Chair Report of the Professional Affairs Committee

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According to the AACP Bylaws, the Professional Affairs Committee is tasked to study the issues associated with professional practice as they relate to pharmaceutical education, and establish working relationships with all other organizations in the field of health affairs. The Committee is also encouraged to address related agenda items relevant to its charge and to identify issues for consideration by subsequent committees, task forces, commissions, or other groups.

President Charles Rutledge has charged the 1996-97 Professional Affairs Committee to explore the following issues as they relate to professional practice and its scientific nature:

• Examine the “wonder and skepticism” of science in relation to professional practice, identifying ways to enrich the practice experience through a better understanding and application of the sciences underpinning the profession;
• Identify ways in which pharmacists can enhance patients’ understanding and use of science to improve their own health and well-being; and
• Identify ways in which pharmacists can better engage patients as partners in both the scientific and clinical aspects of their care (i.e., teach enhanced observational and measurement skills, foster collaboration with patients in interpreting data and drawing conclusions about their health and clinical outcomes from treatment, etc.).

The Committee conducted a conference call on September 20, 1996, for the purpose of reviewing the charge and exchanging initial thoughts regarding the focus of each of the charges given to the Committee. The Committee then convened on November 3, 1996, in Arlington, VA, to address its charges in detail.

INTRODUCTION

Surveys conducted by the National Science Foundation have demonstrated that two-thirds of the American public believe that science is important (1). Forty percent of them confide that they are very interested in scientific discoveries and in the use of new technologies (1). In a nationwide poll by Resource America conducted of 1004 representative adults, 69 percent agreed that “even if it brings no immediate benefits, basic science research is necessary and should be supported by the Federal Government (2).” These individuals probably understand the influence that science has played in their lives because it has “freed them from the mind-numbing drudgery that has been the lot of ordinary people for all of history up to World War II and has put all of the world literally at their fingertips (3).” Nevertheless, only one in nine Americans believes that he or she is well informed about science and technology, and only one in four understands basic scientific concepts. These findings are important to pharmacy.

As Sherman points out, “From experience, most pharmacists know that many patients are turned off by science and avoid the subject altogether. Science actually asks the public to see things as they are, not as they believe or feel them to be. Also, many people have become disenchanted by modern medicine and accuse science of dehumanizing it. By rejecting science and scientific methods, the public relies on speculation, anecdotes, and imagination.”(4) Moreover, the public is becoming distrustful of science, giving rise to irrational or exaggerated fears of technological hazards, and causing an alarming resurgence of belief in magic, astrology, and faith healers, among others. Pharmacists are in a position to be science advocates to their patients.

THE “WONDER AND SKEPTICISM” OF SCIENCE AND ITS RELATIONSHIP TO PROFESSIONAL PRACTICE

The profession of pharmacy is rooted to the scientific process and through it patients benefit from drug therapies that can prevent, mitigate, and cure diseases. Like all health care professions, their practitioners should “seize the day” and embrace those opportunities to demonstrate to their patients the values and the “wonders of science.” But, a recurring question is whether there is a diminishing appreciation for science and the scientific method within the profession and among its practitioners, and what might be contributing to this outcome.

The “wonder and skepticism” of science cannot be transmitted to patients, and society as a whole, by pharmacists if the pharmacists themselves have not been taught it. Or, perhaps they were taught it, but not given the opportunities to reflect upon the concepts and their application to practical patient problems. Thus, pharmacy faculty must provide students with learning experiences that promote student ability to reflect upon and use accrued basic pharmaceutical science knowledge in a manner consistent with how they are evaluated. If it is by examination alone, there is the likelihood that little will be retained and usable. However, if evaluation is through integrated multiple exercises (e.g., small group exercises, homework assignments, laboratory experiences, long-term projects, examinations), there is the likelihood that more will be retained and available for future use and application. The responsibility of the faculty also extends to professional continuing education, and in this arena, faculty should seize the opportunities to share with pharmacists, through continuing education vehicles, the “wonders of science” and how they can apply these to patient-encountered problems. In all likelihood, this will create a two-way dialogue resulting in pharmacist feedback to the faculty person in terms of how a “wonder of science” was applied in the “real world” and will allow for faculty utilization of it in undergraduate course work.

