26

The Role of the Hospital Pharmacist in Educational and Training Programs

Because of the pharmacist's scope of activity, his usually high professional standards, his academic accomplishments, and his willingness to assume a teaching role, hospitals have been catapulted into a wide variety of teaching programs. These include undergraduate and graduate programs in medicine, teaching student nurses, licensed practical nurse programs, and the training of technologists, physiotherapists, dietitians, administrative residents, social service workers and pharmacists.

Being an integral part of this academic setting, the hospital pharmacist is usually involved in one or more of these programs, It has been reported[1] that the major contribution made by the pharmacist to the hospital's teaching program is his role in the education of student nurses. The same publication further states that hospital pharmacists also take active roles in the training of graduate nurses, undergraduate pharmacy students as well as graduate students in hospital pharmacy programs.

As a matter of fact, the hospital pharmacist, because of his education, training and experience, does partake in both "internal" and "external" teaching ventures. This novel classification of the hospital pharmacist's teaching activity requires further elaboration.

Internal teaching programs are considered to be those which involve the training of student nurses; the conducting of seminars in therapeutics for graduate nurses, house staff members and senior medical staff; and assisting in the education of undergraduate pharmacy students, graduate pharmacy students and residents in hospital administration.

External teaching programs are considered to be those in which the hospital pharmacist is the guest lecturer or speaker, or possibly the sole instructor in charge of a specific course in a school or college. Examples of external type programs are courses in colleges of pharmacy, refresher courses under the auspices of a college of pharmacy, seminars, institutes or conventions which are sponsored by professional associations.

PROFESSIONAL EDUCATION OF THE HOSPITAL PHARMACIST

In order that the hospital pharmacist effectively become engaged in the teaching and training of other personnel, he must himself be qualified by virtue of degrees as well as by experience.

Francke *et al.*[2] have shown that the majority of the chief pharmacists practicing today hold either a Graduate in Pharmacy (Ph.G.), Pharmaceutical Chemist (Ph.C.), or Bachelor of Science degree. A small number of practitioners also hold Master of Science, Doctor of Pharmacy, Doctor of Science, or Doctor of Philosophy degrees.

Because of the efforts of the colleges of pharmacy to graduate competent practitioners, it should not be too long before the trend will be toward the opposite end of the spectrum, namely, that the majority of the chief pharmacists will hold graduate degrees.

In the meantime, there does exist a shortage of hospital pharmacy practitioners and an attempt must be made to satisfy the need with what is available. In fact, the present graduate of the 5-year curriculum, although holding only a Bachelor of Science degree, is reasonably well qualified to assume a certain amount of teaching responsibility particularly in those non-metropolitan, non-university affiliated community institutions. It is safe to say that, in these hospitals, relatively few members of the staff, with the exception of the medical and dental staff, hold graduate degrees.

The modern 5-year program provides the pharmacist with a broad training in the biological, chemical, and pharmaceutical sciences. In addition an opportunity is provided for the acquisition of knowledge in the areas of statistics, management, marketing, and higher mathematics.

Those practitioners who presently hold the Master of Science degree (the present graduate degree in hospital pharmacy) have completed, in addition to the courses referred to in a sample 5-year summary,[3] at least 30 credit hours of graduate work in courses in hospital pharmacy, physical chemistry and advance pharmacology. In addition, the curriculum requires a minimum of 2,000 clock hours of practice in hospitals to meet the *Accreditation Standard for Pharmacy Residency in a Hospital* of the American Society of Hospital Pharmacists.[14]

ASHP ACCREDITATION STANDARD FOR PHARMACY RESIDENCY IN A HOSPITAL[a]
(With Guide to Interpretation)

Preamble

Definitions. A pharmacy residency in a hospital is defined as a postgraduate program of organized training that meets the requirements set forth and approved by the American Society of Hospital Pharmacists in this Standard.

The Accreditation Standard for Pharmacy Residency in a Hospital is the basic criterion used in evaluation of pharmacy residency training programs in hospitals applying for accreditation by the American Society of Hospital Pharmacists. The interpretative narrative following each element of the Standard is intended to illustrate how the Standard will be interpreted by the accreditation site surveyors and the Society's Commission on Credentialing in evaluation of residency programs. The companion document to the Standard, the Statement on Accreditation of Pharmacy Residencies in Hospitals,[1] sets forth the policies governing the accreditation program and describes the procedures to be followed in applying for accreditation of pharmacy residency programs.

Objectives of Pharmacy Residency Training in Hospitals. Pharmacy residency programs in hospitals should be organized and conducted in such a manner as to develop special skills and competency in hospital pharmacy far beyond the legal requirements for licensure. A *residency* in pharmacy is distinguished from an *internship* in pharmacy in that the latter term describes the type of training program meeting the requirements of boards of pharmacy for licensure. Residency programs also meet requirements for licensure, but internship programs do not meet requirements for residency programs as defined by this Standard. An internship is essentially an on-the-job training program given a recent graduate to develop him into a legally competent practitioner. A residency program on the other hand, should seek to provide an already legally competent practitioner with expert skills in institutional pharmacy practice.

The objectives of internships are to provide experience in basic practice situations and to develop the ability to coordinate the various functions and divisions within the hospital pharmacy so that a meaningful service can be provided. The objectives of residency training programs, however, are to provide experience in learning how to coordinate the total pharmacy service with the needs of the total insti-

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tution and to provide a broad scope of in-depth experiences leading to an advanced level of knowledge and fostering the ability to conceptualize new and improved pharmacy services.

Application of the Standard. A fundamental principle of this Standard is that the residency program is structured to insure the achievement of certain predetermined competencies. While the Standard requires a minimum of 2000 hours training time for the residency, there is no set way in which this time is to be allotted. Standard V, below, specifies eight areas in which the resident's competence must be developed. Obviously, the amount of time required to accomplish a minimum level of competence in each of these areas will vary from one resident to another. The time remaining in the program *after* the achievement of these basic competencies may be distributed evenly over administrative and professional practice areas *or* may be applied to developing special competence in either administration or professional practice (e.g., clinical practice). Experience has shown that the minimum requirement of 2000 hours must generally be exceeded in order to accomplish the basic intent of the Standard plus provide for special training in an area of emphasis.

The Accreditation Standard for Pharmacy Residency in a Hospital applies only to the nonacademic aspects of residency training programs, that is, those aspects for which no academic credit is ordinarily given. The American Society of Hospital Pharmacists assumes no authority for evaluation of the academic components of residency training programs.

Standard I—Qualification of the Training Hospital

A. The hospital shall be accredited by the Joint Commission on Accreditation of Hospitals or the American Osteopathic Association.

B. Pharmacy residencies shall be conducted only in those hospitals in which the educational benefits to the resident are considered of paramount importance in relation to the service benefits which the hospital may obtain from the resident.

Interpretation

I-A. Only those hospitals whose governing bodies, personnel, and professional staffs have collaborated to seek excellence, which have accepted outside appraisal, and which have demonstrated substantial conformance with professionally developed and nationally applied criteria, should serve as training facilities for pharmacy residents. The Joint Commission on Accreditation of Hospital's Standards for Pharmaceutical Services,[2] or the Accreditation Requirements of the American Osteopathic Association,[3] will serve as the basic guides in evaluating the qualifications of the training hospital.

I-B. A residency training program should provide experience in the technological aspects of institutional pharmacy practice, in all aspects of total drug-use control in the hospital, and in the clinical application of drugs in the treatment of patients. Participation by the resident in the activities of the de-

partment lends understanding, confidence, and purpose to his academically attained professional background. A significant portion of this participation must, of necessity, involve on-the-job training since only through actual performance of some activities can the resident be expected to gain an appreciation and an understanding of the knowledge and skills required to carry out these activities. Through actual experience the resident learns how these activities interrelate and are best coordinated with other activities and functions throughout the department and the institution. The greater emphasis in residency training, however, should be concentrated upon developing in the resident the ability to coordinate activities and conceptualize, integrate and transform accumulated experiences and knowledge into improved pharmacy services.

Standard II—Qualifications of the Pharmacy Service

A. The pharmacy department shall be organized in accordance with the principles of good management under the direction of a legally qualified pharmacist and with sufficient appropriate personnel to carry out a broad scope of pharmacy services within the hospital and for the patient, and shall comply (where applicable) with all federal, state and local laws, codes, statutes and regulations.

B. There shall be at least one full-time, legally qualified pharmacist for each resident.

C. The pharmacy department shall have adequate facilities to carry out a broad scope of services including but not limited to the following areas of professional and administrative activity:

1. Departmental administration;
2. Ambulatory patient services;
3. Inpatient drug distribution and control;
4. Technology and quality control activities;
5. Clinical services; and
6. Drug information services.

It is necessary that a regular and continuing experience be provided in these activities and it is not sufficient to create "artificial situations" for residents to obtain this experience.

If any of the designated activities or divisions of pharmaceutical practice are not available in the training hospital, arrangements shall be made with a hospital or facility acceptable to the American Society of Hospital Pharmacists to provide the necessary experience.

D. The pharmacy director shall have the responsibility and the authority to carry out a broad scope of professional service.

E. The pharmacy director, or his designee, shall be a member of and actively participate in the pharmacy and therapeutics committee of the medical staff.

Interpretation

II-A. The pharmacy service should comply with the requirements of the Minimum Standard for Pharmacies in Institutions approved by the American Society of Hospital Pharmacists.

Although the organizational plans of hospitals may vary, depending upon the type, size and ownership of the institution, the pharmacy service should have departmental status and the pharmacy director should be classified as a department head. He should be responsible to administrative authority of the hospital for developing, supervising and coordinating all activities of the de-

partment and should regularly participate in the appropriate administrative meetings in the hospital.

There should be an organizational chart for the pharmacy illustrating the chain of authority and responsibility for departmental personnel and depicting what functions the pharmacy presumes to carry out. Departmental objectives should be clearly defined in a written statement and all pharmacy staff members should be familiar with the intent and substance of the objectives. As a department head in the hospital, the pharmacy director is responsible for determining departmental objectives and these should be in accord with the established objectives of the hospital. They will become criteria for evaluating progress on departmental projects.

Written policies to govern the procedures and conduct of the pharmacy should exist and these should be kept current. Adequate measures to implement promulgated policies should be established and all departmental staff should have a clear understanding of them and comply with them as applicable. There should be written procedures for all routine transactions, functions and operations in the department, and these should be kept current. Orientation of all new pharmacy personnel should include a review of the policy and procedure manual, its scope and use.

All personnel in the department should be thoroughly familiar with the procedures applicable to their respective areas of responsibility and should comply with them.

The professional personnel complement should be adequate to carry out the stated objectives for the department and to provide legally competent pharmacy service at all times. The pharmacy director, his assistant(s) and staff pharmacists should be graduates of colleges of pharmacy accredited by the American Council on Pharmaceutical Education and currently licensed to practice in one of the jurisdictions of the United States. Professional staff members should have had experience in hospital pharmacy and supervisory pharmacists should, preferably, have completed a pharmacy residency in a hospital accredited by the American Society of Hospital Pharmacists. Professional staff members should demonstrate their interest in maintaining professional competency by attendance at continuing education programs, reading the professional literature, and participation in their local, state and national professional organizations

The supportive staff complement should be adequate to support the professional staff. The number of supportive staff members should ordinarily equal or exceed the number of qualified professional staff. The basic criterion for determining the required number of supportive staff members is whether or not the supportive staff complement is adequate to relieve pharmacist staff members from performing a significant number of responsibilities and functions which can be appropriately assigned to paraprofessional personnel.

Job responsibilities for all professional and supportive personnel should be clearly delineated in current job descriptions. Each staff member should be thoroughly familiar with the job description for his respective position and, preferably, will have actively participated in writing it.

II-B. The ratio of one full-time legally qualified pharmacist for each resident is prescribed to assure that the number of professional staff members is adequate to provide the requisite amount of supervisory and tutorial time for effective training of the resident(s) and to obviate the exploitation of trainees.

II-C. A broad scope of service is essential to a well-rounded residency program. The ability of the institution to provide an appropriate scope of experiences for the resident is determined in large part by the organizational adequacy of the hospital and the pharmacy department to provide well-operated,

patient-oriented service programs in each of the specified areas of professional practice. It is not acceptable to synthesize training experience to substitute for nonexistent service programs. Neither is it acceptable to substitute academic college courses for experience in service programs in the hospital. Required experience may be obtained in another hospital, but a written protocol for this training experience and a survey of the facility must be approved by the American Society of Hospital Pharmacists.

The following service functions are some of the more important recommended minimal requirements for any hospital offering a pharmacy residency training program meeting the requirements of the Accreditation Standard:

Departmental Administration. The functions performed in administration of the pharmacy department are basically the same as those of any other major hospital department and include directing, organizing, staffing, planning, budgeting, controlling, coordinating, supervising and reporting. There are administrative aspects associated with all departmental functions, thus it is difficult to consider departmental administration as an isolated group of functions. Of primary importance is the existence of and compliance with formalized policies and procedures for administrative activities such as purchasing and inventory control, cost accounting, budgeting, personnel selection and management, policy and procedures development, handling correspondence, committee participation, indexing and filing, control of regulated drugs and supplies, interdepartmental relationships, periodic reporting to administration and related activities.

The official ASHP documents, Minimum Standard for Pharmacies in Institutions,[4] and Statement on Hospital Drug Control Systems,[5] will serve as guides in evaluation of administrative service activities.

Ambulatory Patient Services. The functions of the outpatient pharmacy including dispensing medications to outpatients and employees and counseling patients on the safe and appropriate use of the medication. An adequate data base should be maintained on all outpatients. Adequate controls should exist to permit supportive personnel to handle the mechanics of filling prescription orders, including selecting the drugs, typing labels, retrieving and filing patient records, and other appropriate activities. Only pharmacists, however, should issue medications to patients and provide consultation. A counseling station, which provides privacy and protects the patient's dignity, should be available.

The pharmacist should be guided by the ASHP Statement on Pharmacist-conducted Patient Counseling[6] in providing service to outpatients.

Inpatient Drug Distribution and Control. An adequate level of drug-use control is the prime consideration in inpatient drug distribution. For this reason, a unit dose drug distribution system must be operational in any hospital desiring to maintain an accredited pharmacy residency program. The floor stock system or any other system which does not provide for product identity up to the point of administration, must be considered unacceptable.

Associated with the drug distribution system employed must be appropriate provision for pharmacists' review of physicians' medication orders before administration of the drugs. This implies also that the pharmacy should maintain a drug profile on each patient and establish policy and procedures for screening for potential drug related problems.

