entitled from the general practice of pharmacy. The processes of role delineation conducted thus far in the development of specialty recognition criteria confirm these differences.

Another important activity of BPS has been to increase professional awareness of specialty recognition. BPS has held open forums at several key association meetings and has opened discussions with interested individuals and association staff, both orally and through the professional literature. BPS also advocated and participated in planning the Invitational Conference on Specialization in Pharmacy.

A financial plan for BPS that acknowledges the economic consequences of specialty recognition to the agency has been developed. The details of this plan will be reviewed at the BPS annual meeting in November 1990.

The BPS Self-study

One of the recommendations contained in the Final Report of the Task Force on Specialties in Pharmacy was that BPS undertake periodic evaluations of its structure, operations, and financing, with special attention given to its composition. BPS began such a process in October 1989; the self-study is programmed for completion in March 1992. The timing of this evaluation is particularly important, given major changes occurring in the health-care delivery system and the need for changes within the profession of pharmacy.

This self-evaluation has several goals: (1) to review BPS's structure, functions, and composition for appropriateness; (2) to ensure that BPS structure, operations, and composition continue to be appropriate to its mission; (3) to ensure that the process and criteria by which petitions are evaluated continue to be appropriate; (4) to evaluate the practice demographics of specialties; (5) to evaluate the role of BPS in setting specialty-practice standards; and (6) to discern ways by which BPS can facilitate the credentialing of specialists in pharmacy.

Concurrent with changes in the health-care system, the provision of pharmacy care may be undergoing a process of reprofessionalization.1 A sizable number of pharmacists and their respective associations are embracing a concept of pharmaceutical practice encompassed by the term "pharmaceutical care."1,2 While there is growing consensus that the components of pharmaceutical care are desirable, significant variation exists among specialty-practice standards and, in some cases, the current standards of practice. Some pharmacists may not be equipped to deliver this level of care. Nonetheless, pharmacy is in a period of transition, perhaps a metamorphosis.

Where does specialization in pharmacy fit in the context of these dramatic changes? Specialization has an important short-term and long-term role in the reprofessionalization of pharmacy. In the short term, a genuine, highly visible, clinical identity within the health-care system is needed. Currently, there are three recognized specialties in the profession. These three specialties, as well as other differentiated practices that may emerge from the differentiated specialties, serve the profession well by their contribution to patient care. In the long term, a structure for pharmacy practice that encompasses the differentiated specialties will emerge. This group of specialties will provide the profession with professional creativity and further differentiation of knowledge and skills. In this system, specialization will be uniform.

Outcomes of this conference can have great relevance to the future of specialization. It is important, however, that conferences, as well as those who review the written proceedings of this meeting, acknowledge a measure of uncertainty regarding the future of the health-care system into which pharmacy will be required to fit. The objective and thorough evaluation of all perspectives may be improved if viewed in this context.

The Board of Pharmaceutical Specialties is encouraged by the convening of the conference and is eager to review its deliberations. We wish you well in this endeavor.

References

These steps involve the reconstitution of pharmacy as services that improve a patient's quality of life. Second, the future marketplace, practitioners professionalism is necessary. Technology, economics, and a buyer's market are rapidly displacing existing services (i.e., provision of drug products to patients). The price of a pharmacist's services should approximate the value of those services to the patient. Pharmacy's Most Valuable Service. One extreme are nonadaptive, dead, and dying practices, that are unsuited for the new environment. At other extremes are highly adaptive practices that require relatively minor (although perhaps challenging) adjustments for continued success.

This variance contains the seeds of professional survival, but without leadership it may remain chaotic, uncoordinated, and ineffective. The value of professional pluralism can be enhanced by a plan for pharmacy reprofessionalization. With such a plan, pharmacists can sort out which segments represent the future general practice and which segments represent future specialties.

Specialization and Reprofessionalization. Reprofessionalization and specialization are both adaptations to changing environments. Both seek to describe the patients, functions, and problems for the future of individual professional or a group. Both contribute to existence for the same purpose, their outcomes are very different and they should be clearly distinguished.

