VIEWPOINTS

Pharmacy Is a Science-based Profession

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In 1938 Franklin D. Roosevelt signed the Federal Food Drug and Cosmetic (FD&C) Act, the law that still governs drug distribution today. That landmark legislation has been rightly hailed as important and innovative regulation of drug distribution. However, that legislation also brought about significant curtailment in the responsibilities of pharmacists. Prior to this Act, very few drugs were restricted to prescription-only status. A few narcotics and some especially dangerous drugs were restricted by the 1906 Pure Food and Drug Law and by the 1914 Harrison Narcotic Act. Most other drugs were sold in drug stores at the discretion of the pharmacist. In the absence of a doctor's order, the pharmacist had the responsibility of deciding what drug a patient might need.

In the wake of the Elixir Sulfanilamide tragedy of 1937, the FD&C Act was implemented and carried an important labeling provision. Under this Act, any drug marketed directly to the public was required to be labeled with all active ingredients and with directions for use. An exception to this labeling requirement was made for drugs that were labelled to be dispensed only with a prescription from a physician. The responsibility for determining whether a drug was to be a "legend" or prescription drug lay with the drug manufacturer. This led to considerable confusion in the marketplace. One drug company could decide that its sulfa drug was to be dispensed only by prescription, while another company could decide that the same drug would be labeled for sale without prescription. Gradually the Food and Drug Administration moved to gain control of determining which drugs should be prescription only. These efforts culminated in the Durham-Humphrey Amendments in the early 1950s. These amendments completed the restriction of pharmacists' responsibility for choosing medication for their patients. Pharmacists had now become mere merchants, relegated to count and pour, lick and stick. It should be noted that both Congressman Durham and Senator Humphrey who sponsored this legislation had pharmacy backgrounds.

The role of pharmacists in the 1950s influenced the role of the academy. Since the focus of pharmacy practice was on the drugs, the focus of educational institutions was on the drugs. This was a time when the basic sciences became important in the education of pharmacists. Phar-

maceutics, medicinal chemistry, and pharmacology became established as the foundation sciences. Pharmacy was a true science-based profession, even if it was not patient-oriented. This was also a time when research became increasingly important as an academic pursuit. Institutions that built strong research programs rose as the premier colleges of pharmacy. The emphasis on science as the basis for education was an effort to deemphasize apprenticeship training and make the pharmacy degree a true science degree. However, not everyone was satisfied with the status quo. The ascendancy of the doctor of pharmacy degree began at this time. Inherent in the PharmD was a practice component in which schools and colleges of pharmacy assumed responsibility for supervising experiential learning.

By the 1960s there was a strong movement, particularly within academic pharmacy, to reclaim some of the drug-decision responsibilities. Through the latter part of the 20th century this movement grew stronger. Academic pharmacy recognized that it was no longer sufficient to focus on the drug. If pharmacists were to be true health-care professionals they would have to orient their focus toward the patient. Throughout the later half of the 20th century, the academy assumed greater responsibility for experiential learning and worked at expanding the role of pharmacists within the health care team. As a pharmacy student during the late 1960s, I was enthusiastic about the potential that pharmacists would become true drug experts and have responsibilities for therapeutic selection, consultation, etc. The profession has advanced beyond what I ever expected during my student years.

One of the negative outcomes of the increase in experiential training has been a reduction in basic science education. Many colleges and schools of pharmacy terminated their pharmacognosy programs in the latter part of the 20th century only to find that the explosive use of herbal medicine and dietary supplements after implementation of the 1994 DSHEA left our pharmacy students with little background and understanding of natural product chemistry. I have heard from a number of sources that many of the newly opened schools and colleges are not employing medicinal chemists or pharmaceuticals faculty members.

Faculty members at several established colleges have informed me that the chemistry and pharmaceuticals educational offerings are being curtailed. There is much consternation among basic scientists that our students are not being adequately prepared in the basic sciences. If true, this phenomenon would be bad for the practice of patient-oriented pharmacy. One of the earmarks of evidence-based medicine is that the practitioner should not just accept the conventional wisdom of his/her current mentor. Evidence-based medicine uses the scientific method of using observations and literature searches to form a hypothesis as a basis for appropriate medical therapy.¹

This process necessitates education in basic sciences and an understanding of basic science principles. I would like to encourage all colleges and schools of pharmacy to carefully review their basic science offerings to ensure that students are obtaining the science education that they need to practice evidence-based medicine in the 21st century.

REFERENCES

1. Sackett DL, et al. *Evidence-Based Medicine: How to Practice and Teach EBM*. 2nd ed. Edinburgh; New York: Churchill Livingstone, 2000.