The drug distribution system must provide for pharmacy for pharmacy preparation of all parental admixtures on an around-the-clock basis.

Twenty-four hour staffing for the pharmacy department is rapidly becoming

standard operating procedure and is especially needed in hospitals where the unit dose drug distribution system is in operation.

In evaluation of the inpatient drug distribution service function, the ASHP Statement on Hospital Drug Control Systems[5] will be used.

Technology and Quality Control. The primary purposes of these service activities are:

1. To provide a product, special dosage form, or package size or type not commercially available (this includes parenteral admixtures, total parenteral nutrition fluids, and other sterile dosage forms);
2. To control the quality of all drugs manufactured, extemporaneously compounded, packaged, repackaged or labeled within the pharmacy department;
3. To monitor the precision and accuracy of all staff members involved in product manipulation (e.g., aseptic techniques);
4. To control the storage and distribution of investigational use drugs;
5. To implement suitable systems for the storage, handling and distribution of controlled substances, ethyl alcohol, and other dangerous substances; and
6. To comparatively evaluate the pharmaceutical quality of drug products under consideration for purchase by the hospital.

The pharmacy must have adequate personnel, space and facilities to carry out these activities. When facilities are not immediately available, arrangements may be made with other departments in the hospital in which suitable facilities are found (examples: use of autoclaves in central supply for terminal sterilization of irrigating fluids; use of culture media and incubators in microbiology for sterility tests).

Clinical Services. Being a health care profession, pharmacy is inherently clinical. The use of the term *clinical pharmacy,* however, has served a useful purpose in recent years—it has reminded us that the focal point of the practice of pharmacy is the control of the interaction of patients and drugs, not just the delivery of a drug product. Although most, if not all, of the service functions of the hospital pharmacy department have clinical components associated with them, clinical services are taken to be, for the purpose of this Standard, those functions identified in the ASHP Statement on Clinical Functions in Institutional Pharmacy Practice.[7] These are:

1. Preparation of patient medication histories entered in patients' permanent medical records and/or data bases.
2. Monitoring drug therapy including routine analysis of patients' drug therapy, medical problems, laboratory data, and special procedures, as well as correlating these analyses with direct patient observation and communicating these analyses with other clinicians responsible for the patients' care.
3. Patient education and counseling.
4. Participation in management of medical emergencies, e.g., cardiopulmonary resuscitation and drug overdosage.
5. Provision of written consultations in such areas as total parenteral nutrition, intravenous therapy, clinical pharmacokinetics, selection of drug therapy, and determination of therapeutic endpoints.
6. Management of patients with chronic diseases such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease, arthritis and cancer, in cooperation with the medical staff.

7. Initiation of and participation in clinical drug investigations in collaboration with appropriate members of the institution's medical staff.
8. Detection and reporting of adverse drug reactions.
9. Control of medication administration and drug distribution in the patient care area.
10. Conducting drug utilization reviews and participation in patient care audits.
11. Participation in the education of medical, pharmacy and nursing personnel in the patient care areas.

Although it is not expected that every pharmacy department in which a residency program is conducted will necessarily be involved in each of these activities, there must be a comprehensive program of clinical services, sufficient to meet the hospital's specific needs. In evaluating clinical service activities the Society considers only those services performed by hospital pharmacy department staff members or clinical facility members who are accountable to the director of pharmacy, and only those services which are continuously performed even in the absence of students and residents.

The provision of clinical services should be a stated objective of the pharmacy department and should be addressed in the departmental policies and procedures, in position descriptions for the professional staff, and in the pharmacy director's management reports to hospital administration. Further, the director should have some system for evaluating the quality of clinical services provided by his staff.

Drug Information Services. The term drug information service encompasses those activities involved with accumulating, organizing, retrieving and evaluating drug information. By broader definition, the ability to provide close and continuing support to the information user, thereby increasing his potential for efficiency and effectiveness, is also implied. Such a service must offer critical analyses of information of drugs so that clinicians have available essential information necessary to reach informed and intelligent conclusions concerning a particular problem in drug therapy. Further, a responsibility for active participation in drug utilization review and control is implied.

The functions involved in a drug information service are (1) establishing and maintaining a system for retrieving information from drug literature; (2) answering requests for comprehensive drug information compilations or bibliographies for inservice education programs, poison control in information centers, clinical drug investigations, pharmacy research projects and other pharmacy functions; (3) producing and distributing periodic compilations such as bulletins for physicians, nurses and pharmacists; (4) providing informational support to the hospital's Pharmacy and Therapeutics Committee; and (5) evaluating the detailing activities by drug vendors.

The drug information function interrelates with the teaching function by providing the content for teaching programs and with the other pharmacy functions by providing bibliographies, literature searches and background papers.

Where shared drug information services on a regional or city-wide basis are available, the required facilities and resources within a given hospital may be modified considerably, as long as the ability of the pharmacy to respond to drug information requests is not seriously impaired.

The philosophy and basic concepts put forth in the ASHP document, The Hospital Pharmacist and Drug Information Services,[6] will serve as guides in evaluating the drug information service.

II-D. As director of the residency program, the pharmacy director must have a wide latitude of freedom to coordinate and integrate the service and training functions, both intradepartmentally and interdepartmentally. This is only possible if he has total responsibility and authority as a department head to manage the department and coordinate its services and functions with the other departments in the hospital.

II-E. The ASHP Statement on the Pharmacy and Therapeutics Committee[9] states that the pharmacist (pharmacy director) is generally designated secretary of this committee. As the one individual ultimately responsible for total drug-use control in the hospital, as manager of all drug-related resources in the institution, and as the administrative head of the department best qualified to provide drug information and consultation as required, the pharmacy director logically earns his roles as a member of, and secretary to, the pharmacy and therapeutics committee.

The pharmacy director has the option of designating another pharmacist on his staff to represent him as a member of, and secretary to, the pharmacy and therapeutics committee. This designee is usually a pharmacist with special training or qualifications in the area of drug information and clinical practice.

Standard III—Qualifications of the Residency Director

A. The director of the hospital pharmacy shall be the overall director of the residency training program and shall be subject to similar general administrative control and guidance employed by the hospital for medical, dental, dietetic and other similar training programs.

B. The residency director shall have completed a pharmacy residency in a hospital accredited by the American Society of Hospital Pharmacists and have had two years of administrative experience in a hospital pharmacy, or have had at least five years experience in a pharmacy meeting the requirements of the Minimum Standard for Pharmacies in Institutions, a significant part of which experience should have been of an administrative nature.

C. The residency director shall have demonstrated superior capabilities in the operation of a pharmacy service and made significant contributions to the development or improvement of hospital pharmacy practice.

D. The residency director shall be an active member of the American Society of Hospital Pharmacists and the state affiliated chapter of the Society. All other pharmacists on the staff should also hold active membership in these organizations.

E. The residency director shall have considerable latitude in delegating preceptorial responsibilities for the residency program to others on his staff. Each individual designated as a preceptor must have demonstrated outstanding strengths in one or more areas of pharmacy practice. The residency director, however, is ultimately accountable for the overall quality of the residency training program.

Interpretation

III-A. Pharmacy residency training programs conforming to the Accreditation Standard for Pharmacy Residency in a Hospital are designed to train institutional pharmacy practitioners who are competent to provide a wide range of professional services and to provide administrative support and direction to others. The only appropriate director of such a program, therefore, is the director of the pharmacy department in which the residency is based. It is he who sets the tone of the program, and he does so by the personal philosophy

he professes, by what he stands for, by the contributions he makes to his profession, and by his sense of values.

Since pharmacy residency programs conforming to the Accreditation Standard are hospital-based programs (as opposed to programs academically based in a college of pharmacy), they are subject to administrative control by the hospital.

III-B. Administrative experience is interpreted to mean experience as a department head (pharmacy director), or as an assistant department head with responsibilities largely commensurate with those of the pharmacy director. Experience as supervisor of a professional service section or division (e.g., parenteral admixture service, inpatient drug distribution service) is not acceptable as administrative experience for purposes of meeting this requirement.

In place of having completed an accredited an accredited pharmacy residency, five years of hospital pharmacy experience is required, three years of which must meet the definition of acceptable administrative experience given above.

III-C. Besides possessing the attributes of a residency director stated in the interpretation for section III-A, and in addition to having demonstrated his administrative capabilities as interpreted in section III-B, the residency director must also have demonstrated professional competence through publications, attendance at and participation in continuing education programs, and involvement in interprofessional programs in the hospital.

III-D. As a professional person, the residency director has an obligation to his profession, as well as to himself, to support his professional organizations. As director of the residency program he has a special opportunity to set an example for the resident through membership in, and active leadership participation in, professional organizations at all levels.

Standard IV—Qualifications and Selection of the Applicant

A. The applicant should be a graduate of a school of pharmacy accredited by the American Council on Pharmaceutical Education.

B. The applicant should be recommended by his college faculty and/or previous employers.

C. The resident should be a member of the American Society of Hospital Pharmacists.

D. Final approval of the qualifications of the applicant and his acceptance shall be the responsibility of the residency director.

Interpretation

IV-A. It is permissible to admit foreign graduates of schools not accredited by the American Council on Pharmaceutical Education to accredited residency programs, if other qualified residents are concurrently in training.

IV-B. It is advisable also to conduct a personal interview with each qualified applicant before making final decisions.

IV-C. As a professional person, the resident has an obligation to his profession and himself to support his professional organizations. Membership and active participation in professional organizations not only demonstrate a favorable attitude toward his profession, but are most effective in broadening his professional horizons by fostering a better understanding of the role of the profession in society and the profession's obligations to the public it serves.

IV-D. Since residents become, in effect, members of the pharmacy department's staff, the director of the pharmacy department must have authority to

accept or reject any applicant. To do otherwise is to usurp his authority as a department head.

Standard V—Residency Training Program

A. Objectives for the residency program shall be in writing and shall be provided to each resident at the beginning of his program. The objectives shall relate both to the administrative and professional practice skills required in contemporary good practice and shall describe the terminal competencies to be striven for in the residency program. Objectives for training in each of the following areas shall be included:

1. Departmental administration;
2. Ambulatory patient services;
3. Inpatient drug distribution and control;
4. Technology and quality control activities;
5. Clinical services;
6. Drug information services;
7. Collateral and interdepartmental activities; and
8. Continuing education.

B. Each resident's activities shall be scheduled in advance and shall be planned to make possible the attainment of the predetermined objectives. The training schedule shall consist of a minimum of 2000 hours of training (contact) time, extending over a period of 50 weeks or longer.

C. Each resident shall maintain a record of his training activities which clearly delineates the scope and period of training. The residency director shall keep such records on file for review by the Society's accreditation survey team.

D. Provision shall be made for formalized and regularly scheduled evaluation of the resident's achievement in terms of the objectives previously established.

Interpretation

V-A. The specific training activities and experiences in which the resident will participate under each of the eight training areas listed are subject to considerable variation because of the difference existing between hospitals, between training programs, between residency directors and between residents. Furthermore, there are no clear lines of distinction between the eight major training areas in regard to the discrete activities which each encompasses. For the purpose of this Accreditation Standard, however, each of these areas is taken to include the specific training activities outlined below. The residency director should use these lists of activities as guidelines in developing training objectives for his program. The objectives should specify the attitudes, skills and knowledge the resident should be expected to gain from each activity. These objectives then serve as guides for the residency director and other persons responsible for the resident's training in developing and supervising training experiences and in evaluating achievement.

Since the Accreditation Standard stresses outcomes more than the process by which those outcomes are achieved, the residency director should make every effort to assess the entering resident's baseline knowledge and skills in each of the eight major areas of training, thereby identifying the resident's proper entry level in each area and avoiding unnecessary repetition of training which he has previously received.

Once the residency director has satisfied himself that a resident has achieved a predetermined minimum level of competence in each of these areas, he may

arrange for that resident to concentrate, during the time remaining in his program, on either administrative affairs or professional practice. This does not provide, however, for a major emphasis in one narrow or specialized practice area. If an area of emphasis is to be pursued, an understanding on this point should be agreed upon in advance by the residency director and the resident, and the predetermined objectives for training should identify the additional competencies to be achieved in the area of emphasis, above and beyond that expected of another resident whose program does not concentrate on that area.

Departmental Administration. The objectives for the resident's training in departmental administration are to orient him, not only to the functions and concepts of depaprtmental management, but also to the department head's philosophy of total pharmacy service and to increase his knowledge, refine his skills, mold his attitudes, and develop his problem-solving abilities relating to personnel management, organizational management, communications and management of all drug-related resources. He must learn to make judgments, set priorities, and assume responsibilities. The director of pharmacy department must serve as the principal preceptor in this area of training.

The resident should receive orientation, instruction and experience leading to competence in, but not restricted to, the following specific areas and activities.

1. Organization of hospital and pharmacy department;
2. Administrative policies;
3. Professional policies;
4. Development and maintenance of policy and procedure manual;
5. Interdepartmental administrative activities;
6. Hospital staff meetings and administrative conferences;
7. Hospital committee (pharmacy and therapeutics committee, infections committee, etc.);
8. Departmental staff meeting;
9. Intra- and interdepartmental communications;
10. Local, state, and federal laws and regulations;
11. Personnel management;
12. Drug procurement and inventory control;
13. Accounting and bookkeeping procedures;
14. Departmental budgeting;
15. Contract services to subscribers;
16. Department records and reports;
17. Office procedures (filing, handling correspondence, etc.);
18. Professional organization participation;
19. Interdepartmental orientations;
20. Safety practices.
21. Space and facilities planning; and
22. Departmental quality assurance programs.

Ambulatory Patient Services. The objectives for training in this service area are to develop the resident's clinical skills in primary health care and maintenance care of patients. The objectives also include in-depth orientation of the resident in the functions of education, service and research associated with ambulatory patient services. Of least importance to the resident's needs are the mechanics of outpatient dispensing, and caution should be taken to assure that the resident's time spent in this activity is meaningful.

The resident should receive orientation, instruction and experience leading to competence in, but not restricted to, the following activities and areas.

1. Providing drug counseling and education to patients;
2. Providing drug information to the professional staffs;
3. Maintaining drug profile systems;
4. Taking medication histories;
5. Providing drug and toxicology information;
6. Providing emergency services;
7. Outpatient dispensing procedures;
8. Outpatient prescription pricing;
9. Extemporaneous compounding;
10. Outpatient pharmacy policies;
11. Local, state and federal laws and regulations;
12. Processing public assistance, Medicaid and other prepaid services; and
13. Records, reports, and budgets.