Reprofessionalization applies to the majority of profession's patients or the major functions performed and problems addressed for these patients. It would set a goal for the majority of practitioners who are advocating change in pharmacy, at various stages of differentiation, and reprofessionalization movement, therefor would address issues in the adaptation of those types of practitioners to the environment that had in common. The practitioners in the movement would develop practices that are adapted to particular kinds of patients, functions, and problems. Specialization applies to a limited subset of a profession's patients, functions, or problems. An organized specialization movement, therefore, would address issues in the formation or adaptation of a "professional" subgroup of practitioners. Pediatrics is an example of such a permanent subgroup. No one in pediatrics movement proposed that all physicians should become pediatricians. The practitioners in specialization movement would describe the practice for their patients, functions, or problems, e.g., "practice limited to children."

We refer to the superlative competence of a specialist, but not his or her limited breadth. All other things being equal, however, specialists are not superior practitioners; they are simply more focused than generalists. Specialization involves risky choices. It may require some losses of general competence, profession recognition, and perhaps specialization can be considered a specialization of pharmacy. Finally, as pharmacy resolves mission, competence, organizational, and management issues, practitioners must successfully market themselves and their services.

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serve their patients effectively, maintain their markets, and survive as businesses will depend in part on how well pharmacy's leadership understands professional adaptation, specialization, and professionalization. As Kronus concludes in her analysis of the development of professional power by medicine and pharmacy in England and the United States, the most powerful resource available to an occupation is its client base, which in turn is either won or lost by the occupation's ability to make good its claims.

The profession maintains its client base by, among other things, providing a valuable service to society. Kronus states:

"The critical output of an occupation is the service produced by definable work skills and techniques. . . . To survive, each system must attract input resources (labor, capital, information, raw materials) and sell its products and services (output) to others, such as employers or clients. The basis of its continued existence, then, is the presence of a market for its output; hence the core of any system is its output (products and services).

Furthermore, the profession must market itself within the existing economic environment. Kronus adds, "Economic considerations enter into the legal and overall supply and demand forces in the labor market clearly affect the leeway for purposive action by occupational associations."

Consideration of specialization in pharmacy, therefore, should take into account the possible effects of changes in the organization of pharmacy practice on its ability to attract buyers (employers, government, insurers, the third party). Pharmacy must earn its autonomy and solving drug-related problems. Autonomous practitioners act independently, free and self-directing. When applied to pharmacists, autonomy apparently refers most of all to control over the content and terms of work. From autonomy I believe we can deduce or derive virtually all of the other institutional elements that are included in most definitions of profession.

Pharmacy's collective attempt to maintain its status in the next two decades will involve three success dimensions:

- Maintenance of a body of esoteric knowledge that requires considerable interpretation in its application. Pharmacy's Most Valuable Product in the Changing Environment. The American Pharmaceutical Association (APhA) Code of Ethics clearly expresses pharmacy's mandate: "The pharmacist should hold the health and safety of patients to be of first consequence in considering the long-range consequences of adaptations in professional services, where those adaptations will lead, what additional adaptations might become necessary in the future environment, and whether the proposed adaptations will indeed be possible.

- Maintenance of the delivery of skills and the relationship with the client. "Professional services are complex and client specific; therefore, the critical aspect of the market reorganization is to shift the balance of power between buyers and sellers: the American health care system is undergoing the most profound restructuring of this century, because purchases of services are being controlled by public and private entities. The result of these factors is that "insurance companies are marketing to providers in order to limit escalating costs. The revolt of institutional buyers (employers, government, insurers) began about 1970, took a decade to work out its strategies, and burst on the scene in the 1980s. . . . It will take this decade to gain full momentum, and it will persist for some time, until unions are driven away by other priorities..." The key difference here is that buyers control significantly increase accountability of all levels and integrate services to reflect consumer needs. A closely related issue is conflict between providers and patients of care, as the profession attempts to maintain its status in the face of the most professionally directed system as possible. "Light" goes on to warn that providers may thwart cost containment if they still control the system.

