Director's Forum

Measuring Change in Health-System Pharmacy Over 50 Years: "Reflecting" on the *Mirror*, Part I

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The *Director's Forum* guides pharmacy leaders in establishing patient-centered services in hospitals and health systems. August 2013 marked the 50th anniversary of the publication of the *Mirror to Hospital Pharmacy*, which was a comprehensive study of hospital pharmacy services in the United States. This iconic textbook was co-authored by Donald Francke, Clifton J. Latiolais, Gloria N. Francke, and Norman Ho. The *Mirror* profiled hospital pharmacy of the 1950s and established goals for the profession in 6 paradigms: (1) professional philosophy and ethics, (2) scientific and technical expansion of health-system pharmacy, (3) development of administrative and managerial acumen, (4) increased practice competence, (5) wage and salary compensation commensurate with professional responsibilities, and (6) health-system pharmacy as a vehicle for advancing the profession as a whole. This article critically reviews the profession's progress on the first 3 goals; an article in the January 2014 issue of *Hospital Pharmacy* will review the final 3 goals. An understanding of the profession's progress on these goals since the seminal work of the *Mirror* provides directors of pharmacy a platform from which to develop strategies to enhance patient-centered pharmacy services.

*For we must change something more
than bricks and stones, policies
and procedures, figures and forms.
We must change ourselves and
our concepts of the practice of pharmacy.*

—Donald E. Francke and *Mirror*
collaborators, February 1964

August 2013 marked the 50th anniversary of the publication of the *Mirror to Hospital Pharmacy*.¹ Donald E. Francke, Clifton J. Latiolais, Gloria N. Francke, and Norman Ho wrote the *Mirror* after conducting a research study through the US Public Health Service that surveyed hospital pharmaceutical services across the country. The *Mirror* had a strong message for hospital pharmacists in 1964: Both the physical practice and philosophy of hospital pharmacy needed to change.² This message was reinforced in a publication in February 1964 that emphasized unity among hospital pharmacists as the long-term vision of hospital pharmacy practice.³ In a follow-up article published in the *American Journal of Hospital Phar-*

macy, the *Mirror* co-authors suggested 6 broad goals for hospital pharmacists over several decades:

1. Teach hospital pharmacists by word and by precept the philosophy and ethics of hospital pharmacy as one of the healing arts and their personal, individual accountability to assume responsibility for professional practice.
2. Strengthen and expand the scientific and professional aspects of the practice of hospital pharmacy, including the consulting role of the hospital pharmacist, his [or her] teaching role, and his [or her] activities in the field of investigation and research.
3. Strengthen and perfect the administrative or management skills and tools essential to the hospital pharmacist in his [or her] role as a department head.
4. Attract a greater number of well-trained pharmacists to hospital practice, including those with specialized education and training in hospital pharmacy.

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5. Promote payment of realistic salaries to hospital pharmacists in both staff and managerial positions in order to attract and retain the services of career personnel.
6. Utilize the resources of hospital pharmacy to assist in the development and improvement of the profession as a whole.

Hospital pharmacy as a whole took to heart the recommendations of the *Mirror* and began to focus on these 6 goals. The next 25 to 30 years saw incredible local and national growth and change in the practice of health-system pharmacy. This growth was a result, in part, of the profession's unity of purpose and ability to plan and move forward on that plan, to be flexible, and to prepare for future challenges.

This *Director's Forum* column will critically examine the first 3 goals for hospital pharmacy by describing each goal and providing an opinion on the profession's success or failure in achieving these goals since the seminal work of the *Mirror*. This historical perspective on the goals provides directors of pharmacy a valuable leadership viewpoint and focus as they develop strategies to enhance patient-centered pharmacy services.

GOALS FOR HOSPITAL PHARMACY IN 1963 – HOW HAVE WE DONE?

The American Society of Health-System Pharmacists (ASHP) conducted surveys to determine growth in a variety of areas of pharmacy practice. These surveys served as a continuation of the *Mirror* and focused in many areas of practice. We have taken the 6 goals for hospital pharmacy as published in 1964 and provided our perspectives on the progress toward these goals since the *Mirror* was published. Our analysis encourages further thought about our profession and serves as a catalyst for a larger study that scientifically measures our progress since 1964.

Goal 1: Pharmacy as a healing profession; personal accountability for professional practice

Hospital or health-system pharmacists, by word and by precept, actively live the philosophy and ethics of hospital pharmacy. They should view their profession and work as one of the healing arts; in addition, they should take personal accountability for their professional practice. This goal has been met in several ways.