Inpatient Drug Distribution and Control. The objectives for the resident's training in inpatient drug distribution and control are to develop his abilities in all aspects of drug-use control in the hospital and to develop his philosophy about the responsibilities of the hospital pharmacists in providing optimum pharmaceutical care for patients.

The resident should receive orientation, instruction and experience leading to competence in, but not restricted to, the following areas and activities:

1. Inpatient pharmacy service policies and procedures;
2. Standards, laws and regulations;
3. Drug product selection and the formulary system;
4. Physicians' orders and their transmission;
5. Containers and labeling;
6. Drug profiles and patient records;
7. PRN, Stat, and emergency stocks;
8. Logistics of drug distribution;
9. Medication administration;
10. Drug samples;
11. "Bring-in" medications;
12. Investigational drugs;
13. "After-hours" service;
14. Adverse drug reaction reporting;
15. Medication error reporting;
16. Hospital committees concerned with drug control;
17. Electronic data processing applications;
18. Drug recalls;
19. Patient charges and drug pricing;
20. Parenteral admixture and total parenteral nutrition services;
21. Space and facilities planning;
22. Discharge medications handling; and
23. Patient self-medication programs.

Technology and Quality Control Activities. The major objectives for the resident's training in this area are to enable him to procure or produce good quality pharmaceutical products for use in the hospital to protect the quality of these products until they are consumed, and to protect against the patient's receiving a mislabeled, misbranded or adulterated drug. This area of training, then, will develop or reinforce the resident's understanding of the physical, chemical and compounding principles which influence dosage forms and govern their selection; factors affecting drug product stability; and systems used to minimize compounding, packaging and labeling errors.

Note: The pharmacist's undergraduate training in such areas as physical pharmacy, technology, and biopharmaceutics may go a long way toward achieving those objectives stated above, and it may not be necessary to dwell on these activities to achieve the desired competencies. The residency director should not overlook the need, however, to assess the resident's latent knowledge and skills in these areas and to schedule training activities as appropriate to complement the resident's baseline abilities. The director should give special attention to the resident's ability to compound prescriptions for intravenous administration and other dosage forms requiring aseptic technique.

The resident should receive orientation, instruction and experience leading to competence in, but not limited to, the following activities and areas;

1. Product formulation principles and theory;
2. Product procurement specifications;
3. Good manufacturing practices;
4. Use and operation of compounding, packaging and labeling equipment;
5. Packaging and labeling;
6. Storage and stability considerations;
7. Quality control procedures;
8. Records and reports;

and in the following activities and areas relating specifically to sterile products:

9. Principles and methods of sterilization;
10. Aseptic techniques and procedures;
11. Use and limitations of the laminar air flow hood;
12. Formulation, production and control of intravenous and irrigating fluids;
13. Preparation and control of parenteral admixture and total parenteral nutrition fluids;
14. Preparation of sterile ophthalmic products;
15. Distilled water production and pyrogen testing and control;
16. Storage problems for sterile products;
17. Tonicity and *p*H adjustments and control;
18. Commercial i.v. administration systems;
19. Sterile syringe packaging;
20. Reconstitution of injectables;
21. Sterility testing;
22. Records and reports;
23. Standards, laws and regulations; and
24. Space, equipment and facilities planning.

Clinical Services. The objectives for training in clinical services are to strengthen and reinforce the resident's clinical and therapeutic knowledge and to develop his abilities in the clinical application of drugs in patient care. Central to this area of the resident's training is the evaluation of drug therapy problems in relation to the special needs of individual patients.

The resident should receive orientation, instruction and experience leading to competence in, but not limited to, the following areas and activities:

1. Patient medication histories;
2. Monitoring drug therapy;
3. Patient counseling and education;
4. Participation in management of medical emergencies;
5. Drug therapy consultations;
6. Participation in management of the chronically ill;
7. Clinical research;

8. Adverse drug reaction reporting;
9. Routine consultation with nursing service personnel on drug use and administration;*
10. Drug utilization review (DUR) and patient care audit activities; and
11. Interdisciplinary educational activities.

Drug Information Services. The objectives of training in this activity are to improve the resident's skills in assimilating and disseminating drug information, and to prepare him to manage a drug information service program.

The resident should receive orientation, instruction and experience leading to competence in, but not limited to, the following areas and activities:

1. Organization, philosophy and procedures;
2. Capabilities and limitations of the service;
3. Economic considerations in initiating and maintaining the service;
4. Operational problems encountered in operating the service;
5. Criteria for selection of reference material;
6. Operation of communication and retrieval systems;
7. Utilization of specific professional consultants;
8. Taking the request for specific information;
9. Procedures for answering a request efficiently (how to collect and analyze data);
10. Utilization of the medical library and other informational sources (e.g., manufacturers, faculty personnel, public agencies, governmental agencies);
11. Preparation of oral and written reports regarding requests for information;
12. Poison control procedures;
13. Preparation of clinical follow-up reports;
14. Methods of analyzing the effectiveness of the service;
15. Foreign drug information services;
16. Preparation of drug evaluations for the P & T committee;
17. Instruction of interns and other students in procedures of the service;
18. Preparation of newsletter;
19. Preparation and/or revision of hospital formulary;
20. Investigational drug programs;
21. Adverse reaction reporting programs; and
22. Conducting inservice and/or continuing education programs.

Collateral and Interdepartmental Activities. The objectives for training in these activities are to involve the resident in in-depth professional experience intended to familiarize him with the external professional environment; to motivate him to participate independently in activities which will broaden his professional horizons; and to stimulate him to develop a personal philosophy of, and commitment to, his professional role and responsibilities.

The resident should receive orientation, instruction and experience leading to competence in, but not limited to, the following areas and activities:

1. Observation of the procedures and operation of departments of pharmacy in other hospitals;
2. Observation of other departments within the hospital through a planned program of rotation;
3. Observation of the functions of the pharmacy and therapeutics committee and participation in its activities through service as its acting secretary for a meeting if possible;
4. Participation in the teaching of pharmaceutical and therapeutic subjects

to interdisciplinary groups such as pharmacy technicians, nurses, nursing students, dieticians, inhalation therapists and members of the house staff;
5. Investigation of some particular pharmacy problem should be completed as one of the requirements for the residency.

Continuing Education. The objectives of training in this area are to instill in the resident the attitude that it is his responsibility as a professional person to maintain his competnce through a planned program of self-education and continuing education. An important corollary objective is to develop the resident's communications skills and his skill as a teacher.

The resident's training in this area should include, but not be limited to, the following:

1. Lecture and conference or case study topics presented to and with the residents by the residency director and other preceptors whom he desiignates;
2. Review on a continual basis of current and past literature related to hospital pharmacy practice;
3. Review of principles of education (learning objectives, lesson plans, evaluation instruments, etc.);
4. Formal presentation of information to various groups of learners (e.g., at staff development programs, medical grand rounds, or to various groups of undergraduate students—pharmacy, nursing, medical, respiratory therapy);
5. Conferences with residency director on a weekly basis for discussion and counsel (if more than one resident in program, a weekly group conference between the residency director and residents);
6. Attendence at and participation in seminars and continuing education programs on a local, state, regional and national basis as much as possible; and
7. Development of a personal philosophy and strategy for life-long continuing education.

V-B. The minimum total training hours and training period may be exceeded without limit, but they may not be reduced.

It is important that a schedule of activities for the residency training program be planned in advance of the resident's arrival. The schedule should be written in sufficient detail to give the resident a clear understanding of each assignment and activity. The schedule must reflect the predetermined learning objectives and make possible their achievement. In fact, it may be desirable to integrate the learning objectives and the training schedule into one syllabus.

It is recognized that detail planning of time schedules in advance is at best difficult, and frequently almost impossible. The important aspect of this element of the Standard is not the existence of a detailed time (clock or calendar) schedule but, rather, that careful and conscientious planning has gone into the development of the residency training program in advance of its initiation. The schedule may be thought of as the planning tool by which the objectives are achieved, and which aids in insuring that no objective is overlooked.

V-C. It is important that the resident maintain sufficient documentation of his training activities so that the residency director and other preceptor(s) can monitor his progress. Documentation for any given period of time (one month, for example) should relate to the predetermined learning objectives for that period. Such records can thus serve as a basis for evaluation of the resident by his preceptors and for periodic self-evaluation by the resident himself.

V-D. The periodic evaluation must relate to the resident's progress in achiev-

ing the pre-set learning objectives, and *not* be based solely on personality traits and other similar subjective criteria. When deficiencies are noted, appropriate remedial action must be taken. A written record of the periodic evaluation must be maintained and must be reviewed with the resident.

Standard VI—Certification

A. An appropriate certificate indicative of successful completion of the prescribed residency shall be awarded to the resident by the hospital.

Interpretation

VI-A. Certification of completion of the pharmacy residency training program is the responsibility of the hospital. The American Society of Hospital Pharmacists certifies the hospital (residency program) only—not the resident.

REFERENCES

1. ASHP statement on accreditation of pharmacy residencies in hospitals with policies and procedures. Am. J. Hosp. Pharm., *36*:72–74, Jan. 1979.
2. Accreditation manual for hospitals 1978, Joint Commission on Accreditation of Hospitals, 645 North Michigan Avenue, Chicago, IL 60611.
3. Accreditation requirements of American Osteopathic Association, Feb. 1976, American Osteopathic Association, 212 East Ohio Street, Chicago, IL 60611.
4. ASHP minimum standard for pharmacies in institutions. Am. J. Hosp. Pharm., *34*:1356–1358, Dec. 1977.
5. ASHP statement on hospital drug control systems. Am. J. Hosp. Pharm., *31*:1198–1207, Dec. 1974.
6. ASHP statement on pharmacist-conducted patient counseling. Am. J. Hosp. Pharm., *33*:644–645, Jul. 1976.
7. ASHP statement on clinical functions in institutional pharmacy practice. Am. J. Hosp. Pharm., *35*:813, Jul. 1978.
8. ASHP statement on the hospital pharmacist and drug information services. Am. J. Hosp. Pharm., *25*:381–382, Jul. 1968.
9. ASHP statement on the pharmacy and therapeutics committee. Am. J. Hosp. Pharm., *35*:813–814, Jul. 1978.

Having established a pharmacy residency program in the hospital, it is desirable to have the program accredited. The American Society of Hospital Pharmacists maintains an accreditation program for this purpose. In March, 1980, the ASHP issued a revised *Statement on Accreditation of Pharmacy Residencies in Hospitals.* Because of its value to the practitioner in determining the quality of his educational program, it is hereinafter reproduced.[13]

ASHP STATEMENT ON ACCREDITATION OF PHARMACY RESIDENCIES IN HOSPITALS[a] (WITH POLICIES AND PROCEDURES)

Preamble

Hospital pharmacists have from the beginning of their formal association recognized the need for perpetuating and improving their specialty through organized training programs. Early in its history the American Society of Hospital Pharmacists supported the development of training programs in hospital pharmacy and promulgated standards for residency in hospital pharmacy. To insure adherence to the principles and philosophy of these standards, an accreditation program is established by the Society.

Objectives

The accreditation program shall have as its objectives: (1) to improve the professional competence of hospital pharmacy practitioners through organized educational training programs; (2) to guide, assist and recognize those hospitals that wish to support the profession by operating such programs; (3) to provide criteria for the prospective resident in the selection of a program by identifying those hospitals conducting accredited residency programs; (4) to provide hospitals and related health agencies a basis for determining the level of competency of pharmacists in hospitals by identifying those pharmacists who have successfully completed accredited residency programs.

Definition

For the purpose of accreditation, a pharmacy residency in a hospital is defined as a postgraduate program of organized training that meets the requirements set forth and approved by the American Society of Hospital Pharmacists in the Accreditation Standard for Pharmacy Residency in a Hospital with Guide to Interpretation.

Authority

The program for accreditation of pharmacy residency programs in hospitals is established by authority of the Board of Directors of the American Society of Hospital Pharmacists under the direction of the Commission on Credentialing. All matters of policy relating to the accreditation program considered by the Commission on Credentialing will be submitted for approval to the Board of Directors of the Society. The Commission on Credentialing shall review and evaluate applications and survey reports submitted, and shall be specifically delegated by the Board of Directors to take final action on all applications for accreditation, in accordance with the policies and procedures set forth herein. The minutes of all transactions of the Commission on Credentialing shall be submitted to the Board of Directors for its review.

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[a]Approved by the ASHP Board of Directors November 8, 1962; revised April 11, 1970, November 19, 1973, November 16, 1977, and March 20, 1980.

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Policies

The following policies shall apply to the accreditation program:

1. *Initial Evaluation of Residency Programs*
   a. The accreditation program shall be conducted as a service of the American Society of Hospital Pharmacists to any hospital or other organized health care setting (hereafter referred to as the institution) voluntarily requesting evaluation of its program.
   b. To be eligible for accreditation, a program must have been in operation for one year and have at least one graduate. (If accreditation is granted, it shall be retroactive to the date on which a valid and complete application, including all requested supporting documents, is received by the Society's Director of Accreditation Services.)
   c. Program evaluation shall be by site survey for which an appropriate fee, established by the Board of Directors, shall be assessed to the institution.
   d. Programs shall be reviewed by an accreditation survey team consisting of at least two individuals, one of whom shall be the Society's Director of Accreditation Services or his designee. The other may be a member of the Commission on Credentialing or an individual designated by the Director of Accreditation Services, who is not from the same geographic area as the hospital being surveyed, and who has no conflict of interest with respect to the institution.
2. *Certificate of Accreditation*
   a. A certificate of accreditation will be issued for a period not to exceed six years; however, the certificate remains the property of the American Society of Hospital Pharmacists and shall be returned to the Society at any time accreditation is withdrawn.
   b. Any reference by an institution to accreditation by the Society in certificates, catalogues, bulletins, communications or other form of publicity shall state only the following: "(Name of Institution) is accredited for pharmacy residency in (a category) by the American Society of Hospital Pharmacists."
3. *Continuing Evaluation of Accredited Programs*
   a. The Society regards evaluation of accredited residency programs as a continuous process; accordingly, the Commission on Credentialing shall request directors of accredited programs to submit periodic written status reports to assist the Commission in evaluating the continued conformance of individual programs to the Accreditation Standard. Written reports shall be required from program directors at least every two years.
   b. Accredited programs shall be reexamined by site visit at least every six years.
   c. Any major change in the organization of a program will be considered justificaiton for reevaluation.
   d. A survey fee, as established by the ASHP Board of Directors, shall be assessed to the institution for reaccreditation site visits.
4. *Withdrawal of Accreditation*
   a. Accreditation of a pharmacy residency program may be withdrawn by the Society for any of the reasons stated below
      (1) Accredited programs which no longer meet the requirements of the Accreditation Standard under which they were approved shall have accreditation withdrawn.