Many pharmacists are already feeling the effects of increased buyer power. If they are seen simply as vendors of drug products, pharmacists may be affected tremendously by future changes. The reorganized health-care marketplace will attempt to drive down the cost of drug distribution by increasing productivity of pharmacists with computers, robots, and technicians. Packaging changes may reduce the need for repackaging, further simplifying pharmacy dispensing and maintenance of hospital floor stock medications. Such developments may quickly create an oversupply of pharmacists with low real wages.

This trend is already apparent in some areas. Some third-party payers or health-care programs are seeking to drive down prescription prices by encouraging or requiring the use of large-volume, low-cost dispensing operations like mail-order pharmacies. Pharmacists are beginning to adapt to this changing environment, but many of their adaptations are only short-term solutions.

Market restructuring is, by contrast, a long-term effort. Pharmacists need help in considering the long-range consequences of adaptations in professional services: where those adaptations will lead, what additional adaptations might become necessary in the future environment, and whether the proposed adaptations will indeed be possible.

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Adaptation to the Environment. Reprofessionalization and specialization are two strategies that a practitioner or a profession can adopt to adapt to a changing environment. Birenbaum sees the reprofessionalization movement in pharmacy as "a reaction to developing the profession, evolving, division of labor and fining of health care services and pharmaceuticals.

Webster's dictionary defines specialization as "(1) to concentrate one's efforts in a special activity or field, (2) to fulfill a special capacity, esp. to change adaptively [the slate became highly specialized in the course of evolution]." Some of the variations on specialization in pharmacy practice closely correspond with the writings of Charles Darwin (1809-1882). The word specialization first appeared in print in 1863. It is defined as "(1) a making or becoming specialized (2) a structural adaptation of a body part to a particular function of an organism for a particular environment." The word specialization appeared in 1852. It is defined as "(1) designed or fitted for one particular purpose or occupation [-personnel] (2) characterized by a technical or highly specialized esp. highly differentiated esp. in a particular direction or for a particular end.

The difference between reprofessionalization and specialization is that the latter involves adaptation through some loss of general competence, while the former is adaptation of the general practice. Though specialization may be desirable and economically important, that the reorganizing health-care marketplace will include the development of the drug-therapy process. Communications among pharmacists, physicians, and patients must be improved and relationships altered. In order to maintain or enlarge the market, pharmacists should consider the need for a new general practice of pharmacy and pharmaceutical specialties that may make their contribution to patient care.

Although consensus is emerging, there is no completely detailed political answer to the question of what pharmacists should sell to patients. Indeed, opinion about what pharmacy should sell and how it should sell it is often the very basis for distinguishing between various segments of the profession. Pharmacy is therefore in a box of its own making. It cannot decide how to organize itself internally to market its services, because it cannot agree on what services to market, because it is organized internally around factions divided over the first question. The Joint Commission of Pharmacy Practitioners is developing a mission statement. One thinks them Godspeed. In the meantime, as pharmacy's organizations debate the future mission of the profession, practitioners are getting on with the job of adapting to a changing environment. The idea that pharmacy's organizations can dictate the mission of pharmacy is a delusion, or at best a half-truth. They can only try to go on the trends already going on in the pluralistic occupation called pharmacy.

The concepts and models used to describe adaptation by occupational segments, specialization and professionalization, are similar; many of the concepts and models used to describe specialization can be used to describe professionalization. Nonetheless, the concepts have significantly different outcomes. Pharmacy seems to be reprofessionalizing and forming specialties simultaneously. As we study pharmacy's various segments, we must distinguish which aspects represent adaptation for the entire profession (reprofessionalization) as well as adaptation for only a part of the profession (specialization). A reprofessionalization segment may call itself a specialty for political expediency, as discussed below. Likewise, a specialty movement, because of its enthusiasm or its desire for self-professionalization, may call itself the future of pharmacy. For this reason, it is important to see behind the names that the segments use to describe themselves.

The clinical pharmacy movement is a major example. If we accept that pharmacy's future mission is pharmaceutical care, as described above and elsewhere, then many elements of the clinical pharmacy movement specifically the "specialty" of pharmacotherapy, actually represent reprofessionalization rather than specialization. It is necessary to examine how two concepts can lead to contradictory conclusions.

