PROBLEMS AND PROSPECTS FOR PHARMACEUTICAL EDUCATION IN THE AMERICAS

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INTRODUCTION

I would like to express my gratitude and anticipation to this critical gathering of pharmaceutical educators and health specialists. Our gathering is timely, right and good. Hence, the success of this Conference, by whatever measure we might wish to quantify it, may be assured if we strive to fully comprehend and internalize its timeliness, its rightness and its goodness.

Our gathering is timely for several reasons. We are now only ten years away from the beginning of the next millennium—the year 2000. That is the year the World Health Organization (WHO) hopes to achieve its goal of “health for all.” Only a decade remains for the accomplishment of this ambitious international health goal. Formidable hurdles remain to be overcome toward the realization of health for all by the year 2000. Perhaps this Conference can stimulate pharmacy educators in the Americas to consider the relationship between their efforts and the health needs of our respective countries.

In no time in the history of civilization has there been the means, knowledge and capacity to diagnose, treat and further ameliorate disease. The available armamentarium of invasive and non-invasive treatment options is unparalleled in human history. We are now challenged to determine how we can mobilize this powerful capacity to meet the health needs of every citizen of our respective nations. Perhaps this Conference can serve as the basis by which pharmacy educators...
become engaged in the public policy decision processes that determine the shaping and distribution of health care resources.

This Conference may also be considered in the context of being good. One might analyze this precept from a philosophical point of view. That is, a good thing or an act that is good, is a behavior that focuses on betterment, whether individual or collective. We are here to consider the betterment of our daily work in pharmaceutical education as we prepare young people for careers in the service of mankind. We are also here to establish connections between ourselves and our respective institutions so that we might better our communications in the service of expanding our knowledge and capabilities.

As learned leaders in our discipline and as mentors for future care-givers, we bear certain responsibilities for establishing a moral standard for our work. It is right that we gather together for the purpose of seeking a better definition for our profession and its educational institutions as we consider their respective roles in our nations' systems of health care services. It is also right that we reinforce the notions imbedded in rationalizing the drug supply, rationalizing medicinal therapeutics and rationalizing the honorable relationship between the consumer of medicinal agents and the manufacturers, prescribers and dispensers of these agents.

My assignment is to address the problems and prospects of pharmaceutical education in the Americas as we look toward the future. In considering this remarkably vast topic, I am reminded of the writings of Wendell Bell and James Mau (1):

... more and more men find that their chief struggle is with themselves and other men, not with nature or the lack of technology, and because both the ends and means of life have been increasingly freed for conscious choice. This freedom has been made possible for many people in advanced societies by their securing the essentials and amenities of life and by advances in philosophy and science, including social science, that have reduced peoples' dependence upon superstition and fatalistic conceptions of the future.

As I contemplate the problems and prospects of pharmaceutical education, it is evident that we are at a point of making conscious choices in a time of highly-honed technology and scientific capacity. We do indeed in pharmaceutical education find ourselves in a struggle with ourselves and others over our mission, how we are to accomplish it and how we relate it to the macroscopic health challenges of our respective nations.

I would like to construct my thoughts about problems and prospects on several assumptions. These assumptions will serve as the broad foundations upon which I will present several areas of problems
PHARMACEUTICAL EDUCATION IS A SOCIAL GOOD

Like the electrical supply and the postal service, the provision of pharmaceutical education enhances the good of a society. It brings together the learned and aspiring professionals to commonly explore knowledge and its applications to the ultimate good of the patient. Pharmaceutical education is a critical health manpower supply agent in a nation and hence its social goodness centers on providing the society with professionals who possess skills and talents required in the society. Moreover, many individuals in the "system" of pharmaceutical education create new knowledge and hence advance the capacity of a society to effectively deal with new problems.

SOCIAL AND ETHICAL DIMENSIONS TO DRUG DEVELOPMENT AND DRUG UTILIZATION

The curricular content of pharmaceutical education centers on a broad array of sub-disciplinary areas, all of which focus on medicinal agents. These agents affect life processes and therefore they touch the very soul of a society and its respective cultures. The roles and job functions of pharmacists are defined by the social construction of drug discovery, drug distribution and drug utilization. Therefore, the meaning of pharmacy as a profession or the meaning of the work of pharmacists has a consequential social underpinning. Codes of behavior, either formally or informally constructed, exist within societies to circumscribe the boundaries of pharmaceutical development and drug utilization.