ASHP had 4,500 members and 72 affiliated state chapters in 1967; there were 9,000 to 10,000 pharmacists practicing in hospitals.⁴ In 2013, ASHP has a membership of 42,000 with 50 chapters (one chapter per state) and is continuing to expand (S. Vanderpool, personal communication, September 28, 2013).

The adoption of ASHP "best practices" establishes a professional standard of health-system pharmacy practice. ASHP policy positions are short pronouncements on one aspect of practice. Statements express basic philosophy, and guidelines (including what were formerly called "technical assistance bulletins") offer programmatic advice. Therapeutic position statements are concise responses to specific therapeutic issues, and therapeutic guidelines are thorough, evidence-based recommendations on drug use.

Pharmacy's role as one of the healing arts is demonstrated through the continual evolution of professional practice models. At a national consensus conference in 1985, clinical pharmacy was established as a fundamental practice tenet. The most recent (2010) national invitational Pharmacy Practice Model Initiative (PPMI) provided recommendations that have been followed up with tools such as a departmental self-assessment, Webinars, and grants to stimulate research.

Goal 2: Strengthen and expand the professional and scientific role of the hospital pharmacist

The *Mirror* made recommendations for the evaluation of the relationship between the scope and quality of pharmacy service and for the improvement of dispensing procedures. It is difficult to independently analyze how the scope of pharmacy services has changed in the past 50 years and how dispensing procedures have improved, for they affect each other and drive each other forward in a cyclical manner.

The *Mirror* advocated for the expansion of pharmacists' responsibilities beyond those of compounding and dispensing. Fifty years ago, a surprising number of pharmacists were reluctant to shift their focus away from compounding and dispensing and onto more involved duties. This reluctance to change is common. We want to hold onto responsibilities that are no longer necessary, because we are comfortable in performing these tasks. However, as health care evolves, the responsibilities and expectations of pharmacists will change as well. We must be ready to embrace these changes and move forward.

Much progress has been made through pharmacy's accountability for professional practice. The hospital drug distribution system prior to publication of the

Mirror generally placed medication stock bottles and vials/ampules on each nursing unit; nurses were “dispensing” every time a dose needed to be administered. The nurses reordered either by sending the empty bottles to pharmacy or through a hand transcribed requisition. After publication of the *Mirror*, hospital pharmacists realized that the “stock bottle” system was not safe, and they developed and implemented an “individual patient system” whereby they filled a 5-day supply (average length of stay in the 1960s) of each medication and labeled it with the patient’s name. Along with this innovation, pharmacists designed systems to obtain a direct copy of the physician’s orders by placing a no-carbon-required (NCR) copy behind the order sheet; this allowed pharmacists to do the interpretation rather than working off a transcribed requisition. As individual hospital pharmacists began to implement unit-dose systems, it also became evident that having nurses prepare intravenous medications on each nursing unit was also not as safe as having them prepared by the pharmacy. This led to intravenous admixture programs that dramatically improved the quality and safety of intravenous medication delivery.

At this same time, research into medication errors found they were still too high; this led to the innovation of unit dose systems, which in the beginning had 4 cart exchanges a day to mirror the major medication pass times. Research before and after this innovation demonstrated a reduction in medication errors by unit dose systems. Today the use of automation such as unit-based cabinets and robotics linked to computer systems requires prior order review by a pharmacist before medication administration—improving safety. The implementation of electronic medical records (EMR) with barcode-assisted medication administration further provides safety checks to prevent harmful errors.

The *Mirror* recommended the use of automated technology and the hiring of nonprofessional personnel to assist with the tasks of compounding and dispensing so that pharmacists could devote more of their time to other responsibilities. In today’s hospital pharmacy, it is not uncommon to see unit-dose packaging machines, robots with arms collecting several unit-dose packaged medications, and medication carousels to stock and organize large quantities of drugs. Pharmacy technicians have assumed essentially all of the basic functions necessary to fulfill the hospital’s needs for compounding and medication preparation. The pharmacist is still technically responsible for the true task of “dispensing,” in that he or she must complete the final check of the prepared medication before it is sent to the patient. With all the new

developments in automated dispensing technologies and the increased use of nonprofessional personnel, pharmacists are able to spend more time in medication reconciliation and discharge counseling by verifying orders, answering clinician’s questions, and speaking to patients directly.

