SPECIAL FEATURE

Transitions in pharmacy practice, part 2: Who does what and why

CHRISTINE M. NIMMO AND ROSS W. HOLLAND

Abstract: The competencies required by the five practice models that constitute the total pharmacy care (TPC) model are discussed.

Understanding the differences among the competencies required by the five practice models can help pharmacy's leaders estimate the extent of change that may be necessary whenever a change in practice is contemplated. Professional competence in any of the practice models is defined as the sum of skills, professional socialization, and judgment rooted in experience pertinent to the model. Possibilities for practice change are ideational and do not necessarily follow a straight line from other practice models to pharmaceutical care. The key competencies for each of the five practice models—drug information, self-care, clinical pharmacy, pharmaceutical care, and distribution—demonstrate a clear distinction among the five models. The models draw on different knowledge and skills, are characterized by different attitudes and values about the work of pharmacy, and are grounded in different practice experience.

While sharing a common underpinning of theory and practice, professional competence within each of the five models that make up TPC requires distinctly different knowledge and skills, professional attitudes, and values, as well as judgment that is developed through experience.

Index terms: Clinical pharmacists; Clinical pharmacy; Dispensing; Drug information; Models; Pharmaceutical care; Pharmacists, community; Pharmacists, hospital; Pharmacy, community; Pharmacy, institutional, hospital; Professional competence
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In "Transitions, Part 1: Beyond Pharmaceutical Care," the first installment in this five-part series, we examined the changing nature of pharmacy practice over the past 150 years and established that current efforts to reposition pharmacy from delivering drugs to delivering care are part of a continuum of change in the profession.[1] We discussed a set of standards for good pharmacy practice (GPP) created by the International Pharmaceutical Federation and presented a systems model for the delivery of pharmaceutical services grounded in GPP called the total pharmacy care (TPC) model. According to the TPC model, it is the sum of five concurrently operating models of practice—drug information, self-care, clinical pharmacy, pharmaceutical care, and distribution—that results in the maximum possible contribution of pharmacy to the health and well-being of a nation's population within the limits of that country's current health care delivery structure. The five practice models draw on different sets of knowledge, skills, and attitudes. In this second article, we discuss what those competencies are and how they differ from one practice model to another. Understanding these differences can help pharmacy's leaders estimate the extent of change that will have to be undertaken by the profession as a whole and by individual practitioners whenever a change in practice is contemplated. This discussion lays the groundwork for future consideration of appropriate training and motivational techniques to help pharmacists revise their practices.

Revisiting the models that constitute total pharmacy care

Pharmacy's leaders are currently focused on implementing pharmaceutical care. Why not, then, center a discussion of the knowledge, skills, and attitudes re-

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The "Transitions in Pharmacy Practice" series proposes a model for helping pharmacy department directors and their staff developers facilitate changes in practice by staff members. The model was conceived in response to continuing reports of widespread failure to persuade practitioners to fill more roles in clinical pharmacy and pharmaceutical care, despite supervisors' attention to traditional managerial theory about motivation for workplace change. The first few articles in the five-part series build an appreciation for how the complexity and diversity of the current pharmacy environment demand an innovative approach to practice change. Subsequent articles present the model for change and detail a theory-based approach to the component least understood by department directors and staff developers: motivation. The articles are intended to be read in the order published. The series started with the article in the September 1 issue and continues monthly, in the first issue of the month, to January 1, 2000.

quired for changes in practice on the model of pharmaceutical care alone? Hepler, writing in 1996, stated that "contemporary pharmacy practice includes more than direct patient-oriented participation in drug therapy."[2] We posit that, at least for the time being, a discussion of the requirements of TPC must involve all five models. Even in a country like the United States with the world's most advanced level of pharmacy practice, there continues to be a demand for pharmacy as practiced under all the existing models. As recently as 1996, 59.7% of nonfederal acute care hospitals offered pharmaceutical care services to at least some of their patients, but only 5.1% provided these services to more than 75% of their patients.[3] Pharmacists must be doing something other than providing pharmaceutical care, and indeed they are.

