver is a critical and logical beginning of this journey which then continues through the autopsy, the first code, the first time pronouncing someone dead, and the first time talking with the family. Learning early in one's medical career to openly discuss these emotionally charged issues within an established and supportive network of peers is an important lesson, and one which is valued by front line physicians who daily work at the threshold of life.

*Those who have lost an infant are never, as it were, without an infant child. Other children grow up to manhood and womanhood, and suffer all the changes of mortality. This one alone is rendered an immortal child. Death has arrested it with kindly harshness, and blessed it into an eternal image of youth and innocence.*
James Henry Hunt
1840

# MICRONET TELECOMMUNICATIONS :The BSEF on Internet

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As membership in the BSEF expands, we all seek to communicate more efficiently with each other. The Biennial Conferences have become one means, but even the important contacts we make at these meetings need to be maintained across distance and time, and the most technologically advanced solution to this problem is the Internet branch of the Information Superhighway.

Since this past summer the BSEF has been online over the Internet with its own listserv by the name MICRONET. MICRONET actually began from the desire of participants at the 1990 Microbiology and Immunology Teaching Strategies Workshop in Myrtle Beach, SC to better communicate with each other about educational innovations in microbiology and immunology. Jim Swierkosz at St. Louis University School of Medicine, had taken the initiative to establish the system, but the technology functioned for only a very small group of participants. In 1994 the MICRONET listserv was revitalized and expanded to become the official Internet link of the Basic Science Education Forum. Subscribers now represent those with interests in teaching from all the basic medical sciences.

What is **a listserv** and how does it work? Listserv has become a colloquial term for a system of communication between a large group of individuals. A message is typed and with one keystroke will be sent as an electronic mail (e-mail) message to all those on the "List". Any individual may respond, either to the group as a whole, or privately to the message originator. Listserv participants can post questions, ask for advice, exchange ideas, and receive important announcements on upcoming conferences, workshops, events, etc. To demonstrate its use, the following is an edited version of recent messages on MICRONET discussing MCQ examination policy. Note how many responses begin immediately on September 30, the date the question was posted.

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Fri, 30 Sep 94 09:27:34 CST
From: "James Booth" <jbooth@unmcvm.unmc.edu>

I have a policy after an examination.. .students have up to 5 days to challenge questions.. .if I write a question which is not ambiguous, but a student can convince me that an alternate choice can be correct.. .1 will give credit to that student only. If another student chose the same answer, but it was by guess only and cannot defend their answer, I will not give credit to that student. Is my policy rational? Should I give credit to all students who chose the alternate answer if only one student successfully defends it?

Fri, 30 Sep 94 10:07:05 CST
From:drw@umassmed.ummed.edu (Doug Waud)

….similar policy in our Pharmacology course…and it works very well...The "challenge" mechanism deals with any problems which might otherwise have been dealt with by the proctor...It is certainly rational….We deal with these on a case-by-case basis...we tend to make a judgment call as to how likely it would be that some…student might have shared the alternative reasoning and then give the credit locally or generally accordingly…giving credit for reasoning that is consistent with thought processes you are trying to encourage makes sense...not giving credit for guessing does too...we should reinforce some behaviors (like thinking...) and not others (like guessing)...

Fri, 30 Sep 94 11:05:32 CST From: "W~ Ray Gibbons"
<gibbons @ northpole.med.uvm.edu>
…our medical physiology course. I feel strongly that

every student should get credit for an answer if any student gets credit for it…reasons for this belief.

1) We give credit to students who choose the answer we wanted; we do not ask them to defend their choice. They may have guessed...
2) Students under your system have 5 days to concoct a rationale to explain why you should give them credit for an incorrect answer. ...Your system potentially rewards students for being argumentative, and penalizes others who may have equally good reasons for their answers, but remain silent.
3) If you accept another answer because it is correct, then all students who made that choice should get credit for it...If you accept an answer that is incorrect...(it is) intellectually dishonest.
4) It is extremely important for students to know that the same rules apply to everyone...
5) …multiple choice questions...offer black or white choices, with few shades of grey. The system you describe robs multiple choice exams of one of their few virtues.
6) At some point, you may have to defend the grades you give individual students. I would not like to be in the position of explaining why I gave one student credit...and another student no credit for the same answer.

In courses I direct, if one student gets credit for an answer, they all do.

Fri, 30 Sep 94 11:15:14 CST
From:"Philip C. Specht, PhD"
<p_specht%rcmac @ upr 1.upr.clu.edu>

I have been using a similar policy in...Pharmacology course...have a form that the students can use to "Request a Change in the Key". There is a place on the form to request a different answer, or to give credit for 2 answers...there is a space for the reasons why the alternate key is justified. If the change is accepted...it applies to all students...assume that other students may have been thinking in the same way...

Fri, 30Sep94 11:42:53 CST From: "Donna Duckworth"
<duckwort@ college.med.ufl.edu>

…Immunology course…policy...students could write down their "objections" to questions if they thought they were confusing or, if they didn't understand the question, explain the reasoning behind their answer. They would submit this with the exam. Then if they got a question wrong and had misunderstood it they were given credit (if...explained it properly). Students who may have misunderstood the question, but didn't submit their reasoning AT THE TIME OF THE EXAM were not given credit.

Fri, 30 Sep 94 18:33:22 CST
From:"Roger McLean" RMl2@academia.swt.edu

Your policy sounds like a good idea. I like the idea of students being able to think for themselves.

Mon, 03 Oct 94 10:20:07 CST
From:Noel Nussbaum
<nnussbau@ sirius.bio.wright.edu>

We allow students 3 days to "challenge" our "correct" answer...in writing with justification. The faculty member responsible for the question also responds in writing. All students with an answer accepted by the faculty get credit...

Mon, 17 Oct 94 23:42:03 CST
From:"Roger Koment" <rkoment @ sunbird.usd.edu>
…I'll listen to student requests, but no decisions are made on such questions until 48 hours after the exam. I don't make decisions in the heat of their arguments...

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This e-mail discussion was personally quite useful in formulating, modifying, and justifying my own policy on test question challenges. The discussants did not arrive at a group consensus, but I believe each of us came away with useful information. The three major advantages I see for MICRONET are (1) no connect time cost, (2) real time discussions (there were six responses to my original post on the first day), and (3) access to advice from dedicated and experienced experts.

Additional subscribers will offer the advantage of access to even more colleagues with their varied experiences and opinions. To sign up for MICRONET, send your e-mail request to Jim Swierkosz at swierkoszje@sluvca.slu.edu and in the message block type SUBSCRIBE MICRONET.

# BASIC SCIENCE EDUCATION FORUM & SIG

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**SOCIAL ISSUES in BASIC SCIENCES**

**INTERNATIONAL PERSPECTIVE**

## OUR PURPOSES:

- To be the voice of basic sciences within the AAMC:GEA, promoting clinical education firmly grounded in the sciences; and through annual meetings make others aware of issues in medical education of concern to all basic science faculty
- To encourage and facilitate faculty involvement in curricular affairs through dissemination of our semi annual publication, the ***BASIC SCIENCEEDUCATOR***
- To share current techniques and innovative ideas for teaching the sciences fundamental to the practice of medicine
- To speak for reasoned progress in the development of self directed, lifelong learning skills
- To address, and where possible, formulate consensus on issues in medical education which have direct impact on the basic sciences and basic science faculty
- To work toward resolving issues through interactions with appropriate organizations which can influence change in the academic medical community

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