(2) Accredited programs without a resident in training for a period of three consecutive years shall have accreditation withdrawn.
(3) Accreditation shall be withdrawn if the director of an accredited program is replaced by another individual whose qualifications do not meet the requirements of the Accreditation Standard.

b. The institution shall submit a new application and undergo reevaluation to regain accreditation.
c. Accreditation shall not be withdrawn without first notifying the institution of the specific reasons why its program does not meet the requirements of the Accreditation Standard. In such instances, the institution shall be granted an appropriate specific period of time to correct deficiencies.
d. The institution shall have the right to appeal the decision of the Commission on Credentialing.

Accreditation Procedures

1. *Application for Accreditation*
   a. Application forms may be requested from: American Society of Hospital Pharmacists, Director of Accreditation Services, 4630 Montgomery Avenue, Washington, DC 20014. These should be filled out in duplicate. One copy of the application should be signed by the administrator and the director of pharmacy of the insitution and submitted, along with the supporting documents specified in the application instructions, to the Society's Director of Accreditation Services. The duplicate copy should be retained for the applicant's files.
   b. The Director of Accreditation Services will acknowledge receipt of the application and review it to make a preliminary judgment about the applicant's conformance to the basic requirements of the Accreditation Standard. If the Director feels that the program fails to meet the criteria of the Accreditation Standard in some fundamental way, he will notify the signatories of the application accordingly and advise against scheduling a site visit until the problems have been corrected. The applicant is not bound, however, to accept the Director's advice to delay the accreditation site visit.
2. *The Site Visit*
   a. At a mutually convenient time, the Society will send a survey team to review the pharmacy service and the residency program. Instructions for preparation for the site visit (list of documents to be made available to the survey team, suggested itinerary for the surveyors, etc.) will be sent to the director of pharmacy service well in advance. Normally, the site visit is conducted in two working days.
   b. After concluding its on-site evaluation, the survey team will present a verbal report of its findings to the institution administrator and director of pharmacy.
3. *The Survey Report*
   a. Following the site visit, the survey team will prepare a written report which will be sent to the institution administrator and the director of pharmacy service for review of factual accuracy and comment. Any written comments which either wishes to make must be submitted to the Director of Accreditation Services within 30 days after receipt of the report. Any comment respecting the factual accuracy of the report must set forth specifically the facts contested, the reasons therefor, and the institution's contentions with respect to the facts.

b. The institution's residency accreditation application file, including the surveyor's report, plus any written comments received from the institution will be reviewed by the Commission at its next meeting. The Commission will resolve any factual issues at that time.
c. Notice of action taken by the Commission will be sent to the institution administrator and director of pharmacy, along with a list of any deficiencies which the Commission considered in arriving at its decision and recommendations for overcoming those deficiencies. The report will indicate that the Commission has acted either (1) to accredit or reaccredit the program for a period not to exceed six years, or (2) to withhold or withdraw accreditation.

4. *Appeal from Commission Decision*
   a. *Notification of Intent to Appeal.* In the event the Commission shall fail to fully accredit or reaccredit a program, the institution administrator may appeal the decision of the Commission to an Appeal Board on the grounds that the decision of the Commission was arbitrary, prejudiced, biased, capricious, or incorrect application of the standards to the institution. The institution administrator must notify the Director of Accreditation Services, in writing by registered or certified mail, within 10 days after receipt of the Commission's decision, of the institution's intent to appeal. The institution administrator must state clearly on what grounds the appeal is being made. The institution shall then have an additional 30 days in which to prepare for its presentation to an Appeal Board.
   b. *Appeal Board.* Upon receipt of an appeal notice, the Director of Accreditation Services shall proceed to constitute an ad hoc Appeal Board. The Appeal Board shall consist of one member of the Society's Board of Directors, to be appointed by the President of the American Society of Hospital Pharmacists, and who shall serve as Chairman; and two preceptors of accredited pharmacy residency programs, neither of whom are members of the Commission on Credentialing, one to be named by the appellant and one by the Chairman of the Commission. The Director of Accreditation Services shall serve as Secretary of the Appeal Board. As soon as appointments to the Appeal Board shall have been made, the Director of Accreditation Services shall forward immediately to all Appeal Board members copies of all written documentation considered by the Commission in rendering its decision.
   c. *The Hearing.* The Appeal Board shall have convened in not less than 30 days nor more than 60 days from the date of receipt by the Director of Accreditation Services of an appeal notice. The Director of Accreditation Services shall notify appellants and Appeal Board members, at least 30 days in advance, of the date, time and place of the hearing. The institution filing the appeal may be represented at the hearing by one or more appropriate officials and shall be given the opportunity at such hearing to present written or written and oral evidence and argument tending to refute or overcome the findings and decision of the Commission on Credentialing. The Director of Accreditation Services shall represent the Commission at the hearing.
   The Appeal Board shall advise the appellant institution of the Board's decision, in writing by registered or certified mail, within 10 days of the date of the hearing. The decision of the Appeal Board shall be final and binding on both the appellant and the American Society of Hospital Pharmacists.

d. *Appeal Board Expenses.* The appellant shall be responsible for all expenses incurred by its own representatives at the Appeal Board hearing, and shall pay all reasonable travel, living and incidental expenses incurred by its appointee to the Appeal Board. Expenses incurred by the other Board members and the Director of Accreditation Services shall be borne by the American Society of Hospital Pharmacists.

Having established a sufficient background to permit the hospital pharmacist to assume a role in the teaching function of the hospital, it is necessary to dwell briefly upon the specific areas of internal and external teaching in which the hospital pharmacist may or should become involved.

INTERNAL TEACHING PROGRAMS

Training of Student Nurses

Much has been written concerning the role of the pharmacist in the teaching of student nurses. Some advocate that the hospital pharmacist should teach student nurses the entire course of pharmaceutical calculations and pharmacology; others propose that he undertake to teach certain aspects of these courses in conjunction with the nursing instructor.

How much or how little a hospital pharmacist teaches will depend upon the individual and the environment in which he operates. If the individual is capable and has so impressed the nurse educators by his daily actions and deeds, he will be invited, more likely than not, to assist in the teaching program. Once appointed to this responsibility, it behooves the hospital pharmacist to develop his phase of the program in strict compliance with the requirements set forth by the nursing accreditation authorities.

Furthermore, the prepared lectures should be updated each year—to include the latest developments in pharmacology and therapeutics; the nomenclature used and all references to weights and measures should be in accord with the hospital's drug formulary; and finally any reference to dosage, contraindications or cautions should also comply with the formulary unless the information to be presented supersedes the latest revision of the hospital formulary.

Many authors[4–6] have published special texts on the subject of pharmacology and therapeutics for nurses. These texts are in use in various schools of nursing and may serve as an excellent guide to the hospital pharmacist who undertakes the responsibility to teach these courses to student nurses.

In addition, hospital pharmacists should consult the various textbooks in pharmacology which are written for basic nursing students.

Failure to do this may result in the preparation of a course, so sophisticated in content, that it will defeat the purpose of its presentation.

Seminars for Graduate Nurses, House Staff and Medical Staff

Although most pharmacists disseminate information to the members of the medical and nursing staffs via a pharmacy publication, there is still need for the direct or personal presentation which is afforded by conducting a seminar on the latest available therapeutic agents to the medical staff..

With regard to such a program, Sperandio[7] has stated that:

"The key to its success would be proper organization and presentation of the material. Ideally, the talk should be short (not over twenty minutes), complete, and concise. The subject should be covered in such a way that the audience can integrate all the factors and thereby obtain an appreciation of the many facets of drug therapy. Time should be allowed for discussion."

Frazier *et al.*[8] functioning as the 1954 Committee on Minimum Standards of the American Society of Hospital Pharmacists developed an outline of four lectures which may be presented by the hospital pharmacist to the resident staff.

Lecture One of this series concerns itself with an orientation to pharmacy services and covers such subject matter as:

a. Location of the pharmacy
b. A description of the physical plant
c. Personnel
d. Hours of operation
e. Services provided by the department
f. Hospital policies governing:
  i. Formulary
  ii. Use of generic names
  iii. Use of the metric system
  iv. Use of abbreviations
  v. Use of research drugs
  vi. Automatic stop orders
  vii. Discharge medications
  viii. Ordering narcotics and liquors

Lecture Two of the series is devoted to the philosophy and goals of the formulary system. In the course of the lecture, the hospital pharmacist should emphasize the composition of and the scope of the Pharmacy and Therapeutics Committee.

Lecture Three is suggested to take the form of a prescription clinic. Basically, this is an excellent suggestion and is highly recommended in view of the fact that very little attention is devoted to prescription writing in medical school classes. In the course of the lecture, the pharmacist should stress any Federal, state and hospital regulations

governing the prescribing of drugs and the refilling of prescriptions. Past experience has also demonstrated that a short period of time devoted to a group criticism of prescriptions (projected onto a screen) which contain illegible writing, non-standard abbreviations, misplaced decimal points, misspelling of drug names and a mixture of English and Latin directions is extremely helpful in emphasizing the importance of accuracy in writing a prescription.

Lecture Four is reserved for a discussion of any topic of current interest to the staff. Suggested topics for this discussion include the following:

i. Cost of medication
ii. Incompatabilities of intravenous fluids and other injectable drugs
iii. The new drug regulations
iv. Drug interactions

Graduate nurses are encouraged to attend all in-service training programs offered within the hospital. These sessions are devoted to a wide spectrum of professional subjects. The hospital pharmacist should avail himself of the opportunity to present a few of the programs. His subject matter may consist of a discussion of new classes of therapeutic agents, incompatibilities of various drugs when added to intravenous solutions, drug storage and control, a review of the mathematics of pharmacy, or drug interactions.

Whatever the subject matter, it behooves the pharmacist to prepare the lecture adequately and where possible supplement the talk with slides, a short film, the distribution of an outline of the lecture, or the distribution of reprints or selected brochures describing the drugs lectured upon.

In addition, whenever new drugs are discussed, one should bring into the lecture room sample containers of the various forms which are commercially available. It is assumed that by actually handling, observing, smelling and where possible tasting the product, the nurse will be in a better position to detect an error should a mix-up in medication occur.

Training Undergraduate Students in Hospital Pharmacy

Blauch and Webster,[9] in The Pharmaceutical Curriculum, published in 1952 by the American Council on Education as a report for the Committee on Curriculum of the American Association of Colleges of Pharmacy, state:

"It is a source of considerable surprise to note that only a few colleges of pharmacy have developed working arrangements with hospitals for teaching purposes. One finds colleges of pharmacy in universities which have also large

teaching hospitals but in which the colleges have no connection whatever with the pharmaceutical service. No doubt this situation reflects the traditional educational emphasis on the retail pharmacy, which for a long time has been the principal means of pharmaceutical service. With the changes which are apparently impending in health service, the hospital pharmacy will almost certainly play an increasing role. Colleges of pharmacy may well note this fact and plan their instructions accordingly."

Since the publication of the above report, the American Association of Colleges of Pharmacy and the American Society of Hospital Pharmacists have approved a **Statement on the Abilities Required of Hospital Pharmacists.**[10] This statement lists six specialized areas of competence that should be considered in developing a curriculum for hospital pharmacy. These are as follows:

Specficially the well-qualified hospital pharmacist must have:

1. A thorough knowledge of drugs and their actions.
2. Ability to develop and conduct a pharmaceutical manufacturing program.
3. An intimate knowledge of control procedures.
4. Ability to conduct and participate in research.
5. Ability to conduct teaching and in-service training programs.
6. Ability to administer and manage a hospital pharmacy.

Therefore the Joint Committee of the American Association of Colleges of Pharmacy and the American Society of Hospital Pharmacists prepared, in January 1966, a **Syllabus for a Course in Hospital Pharmacy** and, in April 1966, these same organizations approved a **Suggested Guide to Curriculum Development for Hospital Pharmacy.**

With these tools in hand, the hospital pharmacist should take the initiative and meet with the college administration and faculty for the purpose of commencing a program in hospital pharmacy. At this meeting, the hospital pharmacist should point out the fact that his department offers the prospective student a wealth of experience in the professional practice of his profession.

Patient Teaching Program

In one study[15] patient's knowledge of their prescribed drug regimen was assessed in 78 patients randomly chosen and interviewed at home within 6 to 9 days after hospital discharge. The study included the following areas: (1) name and purpose of the medication; (2) precautions to consider while taking the medication; and (3) other medications, foods, and beverages to avoid. The study concluded that considerable lack of knowledge about prescription medication was apparent in view of the fact that 52% could not determine length of drug regimen, 23% were not aware of why medication had been prescribed for them,

56% did not know the name of the medication and 56% were not given instructions on how to administer the medication.

This is one area of in-hospital teaching where the pharmacist can make a valuable contribution to the long term posthospital care of the patient. More frequently than not, patients leave the hospital with a variety of discharge medications with a meager knowledge of how they are to be used or, more importantly, how to recognize signs of toxicity or adverse reaction. This brief exposure to the medications is generally provided by the busy practitioner or a nurse.

Of late, those hospitals who have recruited clinical pharmacists to their staffs have developed extensive programs for the orientation of the patient to the subject of drug use both in the hospital and in the patient's home. These programs have consisted of patient counseling, development of instructional brochures, group conferences and closed circuit television presentations. Where the instruction needs to be individualized—as in the use of an individual's specific medication—the direct counseling technique is employed. However, where instruction of a general nature is to be given—such as how to detect adverse drug effects—the group discussion or television methodology is employed.

Training Clinical Pharmacists

With the development of this specialty within the profession of pharmacy, hospital pharmacists should work closely with the college of pharmacy and the college of medicine faculties as well as the various medical staff specialists in the conduct of such programs. Insofar as the clinical pharmacy programs are concerned, many schools have created specialization within the broad area of clinical pharmacy—pediatrics, clinical pharmacology, toxicology, drug information analysis and interpretation, infectious disease and geriatrics.

The hospital pharmacist, if he himself is unable to provide the training, should arrange to have the student acquainted with the contents of the medical record, drug history procedures, patient drug profile program, drug information center, poison control center, adverse drug reaction program and the opportunity to interface with interdisciplinary health care personnel such as physicians, dentists, nurses, dietitians and therapists. Of paramount importance, is the pharmacist's exposure to the patient—both ambulatory and hospitalized. Thus, the training of clinical pharmacists need not be limited to the hospital proper but may include the satellite health care centers, nursing homes, extended care facilities, home care programs and clinics.