Reprofessionalization. The processes through which an occupation or a segment moves toward professionalism for the first time are called professionalization. To describe professions dynamically, however, one needs a concept that encompasses professionalization movements within an occupation that already has been professionalized. This is the concept of re-professionalization. Reprofessionalization is not limited to only certain types of patients, problems, or services. It eventually transforms the entire occupation.

Wilensky has described professionalization for many occupations by proposing a series of steps that occupations pass through, in which the members of the profession develop.

1. Engage in the occupation full time.
2. Establish university-based standard curricula.
3. Form a professional association.
4. Define the core tasks of the profession "upward," the direction of increased professional status.
5. Delegate old tasks to others (aides).
7. Establish a formal code of ethics to eliminate the unlicensed and unqualified, to redress internal competition, and to emphasize the service ideal.
8. Birenbaum observes that reprofessionalization must be considered as a possibility for a licensed profession as well as the initial drive for licensure... Some segments of pharmacy are capable of assuming new responsibilities. Therefore, this effort to redefine the role of pharmacy in the health-care delivery system can be characterized as reprofessionalization.

The marketplace for pharmaceutical care will be influenced most by pharmacy's general practitioners. Pharmacy's ability to maintain its future markets will depend on a large extent on the ability of general practitioners to provide drug therapy to patients and to share with the physician, other pharmaceutical practitioners, and the public the knowledge and skills of a specialty. A collection of poorly organized specialty practices will not strengthen the market. Organized pharmacy (as a state licensure board) can determine the presence and practice behaviors of general practitioners but not of specialists. Pharmacy cannot decide how to organize its specialties until it has defined the general practice.

Specialization implies division of labor, dividing a major task into component subtasks performed by different people. A major hazard of specialization is that it may diffuse responsibility for outcomes. The practice of not being responsible ultimately makes a difficult professional responsibility on the part of the pharmacist (fluorine gives patient services directed at outcome—to improve the patient's quality of life. Each group can be managed by its own ineffective org.

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Organization of Special and General Practice. Only in the teaching hospital practice, the pharmacist is consulted directly by the physician and provides service directly to the physician. The pharmacist must be directly responsible to the patient, be or she shares this responsibility with the physician and provider and also has some direct responsibility to them.

In a third type of relationship, a teaching hospital practice, the pharmacist consults with the physician and provides service directly to the physician. The pharmacist's primary responsibility is with the patient as a consultant, his or her relationship with the patient is like that of a medical specialist. The pharmacist has the responsibility for coordinating the work of all the consultants whom he or she has called in on a case. This pattern is common in university teaching hospitals, physician-dominated health-care organizations, and some multidisciplinary group practices.

These two examples outline a continuum of pharmacist-patient relationships and pharmacist autonomy. At one end of the continuum, the primary practice relationship, the pharmacist has the most direct relationship with patients, the least responsibility to the patient, and the most professional authority and autonomy. At the other end, the pharmacist has an indirect relationship with the patient, is responsible primarily to the physician, and has the least professional authority. The contemporary pharmacy practice resembles the first two models.

If pharmacy is to remain an autonomous profession, it must retain its direct relationship with the patient, as in the first two models. These models require a strong general practitioner who is capable of obtaining, interpreting, and evaluating the patient and drug data needed to develop, monitor, and evaluate therapeutic plans. A description by Draper and Smith[15] of a primary-care physician is relevant to the general pharmacy practitioner as well: "They function as managers, advocates, educators, consultants, but also as nurses, and patients while also serving as coordinators of other professionals involved in primary care."

Pharmaceutical specialists may complement and enhance the work of the general practitioners. Examples of pharmaceutical specialists that would fit this organization are well product-oriented specialists (e.g., nuclear pharmacists), and organ-system specialists (e.g., cardiology pharmacotherapists, neurologic pharmacotherapists). Furthermore, pharmaceutical advice is needed to coordinate the pharmacist's advice with that of the other providers. Such specialists would depend on the physician for access to patients and might rapidly lose their identity as autonomous professionals, although they might increase their autonomy in clinical researchers in the university hospital environment. Over time, this specialty might emerge with clinical pharmacy as a specialty of medicine. Having lost direct access to its client base, which Krenzer saw as having been critical in the historical development of pharmacy, it might disappear as a separate profession.