THE ARMAMENTARIUM OF AVAILABLE PHARMACEUTICAL AGENTS WILL CONTINUE TO INCREASE IN VALUE, COMPLEXITY, COST AND OVERALL UTILITY

In the past 50 years, we have witnessed a world-wide and logarithmic expansion of pharmaceutical agents. Not only have the numbers of agents expanded widely but so too have their systems of delivery, their applications and their utility. There are no indications that the rate or the number of new drug introductions will be lessened
in the future. If anything, all indications are that expansion of the drug armamentarium is a given in the modern world. The promise of biotechnological applications to drug development coupled with expanded knowledge in the fundamental physical and biological sciences augurs for a more complex variety of pharmaceutical agents. Pricing strategies of the multinational and domestic pharmaceutical industry will certainly continue their previous patterns. Products of the biotechnology revolution are "breaking into" the market place at vastly higher prices than the more traditional drug entries.

THE USE OF PHARMACEUTICAL AGENTS IS GENERALLY A COST-EFFECTIVE AND COST-BENEFIT ALTERNATIVE TO OTHER FORMS OF TREATMENT

With the advent of safe and effective pharmaceutical agents, there has been a dramatic decrease in morbidities and mortality associated with a number of diseases. The need for invasive therapy or other forms of treatment has significantly dropped as a consequence of the introduction of pharmaceuticals. Several communicable diseases have been eradicated or at least substantially reduced in most parts of the world. These outcomes of pharmacological applications have come at a much lesser cost than other forms of treatment. Even more dramatic is the fact that without pharmaceutical agents, a number of diseases would not at all be treatable. These points clearly illustrate the utility and cost-effectiveness of pharmaceuticals when used appropriately. Pharmaceuticals, then, provide us with a rational choice for the application of present and future technology. Where alternative treatment options are not available, pharmaceuticals serve as the "mainstay" of treatment. Drugs are unequivocally essential.

In presenting my four foundational assumptions I have linked drug discovery, drug utilization, the social and ethical dimensions of pharmaceuticals and pharmaceutical education. I do not believe that we can uncouple these assumptions when we examine the problems and prospects of pharmaceutical education. Many of our problems, from my perspective, have come in fact consequent to discontinuities which may exist between the four assumptions I have put forward. Furthermore, our prospects for a better (and perhaps different) future will likely require a tighter linkage between the four assumptions.

I have chosen six major areas which, after discussion with colleagues in various parts of the world and following the literature, probably constitute the core of issues facing pharmaceutical educators. As I define and further describe each of these areas, I believe that you
will find them to be rather universal. They clearly cut across the spectrum of nations represented at this Conference. None of our nations and their respective institutions of pharmacy education have been immune from them to lesser or greater degrees.

The constellation of problems of pharmaceutical education, in the context of the aims and discussions of this Conference, consists of the following:

1. The essence and philosophy of education in pharmacy.
2. The relationship between pharmacy education and national health needs.
3. The content, process and outcomes of the pharmacy curriculum.
4. Socialization of students toward caring and social covenant.
5. Faculty commitments to national health needs versus self-interests.
6. The role and status of pharmacy education in the university and/or higher education.

Let us explore each of these areas by stating the problem and analyzing its impacts.

THE ESSENCE AND PHILOSOPHY OF EDUCATION IN PHARMACY

What is the true purpose of pharmaceutical education? What is the basis and reason for favoring educational programs in pharmacy? How are programs in pharmacy defined and how might they be characterized? These are primal questions related to the essence and philosophy of pharmaceutical education. I suppose that if I asked each of you to write a one paragraph statement on the essence and philosophy of pharmacy education, I would receive a greatly varied and diverse set of responses. And that is not surprising, since our philosophies derive from the context of our history, national directions and institutional constraints or opportunities. The responses would likely range from those who believe that pharmacy education’s purpose is to prepare technicians for job assignments in the pharmaceutical industry to the preparation of individuals who can serve in primary care roles with an array of medications that can meet immediate human needs.