The importance of clinical pharmacy to the institution is supported by the following joint statement.[16]

ASHP AND AHA STATEMENT ON CLINICAL PHARMACY AND ITS RELATIONSHIP TO THE INSTITUTION[a]

In 1957, the American Hospital Association and the American Society of Hospital Pharmacists called for greater involvement by hospital pharmacists in the control of drugs in the institutional setting by voting:

> To urge hospital pharmacists, through appropriate channels, to extend their responsibilities to include participation in programs dealing with the safe handling of drugs throughout the hospital.

Since then, traditional patterns for the delivery of pharmaceutical services have given way to new concepts. These new concepts have resulted in greater involvement by the pharmacist in the institution's patient-care areas and the recognition of a need for a clinical component to pharmaceutical services and drug control in the institution. *This clinical service component* recognizes the need for pharmacy students to be patient-oriented as well as product-oriented.

In 1975, the Study Commission on Pharmacy recognized that:

> . . . among deficiencies in the health care system, one is the unavailability of adequate information for those who consume, prescribe, dispense and administer drugs. This deficiency has resulted in inappropriate drug use and an unacceptable frequency of drug-induced disease. Pharmacists are seen as health professionals who could make an important contribution to the health care system of the future by providing information about drugs to consumers and health professionals. Education and training of pharmacists now and in the future must be developed to meet these important responsibilities.

Schools of pharmacy recognize the need for a clinical component in the professional curriculum for future practitioners and are establishing viable working relationships with organized health care settings as clinical facilities for the training of students. Accrediting bodies, governmental agencies, and professional associations also are fostering role reconstruction in pharmacy which requires proper environments for the education and training of both degree-seeking and non-degree-seeking individuals.

In recognizing the concept of clinical pharmacy and its value in optimizing drug therapy in the institutional setting, and in keeping with the spirit of the AHA "Statement on Role and Responsibilities of

[a]This document was approved by the ASHP Board of Directors at its July 30–31, 1979, meeting, and by the ASHP House of Delegates on April 21, 1980. Approval by the American Hospital Association is required to make this an official document of the two organizations. An earlier version was approved by the ASHP Board of Directors at its March 13–14, 1970, meeting, and by the AHA General Council at its meeting of October 7–9, 1970.

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the Hospital in Providing Clinical Facilities for a Collaborative Educational Program in the Health Field," the American Hospital Association and the American Society of Hospital Pharmacists encourage hospitals to (1) support the concept of clinical pharmacy as an integral component of comprehensive pharmaceutical services and drug control; and (2) make their facilities available to schools of pharmacy for clinical preparation of future pharmacy practitioners.

A program of clinical education and training requires close collaboration between a clinical institution and a college or school of pharmacy. In recognition of this, the American Association of Colleges of Pharmacy and the ASHP have developed the following agreement which can serve as the basis for negotiations:

NABP MODEL CLINICAL PHARMACY EDUCATION AND TRAINING AGREEMENT[a]

WHEREAS, the (Pharmacy school name), hereinafter referred to as (short school name), located at (address), (city), (state, zip) has established, as part of the requirements leading to a degree in pharmacy, a program of clinical education and training, which requires clinical facilities, equipment, services and personnel appropriate for students to obtain the necessary clinical experience; and

WHEREAS, (institution name), (description: hospital, nursing home, community pharmacy, etc.) hereinafter referred to as (short institution name), located at (address), (city), (state, zip) has the required facilities, equipment, personnel and services to provide this clinical experience.

NOW, THEREFORE, it is agreed by and between (short school name) and (short institution name) that:

I. The (short school name) shall appoint representatives and (short institution name) shall appoint the Director of the (short institution name) Department of Pharmaceutical Services and/or a designee(s) (which may include member(s) of the health care team) to jointly plan for:
   (1) Student placement and orientation in the (short institution name).
   (2) Periodic review and preparation of objectives for the instructional program.
   (3) Evaluation of student performance.
   (4) Periodic review of program costs and payments. It is specifically agreed that neither party shall be responsible for costs or expenditures incurred by the other in the conduct of the clinical education and training program, other than those expenses defined in any sep-

[a]Approved by the ASHP Board of Directors (January 1979) and the AACP Board of Directors (March 1979). This agreement is *not* intended to be used in its present form. It is a model to be used as a guide by pharmacy schools and institutions and should be retyped to meet specific needs. The designation of the "Dean" and the "Director of Pharmaceutical Services" as the signing parties means that appropriately responsible persons are deemed necessary.

arate agreements that may be made between the (short school name) and (short institution name).

(5) Mutually acceptable criteria for faculty practitioners who have teaching responsibilities within the institution.

(6) (Additional clauses may be added to set forth further details of the agreement).

II. The (short school name) shall undertake the following:

(1) Appoint the Director of Pharmaceutical Services as a member of the clinical faculty of (short school name) and as the Director of the Clinical Pharmacy Education and Training Program at (short institution name), when deemed appropriate by the Dean and the Hospital Director.

(2) Provide information regarding dates for instruction, according to (short school name) calendar and forecasts of the number of students to be assigned to (short institution name).

(3) Arrange for the purchase of liability and malpractice insurance with coverage not less than ($) for each student and faculty member participating in the program or assure that such liability and malpractice coverage is provided by the University. Certificates indicating effective coverage will be furnished to the (short institution name) prior to commencement of instruction.

(4) Indemnify and hold harmless the (short institution name) for damages or injuries to patients or other persons not a party to this contract, caused by acts or omissions of students or faculty members participating in the clinical education and training program in pharmacy.

(5) Establish standards for selection and appointment of (short institution name) pharmacy staff members as faculty.

III. The (short institution name), consistent with its primary obligation to care for patients, and consistent with available space and facilities, assumes responsibility for implementation and conduct of the clinical pharmacy education and training program within the institution, under the authority of (short school name), by agreeing to:

(1) Provide educational experience opportunities for students in patient care areas, service departments and other selected areas.

(2) Accept for instruction up to (number) students at the same time.

(3) Maintain pharmacy services without reliance on assigned students.

(4) Cooperate with faculty members of (short school name) in the selection of student learning experiences.

(5) Provide equipment, facilities, supplies and services for students and faculty assigned to the (short institution name) necessary to meet the objectives of the program.

IV. When the Director of Pharmaceutical Services is appointed as Director of Clinical Pharmacy Education and Training at (short institution name) he/she shall be responsible to the Dean of (short school name) for the clinical pharmacy education and training program. (See II Section (1).) Clinical faculty assigned to (short institution name) by (short school name) will be responsible to the Director of Clinical Pharmacy Education and Training for their activities at (short institution name).

V. The (short school name) and (short institution name) will not discriminate against any employee or applicant for employment or enrollment in its source of study because of race, color, creed, sex or national origin.

VI. The students assigned to the (short institution name) shall in no sense be considered employees of the (short institution name) unless specifically agreed to. (E.G., for workmen's compensation purposes). Students

and faculty shall adhere to the (short institution name) rules, regulations, procedures and policies during their period of clinical instruction. The (short institution name) shall have the right to terminate the use of any of its facilities, equipment or supplies by any student or faculty member were flagrant or repeated violations of the (short institution name) rules, regulations, policies and procedures occur. Such action will not normally be taken until the grievance against any student or faculty member has been discussed with the appropriate representative of (short school name). The (short institution name) reserves the right to take immediate action to maintain its facilities free from disruption.

VII. All notices or official communications which may be required under this agreement shall be given as follows:
(1) Notice to the (short school name): (specify person, address)
(2) Notice to the (short institution name): (specify person, address)

VIII. This agreement may be amended by mutual agreement in writing, executed by officials executing this agreement or their successors.

IX. This agreement shall become effective (date) and shall continue indefinitely, except that either party may terminate the agreement by giving written notice to the other party at least (number) months in advance of the proposed termination date. Dates of termination should coincide with the end of semester or quarter instruction for students enrolled in the clinical experience program at (short institution name).

By: _____
Dean

_____
School Name

Date: _____
By: _____
Director of Pharmaceutical Services

_____
Institution Name

Date: _____
By: _____
Hospital Director

_____
Institution Name

Date: _____

Training Residents in Hospital Administration

Today, a relatively large number of universities maintain programs for the education of individuals desirous of a career in hospital administration. Candidates for the degree of *Master in Hospital Administration* must, in addition to the didactic requirements, serve a residency in an approved institution under the guidance of a preceptor.

While serving this residency, the neophyte administrator is exposed to the function and operation of every department in the hospital. Be-

cause it is at this time that the young administrator forms his opinion as to the organization and scope of the pharmacy department, as well as the responsibilities of the hospital pharmacist, the American Society of Hospital Pharmacists undertook, through its *Committee on Pharmacy in Hospital Administration Education,* to prepare a course outline to be used by the hospital pharmacist in presenting his image to the trainee in hospital administration.

In 1963, the then *Committee on Pharmacy in Hospital Administration Education* proposed an outline for the teaching of these students. The said outline is hereby presented in detail.[11]

I. Development of Hospital Pharmacy
   1. Influence of increased use of drugs
   2. Influence of the newer pharmaceuticals on the pharmacist's skills
   3. Influence of pharmaceutical associations
   4. Influence of all levels of pharmaceutical educational programs

II. Organization
   1. Establish a hospital department or purchase an outside service
   2. Personnel
      a. Education and qualifications
      b. Departmental organization
      c. Possibility of dual function in smaller hospitals: *e.g.* Pharmacist-Purchasing Agent; Pharmacist-Central Sterile Supply Coordinator
   3. Interdepartmental Relationships
      a. Administration
      b. Nursing
      c. Laboratories
      d. Miscellaneous
   4. Special relationship to the medical staff
      a. Pharmacy and Therapeutics Committee
      b. Control of research drugs
      c. Pharmacy bulletins

III. Physical Facilities and Design*
   1. General considerations
      a. Location
      b. Size
   2. Dispensing Areas
      a. In-patient
      b. Out-patient
      c. Ancillary supplies
   3. Compounding Areas
      a. Extemporaneous compounding
      b. Bulk compounding
      c. Sterile preparations

*Minimum Standard for Pharmacies in Hospitals. Am. J. Hosp. Pharm., *15*:4:310, 1958.

4. Storage Areas
   a. General
   b. Narcotics
   c. Alcohol
   d. Special
5. Administrative Areas
   a. Offices
   b. Library

IV. Responsibilities of the Pharmacist
1. Administrative
   Budget, purchasing, inventory control, records, and reports
2. Professional
   Dispensing, compounding, drug consultant role, teaching and research
3. Legal
   Federal, state, local as they apply to alcohol, narcotics, dangerous drugs, poisons, pharmacy
4. Ethical
   a. The patient
   b. The physician
   c. The hospital
   d. The community pharmacists

V. The Hospital Formulary System
1. Guiding principles
2. Philosophy of the Pharmacy and Therapeutics Committee
3. The American Hospital Formulary Service
4. The private formulary, its advantages and disadvantages

VI. Sources of Information[a]
1. Pharmaceutical organizations
2. Pharmaceutical literature
   a. "Tentative Draft of An Outline for Teaching Students in Hospital Administration," Bull. Am. Soc. Hosp. Pharm., *8*:357, 1951.
   b. "Syllabus for a Course in Hospital Pharmacy," Bull. Am. Soc. Hosp. Pharm., *12*:261, 1955.

EXTERNAL TEACHING PROGRAMS

As has been previously stated, an external teaching program consists of any teaching activity performed by the pharmacist outside the hospital.

Most chief pharmacists in university-affiliated teaching hospitals hold appointments on the faculty of the associated college of pharmacy. In this capacity, the hospital pharmacist may and usually does teach courses other than hospital pharmacy. These include product development, preparation of parenteral products, sterilization technics and pharmacology.

[a]Special literature and reference material relative to the pharmacy department of a hospital are available to the administrative resident from the American Society of Hospital Pharmacists, 4630 Montgomery Avenue, Washington, D.C.

Participation in seminars, institutes and refresher courses is another way in which the hospital pharmacist may carry on a teaching program. The sponsors of these programs do not necessarily have to be pharmaceutical organizations. As a matter of fact, participation in the activities of nursing, dietary, oxygen therapist and medical technologist associations does much to improve the professional stature of the hospital pharmacist.

Teaching, in its broadest interpretation, need not be restricted to personal lectures but may include the preparation of manuscripts for publication in the professional press. The subject matter may consist of the results of original scientific research in product development, sterilization technics; or comprehensive literature surveys in a particular area of hospital pharmacy; or the results of a study which improves the managerial and service rendering aspects of the department.

Some hospital pharmacists have been sufficiently progressive to obtain various grants-in-aid to support research in drug distribution technics or in studying the prescribing habits of physicians associated with large hospital clinics. Certainly this kind of basic study, when completed and published, serves as teaching material, for it is in this way that other pharmacists learn to improve the service they render to their institutions.

SPECIALIZED PHARMACY RESIDENCY TRAINING

A specialized pharmacy practice residency is defined as a postgraduate program of organized training that meets the requirements set forth and approved by the ASHP for that specialty. Specialized pharmacy training programs are directed toward developing expert knowledge and skills in a given area of pharmacy practice, far beyond that which might be expected from clerkship experiences, internship training, or a general practice hospital pharmacy residency. On the other hand, a specialized residency will not, *per se*, develop the broad skills and competency in institutional pharmacy practice which general residency training affords.[17] Specialized pharmacy residency standards have been developed by the ASHP in oncology,[18] nutritional support,[19] gerontology[20] and psychiatry[21] amongst others.

DRUG ABUSE TEACHING PROGRAM

Hospital and clinical pharmacists can make a worthy contribution towards the education of the hospital's staff, employees, patients and students enrolled in the various teaching programs on the issues of drug abuse. In addition, the pharmacists should make themselves available to lecture on the subject to community agencies and other interested groups.

Generally, the drug information center of the department of pharmacy possesses the necessary drug abuse information as well as references to sources of additional teaching aids such as slides, films and film strips.

In addition to conducting lectures and conferences on the subject, displays can be prepared for showing in the hospital, local schools and in the library of the city or town. Also, training of out-of-hospital personnel who are interested in the drug abuse problem—school teachers, clergymen, law enforcement officials and members of the community at large—should be undertaken as part of the overall teaching program of the hospital pharmacy department.