Pharmaceutical education must endeavor to provide learning experiences throughout the curriculum that will carry students well beyond the routine assimilation of facts by stretching their intellectual capacities to the fullest. It has to go beyond the mere delivery of information and facts with no reflective opportunities for their application by students. Students do seek more than fundamental knowledge. Consciousness or otherwise, faculty are their role models, the template, of ways to think and live. As Dunn wrote, “Like the construction of the DNA chain, every day each of our lives is being imprinted with our evolving history. As teachers, we create metaphorical chromosomes to pass our history along to our students. The process is not random selection. We play a large part in the historical characteristics that are dominant, recessive, or lost for the next generation (5).” Thus, by demonstrating enthusiasm and insights for the “wonders of science” in their disciplines and

1Committee members: William R. Doucette (Iowa); Michael C. Gerald (Connecticut); Raymond W. Hammond (New Mexico); Patty Havard (Ohio State); Michael S. Maddux (St. Louis); Wendy P. Munroe (Med Outcomes, Inc., Richmond, VA); Nicholas G. Popovich, Chair (Purdue)
how it relates to patient care, faculty serve as the template for ultimate student translation of this knowledge to their patients as pharmacists. If they are able to experience the excitement for the scientific process and the answers it provides, ultimately their patients will benefit.

Pharmaceutical education should recognize that the future is in interdisciplinary care. Thus, it has to extend beyond its own “academic walls” because pharmacists must be capable of communicating on different levels to patients and allied health professionals, most with varied backgrounds. Schools and colleges must endeavor to integrate into their curricula educational and philosophical principles, among others, and to provide for its students interdisciplinary opportunities with students (e.g., dietetics, medicine, nursing, sociology) of other on-campus disciplines. Further, this interaction allows the unique opportunity to share in the “wonders of science” with other disciplines, and to learn and experience how they view them.

From a pharmaceutical education standpoint, service learning is a relatively new and evolving means to encourage interdisciplinary care. It is a course-based, credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs. Students are also coached to reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline and how it fits in the delivery of health care, and an enhanced sense of civic responsibility. Further, this methodology allows the pharmacy student to work with health care practitioners and deliver care to selected patient types. This fosters teamwork and provides the students the opportunity to learn from the perspectives of those care givers.

Ideally, curricular opportunities for service learning provided early in the curriculum will foster a student sensitivity for the patient and allow him or her to be aware of, and sensitive to, different cultural attitudes toward medicine and healthcare. The early experience for the student might entail, for example, helping the elderly and/or illiterate persons, and is not dependent upon a vast scientific knowledge base. It is conducted in conjunction with a service-based organization (e.g., community health clinic, visiting nurses service, Council on Aging) that serves the economically and/or socially disadvantaged. Consequently, students encounter individuals from diverse backgrounds and experiences. As the student matriculates through the pharmacy curriculum and becomes more sophisticated in knowledge, there are more opportunities to share the “wonders of science” through subsequent service-based learning opportunities.

A key component of the pharmaceutical curriculum is the experiential component. Whereas employers in the past have clamored for pharmacists with practical skills and training, many are beginning to seek graduates who have a sense of perspective in pharmacy, can solve patient problems, have the ability to think and educate, and effectively communicate. Thus, experiential education should be more than observing and repeating the model put forth by the preceptor. Academic pharmacy ought to maximize the experiential component of the curriculum for its students by requiring student demonstration of science and theory application into the resolution of patient problems. Further, students should be held accountable to demonstrate examples of patient interventions that they have conducted with preceptor oversight.

RECOMMENDATION 1: AACP should encourage within schools and colleges curricular innovation that provides interdisciplinary learning opportunities for its students with other on-campus disciplines (e.g., dietetics, medicine, nursing, sociology)

RECOMMENDATION 2: AACP should encourage within schools and colleges curricular innovation to include service-based learning opportunities for pharmacy students beginning in the first professional year of study as an underpinning to subsequently educate patients on the “Wonders of Science.”

HOW CAN A PHARMACIST ENHANCE A PATIENT’S UNDERSTANDING AND USE OF SCIENCE TO IMPROVE THEIR OWN HEALTH AND WELL BEING?

The pharmacist is in a unique position to be able to educate patients and to create an awareness of the scientific basis for health care and wellness. Realistically, however, this will not occur easily in the “real world” because of its fast pace and a premium of time. However, when the opportunity presents, the pharmacists can use his or her educational calling to share with the patient concepts of science that relate to his or her health care. This may occur when counseling patients about prescribed medications, or when advising patients about the advisability of using over-the-counter medications and/or diagnostic devices.

Pharmaceutical care espouses the development of a covenant between the pharmacist and the patient and the patient’s other health care professionals to ensure optimal therapeutic outcomes. The pharmacist forges a covenant with the patient promising to do whatever can be achieved professionally to ensure that the patient derives the maximum benefit with minimal risks from the drug therapy. Within this process, pharmacists can engage patients in scientific learning. However, to enhance patient understanding and use of science, the pharmacist should bear in mind the educational level of the patient. As mentioned earlier, only one in four Americans understands basic scientific concepts, and one in five adults is functionally illiterate. Thus, effective explanations may only be those that speak in general terms. But, if they can be delivered in a way that demonstrates the impact of the concept on a person’s health or society as a whole, they may have meaning and take hold.