Despite the increased use of automated dispensing, drug distribution by pharmacists has not been eliminated. In fact, pharmacists practicing in integrated health systems with automated dispensing systems for ambulatory care patients still spend 52% of their time on distribution.[4] Neither has clinical pharmacy been totally displaced by pharmaceutical care. In 1996, 75.0% of nonfederal acute care hospitals provided pharmacokinetic consultations and 47.5% offered nutritional support consultations.[3] Managed care organizations, which by 1995 were responsible for the health care benefits of 70% of all workers with health insurance,[5] draw heavily on the drug information model of pharmacy practice to make population-based medication management decisions and to provide education about health promotion and disease prevention.[6]

If we turn to practice outside the health-system environment, we see that the role of self-care is growing, not dying. In the past two decades, we have witnessed a dramatic increase in individuals' self-management of their own health care.[5] In fact, today nonprescription medications represent 60% of all medications used,[7] and, because drugs recently switched from prescription to nonprescription status tend to have more

complicated guidelines for diagnosis and use, there is an increasing role for pharmacists in providing consultative services for self-care. In line with this, in 1991 the Food and Drug Administration created the Office of Over-the-Counter Drug Evaluation "in recognition of the importance of nonprescription products to consumer self-care."[7]

Another reason to give attention to more than the pharmaceutical care practice model is that, probably for most practitioners, a changeover to pharmaceutical care is accomplished in stages. Few pharmacists move directly from a practice centered on distribution to a practice centered on pharmaceutical care. A pharmacist currently in distributive practice might begin the process by initiating rigorous screening of medication orders for problems and making maximum use of available patient-specific information. A second distributive pharmacist might move directly to the clinical pharmacy model, acquiring new skills in order to provide a pharmacokinetic dosing or antibiotic-monitoring service.

The progression of change, including movement toward the pharmaceutical care model, may not be under the control of the individual pharmacist. More often, how change occurs is a function of how the services of the organization where the pharmacist practices are structured. This, in turn, may be determined by government health policies and payment systems. While the pharmacy department and the community pharmacy manager may have as a long-term goal that all pharmacists will be delivering pharmaceutical care, key decision-makers must be brought along gradually to accept the contributions pharmacy can make. The usual strategy is to begin the move from distributive functions by first providing clinical pharmacy services and establishing their value and then slowly introducing pharmaceutical care services until they, too, are accepted by the public and other health care providers. Thus, when we consider changing practice models, the first move may be to something other than pharmaceutical care.

Professional competence

To undertake a meaningful discussion of the prerequisites for successful practice under any of the five models, we need a working definition of professional competence in pharmacy. We might turn to the definition by Kane:

> [Professional competence is] the degree to which the individual can use the knowledge, skills, and judgment associated with the profession to perform effectively in the domain of possible encounters defining the scope of professional practice.[8]

Or we might consider Schön's definition:

> Professional competence is . . . judgment and wise action in complex, unique, and uncertain situations with conflicting values and ethical stances. In addition to theoretical and technical knowledge, professional

competence requires reflective and practical knowledge and competencies for dealing with areas that do not yield technical or familiar solutions.[9]

While meaningful and often quoted, these definitions are hard to use as guides for concrete descriptions of professional competence in pharmacy.