My point here is simple. I do not believe that a consistent and universal philosophical basis for pharmaceutical education truly exists. In most of our countries, the philosophy and essence of the respective pharmacy programs comes more from what may be contained in the curricula rather than from a consensus of forethought of the educators, professionals and policy makers.
The lack of a strong philosophical premise for our respective programs has been the root of many of the problems in the pharmacy education enterprise. For example, I do not believe that we have put the care of the patient at the center of our philosophy. If we had, then in my opinion, we would today have cultural credence and public respect for a more direct and autonomous role in patient care. In our effort to "be all things to all people", we have diluted our philosophical premises to such an extent that an identifiable essence and philosophy for our being is not very clear. That is a difficult, but yet clear, problem of pharmacy education in the contemporary world.

THE RELATIONSHIP BETWEEN PHARMACY EDUCATION AND NATIONAL HEALTH NEEDS

In defining this problem, I am making the assumption that a relationship should exist between the purposes and outcomes of pharmacy education and the health needs of our respective nations. I am also making the assumption that pharmacy educators, irrespective of their country of origin, make careful and deliberate analysis of the drug related health care needs of their nations in order to determine the "best fit". In reality, I believe I am making several strong assumptions which may be idealistically correct, but in fact do not exist.

Evans, Hall and Warford clearly state the problem from a different perspective (2):

The most widely used technologies in health are drugs and vaccines. Shortages of supplies and failure to provide for the timely distribution of drugs and vaccines are serious problems that must be overcome for an effective health program. In looking toward the future, however, the problems may be excessive and irrational use of drugs and unsustainable costs to the health system. Patients who consult health personnel expect to receive a prescription or, in some cultures, an injection. As access to health services broadens with the implementation of primary health care programs, a rapid increase in the consumption of drugs may be expected. The importance of drugs to the quality of health care, to the credibility of community health workers, to the development of iatrogenic disease and to the cost of health services makes it imperative that developing countries establish better mechanisms for assessing drug requirements and for purchasing, quality control, storage, and distribution of drugs.

These are serious imperatives for the management of the drug supply in any nation. But to what extent is our pharmacy manpower force being educated for and utilized in meeting such critical
health system needs? In the United States, at least fifty percent of the work effort of American pharmacists can be effectively handled by non-pharmacists and therefore the time of pharmacists better spent on dealing with critical health needs. Similar statements may be made about the use of pharmacists in other nations. Can you imagine the impact that pharmacists, functioning as primary health care workers, could have on managing and implementing the use of the drug supply in some critical health problem areas in the Americas?

Mahler (3) makes an assertion that is applicable here:

For health services to be accessible to all people, personnel were clearly needed everywhere that people lived—total population coverage had to be the goal; this meant far more training and use of health auxiliaries and other health personnel; their work had to be coordinated in health teams. To expect the required types and numbers of personnel to be produced, for coverage and efficiency, required sound planning. The attitudes and competencies of health manpower had to be relevant to the real problems of the people, if their services were to be effective; this demanded teaching content and methods very different from conventional patterns. Planning health manpower in reasonable quality and numbers would result in appropriate training programmes only if there was proper integration between the entities responsible for health services and those responsible for health manpower development... All of them could be achieved only with enormous effort, and often by overcoming many types of opposition.

Where indeed would our pharmacy programs and our graduates be if the words of Dr. Mahler were applied in our respective countries?

THE CONTENT, PROCESS AND OUTCOMES OF THE PHARMACY CURRICULUM

In exploring the basis of the pharmacy curriculum, we extend the logic of the arguments that have been presented in the previous two problem areas. Without a clear philosophical premise, without a tight integration of our pharmacy programs with the health needs of the nation, can the issues of curricular content, process and outcomes be any less problematic?

Curricular content in the pharmacy programs located in the Region continue a strong commitment to the traditional subjects of pharmacognosy, medicinal chemistry, industrial pharmacy and pharmaceutics. Lesser commitments exist in the biomedical sciences (eg., pathology and physiology), clinical therapeutics, social and behavioral
sciences and clinical pharmacokinetics. In many respects, the pharmacy programs suffer from the malady expressed by Koch-Weser (4):

Too often “curricula” of medical and other health professional schools are shaped by their faculties according to traditional academic standards and without concern to the real needs and demands of the community in which their graduates will practice. Yet the final competencies in knowledge, skills and attitudes should be those which are required by the health delivery system. Therefore, it follows that in education and training for community service, the field practitioners must play a much greater role, in both the planning and implementation of training programs than they do at this time in most institutions.