TRAINING EMERGENCY MEDICAL TECHNICIANS

With the adoption of comprehensive statewide emergency medical services plans by many states, it became necessary to develop programs and centers charged with training emergency medicine personnel. As a service to assist in the training programs, hospital pharmacists have presented lectures covering (1) review of drug dosage forms, (2) brief review of drug action and basic pharmacokinetic principles, (3) review of the autonomic nervous system, (4) in-depth review of advanced cardiac life support drugs, and (5) a brief review of patient medications likely to be encountered in the field.[22]

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27

Preparation of the Annual Report

The preparation of an annual report to the Administrator of the hospital on the activities of the department of pharmacy is one of the most important responsibilities of the hospital pharmacist. In addition, it is the pharmacist's duty to prepare the report in such a manner as to make it an informative yet analytical document covering the activities of the past fiscal year.

Present day managerial practices dictate that there must be adequate communicaiton between all levels of management. It is said that without the free flow of proper information the particular enterprise cannot possibly progress to its maximum capacity. This basic principle of good management should obviously be applied in the hospital. Certainly, the hospital pharmacist can take the first step in the application of this basic principle by the preparation of a comprehensive annual report on the activities of his department.

Too many pharmacists, although they recognize this aspect of their work, refrain from the preparation of such a report because they feel that the administration is not interested in receiving one, or since no other department head submits a report, why should they be different?

The reader is hereby assured of the administration's desire for such a report and is also reminded that the pharmacist should be the leader in any movement, direct or indirect, which leads to improvement of the hospital and the care which it renders to its patients.

FORMAT

There is no specific format which can be recommended for general use. The format should reflect the creativeness and the ingenuity of the author; however, artwork and fancy design work should be avoided. Because the annual report properly belongs in the category of "business document," it should present such an appearance to the recipient.

In general, the report should be typewritten on white bond paper. The typewriter ribbon should be black and the use of red letters or underlining should be avoided.

It is also recommended that the report document be properly identified as to content and author, therefore a front page showing this information as well as a table of contents are in order. Once the body of the report document is completed, all tables and pages should be numbered for the convenience of the reader.

CONTENTS

Because each hospital and hospital pharmacy are different, so too are the contents of the reports submitted in each institution.

Accordingly, in the following discussion, a number of subjects will be covered which may be considered for incorporation into an annual report if they have application to the individual hospital or pharmacy department.

Some of the areas or subjects which may be incorporated into the pharmacist-in-chief's annual report are as follows:

I. *Introduction*
The introductory remarks should be brief and be confined to a statement of introduction and transmittal.

II. *The Pharmacy and Therapeutics Committee*
Because the pharmacist serves as the secretary of this committee he is in the best position to report on its activities The report should include a statement on the present membership, the number of meetings held, programs undertaken by the Committee and plans for the new fiscal year.

III. *The Formulary*
A brief report on the hospital formulary is always in order. It should include a general review of the revisions made, that is, additions or deletions, and a statement concerning plans or the progress being made relative to a total revision and publication.

IV. *The Pharmacy Bulletin*
Comments on the pharmacy publication are desirable as a means of keeping the administration informed of this extracurricular activity. The pharmacist should briefly relate the number of times the paper was published during the past year and any truly worthy comments concerning the publication or its contents made by the professional staff.

V. *Teaching Activities*
If the pharmacist is engaged in the teaching programs of the hospital, the report should contain a resume of his activities in the teaching of student nurses, graduate nurses, interns and residents as well as the interns in the hospital pharmacy training program.

VI. *Professional Activities*
Attendance at seminars, conferences or other professional meetings as well as a documentation of papers given or published are in order.

VII. *Personnel*
Additions or departures from the staff may well be reported, particularly if those who have left have been appointed to positions of prestige and merit and to stress the accomplishments and the quality of the newcomers to the hospital staff.

VIII. *Business Statistics*

This section of the report will probably comprise a large portion of the report if the pharmacist has had the foresight to accumulate the necessary data.

Although some of the financial data which will be included in this section may also be provided to the Administration by the Comptroller, it should nevertheless be repeated here in order to present a total picture rather than force the busy administrator to seek the informaiton in an ancillary document.

The following will serve to acquaint the student and the hospital pharmacist with the type of statistical data which can be accumulated and presented in an annual report:

GENERAL STATISTICS

Opening Inventory Value .....
Closing Inventory Value .....
Rate of Inventory Turn-over .....
Income .....
Expenses .....
Ratio of Income to Expenses .....
Pharmacist hours/week .....
Technician hours/week .....
Support hours/week .....
Average Income Generated/Pharmacist .....
Number of Hours of Service/Week .....
Gross Revenue/Hour of Service .....
Gross Revenue/Bed .....
Gross Review/Admission .....

IN-PATIENT PRESCRIPTION DATA

Number of Requisitions Dispensed .....
a. Total Number of Items Ordered .....
b. Average Number Items/Requisition .....
c. Total Dollar Value of Items Dispensed .....
d. Cost to Hospital of *(c)* .....

OUT-PATIENT PRESCRIPTION DATA

Number of Ambulatory Patient .....
Prescriptions Dispensed .....
a. New Prescriptions .....
b. Refill Prescriptions .....
c. Total Gross Income .....
i. Cash .....
ii. Charge .....
iii. Free .....
d. Average Price/Prescription .....

MANUFACTURING PROGRAM STATISTICS

Number of Products Manufacturered .....
Number of Gallons of Liquids .....

Number of Pounds of Powders .....
Number of Pounds of Ointments .....
Number of Capsules (Hand filled) .....
Number of Capsules (Machine filled) .....
Number of Vials of Sterile Injectables .....
Number of Units of Large Volume Parenterals .....
Number of Units of Irrigating Fluids .....
Difference between the potential purchase price and the cost of manufacturing within the Hospital Pharmacy resulted in a savings to the Hospital of .....

UNIT DOSE AND IV ADDITIVE SERVICE

Number of Solid Dose Units Packaged .....
Number of Liquid Single Dose Units Packaged .....
Number of Syringes Pre-filled .....
Number of IV Additive Solutions Prepared .....
Number of Hyperalimentations Prepared .....

GENERAL HOSPITAL AND LABORATORY REQUISITION DATA

Number of Requisitions Filled .....
Number of Items Dispensed .....
Average Number of Items per Requisition .....
Dollar Value (based on cost to hospital) .....

IX. *Drug Information Center*
A brief report concerning the addition of new subscriptions to journals or the purchase of new book or computer drug information services which may be of benefit to other segments of the hospital population should also be considered for inclusion.

X. *Drug Surveillance and Utilization Review*
Because of the importance of these two aspects of drug control, the pharmacist's annual report should inform the administration of its effectiveness. This can best be accomplished by abstracting the minutes of the Drug Utilization Review Committee, if one is in existence, or that portion of the minutes of the Pharmacy and Therapeutics Committee dealing with the subject.[1,2]

XI. *Training Programs*
In order to obviate the impression that the Department of Pharmacy is solely a service unit, it is important to highlight the various teaching roles and functions of the department.

XII. *DRG Impact*
With most hospitals being reimbursed under a prospective DRG-based system, the pharmacy manager must be alert as to the percent of the hospital's reimbursement is based on pharmacy expense. Thus, it is appropriate to include in the annual report a section showing the impact of the pharmacy operation and recommendations by the pharmacy manager to improve future performance. In the preparation of this segment of the report, the pharmacist should not only ascertain the institution's drug cost per DRG but should compare it as a percentage of total reimbursement on a national and regional level in order that the administrator may have a better understanding of it.[3]

XIII. *Proposed New Programs*

The report should be brought to a close with a brief discussion of proposed new programs or activities for the new fiscal year. These programs should not be discussed in detail in this report. The main purpose for including them here is to demonstrate that the pharmacist is always striving for better performance and higher goals and is not satisfied with a status quo policy no matter how satisfactory the past fiscal year may have been.

INCIDENTS INVOLVING MEDICATIONS AND PHARMACISTS

With the advent of the malpractice crisis, hospital management is increasingly aware of the need to develop loss control-risk management programs within the institution. The general theme of these is to coordinate the incident reports with the activities and reports of all of those committees involving patient care. Thus, it is advisable for the pharmacy department to keep an accurate record of incidents which involve medications and pharmacy staff as well as the corrective and preventive measures taken to occlude recurrence. Once accomplished, it is suggested that this matter be included in the annual report to the Administrator of the hospital.

From the preceding discussion, it should be apparent to all concerned that the preparation of an annual report requires a great deal of preparation and planning. Properly prepared, it will enchance the professional stature of the pharmacist in the hospital.

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28

Safe Use of Medications in the Hospital

The legal literature is replete with cases of injury or death caused by errors in the administration of medications. These unfortunate incidents are not restricted to occurrences within hospitals, but also in doctor's offices, clinics, retail pharmacies and in the home. Furthermore, these mistakes do not always show doctors, nurses or pharmacists as the primary cause of the error. For example, a central sterile supply room aide dispensed a bottle of boric acid solution instead of dextrose solution to the baby formula room—result, several infants died; a pharmacy helper dispensed sodium nitrite solution for sodium phosphate solution—result, two adults died. In both of the above cases, non-professional employees of the hospital were involved.

It would appear that, in the above instances, clearly defined hospital policies governing the handling, dispensing or distribution of drugs or related products might have prevented both tragedies. Furthermore, the lack of these policies could place the trustees, administrator, nurse and pharmacist in a vulnerable position with regard to law suits, both criminal and civil.

Because the hospital pharmacist is the best judge of whether or not safe practices are being followed in the handling, storage, administration or dispensing of drugs and related products, he must assume the mantle of responsibility for the development of the required policies for adoption by the administration and the hospital's board of trustees.

On September 27, 1957, the Coordinating Committee and Board of Trustees of the American Hospital Association voted as follows:

"To urge through appropriate channels, that hospital pharmacists extend their responsibilities to include participation in programs dealing with the safe handling of drugs throughout the hospital."

MEDICATION ERROR—DEFINED

Seldom does a day pass in any large hospital but that some form of medication error is not reported. These errors, although not fatal or

injurious to the patient, are nonetheless serious problems and must be coped with accordingly.

A review of the literature will reveal that there is a wide range given as to the definition of a medication error. Therefore, reports on the incidence of errors in one hospital or section of the country may not be comparable with those emanating from other hospitals in the same area or from another section of the country.

The ASHP Technical Assistance Bulletin on Hospital Drug Distribution and Control provides the following definitions and categories of medication errors:[1]

ASHP TECHNICAL ASSISTANCE BULLETIN ON HOSPITAL DRUG DISTRIBUTION AND CONTROL

Medication Errors. If a medication error is detected, the patient's physician must be informed immediately. A written report should be prepared describing any medication errors of clinical import observed in the prescribing, dispensing, or administration of a medication. This report, in accordance with hospital policy, should be prepared and sent to the appropriate hospital officials (including the pharmacy) within 24 hours. These reports should be analyzed, and any necessary action taken, to minimize the possibility of recurrence of such errors. Properly utilized, these incident reports will help to assure optimum drug use control. Medication error reports should be reviewed periodically by the pharmacy and therapeutics committee. (It should be kept in mind that, in the absence of an organized, independent error detection system, most medication errors will go unnoticed.)

The following definitions of medication errors are suggested.

A *medication error* is broadly defined as a dose of medication that deviates from the physician's order as written in the patient's chart or from standard hospital policy and procedures. Except for errors of omission, the medication dose must actually reach the patient; i.e., a wrong dose that is detected and corrected before administration to the patient is not a medication error. Prescribing errors (e.g., therapeutically inappropriate drugs or doses) are excluded from this definition.

Following are the nine categories of medication errors.

1. *Omission error:* the failure to administer an ordered dose. However, if the patient refuses to take the medication, no error has occurred. Likewise, if the dose is not administered because of recognized contraindications, no error has occurred.
2. *Unauthorized-drug error:* administration to the patient of a medication dose not authorized for the patient. This category includes a dose given to the wrong patient, duplicate doses, administration of an unordered drug, and a dose given outside a stated set of

clinical parameters (e.g., medication order to administer only if the patient's blood pressure falls below a predetermined level).

3. *Wrong-dose error:* any dose that is the wrong number of preformed units (e.g., tablets) or any dose above or below the ordered dose by a predetermined amount (e.g., 20%). In the case of ointments, topical solutions, and sprays, an error occurs only if the medication order expresses the dosage quantitatively, e.g., 1 inch of ointment or two 1-second sprays.
4. *Wrong-route error:* administration of a drug by a route other than that ordered by the physician. Also included are doses given via the correct route but at the wrong site (e.g., left eye instead of right).
5. *Wrong-rate error:* administration of a drug at the wrong rate, the correct rate being that given in the physician's order or as established by hospital policy.
6. *Wrong-dosage form error:* administration of a drug by the correct route but in a different dosage form than that specified or implied by the physician. Examples of this error type include use of an ophthalmic ointment when a solution was ordered. Purposeful alteration (e.g., crushing of a tablet) or substitution (e.g., substituting liquid for a tablet) of an oral dosage form to facilitate administration is generally not an error.
7. *Wrong-time error:* administration of a dose of drug greater than $\pm X$ hours from its scheduled administration time, X being as set by hospital policy.
8. *Wrong preparation of a dose:* incorrect preparation of the medication dose. Examples are incorrect dilution of reconstitution, not shaking a suspension, using an expired drug, not keeping a light-sensitive drug protected from light, and mixing drugs that are physically/chemically incompatible.
9. *Incorrect administration technique:* situations when the drug is given via the correct route, site, and so forth, but improper technique is used. Examples are not using Z-track injection technique when indicated for a drug, incorrect instillation of an ophthalmic ointment, and incorrect use of an administration device.

FACTORS CONTRIBUTING TO MEDICATION ERRORS

Many authors have published on this subject, and each has developed a check list by which the administrator or the pharmacist may evaluate the accident proneness of his pharmaceutical service.[2,3] Among the most commonly cited factors which are stated to contribute towards the making of medication errors by both pharmacists and nurses are the following:

a. Lack of a hospital pharmacist.

b. Use of non-professional personnel in areas which may require professional judgment.
c. Inadequate labeling of drug and chemical packages for the nursing station.
d. Inadequate drug stations on the pavilions.
e. Inadequate policies governing the reporting of incidents.

CORRECTIVE MEASURES

Lack of a hospital pharmacist

It is a well known fact that approximately 50% of the hospitals in the United States do not employ a pharmacist on their staff.[4] This is a sad reflection upon the quality of care which most practitioners of medicine are forced to offer their patients. In addition, it is an open invitation for a serious medication error and subsequent litigation.

Recognition of the shortage of hospital pharmacists is hereby acknowledged, yet cannot be accepted as the excuse for not attempting to provide adequate pharmaceutical service.