Pharmaceutical Care as Autonomous General Practice. The pharmacist's lack of prescribing authority does not diminish the patient's need for a strong, professionally autonomous general practice of pharmacy. Clinical outcomes usually improve markedly when physicians and pharmacists work cooperatively, as demonstrated by published evaluative research. Furthermore, pharmaceutical advice may have greater force. The physician in any setting may understand its value and accept it willingly. In a hospital or clinic setting, the pharmacist can participate in the physician's care, by observing the patient, considering the pharmacist's advice especially carefully. Clinical pharmacy advice is, moreover, not always legal. Civil law may hold the pharmacist to a standard of care in which he or she cannot arbitrarily ignore the advice of a competent pharmacist. This is analogous to the legal authority of FDA approval of drug labeling.

The purview of the federal Food, Drug and Cosmetic Act specifically excludes the practice of medicine; nonetheless, if a patient were injured because a pharmacist prescribed a drug for an unapproved use or in an unapproved dosage, the burden of proving due care may be on the physician. A physician should, likewise, not attempt to minimize the pharmacist's advice. Indeed, pharmacists have emphasized what the law requires them to do and undermined what the law could allow or even facilitate, once they accepted responsibility to provide pharmaceutical care and organized their practices accordingly.

Pharmaceutical care, "the responsible provision of drug therapy," includes important decisions and actions both before and after a drug order is written. Without any change in legal prescribing authority, physicians and pharmacists can work cooperatively in drug prescribing and monitoring. Even if a pharmacist had no input into a particular prescribing decision, he or she should assess, implement, and monitor the pharmacotherapeutic plan. Pharmacists and physicians need not compete either for authority over one another or for patients, because they have distinct and complementary roles. Their relationship should be one of autonomous cooperation.

In summary, the pharmacist must accept responsibility in order to obtain authority and must have autonomy (and professional autonomy) to meet that responsibility. Professional autonomy and authority require a strong provider, whatever the name, that is capable of providing pharmaceutical care. The alternative is eventual professional subordination as a result of the pharmacist's inability to provide a valuable service directly to patients. The model for a strong, autonomous general practice combines patient-relationship elements that are most common in contemporary community practice with "clinical" practice elements that are most common in institutional practice. The concept of clinical pharmacy, or "pharmacotheaerapy," as it appears to be written only in the teaching hospital model. In the reorganized health-care market, if there were not strong general practice of pharmacy, the specialty of pharmacotherapists would eventually become a specialty of medicine.

Specialization and the Physician Surplus. There were 466,400 physicians in active practice in the United States in 1982, an increase of approximately 6% from 1965. The average population physician ratio declined from 840 in 1960 to 524 in 1983, with an average ratio in metropolitan areas of 471. A 1988 report[16] stated that "the physician who is coming in the United States is being offset by the physician who is coming in the United States. Moreover, the number of physicians who are not able to provide care for patients, because they have distinct and complementary roles. Their relationship should be one of autonomous cooperation.

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paid, comprehensive group practice arrangements favor the continued development of pharmaceutical care.\(^\text{2}\) Turner lists three mechanisms of medical domination: limited role or specific therapeutic method (e.g., pharmacists, dentists, chiropractors); a thoroughgoing association (e.g., nurses, midwives), and exclusion (e.g., clergy, chiropractors). Pharmacy can develop for many years within its "free market" without given the significance of medical therapy in medical care. It should be careful, however, not to be excluded from the market. It should retain direct access to patients. If pharmaceutical care develops as a specialty according to the physician consultant model described above, pharmacists will depend on physicians for access to patients and therefore become vulnerable to exclusion from the market. Again, we must consider that pharmacy's primary organizational problem is the development of a strong general practice.

**Possible Bases of Specialization.** Questions about how specialty practices should be organized should be taken up after general practice has been defined. Three possible bases for specialization are evident: professional (including specialized patients, problems, or functions), academic, and bureaucratic. Of these, professionally organized specialties may fit the market best in the short run and surely will suit patient needs best in the long run.