This is a real issue in pharmacy education. One might argue that the need for a strong scientific basis in pharmacy education is a given. One might also argue that a comprehensive understanding of how and why drugs act as they do in real people is a given. But the curricular “distance” between these two arguments is substantial when one contemplates the knowledge necessary to be competent on both ends of these spectra.

Our educational process in pharmacy is largely passive, non-interactive and osmotic. Much of the instructional process utilizes lectures and huge amounts of content must be memorized and “spit back” on lengthy examination papers. Little attention in the instructional process is paid to problem-based learning or problem solving. Little dialogue occurs between student and teacher on the “gray fringe” of commonly accepted knowledge. Most of our students have little contact with the social or cultural issues of health and health care. Few students actually deal with ill patients in the context of applying their knowledge.

We know very little of the outcomes of our educational enterprise. Our schools have typically not been enriched by “departments of pharmacy education” or “pharmacy education research centers” such as those often found in schools of medicine. We have a sparse literature which documents the outcomes of pharmacy education.

A statement from the Report on the Role and Function of Pharmacists in Health Care Systems in Europe (5) is instructive here:

The extent of variability [of education] and the need for some uniformity is a source of concern, widely discussed and widely reflected in the European Community directives about pharmacy.

There is criticism of the way pharmacy is taught today in most European countries. The main objection that has been raised is that pharmacy schools equip people to be scientists rather than practicing pharmacists... Traditional pharmaceutical education does not fulfil the demands imposed by the changed
professional role. Pharmacists in community or hospital practice work closely with patients, and need training in clinical pharmacy and behavioural sciences. However, the pharmacist retains pre-eminent knowledge of how medicines are discovered, developed, manufactured and tested.

Another view of the outcomes of pharmacy education have been expressed by Gallagher (6):

In the more economically advanced developing countries pharmacy manpower and service patterns modelled on those of the industrialized countries satisfy largely demand for medicinal drugs, whether prescribed or not, from the better-off sections of urban populations, but the needs of whole populations for essential drugs and pharmaceutical services are not being met with regard to quantity, quality or efficacy... The functions for which pharmacy manpower have been trained (or can perform) or which they are performing may not be those that are needed, or may not include all that are needed, or may include functions which are contrary to, or in excess of, those that are needed or that a country can afford to support.

SOCIALIZATION OF STUDENTS TOWARD CARING AND SOCIAL COVENANT

Another problem area for pharmaceutical education centers on the socialization of our students. Simply stated, socialization is a sociological terms that describes the process by which students come to accept, internalize and apply the values and attitudes of the profession for which they are being trained. Just as parents socialize their children or a school socializes its students on behalf of the society, so too does a profession and its educational institutions socialize their young professionals.

How they are socialized and to what ends they are socialized determines the nature of the profession, at least insofar as its new recruits are concerned. The types of values students are taught with regard to their role and their responsibilities shape the direction of the profession. Furthermore, the process by which that socialization occurs is critical to the views and attitudes that new entrants into a profession will hold.

As a profession that holds itself out as a “caring”, “helping” or “health profession”, it is incumbent on pharmacy educators to identify, clarify and inculcate the values held in these behavioral labels. I am not confident that our educational programs spend much time on these matters. While we speak much of ethics and law, I do not believe
that as educators we clearly see our role as "socializers." But our absence in its process makes a clear statement to students.

If we do not speak of caring and its sociological, psychological and anthropological implications in our respective curricula, then how can we expect our graduates to be caring professionals except by "hit or miss?". Hepler and Strand (7) propose and define a notion of pharmaceutical care that I find particularly attractive for our consideration. They define such care as follows:

The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life. These outcomes are: 1) cure of disease, 2) elimination or reduction of a patient's symptomatology, 3) arresting or slowing of a disease process, and 4) preventing a disease or symptomatology.

Caring in this definition denotes specific application of knowledge and skills to the betterment of the patient. It is at once a notion that requires generous application of skills to affect another human being's quality of life. Caring is not a skill that is inherent or embedded in the genetic code. It must be cultured and sustained. In short it must be a part of the socialization of pharmacy students. As important as I believe professional socialization to be, pharmacy education still has a long path to follow for the appropriate socialization of our students to their caring role and their commitment to the social covenant of professional responsibility.