Even though pharmacy services have been significantly stimulated by the publication of the *Mirror*, pharmacists are still not available 24/7 in hospitals, practicing in the patient care areas, or at the acute care bedside. Also pharmacy has not taking full advantage of technology and is not totally “paperless” in providing care. With the current emphasis on transitions of care, there are opportunities for pharmacy to expand to include all the ambulatory areas, so it will be truly responsible for pharmacy services across the continuum of patient care.

We see a growing number of residency-trained hospital pharmacists and pharmacy specialists, who choose to pursue 2 years of postgraduate training in oncology, cardiology, and infectious disease. Pharmacy has evolved so much that specialists are now an integral part of the rounding team, alongside physicians and nurses. The professional influence has evolved even one step further, with the advocacy and fledgling practice of mid-level provider status for pharmacists. Experience has shown that pharmacists are integral for improving patient outcomes. These outcomes include fewer adverse drug reactions, better management of chronic symptoms, and reduced health care costs. Attaining provider status would officially recognize pharmacists as being indispensable to the patient care model.

The *Mirror* called for an expansion of the hospital pharmacist’s scientific role. This included assay and control to ensure the quality of medications dispensed and research and investigation for product formulation. The varying scientific roles of a hospital pharmacist are tied together by the need for continually improved patient safety.

The ways in which hospital pharmacists exercise their scientific roles in assay and control are largely within the guidelines set forth by the US Pharmacopeial Convention (USP). USP has delineated high standards for hospitals regarding compounding sterile and nonsterile products. It is the hospital pharmacist’s responsibility to ensure that the hospital makes the necessary changes to meet USP’s requirements. As hospitals continue to strive to meet the guidelines for safer compounding practices, the pharmacist’s role in upholding the highest standards for patient safety will continue to expand.

A particularly poignant example of the need for hospital pharmacists to uphold the safety measures required by USP was the spread of meningitis via medications dispensed from the New England Compounding Center. In light of the outbreak, hospital pharmacies that utilized outside compounding centers needed to inspect the outside facilities. These inspections were conducted to ensure the sterility and quality of the products hospital pharmacies were receiving, ultimately for the sake of patient safety.

The hospital pharmacist's scientific role has grown beyond the responsibilities of research and investigation for product formulation. Research and investigation have been directed toward medication safety efforts such as drug use evaluations and protocols for medication overdose and participation in investigational drug research. Drug use evaluations and protocols for medication overdose can be conducted as internal audits specific to each institution to enhance pharmacy practices based on that institution's population. However, investigational drug research can span multiple hospitals and is in many ways at the forefront of medicine. Today, there are investigational drug service (IDS) pharmacists whose responsibilities include ensuring the safety of patients that may qualify for a research protocol. Often times, these patients have exhausted currently available drug therapies for their conditions, so participation in investigational drug research may benefit that specific patient and future patients based on the later findings of the study. The IDS pharmacists take the time to become intimately familiar with research protocols and to monitor the study participants for adverse reactions. Medication safety is a dynamic field, and the new findings from investigational drug research contribute to the advancements of safety practices.

Goal 3: Strengthen the hospital pharmacists' role as a department head

This goal focused on developing the pharmacist into a clinician with business and operational acumen to meet the organizational demands of a hospital. David Zilz, a former pharmacy director and now mentor to many pharmacy leaders, has often said that the pharmacy director connects with every area of the hospital; in fact, the director interfaces regularly with the fol-

lowing "C" suite members: CFO, CNO, CEO, COO, CMO, and CIO. Postgraduate training in pharmacy administration is now a necessity for a pharmacy director. It is no longer acceptable for a pharmacist to "work their way up" in the department and be named the pharmacy director based on their institutional history and longevity. The skills to be a pharmacy director often rival those of a medical department chair – clinical expertise, financial management, human resources management, and logistics.

There continues to be a need for advanced degree training of hospital pharmacy leaders. To meet the demand for training, schools and colleges of pharmacy need to expand their programs by hiring more faculty and approving more resident positions that are committed to pharmacy leadership training. In addition, hospitals should consider adding PGY-2 specialty pharmacy residencies in pharmacy administration to address the leadership training gap.

CONCLUSION

We have made significant progress on the goals of professional accountability, the scientific growth of the profession, and the role of the pharmacist as a leader in health care. Professional and personal accountability is promoted through initiatives such as the PPMI. The profession continues to use scientific evidence in advancing technology and practice, and the advanced training in pharmacy leadership is attempting to fill a much-needed gap in pharmacy managers. By understanding the history of the profession and its goals for the future, directors of pharmacy can develop strategies to enhance patient-centered pharmacy services.

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