**Professional Basis of Specialization.** Maintaining skill at interpreting and applying knowledge for patients is a necessary prerequisite to a profession's ability to market itself. A practitioner should be committed to specific patients and operate within a service orientation. This emphasizes the uniqueness of the individual and the difficulties of applying generalizations to the individual. This argues that patterns of specialization should evolve slowly, in keeping with the needs of practice, not the customs of researchers or teachers.

Furthermore, this commitment implies a patient-oriented specialization that keeps patient service intact. It suggests that the strongest marketing strategy requires a strong general practice with specialties based on (1) branch of subject (e.g., infectious diseases, child health, mental health); (2) types of problems and organ systems (e.g., pharmacokinetics, infectious disease, nutrition, cardiac, dermatologic, immunologic, enteral, distribution, compounding, diagnostic imaging).

**Academic (Content) Specialization.** Professional service consists of the application of scientific knowledge for a patient. Because professional authority rests on scientific knowledge, it may be tempting to organize specialties on the basis of content; however, professional service consists of interpreting and applying scientific knowledge to ambiguous circumstances to solve patient problems. Turner\(^\text{2}\) summarizes the issue:

- The basis of professional knowledge is cognitive rationality, whereby the privileged status of the profession is grounded in a scientific discipline. However, this special and systematic body of knowledge also provides the basis for external intervention and social control of the profession itself. Where this knowledge can be codified and routinized, the profession becomes vulnerable to domination by knowledge producers. Professionals have a hermeneutic basis; that is, there has to be the devotion which provides the barrier against external regulatization through the routinization of its base in knowledge.

Furthermore, a profession must possess a research arm capable of regulatory significance. A pharmacist who has specialized his or her practice in ways that are especially well suited to a particular bureaucratic division of labor might ultimately discover that he or she lacked the breadth of skill needed to work outside of that organization. Some segments of hospital pharmacy appear to be at such risk.

**Organizational Issues in Specialization.**

A practitioner's desire to specialize is limited only by his or her ability and imagination. However, formal recognition as a specialist requires the cooperation of a formal professional group of some kind, be it the credential committee of a provider group, a professional membership association, or a certification board. Therefore, what properly begins as an individual decision may become an organizational decision.

Pharmacy's leaders may be crucially important in the development and maintenance of an effective market for pharmacists. Although they cannot control individuals and groups, they can be important in the formation and development of the profession. A pattern of specialization must first be developed and then applied to the application of knowledge in patient-centered contexts. For example, research suggests that what will be the relative importance to pharmacy's mission (or relative difficulty) of discovering, obtaining, organizing, and disseminating knowledge about therapeutics versus applying that knowledge on behalf of individual patients?

**Bureaucratic Specialization.** A pattern of specialization also can be based on the organization of the workplace. This pattern seems to be adaptive in the short run, since it is effective. It is equivalent to an adaptation to a microclimate or, even worse, adaptation to domestication. It results in depersonalization of a particularly insidious kind—conversion of the employed professional to proletarian status. In the generic metaphor, it is the production of professional livvist and workers. As Turner\(^\text{1}\) has noted, "The development of a bureaucratic organizational system produces proletarianization of condition of work and, in so far as professionals operate under these conditions, they will be progressively proletarianized." The concept of proletarianization has four elements: (1) extensive division of labor, (2) conditions of work, nature of workplace, and character of work, (3) the primary source of income and is set by marketplace instead of by negotiation between buyer and seller, and (4) workers have to bargain collectively in order to protect the work from transformation.\(^\text{2}\) Because medical professionals increasingly operate within bureaucratic settings, we can see the status of such occupations and the undermining of their professionalism.\(^\text{2}\)

A thorough discussion of the professionalization issues involves for pharmacists employed by bureaucracies is beyond the scope of this paper. One practical approach has been to create a pharmacist group who has specialized his or practice in that are especially well suited to a particular bureaucratic division of labor might ultimately discover that he or she lacked the breadth of skill needed to work outside of that organization. Some segments of hospital pharmacy appear to be at such risk.