FACULTY COMMITMENTS TO HEALTH NEEDS VERSUS THE NEEDS OF SELF

Our next problem extends as well from those I have previously elucidated. This problem extends to the direction of commitment of our respective members of the pharmacy faculty. I raise here the perpetual problem of balance between teaching and research commitments. I would also raise the perennial problem of balance between commitment to the health needs of the nation and commitments to self. These are problematic areas, which after many years and forums of discussion, are likely no closer to resolution.

In some instances the rewards that we provide to our faculty members drive how their commitments are shaped. In most of the American universities for example, the numbers of published papers and amounts of externally awarded research funds drive the reward system (eg., space, resources, salaries). Few of our pharmacy faculty members are rewarded for their excellence in teaching, their impact
on young students aspiring to excel in pharmacy or the influence they have on the thinking within the profession. It is therefore not surprising that imbalances exist.

But we should examine our historical precepts against the needs of the contemporary society and greater world. As resources become more scarce and as our countries call for greater accountabilities from the universities, then a better balance in commitments and reward structures will follow close behind.

THE STATUS OF PHARMACY EDUCATION IN THE UNIVERSITY

It is likely "safe" to say that the status and recognition of our respective pharmacy programs in our parent Universities or University departments are as varied as our philosophies of pharmacy education. In the countries of the Region, pharmacy programs range from subdivision status in Departments of Chemistry and Biochemistry to free-standing schools or colleges not associated with a parent University. Within this range of organizational configurations, there is likely an equally varied range of status with regard to number of faculty members, quality and credentials of the faculty and financial support for implementation of the pharmacy program. We will also find tremendous diversity in the content, length and degree status of the programs offered.

Some would argue that such diversity is inherently good, that it reflects the diverse nature of our nations and their needs, that it should be maintained to respect the sovereignty of faculty, institutions and nations. These are compelling arguments.

But what are the negative aspects of diversity and plurality? I have previously referenced a strongly evident phenomena in pharmacy education; that being, in our desire to be "all things to all people and for all people" we have diluted and unfocused our philosophy, mission and outcomes. In so doing, I am not surprised that Ministers of Health do not understand nor appreciate our contributions to the health needs of the nation. I am also not surprised that pharmacy as a profession or pharmacy educators are not considered important parties to public policy debate on matters of critical health concerns (8).

The size, quality and influence of our respective faculties are generally overshadowed by the size, quality and influence of the Medical Faculty. In that sense, we suffer from a strong dilution factor in our respective institutions. This same dilution factor is extended to the broader society. In short, we are grossly overpowered in numbers by physicians and nurses.
It is therefore incumbent on us in pharmacy education and the pharmacy profession to make the greatest impacts with the fewest people. In my view this represents a significant challenge to all of us. It will likely require a new visibility and strategy that centers on advancing the knowledge in pharmaceutical science and practice to better patient care in our respective nations.

Having spoken of six major problem areas, I would now like to spend the remainder of my presentation to you focusing on the prospects for the future. In so doing, I would ask you to keep my foundational assumptions in mind. I would also request that you consider the six problem areas as we speak of future prospects.

As I consider the prospects of pharmacy education toward the future, I am reminded of W.H. Auden’s description of the passing of the haves and the have-nots in the night in “Musee des Beaux Arts” (9).

About suffering they were never wrong,
The Old Masters; how well they understood
Its human position; how it takes place
While someone else is eating or opening a window
or just walking dully along...
They never forgot
That even the dreadful martyrdom must run its course
Anyhow in a corner, some untidy spot
Where the dogs go on with their doggy life,
and the torturer’s horse
Scratches its innocent behind on a tree.

We might, like the passing of the haves and have-nots, choose as pharmacy educators to go our merry way and “do our thing” as we have defined it and simultaneously let our respective health care systems go in its directions without us. The torturer’s horse will continue to scratch while dreadful martyrdom runs its course.

But our future can be and should be brighter than that. And we in pharmacy education can assure a future brighter than our past if we diligently work to assure it.

I am buoyed by the fact that pharmaceutical agents are absolutely essential for the achievement of the health for all goal for the year 2000. I strongly believe that and I sense that you share that belief with me. In that scenario, pharmacy education can play a critical part in preparing young people for a significant role in all aspects of the drug use process. We can measurably enhance the social good of our respective programs by critically examining the role of drugs in the achievement of the “health for all” goal. While I am cognizant of the numerous issues that surround the availability and distribution of es-
essential drugs, I am equally cognizant of the "value-added" role that pharmacy educators can play in dealing with these issues (10).