Many solutions to this knotty problem have been described in the literature and include:

1. The sharing of a pharmacist by two or more small hospitals.
2. The combining of responsibilities which the pharmacist must carry such as pharmacist-purchasing agent, pharmacist-technician or pharmacist-administrator.
3. The purchase of pharmaceutical service from a community pharmacy or possibly from a nearby large hospital.
4. The use of consultant pharmacists.

Use of non-professional personnel in areas which may require professional judgment

Lay personnel should, under no circumstances, be placed in positions or areas which may require the exercise of professional judgment. On the other hand, lay personnel should be used in the hospital in areas where they will not be required to act in the capacity of a professional person or in those departments where their acts are under the direct supervision of a professional person.

It is strongly recommended that the director of the pharmacy service develop a strong policy governing the role of lay persons performing in the pharmacy department. Once prepared, the policy should be recorded in the form of job descriptions and sections within the procedural manual.

Inadequate labeling of drug and chemical packages for the nursing station

Unfortunately, too many individuals presume that the labeling of drugs and medications is a relatively simple matter and can, therefore, be assigned to lay employees. When this happens, medication containers become sloppy in appearance and lack the detail required by Federal and state laws, as well as the rules and regulations of the local boards of registration in pharmacy.

The basic concept of affixing a label to any container is to identify the contents and to relay to the user or consumer certain information which the manufacturer and the Government deem to be important. In fact, there should be little or no distinction between commercial medication containers and those dispensed by the hospital pharmacist to the nursing station. Both should bear information as to identity, strength, route of administration and cautions.

The medication label to be used in the hospital should be given considerable thought with respect to the information it is to convey, its size, color and adhesive quality. Many hospital pharmacists utilize only the generic name and metric system on the pharmacy label. Others use the generic name and immediately beneath place the trade name of the product. In addition, the apothecary weight equivalent to the metric system unit may also be displayed on the label. Some hospitals attempt to build into the label an additional safety factor through the use of a color coding system, namely labels printed with red ink on a white background indicate poisons; labels printed with blue ink on a white background indicate oral medications of a non-poisonous nature; green ink is reserved for topical products; black ink for nasal preparations; and purple ink for ophthalmic products.

The use of an auxiliary label is also encouraged in that it serves more readily to call attention to a specific point in relation to the medication. These auxiliary labels are readily available from a number of sources and may be affixed to the medication container in a variety of combinations.

Needless to point out, prescription container or other medication container labels must be neat, uniform, easy to read, unambiguous, comprehensive and factual. Labels should not be affixed one on top of the other for obvious reasons. Archambault[5] describes and pictures a "Label Position Indicator" which guarantees the uniform placement of labels upon containers. By use of this simple device, medication containers will be labeled in exactly the same position thereby creating a uniform appearance on the medication station.

Inadequate drug stations on the pavilions

Medication errors often occur when the nurse preparing the medication is distracted by the passing personnel, is unable to read ade-

quately due to poor lighting, or is forced to go to several different cabinets to gather the materials necessary for the administration of the drug.

Many hospital architects and administrators have recognized this problem and in new construction provision is usually made for a medication room.

A medication room has been defined[6] as a room:

"... used for the storage and preparation of medications."

Wagner[6] also provides that:

"This room should be enclosed for quiet, clear-glazed for observation both in and out, and sized to accommodate more than one person, because with team nursing, students, private-duty nurses, preoperative and postoperative care, several persons may often work here simultaneously."

The minimum requirements for a medication room are as follows:[6]

i. Shallow or stepped shelves divided by some means for individual patient medication, with a system for readily changing patient identification.
ii. A double-locked narcotics safe, with red warning light to indicate when the safe is unlocked, installed at eye level above the counter.
iii. A counter having drawers underneath for storage of syringes and similar items, but open below without cabinets.
iv. A bulletin board.
v. A sink large enough for hand washing, equipped with gooseneck spout and blade handles, should be installed in the counter. This area should be equipped with paper towel dispenser, soap dispenser, and waste receptacle. A separate waste receptacle for broken glass and other nonburnable items should be provided.
vi. A refrigerator mounted above the counter is more convenient, provides better visibility for drug storage, and allows greater ease in cleaning. An undercounter refrigerator with slide-out, removable tray shelves is acceptable.

In hospitals where a separate medication room is not possible, architects have seen fit to install commercial prefabricated drug stations off the main line of traffic or, where possible, to segregate the installation by a partition or sliding door arrangement.

These units are usually constructed of a non-magnetic stainless steel polished to a high finish. These are equipped with counter top space, sink, medicine shelves, medicine card rack, narcotic cabinet, biological refrigerator, medicine cup dispenser, illumination, syringe drawer and waste receptacles.

Although this type of unit is manufactured by a number of firms, probably the most widely known is the "Medi-Prep" unit (Fig. 92).

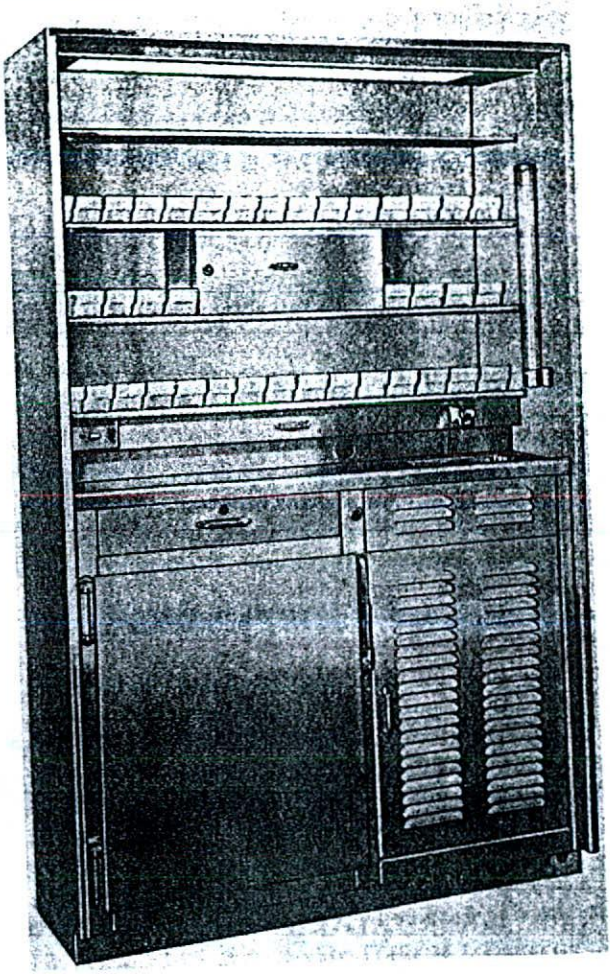


Fig. 92. An example of a type of nursing station medication cabinet. This unit is manufactured by the Market Forge Co., Everett, Massachusetts and is known as the Medi-Prep Unit. There are different models of this unit commercially available. (Courtesy of Market Forge Co., Everett, Massachusetts.)

Inadequate policies governing the reporting of incidents

Laxity in requiring a comprehensive report on each drug accident gives the employee the impression that nobody is interested, and therefore contributes toward the lowering of the standard of patient care. On the contrary, everybody from the nurse to the pharmacist, to the physician to the administrator is or should be interested in every single

accident report in order to ascertain the extent of the injury to the patient as well as to initiate ways and means to prevent a recurrence.

This view is supported by the action taken by the Board of Trustees of the American Hospital Association on May 13, 1958[7] when it was voted—

"To urge hospitals to establish an incident reporting system; further to urge adoption of the Incident Report, for use in conjunction with the incident reporting system . . ."

When used in conjunction with the above vote, the word "incident" was defined as follows:

"An incident is any happening which is not consistent with the routine operation of the hospital or the routine care of the patient. It may be an accident or a situation which might result in an accident."

When possible, the medication error report form should be a separate form from that of the typical incident report form. This is necessary because of the very nature of the information which is required. A medication error report form should be able to elicit the following information concerning each drug error: patient's name, hospital number, and location; name of the drug, its strength and route of administration; the time and date of the error; the name and title of the person making the error; the type of error—(1) omission, (2) wrong dose, (3) extra dose given, (4) unordered drug given, (5) wrong dosage form, (6) wrong time of administration, (7) wrong route of administration; the name of the doctor to whom the incident was reported; the name of the nursing supervisor to whom the incident was reported; a brief description of the treatment or the orders given by the doctor as a result of the error; and a statement by the nursing supervisor as to the measures taken by the Nursing Service to prevent such error from recurring.

ASHP GUIDELINES RELATIVE TO THE SAFE USE OF MEDICATIONS IN HOSPITALS

The American Society of Hospital Pharmacists and its officers have always been concerned about safety practices and procedures in hospitals. Francke,[8] writing editorially, has summarized the history of the development of the Society's Committee on Safety Practices and Procedures and its subsequent publication of a series of guidelines for the safe use of drugs in the hospital.

This document represents one of the most important contributions made by the Society to improve and safeguard the care of hospitalized patients. Practitioners and students alike are urged to review its contents thoroughly and immediately proceed to implement its recom-

mendations. Therefore, for the convenience of both, the *Guidelines Relative to the Safe Use of Medications in Hospitals*,[9] is hereby presented in full detail.

The following guidelines are presented for the use of professional personnel responsible for the safe handling of medications and diagnostic agents in hospitals. Recognizing that existing procedures may change, these guidelines are designed to provide a basis for formulating policies and procedures at the present time.

PREAMBLE

THE BOARD OF TRUSTEES OF THE AMERICAN HOSPITAL ASSOCIATION and the Executive Committee of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS in 1957 adopted the following significant position:

> To urge hospital pharmacists, through appropriate channels, to extend their responsibilities to include participation in programs dealing with the safe handling of drugs throughout the hospital.

Problems of medication safety are now the grave concern of the many persons involved with patient care. These include the hospital trustee, the physician, the administrator, the pharmacist, the nurse, and others. The multiplicity of drugs, the increased number and kinds of medications prescribed per patient, the increased number of both inpatients and outpatients who are being treated, and the ever-changing concepts of medical care make it mandatory that a system of safe medication practices be developed and maintained to insure that the patient receives the best possible care and protection.

In recent years, the rapid obsolescense of drugs, the availability of more specific drugs per disease entity, and the general increase in the prescribing of medications have placed a greater responsibility on pharmacy and nursing services in dispensing and administering medications.

The greatly increased use of medications has increased the hazard of possible error. The seriousness of the problem may be indicated by the fact that medication errors are among the leading causes of accidents in hospitals.

For the purpose of this statement, a medication error, though resulting from many possible causes, is defined as the administration of the wrong medicine or dose of medicine, diagnostic agent, or treatment requiring the use of such agent to a patient; or the administration of the medicine, agent, or treatment at the wrong time, or to the wrong patient; or the failure to administer such medication, agent, or treatment; or the failure to administer at the time specified or in the manner prescribed or normally considered as accepted practice.

SECTION I

LABELING AND MEDICATION CONTAINERS—GENERAL

1.1 Drug labeling should be performed by a pharmacist or under the supervision of a pharmacist. Prescription labels and pharmacy stock labels should be used only by the hospital pharmacy. (See 1.16 and 4.14.)

1.2 The pharmacist should be consulted and should make recommendations concerning labeling, containers and storage of housekeeping items, insecticides, cleaners, and such.

1.3 Medication labels should be typed or machine-printed. Labeling with pen or pencil, use of adhesive tape or china marking pencils should be prohibited. A label should not be superimposed on a label.

1.4 The label should be legible, easily read, and free from erasures and strike-overs. It should be firmly affixed to the container. The label for stock containers should be protected from chemical action or abrasion.

1.5 Labels should bear the name, address, and telephone number of the hospital.

1.6 One order or prescription should be filled and labeled at a time.

1.7 The following or similar accessory labels and caution statements should appear where indicated:

a. Poison
b. Not to be taken internally
c. Shake well before using
d. For external use only
e. For the eye
f. For the nose
g. For the ear
h. Refrigerate at 2°–10°C (35°–50°F)
i. Refrigerate after reconstitution
j. Warning: Not for injection
k. Do not use after _____
l. Not to be swallowed
m. Keep out of reach of children
n. Keep from freezing
o. Keep below freezing
p. Caution: Potent Drug
q. Research Drug
r. NONPROPRIETARY NAME[a]
Note for information of staff:
Prescription or order for *(Proprietary Name)* filled as per formulary policy; contents are same basic drug as prescribed, but may be of another brand.
s. NONPROPRIETARY NAME[a]
Note for informaiton of staff:
Contents may be used per formulary policy, to fill prescriptions or orders for any of the following brands of the same basic drug:
(Proprietary Name, Brand 1)
(Proprietary Name, Brand 2)
(Proprietary Name, Brand 3)
t. Note change in color, size, and shape
u. Other accessory labels providing special information such as dosage, side effects, or contraindications for investigational drugs may be used where necessary.

1.8 The metric system should be given prominence on all labels where both metric and apothecary systems are commonly used.

1.9 The name of the therapeutically-active ingredients should be indicated in compound mixtures.

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[a]Applicable to those hospitals operating under the formulary system as outlined in AHA-ASHP *Statement of Guiding Principles on the Operation of the Hospital Formulary System. See* AM. J. HOSP. PHARM., *17*:609, Oct., 1960.

1.10 Labels for medications should indicate the amount of drug or drugs in each dosage form unless otherwise indicated.
1.11 Drugs and chemicals in forms intended for dilution or reconstitution should carry directions for so doing. Whenever possible, dilutions and labeling should be done in the pharmacy.
1.12 Perishable drugs, such as antibiotics and biologicals, should clearly indicate the expiration date on the label.
1.13 The routes of administration should be indicated for parenteral medications whenever possible.
1.14 Numbers, letters, coined names, and unofficial synonyms and abbreviations should not be used to identify medications with the exception of approved letter or number codes for investigational drugs.
1.15 Only light-resistant, tight containers meeting U.S.P. standards should be used.
1.16 Medications if brought into the hospital by the patient or physician should be positively identified before use. Such medications should be checked by the hospital pharmacist with the originating pharmacy by prescription serial number. A supplemental label should be attached in the hospital pharmacy providing information required in Section II. Where no pharmacist is on duty, the physician should check with the issuing pharmacy and attach the supplemental label described above.
1.17 Containers presenting difficulty in labeling, such as small tubes, should be labeled with no less than the prescription serial number, name of drug, strength, and name of the patient, and should then be placed in a larger carton or container bearing a label with the necessary information indicated in Sections II and III.
1.18 The label should conform with all applicable Federal, state, and local laws and regulations.
1.19 Floor stock medication labels should carry codes to identify source and lot number of medication.