**Facilitating Factors.**

Current organizations may be facilitative in that they cultivate a sense of common purpose that may be the key to professional success. Currently, the clinical pharmacy movement has been quantified in terms of its research activity. Production or possession of knowledge as an objective also suggests a content-oriented basis of specialization, i.e., one that follows research or educational patterns of specialization, whatever they may be.

A major disadvantage of this organization of specialization is that the organization of academic knowledge does not always fit the needs of patients, most of whose problems cut across such categories. Furthermore, a typical researcher or professor is committed to an abstraction ("knowledge"), rather than to patients, and oriented toward generalizations (theories, hypotheses, or patterns). In effect, the researcher-professor's goal is the collection and systematization of knowledge, which tends to deny or reduce the importance of interpretation.

Consequently, strategic planning for specialization must balance the relative importance of research and generation of new knowledge in therapeutics versus the application of knowledge in patient-centered contexts. For example, research suggests that what will be the relative importance to pharmacy's mission (or relative difficulty) of discovering, obtaining, organizing, and disseminating knowledge about therapeutics versus applying that knowledge on behalf of individual patients?

**Conclusion.**

A pattern of specialization also can be based on the organization of the workplace. This pattern seems to be adaptive in the short run, since it is effective. It is equivalent to an adaptation to a microclimate or, even worse, adaptation to domestication. It results in depersonalization of a particularly insidious kind—conversion of the employed professional to proletarian status. In the generic metaphor, it is the production of professional livvist and workers. As Turner\(^\text{1}\) has noted, "The development of a bureaucratic organizational system produces proletarianization of condition of work and, in so far as professionals operate under these conditions, they will be progressively proletarianized." The concept of proletarianization has four elements: (1) extensive division of labor, (2) conditions of work, nature of workplace, and character of work, (3) the primary source of income and is set by marketplace instead of by negotiation between buyer and seller, and (4) workers have to bargain collectively in order to protect the work from transformation.\(^\text{2}\) Because medical professionals increasingly operate within bureaucratic settings, we can see the status of such occupations and the undermining of their professionalism.\(^\text{2}\)

A thorough discussion of the professionalization issues involves for pharmacists employed by bureaucracies is beyond the scope of this paper. One practical approach has been to create a pharmacist group who has specialized his or practice in that are especially well suited to a particular bureaucratic division of labor might ultimately discover that he or she lacked the breadth of skill needed to work outside of that organization. Some segments of hospital pharmacy appear to be at such risk.

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pressed political frustration that finally led to their forming ACCP. This was in some ways a recapitula-
tion of ASHP's political history. As ASHP had been attacked by other members of the profession, so too were its members attacked by ACCP participants.

Shortly after the formation of ACCP, work began on a petition to the Board of Pharmaceutical Specialties (BPS) to declare clinical pharmacy (later retitled phar-
macotheraphy) a specialty practice. Evidently, the peti-
tion for specialty status was not laid down by the BPS, for the petition was granted.

A movement that seems to be reformulating according to patient, problem, or service, and whose ideology en-
compases the whole profession, is a reprofessionaliza-
tion movement. The family practice movement in medicine seems to be another example, and perhaps the clinical nurse practitioner is a third. These all ap-
ppear to be refinements of the general practice of pharmacy, medicine, and nursing. If pharmacy's fu-
ture depends on its ability to market pharmaceutical care directly to patients or providers, in relationships that approximate the primary practice and hospital/clinic practice models of Figure 1, there must be a general practice of pharmacy capable of providing drug therapy, designing, implementing, and monitoring therapeutic plans, and preventing, detecting, and resolving drug-related problems.

Calling clinical pharmacy a specialty practice sends confusing signals to pharmacists about the future of general practice. The view that the general practice of pharmacy consists primarily of dispensing may be accurate for the present, but it is absurd when one considers its adaptability to a changing health-care environment. As described above, pharmacy's ability to control its market may require that today's specialty of pharmacy become tomorrow's general practice, while today's general practice may become a specialty.