Our solution has been to reflect upon the work of pharmacy and the context in which it is performed while keeping an eye on relevant investigations and discussions of professional competence. We note that pharmacists work with their hands and their minds. As declared professionals and, in particular, as members of a caring profession, pharmacists must be guided in their actions by the profession's values and beliefs. Finally, pharmacists who exhibit confidence in their ability to practice talk of reliance on their clinical judgment. This straightforward analysis of practice produces an intuitive model of professional competence in pharmacy, the professional competence equation (Figure 1)—a model that is in keeping with both Kane and Schön.
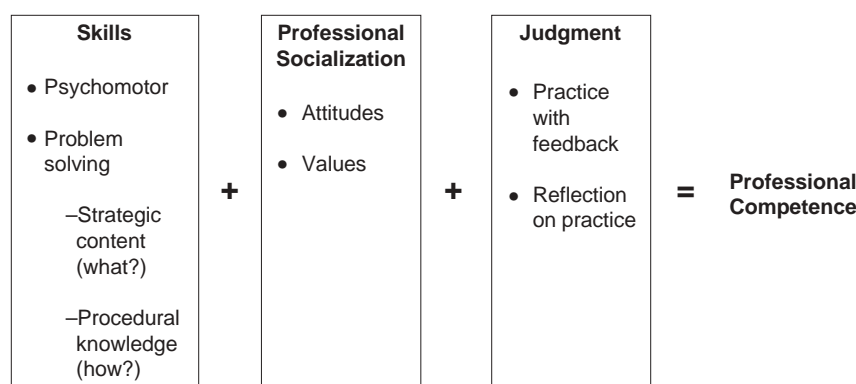
The professional competence equation has three components. First are the psychomotor and intellectual problem-solving skills relevant to the area of practice. This includes such things as knowing how to conduct an efficient and effective literature search and draw appropriate conclusions if one is operating under the drug information practice model. Being able to establish the correct diagnosis and select the appropriate nonprescription medication for a patient at a certain stage of the common cold is part of competence for self-care. Professional competence in the distributive practice model may include the ability to accurately calculate the appropriate volume of an i.v. solution for a neonate, an intellectual skill, and the ability to use aseptic technique to prepare the solution, which draws on psychomotor skills. All the different communication skills, such as those used when pharmacists have direct contact with patients, work on health care teams, make therapeutic recommendations to patients or prescribers, or try to influence prescribing patterns, are defined as intellectual problem-solving skills. Problem-solving skills depend on the possession of content-matter knowledge specific to the problem to be solved, as well as on procedural knowledge, or an appropriate thinking strategy for working toward a solution.[10]

Professional socialization, the second component of professional competence, consists of attitudes and values associated with pharmacists' expectations of themselves in the professional role. *The American Heritage Dictionary* defines an attitude as "a state of mind or feeling with regard to some matter" and a value as "a principle, standard, or quality considered worthwhile or desirable." The attitudes and values instilled in pharmacists during professional socialization form a mindset as to who they are as professionals. This mindset establishes such things as appropriate job responsibilities, to whom the pharmacist is responsible, the social values to be served, the relationship of the pharmacist to other health care providers, responsibility to the profession, and the nature of the relationship with patients served. It is the exercise of attitudes and values as drivers of practice decisions that differentiates the professional from an individual with a technical job.[11-13] As will be explored below, professional socialization differs for each of the five practice models.

The third component of professional competence is judgment. In his normative analysis of competence, Pearson states, "The distinguishing characteristic of the professional is that he does what he does intelligently, not routinely."[11] This suggests that a pharmacist in full command of the requisite psychomotor and intellectual problem-solving skills could be an incompetent who knows how to dispense. Judgment results from extensive practice of the skills coupled with the direction of one's professional activities over time according to the dictates of professional socialization. Ultimately, the practitioner develops a repertoire of past experience that enables him or her to deal effectively with professional tasks; actions go beyond simply applying rules to well-defined situations and instead involve creatively solving ill-defined problems. This is the "reflection-in-action" called for by Schön[9] and described elsewhere as

Figure 1. Professional competence equation.

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\boxed{\begin{array}{l} \textbf{Skills} \\[4pt] \bullet\ \text{Psychomotor} \\[4pt] \bullet\ \text{Problem solving} \\[4pt] \quad -\text{Strategic content (what?)} \\[4pt] \quad -\text{Procedural knowledge (how?)} \end{array}}
\ +\
\boxed{\begin{array}{l} \textbf{Professional Socialization} \\[4pt] \bullet\ \text{Attitudes} \\[4pt] \bullet\ \text{Values} \end{array}}
\ +\
\boxed{\begin{array}{l} \textbf{Judgment} \\[4pt] \bullet\ \text{Practice with feedback} \\[4pt] \bullet\ \text{Reflection on practice} \end{array}}
\ =\ \textbf{Professional Competence}
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tacit knowledge.[14] Judgment is fostered by giving practitioners the opportunity to perform the activities of a given practice model while providing constructive feedback. Further, pharmacists must reflect on their practice activities—constantly judging the quality of their work and seeking additional knowledge and skills with which to improve performance.