Our respective nations are also in dire need of primary care, community-based care-givers that have an expertise in the appropriate and rational use of drugs. In that sense, we have an opportunity to work with our Ministries or Departments of Health in placing pharmacists in critical health manpower shortage areas for primary care roles. The latter can be best carried out within a team framework which might include physicians and nurses. Provision of essential drugs including participation in immunization and vaccination programs is an easily adopted role for appropriately educated and trained pharmacy personnel. Such a move will require a political will not only on the part of our governments but perhaps more importantly, on the part of our faculties.

Several key examples of systematic and effective drug distribution systems have been described in the literature (11). However, we need an expansion of such demonstration and pilot projects to a greater variety of areas and terrains. The brain power of our faculties coupled with the infrastructural support of government agencies and private enterprise can go far to extend such drug distribution systems to a broader base of needy patients. The World Health Organization defines critical elements in such systems to include pharmaceutical aspects, clinical aspects and educational aspects (12). Each of these areas are embedded in the talents of our pharmacy programs through its faculty members, adjunct staff and relationships with practitioners and the pharmaceutical industry.

Pharmacy educators and their respective institutions also have the prospect of being the focusing point for rational drug use. In furthering this notion, I would point you to the criteria for rational drug use presented at the Conference of Experts on the Rational Use of Drugs in Nairobi (13).

The rational use of drugs demands that the appropriate drug be prescribed, that it be available at the right time at a price people can afford, that it be dispensed correctly, and that it be taken in the right dose at the right intervals and for the right length of time. The appropriate drug must be effective, and of acceptable quality and safety.

This is a formidable task if indeed it is to be applied to the caring of each of our nation's patients. It will give pharmacy educators opportunities to form caring partnerships and alliances with the professions of nursing and medicine. The American experience in clinical pharmacy comforts me in knowing that these alliances can be realistically
achieved. But their achievement will rest on the knowledge and talents that pharmacists "bring to the table."

Pharmacy educators also have exciting prospects in the development and implementation of therapeutic outcome standards and their respective indicators. We have long-standing experience in the quality assurance aspects of drug product development and manufacturing. Much of our programs have historically been directed toward the creation of purity and quality standards for national compendia of drug standards. Can we not apply these same commitments of time and talent to establishing standards for pharmaceutical usage and clinical outcome assurance?

The several prospect areas that I have heretofore presented may require a new and different outlook of pharmacy educators and governmental program administrators present in this audience. But that difference, in my view, is timely in a period when large scale drug production is a reality, when critical choices need to be made about resource allocation, when effective and efficient use of scarce health manpower needs to be accomplished and when formidable health care challenges still face us. My point simply is that pharmacy education can contribute to the health needs of a nation when it is properly focused. And when its faculty desire to affect the national policies and programs in health care.

CONCLUSIONS

Walter Benjamin recently wrote in the New England Journal of Medicine of the forces "destroying" the medical profession. His concluding admonishment is relevant to us in pharmacy (14):

A profession that wants to retain as much autonomy and collegiality as possible should settle its internal problems with dispatch.

The profession of pharmacy and the educational systems and structures that support it have many internal problems that cry out for resolution. And they need to be analyzed and dealt with in an expedient fashion.

I have attempted to outline several of our problem areas in the realm of pharmacy education. Following, I have described several areas in which pharmacy educators can become intimately involved for the purpose of bettering the health status of our nations through the rational distribution and use of medicinal agents.

These are issues of global and universal problem and prospect. Perhaps this Conference can serve as a more global focal point for further discussion and planning. At the least, perhaps our efforts
can become more integrated into the planning of the Pan American Health Organization and the World Health Organization as these agencies work with each of our nations.

The last weeks of 1989 witnessed remarkable and heretofore unthinkable acts of courage and vision on the parts of people and governments. Removing the tangible barriers of peace and goodwill and celebrating a common bond at the Brandenburg Gate should serve as a prime symbol for our continued working together. Pharmacy educators have boundless opportunities to bring prescribers, patients and pharmaceuticals together for common understanding and purpose. It is my sincere hope that we may together, in the Americas, shape that linkage and push back the frontiers of that relationship.

REFERENCES