Why would a reprofessionalization movement dis-
guish itself as specialization? One possible explana-
tion is in the reduction of intraprofessional conflict. First, perhaps most important, specialization and representa-
tion in the different professional settings is achieved by competition and restructuring. Second, competition for specialties that are perceived to be reformulations of the general practice of pharmacy seems to be another example, and perhaps the case for granting specialty recognition do not seem to consider adaptation to the future. Two major changes should be considered in the specialty-recognition process. First, broad-based strategic planning should proceed as rapidly as possible, perhaps under the aegis of the Joint Commission of Pharmacy Practitioners. This planning should be creative and deliberative rather than the typical representation of the existing organi-
zation of pharmacy. Every effort should be made to understand minority as well as majority opinion from existing organizations. The planning process used by the Study Commission on Pharmacy (Mills Commission) may be a useful example for this activity. Sec-
ond, a way should be found to articulate the results of this planning work with the working of the BPS. The BPS should become responsible for considering spe-
cialties that will complement and strengthen that general practice. With this structure in place, phar-
macists can effectively move forward with the funda-
mental task of reprofessionalizing itself and market-
ing its new product.


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Stability of succinylcholine chloride injection

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Abstract: The stability of succinylcholine chloride injection prepared by a hospital pharmacy was studied under a wide variety of conditions.

Batches of succinylcholine chloride injection 10 mg/mL containing sodium chloride, methyl-4-hydroxybenzoate, hydrochloric acid, and water were prepared. Samples were tested for the effect of initial pH (3.0 and 4.2) and sterilization (steam treatment at 120 °C for 30 minutes and 121 °C for 20 minutes) on stability after three weeks; long-term stability under refrigeration (2°C, 4°C); and the effect of storage temperature (4-4°C, 20-26°C, 35°C, and 70°C) and light exposure at various intervals up to 12 months. Samples were analyzed by thin-layer chromatography (TLC) and high-performance liquid chromatography (HPLC).

Unlike heating at 121°C, heating at 100°C produced no significant loss of succinylcholine chloride, independent of the initial pH. Succinylcholine chloride was hydrolyzed only minimally over 23 months if the solution was stored at 4-6°C. A 10% loss of drug content occurred if solutions were kept at 20-29°C for five months, at 35°C for one month, or at 70°C for one day. Initial degradation was slowed if the solution was protected from light. The assessments by HPLC proved to be more sensitive than the TLC measurements.

Succinylcholine chloride injection sterilized at 100°C for 30 minutes can be stored for up to five months at room temperature if protected from light. The preparation is stable for at least two years under refrigeration.

Index terms: Chromatography, liquid; Chromatography, thin layer; Hydrogen ion concentration; Irritations; Photographs; Skeletal muscle relaxants; Stability; Sterilization; Storage; Succinylcholine chloride; Temperature.

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Succinylcholine chloride, a short-acting skeletal muscle relaxant with depolarizing properties, was introduced into clinical practice in the early 1950s. The compound itself and solutions for i.v. use are standardized in various pharmacopoeias. Several preparations marketed by various manufacturers differ in concentrations or volumes. To meet the demand for an appropriate unit dose, as well as for economic reasons, we decided to produce our own formulation. Our hospital pharmacy is equipped with a manufacturing unit that is licensed by the Swiss national authority to produce injectable preparations.

The chemical stability and pharmacologic action of succinylcholine chloride are limited by hydrolysis of the compound. The stepwise degradation first results in the formation of an inactive monooester (succinylmonocholine), which undergoes much slower hydrolysis to yield choline and succinic acid. The rate of hydrolysis of succinylcholine chloride is increased by increasing the temperature and pH. This is reflected in the instructions of manufacturers: Succinylcholine chloride should be stored in a refrigerator, is incompatible with alkaline drugs like sodium salts of barbiturates, and has limited stability in acidic solutions. From the user’s point of view, these specified storage conditions hamper the handling and administration of succinylcholine chloride injection because of the lack of ready-to-use solutions that can be stored at ambient temperatures in resuscitation sets for ambulance, intensive-care units, and ambulance stations. In daily routine use in anesthesia, the recommendation for refrigeration is often neglected. Therefore, questions arise about the handling and shelf life of solutions of succinylcholine chloride injection that have been stored at ambient temperature; little relevant information is available from the user’s point of view.