Pharmacists can empower patients to become actively involved in their treatment, a vital component of pharmaceutical care, much like educators who must inspire their students to learn. If a pharmacist does “hook” the patient’s interest and gains the patient’s trust, the pharmacist can use future encounters as a vehicle to link science to one’s therapy. If the pharmacist has enthusiasm for what is being shared, including aspects of relevant science, this excitement and enlightenment may be gained by the patient. Indeed, this may actually empower the patient to take an active part in their health care, even in such a way as to comply with his or her medications.

An appreciation for science should come at the earliest age, and pharmacy should look to supplementing the education of young children and adolescents to help create the next generation of informed adults. Interest and habits are created early in one’s life, and if inroads can be made within the education of young children to illustrate the application of science to health care, it is conceivable that persons will be better informed as they grow into adulthood. This can take place in school presentations and/or appearances in elementary and secondary school or through one’s active participation in science fairs and educational programs as student advisors or judges provide positive reinforcement to the young participants about science and the scientific method.

Not only can a pharmacist enhance a patient’s understanding of science, the pharmacist must also be aware of and willing to do battle with the “antiscience” phenomenon that is sweeping the country. The pharmacist should be constantly aware of the exaggerated, fraudulent claims of some products that promote health care with little, if any, scientific evidence. Probably the best example is the sale of “natural” herbal remedies. Encouraged by widespread interest and greatly relaxed Federal Drug laws, these products continue growing in market share with each year, even though much that surrounds herbal medicine in the U.S. as described by Varro E. Tyler, Ph.D. (Past President of AACP and Dean Emeritus and Distinguished Professor Emeritus of Pharmacognosy, Purdue University School of Pharmacy and Pharmacal Sciences), is “a minefield of hyperbole and hoax(6).” Whenever possible, the pharmacist should become knowledgeable about these, their benefits, their shortcomings, if any, and engage and educate patients about them.
The pharmacist must also be knowledgeable and possess a balanced view about alternative medical treatments (e.g., acupuncture, homeopathy, naturopathy, medication, chiropractic) which are growing and becoming more popular. Indeed, there are now two accredited alternative medicine colleges in the country. Some consumers of these treatments may have had some dehumanizing and, quite likely, frightening experience with Western medicine(7). Alternative treatments often reinforce the subtle message that Western medicine is sterile, uninteresting, dull, degrading and possibly harmful. Such a message contributes to the large anti-science attitude within our culture and contends that the scientific enterprise has caused various global problems and that technology has alienated people from nature. Indeed, highly publicized incidents of scientific fraud, the Star Wars Antinuclear Weapon System, the cold fusion debacle, and an environmental movement that identifies science with abuse of our planet, all contribute to the perception that science is not furthering the common good and should not be trusted.

Clearly, pharmacists must seize the opportunity to increase patients’ understanding of the use of science and share examples of how science has benefited health care in their daily lives. The profession and academic pharmacy must work together to create innovative strategies that explain with clarity and empathy what modern science is and how it applies to one’s health and therapy. Perhaps one of the greatest contributions to public health has been water fluoridation, and yet it was originally met with opposition from antiscience advocates who used the fear of birth defects and cancer, among others, as scare tactics against its implementation. This simple example, as well as others including the pasteurization of milk and the polio vaccine, can highlight how society has benefited from science.

RECOMMENDATION 3: AACP should foster development of educational programs that depict the application of science to health care that pharmacist practitioners can use in the education of the patient and society within a variety of situations.

RECOMMENDATION 4: AACP should encourage and assist schools and colleges of pharmacy in addressing the alternative medicine phenomenon within the undergraduate curricula and through postgraduation continuing education programs (e.g., certificate programs).

IDENTIFYING WAYS IN WHICH PHARMACISTS CAN BETTER ENGAGE PATIENTS AS PARTNERS IN THEIR CARE

As noted above, science and the technology it creates affects everyone’s life. Most notably is the impact that it plays upon one’s health. Patients need to become aware of the fact that science is responsible for their well-being. Each patient is unique and presents different problems and concerns, and it is the pharmacist who can make each patient feel unique and valued and empower them to become active in their treatment and health. Thus, the pharmacist should have the ability to communicate and deal with patients from a multicultural and diverse patient population and society.