Differentiating the practice models

On the basis of this conceptualization of professional competence, we can consider the knowledge and skills required to perform tasks associated with each of the five practice models in TPC. The list of competencies in Table 1 draws on current efforts by a number of pharmacy organizations to identify the tasks of pharmacists and their associated knowledge and skills.[15-17] This listing does not attempt to be definitive in the area of communication skills. The carryover of communication skills from one practice model to the next cannot be precisely quantified. The type and intensity of communication will vary within a given practice model according to the unique characteristics of the individual practice setting. At best, we can suggest an increasing need for communication skills as the practitioner moves from the distributive model to either drug information or clinical pharmacy (Figure 2). Communication skills play an increased role in self-care and become even more complex when applied to pharmaceutical care.

The following discussion elaborates on Table 1 and Figure 2 and offers hypotheses regarding professional socialization for each practice model. As with our identification of the tasks in part 1 of this series, only key elements of the knowledge and skills required are listed. There is no attempt to identify the core knowledge that underpins the practice of pharmacy, regardless of the practice model, because the focus of the Transitions in Pharmacy Practice series is on facilitating change in practice among existing practitioners. Consequently, our

Table 1.
Knowledge and Skills Associated with Practice Models Constituting Total Pharmacy Care
(table spreads across two pages)

Drug Information Practice Model	Self-Care Practice Model	Clinical Pharmacy Practice Model
Design effective group programs on health promotion and disease prevention for health care consumers, including development of learning objectives, selection of delivery format, design of instructional materials, and assessment of program effectiveness.	Use effective communication skills to establish a collaborative professional relationship with the patient.	Use effective drug literature evaluation skills to satisfy information needs prompted by questions related to the design of therapy for one's patients.
Use presentation and educational techniques to deliver health-promotion and disease-prevention group programs to the public and medication-related educational programs to health care professionals.	Use skill in the collection of patient-specific information to enable an accurate assessment of the individual health care consumer's need for general advice on health matters.	Collect and organize all patient-specific information needed by the pharmacist to prevent, detect, and resolve medication-related problems and to make appropriate therapeutic recommendations.
Use team participation skills to effectively contribute the pharmacy perspective to the design and delivery of public wellness campaigns.	Use a knowledge of the mechanism of action, pharmacokinetics, pharmacodynamics, usual regimen (dose, schedule, duration, form, and route and method of administration), indications, contraindications, interactions, adverse reactions, and therapeutics of medications available without prescription to recommend efficacious and safe products.	Determine the presence of medication and related therapeutic problems.
Use skill in the preparation of drug monographs and comparative reviews to effectively contribute the pharmacy perspective to formulary decisions.	Use a knowledge of the signs, symptoms, epidemiology, risk factors, pathogenesis, natural history, pathophysiology, clinical course, etiology, and treatment of diseases to make needed referrals.	When problems are identified, specify pharmacotherapeutic and related health care goals for the patient that integrate patient-specific data, disease-specific and drug-specific information, and ethical and quality-of-life considerations.
Use retrospective drug-use-evaluation skills to evaluate patterns of medication use.	Use effective communication skills to convey therapeutic recommendations.	Design or modify an existing therapeutic regimen so that it meets the goals established for the patient; integrates patient-specific disease and drug information, ethical issues, and quality-of-life issues; and considers pharmacoeconomic principles.
Use effective communication skills to educate prescribers on their individual prescribing patterns.	When appropriate, use a knowledge of monitoring variables to follow up one's self-care recommendations.	Design monitoring plans for regimens that effectively evaluate achievement of pharmacotherapeutic and related health care goals.
Use a knowledge of medications and their use to accurately evaluate materials promoting medication use.		Recommend the therapeutic regimen and corresponding monitoring plan to prescribers in a way that is systematic and logical and secures the agreement of the prescriber.
Respond to requests for patient-specific drug information.		Implement the regimen to include, as appropriate, determining the appropriate route of administration and appropriate device for administering a parenteral or enteral fluid or medication, prescribing, and ordering or performing laboratory tests according to approved procedures.
		Modify the therapeutic plan as necessary on the basis of monitoring data.

discussion excludes consideration of the basics required to become a licensed practitioner and instead focuses on knowledge, skills, and attitudes associated with the five models.

The drug information practice model draws heavily on literature-evaluation skills needed to prepare educational materials for health promotion and disease prevention on the one hand and the application of analytical skills to influence medication use and medication-use policy on the other. Depending on their specific job responsibilities, pharmacists engaged in this practice model need effective group-presentation skills, the ability to work on committees, and the ability to persuade prescribers to adopt different ways of thinking. One can speculate that individuals who like this model of practice enjoy investigating existing knowledge and probably do not require a high degree of social interaction. For the drug information pharmacist, the primary role centers on the analysis and provi-

sion of information to the public as a whole and the support of medication-use decisions by other health care providers.

The self-care practice model depends on skills in health screening, diagnosis, the design and recommendation of pharmacotherapy, and the use of judgment for referrals. Knowledge of nonprescription medications and routine minor diseases forms the bulk of self-care content expertise. Communication skills are critical for establishing rapport with the patient or customer, conveying expertise, and clearly articulating one's recommendations. Pharmacists who prefer this model of practice are likely to enjoy technical problem solving and significant social interaction. The self-care pharmacist would believe that an important role for pharmacy is helping patients or customers make informed decisions about their own care.

Skills in the design, recommendation, monitoring, and evaluation of pharmacotherapy form the founda-

Table 1 (*part 2*)

Pharmaceutical Care Practice Model	Distributive Practice Model
Use the skills of empathy and assertiveness to establish caring, collaborative relationships with patients and their other health care providers.	Ensure the completeness of a medication order before preparing or permitting distribution of the first dose.
Use effective drug literature evaluation skills to satisfy information needs prompted by questions related to the design of therapy for one's patients.	Interpret the appropriateness of a medication order before preparing or permitting distribution of the first dose.
Collect and organize all patient-specific information needed by the pharmacist to prevent, detect, and resolve medication-related problems and to make appropriate therapeutic recommendations.	Follow established policies and procedures to maintain the accuracy of the patient profile.
Determine the presence of medication and related therapeutic problems.	Prepare medication products by using appropriate techniques and following established policies and procedures.
When problems are identified, develop pharmacotherapeutic and related health care goals with the patient or caregiver that integrate patient-specific data, disease-specific and drug-specific information, and ethical and quality-of-life considerations.	Dispense medication by following established policies and procedures.
Design or modify an existing therapeutic regimen so that it meets the goals established for the patient; integrates patient-specific disease and drug information, ethical issues, and quality-of-life issues; and considers pharmacoeconomic principles.	Provide basic medication-use information to patients.
In collaboration with the patient or caregiver, design or modify an existing monitoring plan for the patient's regimen that effectively evaluates the achievement of pharmacotherapeutic and related health care goals.	Follow accepted policies and procedures to document medication distribution activities.
Confirm the proposed pharmacist's care plan for the patient with pertinent members of the patient care team.	
Implement the pharmacist's care plan to include, as appropriate, determining the appropriate route of administration and appropriate device for administering a parenteral or enteral fluid or medication, prescribing, and ordering or performing laboratory tests according to approved procedures.	
Modify the pharmacist's care plan as necessary on the basis of monitoring data.	
When necessary, effectively use evidence-based biomedical literature to defend patient care decisions.	
Demonstrate responsibility for the outcomes of patient care by consistently advocating the patient's health and well-being.	
Use effective patient education techniques to provide counseling to patients and caregivers, including information on drug therapy, adverse effects, compliance, appropriate use, handling, and medication administration.	