In rather subtle ways, pharmacists can teach and demonstrate to patients the scientific process one-on-one. For example, therapeutic monitoring relies on observation, reporting those observations, drawing conclusions from them, and resolving any problems that have been encountered. Having patients keep diaries for themselves of drug effects and actions, side effects, etc., that are encountered and other key elements (e.g., daily exercise patterns, diet) that are central to a successful therapeutic outcome actively draws the patient into his/her treatment. It also paves the way for effective pharmacist dialogue and follow-up care, an opportunity again to integrate science and its wonders into the consultation. For example, why is exercise so important to a diabetes patient? Why is salt restriction so important as a complement to certain hypertensive patients?

To accomplish this, pharmacists themselves ought to have a knowledge and skill with the scientific method (i.e., a systematic method through hypothesis generation and experimentation to explain the phenomenon). Some pharmacists will and others will not have this knowledge and skill. Thus, academic pharmacy should strive, through continuing education vehicles, to instruct and help develop pharmacist capability with the scientific method by identifying and utilizing practical applications. Recognizing that all pharmacists will not be able to be reeducated, at the very least it is incumbent upon faculty to make a commitment within the educational process to help existing students become knowledgeable and skillful with the scientific method. Curricula must have hands-on opportunities where students can be nurtured to develop a ground in the scientific method. It is important that these opportunities extend through each of the pharmaceutical sciences so as to demonstrate that the principles remain the same even when the content area changes. Students ought to learn about and understand the concept of transferability. Then, hopefully, through the experiential component of the curriculum, pharmacy students can demonstrate scientific principles to their preceptors in an attempt to resolve this dilemma.

Aside from that personal one-on-one interaction, pharmacists can also help educate the public by meeting and talking with citizens through a variety of forums in which science might be discussed. This is an excellent means to engage consumers and lay the groundwork for effective communication once they are patients. This can be accomplished by taking advantage of opportunities to speak at meetings of service organizations, such as Rotary Clubs, the League of Women Voters, school boards, chambers of commerce, and city councils(1). Other opportunities to educate the public could include participation in radio talk shows, providing an adult education class on wellness and disease in daily life, and/or visiting elementary and middle school classes to share and discuss the “wonders of science.” Certainly, there may be an ambivalence to do so, but when one becomes a pharmacist, one automatically becomes an educator and the pharmacist must embrace this notion and use his or her knowledge and skills. This is why it is so crucial that the pharmacy curriculum develop communication skills in its graduates.

Like pharmacists, faculty of pharmacy schools and colleges should also avail themselves of these opportunities, especially when complex issues of a scientific and technical nature are discussed. Faculty must also strive to help in providing assistance to pharmacists desiring to participate in these educational vehicles and help in the development of presentations. Pharmacists do not always have the motivation, the desire, nor the expertise, to prepare presentations on a moment’s notice. And, unlike faculty, they do not have available to them resources of information and data. So, it is incumbent upon faculty to provide guidance (including the incorporation of the “wonders of science”), information and resources that encourage pharmacists to create effective consumer presentations.

RECOMMENDATION 5: AACP should encourage the development of educational programming and models (e.g., service-based learning) for schools and colleges to improve communication skills of students and practitioners with multicultural and ethnically diverse patient populations.

RECOMMENDATION 6: AACP should encourage the development of educational materials (e.g., print-based, electronic) on the “wonders of science” that pharmacists can secure and utilize in patient/consumer education programs.

CONCLUSIONS

Recognizing that there is a lack of appreciation for science and that there is a scientific basis for pharmaceutical care, the profession of pharmacy must actively help explain why science matters to society in a variety of contexts, including through interdisciplinary care. It must do so at a macrolevel to large audiences (i.e., society), and at
the microlevel (i.e., the patient). It must also embrace opportunities to correct misinformation that erodes societal confidence in science.

Before the profession can do so, it needs current and future practitioners to be grounded in the scientific method. Thus, academic pharmacy should strive to integrate throughout its curricula (e.g., undergraduate, continuing education) opportunities to develop practitioner knowledge and skills in the scientific method and its application to the patient and society. This ought to be done with a sensitivity to an ethnically diverse population. Indeed, it should take advantage of the latter to demonstrate the scientific method to its practitioners.

Academic pharmacy ought to use various teaching models and strategies to accomplish this goal of increasing societal and individual awareness of the impact of science within health care. But, to create awareness one must be able to communicate. Schools and colleges should adopt performance-based abilities as necessary for its graduates and create service-based learning opportunities early in the professional curriculum. This strategy will help develop and nurture communication skills and the humanistic elements within students that will be necessary to transmit effectively the scientific basis of health care to patients.

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References