Figure 2. Level of communication skills needed for each practice model. The arrows indicate increases in frequency and complexity of communications.
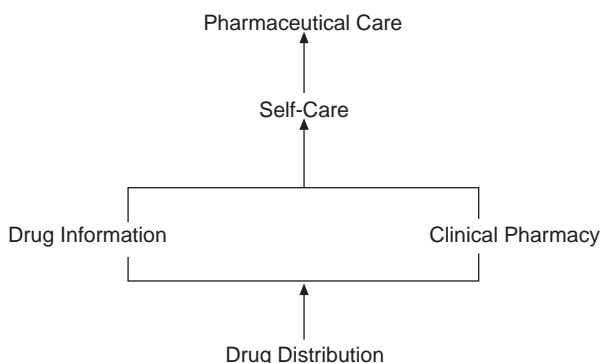
tion of the clinical pharmacy practice model. The problem solving involved in this model draws on knowledge of chronic and acute diseases generally requiring hospitalization or ongoing monitoring by a health care professional. Communication skills are critical for conveying expertise and to making persuasive recommendations to prescribers. While clinical pharmacy activities may be performed with little or no direct patient contact, for those pharmacists whose responsibilities entail direct patient involvement, interviewing and related professional-to-patient skills are important. Pharmacists who prefer this model of practice probably enjoy complex technical problem solving or resolving ill-defined problems and may or may not need a high degree of social interaction. This model sees the competent pharmacist as helping prescribers make wise decisions for medication use and supporting the achievement of the desired patient outcomes.

The pharmaceutical care model, like the clinical pharmacy model, involves skills in the design, recommendation, monitoring, and evaluation of pharmacotherapy. It also shares with the clinical pharmacy model the same content expertise. It diverges, however, in the degree and complexity of communication skills required. Pharmaceutical care practice requires advanced communication skills to enable a collaborative relationship to be formed with the patient and participation in team decision-making. It is also different from clinical pharmacy in its attitude toward the nature and scope of the pharmacist's responsibility and accountability. In pharmaceutical care the pharmacist is responsible for the patient; the central focus of activities is shifted from the resolution of drug-related problems to concern for the patient's total well-being. An essential attribute of pharmaceutical care practice is "sensitivity and commitment to develop caring, collaborative relationships with the patient and with other care providers for the patient."[18] The role of the pharmacist under this model is perceived as one of a patient advocate working to achieve patient well-being.[19] Pharma-

cists using this model must be empathic to establish caring and assertive to carry out their moral and ethical responsibilities toward patients.

The distributive model requires technical skills in the preparation and distribution of medications. To fulfill the linked role of counseling patients or customers, the pharmacist must possess technical knowledge related to the use of medications and have communication skills that allow him or her to convey expertise, impart information, and assess understanding. Distributive pharmacists tend to enjoy technical problem solving, working alone, and routine. Ensuring that the right drug gets to the right patient at the right time is pharmacy's contribution under this practice model. The distributive pharmacist also sees providing drug information to the patient or customer as an integral part of his or her role.

Implications for practice change

According to the American Association of College of Pharmacy Task Force on Professional Socialization, "the future of pharmacy not only rests on the technical expertise of pharmacists, but also on their affective approach to practice."[19] As discussed above, not only do the tasks performed under the five practice models differ, the five models draw on different knowledge and skills, are characterized by different attitudes and values about the work of pharmacy, and are grounded in different practice experience.

As is obvious to most pharmacy department managers and store owners who have attempted to encourage a change in the practice of their colleagues, there is often more to achievement of this goal than assuming that, because a person is a pharmacist, he or she is competent in all of the practice models. Nor has it proven consistently successful to simply provide training in the psychomotor and problem-solving skills required for the practice model into which the pharmacist is expected to move. As described in the discussion of professional competence and of the skills, professional socialization, and judgment associated with the five models, in order to achieve a change in practice, the pharmacist moving from one model to another may not only need to acquire new knowledge and skills, but may also have to be professionally resocialized and given time to incorporate himself or herself into the new model. For those engaged in staff development whose goal is a change in practice, it is necessary to address all three components of professional competence if pharmacists are to effectively achieve change.

Of course, the preceding discourse on professional competence in each of the five practice models and change for existing practitioners presumes that the practitioner wishes to make a change in practice, has the opportunity to learn any required new knowledge and skills, and functions in a work environment where the change in practice will be welcomed. The necessity

of creating these circumstances is the subject of the next article in the Transitions in Pharmacy Practice series.

Conclusion

Critical to helping colleagues make changes in practice is, first, an understanding of the nature of professional competence and, second, intimate knowledge of the psychomotor and problem-solving skills, professional socialization, and judgment associated with the practice model to which the practitioner aspires. While sharing a common underpinning of theory and practice, professional competence within each of the five practice models that make up total pharmacy care requires distinctly different knowledge and skills, professional attitudes, and values, as well as judgment that is developed through experience.

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