SECTION II

LABELING AND DISPENSING IN-PATIENT PRESCRIPTIONS

2.1 In addition to the recommendations outlined in Section I, the in-patient prescription labels should bear, as a minimum, the following information:
   a. Patient's full name
   b. Nonproprietary and/or proprietary name of the drug actually dispensed
   c. Strength
   d. Date of issue
   e. Name or initials of dispensing pharmacist
2.2 The prescription or in-patient order should have noted thereon, at the time dispensed, the source and batch identifying number of the medication and the initials of the dispenser.
2.3 For in-patient self-care medications, label as in Section III.

SECTION III

LABELING AND DISPENSING OUT-PATIENT PRESCRIPTIONS

3.1 Medications to be dispensed to in-patients who are being discharged should be returned to the pharmacy for relabeling.

3.2 The out-patient prescription label should bear the following information.:

a. Patient's full name
b. Prescription identification number
c. Specific directions for use
d. Date of issue
e. Name or initials of dispenser
f. Name of prescribing physician
g. Where physician requests or hospital policy dictates, identity and strength should be on the label
h. A "Keep out of reach of children" label
i. Name, address, and telephone number of hospital

3.3 Prescriptions should have noted thereon, at the time dispensed, the source and batch identifying number of the medication and the initials of the dispenser.

3.4 An identifying check system to insure proper identification of out-patients should be established.

SECTION IV

CARE OF DRUGS AND DRUG CABINETS IN NURSING UNITS

4.1 Medication centers should be functional and provide:

a. Adequate space so that drugs can be placed and arranged in accordance with 4.2
b. Adequate space to allow all container labels to be clearly visible
c. Adequate lighting so that labels can be clearly read
d. Adequate ventilation
e. Adequate work space protected from traffic and noise
f. Hot and cold running water
g. Sufficient equipment and supplies in readily usable form
h. Refrigeration
i. Inner-lockable narcotic cabinet
j. Adequate means of security

4.2 Medications should be placed in drug cabinets in accordance with an established plan for a particular hospital which provides standardized compartments for:

a. Internal medications
b. Narcotics, barbiturates, amphetamines
c. Poisons and external-use drugs
d. Emergency drugs
e. Ampuls
f. Investigational drugs

4.3 Drugs should be arranged alphabetically within the above mentioned groups insofar as possible.

4.4 Medication cabinets or rooms and narcotic compartments should be kept locked and the keys should be available only to the nurse in charge or her alternate.

4.5 Storage of drugs on mobile dressing carriages is discouraged unless properly secured.

4.6 Not more than one hypodermic tablet should be placed in a capsule for the purpose of protection against breakage or to facilitate counting or control.

4.7 Pharmacy should supply exact quantities for preparation of specific amounts of solution, or should preferably supply the finished preparation. Maintenance of bulk chemicals or stock drugs on the nursing units for preparation of solution should be discouraged.

4.8 Separate storage facilities should be provided for:
- *a.* Test reagents
- *b.* General disinfectants and antiseptics
- *c.* Cleansing agents

4.9 Only drugs and the equipment for preparation and administration should be stored in medication cabinets.

4.10 Drug cabinets should be examined weekly or more often by the nurse in charge. Drugs which appear to have deteriorated, exceeded their expiration date, or are not being used should be returned to the pharmacy for proper disposition. Monthly, or more frequent, inspections should be made by the Directors of Pharmacy and Nursing Service or their delegates.

4.11 Controlled drugs in the nursing unit shall be inventoried, recorded, and inspected in accord with an approved system.

4.12 Investigational drugs should be handled as directed in the Statement of Principles Involved in the Use of Investigational Drugs in Hospitals issued by the American Hospital Association and AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

4.13 Reconstitution of antibiotics and other unstable drugs on the nursing unit should be kept to a minimum. They should be diluted in accordance with directions supplied by the pharmacy.

4.14. Antibiotics and other unstable drugs reconstituted on the nursing unit should carry a nurse prepared label with essentially the following information:
- *a.* Expiration date
- *b.* Nurse's name or initials
- *c.* Dosage or strength per unit volume

4.15 Empty medication containers should be returned to the pharmacy.

4.16 Flammable or explosive liquids such as ether or acetone should be kept in as small supply as possible and in accordance with state and local fire regulations.

SECTION V

MEDICATION ORDERS

5.1 Medications should be given only on the written order of a physician. Exceptions to this policy should be covered by a written policy established by the Medical Board or Medical Staff of the hospital, as for example 5.2 and 5.3.

5.2 Emergency verbal orders may be accepted by a nurse. The physician should check the prepared emergency dose and container before the medication is administered. An order for the medication should be written by the physician at the earliest time possible.

5.3 *Stat* telephone orders may be accepted by a nurse. The order should be

recorded in the doctor's order sheet, followed by the name of physician giving the order, the time, and the signature of the nurse receiving it. The nurse should repeat the order to the physician from her written record for confirmation. The physician should countersign this order on his next visit to the station. The nurse accepting a telephone order should be personally responsible for its execution.

5.4 Medication orders should be automatically cancelled under the following conditions:

a. Patient goes to delivery room or operating room
b. Transfer of patient to another service
c. In accordance with written policy of the Medical Board adopted in connection with the Automatic Stop Order statement of the Joint Commission on Accreditation of Hospitals
d. In accordance with written policy of the Medical Board adopted in connection with Suggested Regulations for Handling Narcotics in Hospitals by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and approved by the American Hospital Association

5.5 The physician will specify the time a stat or single order was written. After the nurse administers the medication, she should write, "Given," the time administered, and her signature.

5.6 Medication orders should be legibly written and should include:

a. Name of medication
b. Dosage expressed in the metric system, except in instances where dosage is commonly expressed otherwise
c. Signature of the physician
d. Route of administration, if other than oral
e. Date and hour

5.7 The use of abbreviations and chemical symbols in the writing of medication orders is discouraged and, if used, should be limited to those agreed upon and jointly adopted by the nursing, pharmacy, and medical staffs of a particular hospital.

5.8 Any question arising from a medication order, including the interpretation of illegible order, should be referred to the physician writing the order. The nurse should not be expected to attempt to carry out the order until the question is resolved.

SECTION VI

MEDICATION CARDS

6.1 A medication card should be made and used for the preparation and administration of all medications and should carry essentially the following information:

a. Patient's first and last names
b. Location of patient and hospital number
c. Name of drug
d. Dosage
e. Route of administration if other than oral
f. Frequency of administration
g. Time(s) of administration
h. Any special precautions or observations
e. Initials of nurse preparing or verifying the medication order
j. Expiration date of order
k. Date card made out

6.2 The medication card should be clearly written in ink or printed and verified by the nurse against the physician's order.
6.3 Cards for "Delayed" or "Omitted" medications should be removed from the regular medication card file and placed in a designated place.
6.4 On assuming charge of a patient unit, the nurse should check the medication cards against the doctor's order to insure the following:
a. All cards are in their proper place
b. Cards for "Delayed" or "Omitted" medications have been removed
c. Cards for medications to be resumed following "Omit" or "Delay" are returned to their proper place in the file
d. Cards for discontinued order are removed and destroyed

SECTION VII

PREPARATION OF MEDICATIONS FOR ADMINISTRATION

7.1 Ascertain that prescribed dose has not previously been administered.
7.2 Select medication card(s) or drug(s) to be administered.
7.3 Check medication card(s) for expiration time and date and omission.
7.4 Arrange medication cards with medicine cups in the order in which medications are to be administered. Use a separate cup for each medication unless otherwise ordered.
7.5 Expose each medication card singly while preparing the medication.
7.6 Give full attention while preparing medication.
7.7 Select drug and compare it to medication.
7.8 Ascertain that the container is completely and properly labeled, including strength when indicated. Never use unlabeled medications.
7.9 Read the label three (3) times
a. Before removing from shelf
b. Before measuring or preparing the dose
c. Before replacing on shelf
7.10 Medications prepared for administration, but not used, should be discarded.
7.11 The pharmacist should be contacted when there is a question regarding the mixing of medications in the same syringe or container.
7.12 A copy of the hospital formulary, an up-to-date incompatibility chart for possible parenteral medication mixtures, and an antidote chart should be maintained at each nursing station.
7.13 Pharmaceutical calculations required in the administration of medications should be checked by another nurse or, if possible, with the pharmacist.
7.14 The metric system, to the extent possible, should be used in prescribing, administering, and recording medications. Approximate metric and apothecary equivalents and information for computing dosage should be readily available on the nursing unit.

SECTION VIII

ADMINISTRATION OF MEDICATIONS

8.1 Medications should be administered only if information regarding the drug is available in the form approved by the Pharmacy and Therapeutics Committee. The nurse should know and consider:
a. General use of the drug

b. Therapeutic action
c. Usual dosage
d. Factors modifying the dosage
e. Factors modifying the effects
f. Untoward actions, side effects, precautions, and contraindications
g. Antidote, if known
h. Medium, route and frequency of administration
i. Signs of deterioration of drug

8.2 Medications shold be prepared and given as near the specified time as possible.

8.3 The patient for whom the medication is intended should be positively identified by checking the identification band or hospital number, or by other means as specified by hospital policy.

8.4 The person administering the medication should stay with the patient until the medication has been taken. Exceptions to this rule are selected medications which may be left at the patient's bedside on the physician's written order.

8.5 All medications should be administered by the person who has prepared the dose. For exceptions to this rule, see (5.2) (8.8).

8.6 Parenteral medications which are not to be mixed in a syringe should be given in different sites.

8.7 The administration of blood and blood derivatives should be the responsibility of the physician. The physician should be responsible for starting intravenous and subcutaneous infusions, for administering all intravenous medications, and for adding medications to flowing intravenous fluids. Exceptions should be covered by written policy established and endorsed by the Medical Board of the hospital, which policies should be in compliance with existing state nursing, pharmacy, and medical practice acts and regulations, or rulings of the office of the state attorney general.

8.8 In instances when the administration of medications is delegated to another person, the nurse should assume the responsibility for supervision of the procedure.

SECTION IX

RECORDING OF MEDICATIONS

9.1 All administered medications or omitted medications should be recorded on the patient's medical record according to an established procedure.

9.2 Hospital policy determine the responsibility for recording medications administered by the physician.

SECTION X

MEDICATION ERRORS

10.1 Each hospital should set up a clear statement of policy for all medication errors. Such policy should include:

a. Reporting
b. Recording
c. Review
d. Channel for analysis and necessary action
e. Written report

10.2 If an error occurs in the administration of medication, the physician and the proper administrative representative should be informed immediately.

10.3 A written report, in accordance with hospital policy, should be prepared and sent to the proper hospital officials within 24 hours.

DRUG INTERACTION SURVEILLANCE

The safe use of medications in hospitals, extended care facilities and nursing homes goes beyond the assurances that the appropriate drug has been dispensed and that the label information is correct. Generally, the introduction of a unit dose system into the operation tends to eliminate many of the errors in medication administration and, at the same time, provides the ultimate in drug control, packaging and dispensing.

To assure the patient and physician or total drug safety, it is essential that the pharmacist maintain a drug interaction surveillance program. Such a program should include a method to check on drug-drug and drug-laboratory test reactions. Because more than one mechanism may be involved, and because each mechanism may be quite complex, the classification of drug interaction mechanisms is very difficult and the practice thereof constitutes a form of specialization in pharmacy. However, the average practitioner of hospital pharmacy can maintain adequate surveillance by instituting a program of working from a direct copy of the physician's original order sheet; preparing a patient drug profile (PDP); and a drug interaction reporting form (DIRF).[10] These combined with the judicious selection and use of the latest textbooks on the subject will assure all concerned that proper drug safety techniques are being practiced.[11,12]

JOINT COMMISSION ON PRESCRIPTION DRUG USE

In November 1976, Senator Edward M. Kennedy announced the formation of the Joint Commission On Prescription Drug Use (JCPDU) with a mandate to (1) define a means by which information on the epidemiology of prescription drug use in the United States could be determined and distributed to interested parties in the United States and (2) describe a post-marketing surveillance (PMS) system that could be used to detect, describe and quantitate the anticipated and unanticipated effects of marketed drugs. The system should be economically feasible and scientifically sound.

The rationale for the creation of the JCPDU is that the regulation of prescription drugs has focused on the pre-marketing phases. Millions of dollars, public and private, are spent to assure that a product is safe and effective for a specific purpose before it is marketed. Once marketed, a physician may use a drug in any dosage, for any purpose—whether or not that purpose has been scientifically evaluated. Thus,

the actual use of prescription drugs operates outside the regulatory framework and little is known about how drugs are actually used once marketed.

After 3 years of deliberation, the JCPDU concluded that a Center for Drug Surveillance be created to: (1) obtain and coordinate the information from multiple sources regarding drug use and effects; (2) initiate research that will lead to development of new and necessary methodologies of surveillance and fill voids in the existing body of knowledge about the effects and uses of prescription drugs; (3) report the information so that its medical and social implications can be appropriately understood and acted upon by health care providers, patients, the FDA, the pharmaceutical industry and others responsible for making decisions about drugs; (4) provide training opportunities or a training center for epidemiologists and other scientists and health care providers who will contribute to PMS; and (5) serve as a readily available resource center on drug information to the entire country.

Copies of the JCPDU's report have been distributed to the libraries of all medical and pharmacy schools in the United States as well as to the libraries of professional societies (including the ASHP and A.Ph.A.). Hospital and clinical pharmacists should take an active role in any post-marketing prescription drug surveillance program in order to assure drug use safety. In addition they should become more involved in drug usage review, medical audit and other patient care review procedures.[13,14]

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29

The Small Hospital, Nursing Homes, Hospices and Part-Time Pharmacists

Nearly 2500 hospitals in the United States do not employ either a full-time or a part-time pharmacist to provide pharmaceutical services to their patients and physicians. In these institutions, non-pharmacist personnel handle the drugs which do not require compounding. All others are purchased from local community pharmacies.[1]

It is sometimes overlooked that these same drugs which are daily handled by untrained hospital personnel are required, by law, to be dispensed in the retail pharmacy or the large hospital by duly qualified, licensed pharmacists. By permitting this double standard to exist, trustees, administrators, pharmacists, and pharmacy law enforcement officers are, in effect, denying the small hospital's patient high quality pharmacy service. In addition, the institution's officers and administration are openly inviting both criminal and civil actions should a serious drug accident occur within the hospital.

The American Hospital Association, the American Society of Hospital Pharmacists and the American College of Apothecaries have held that the size of the hospital should not in any way limit or deprive the patient of the pharmacy service to which he is entitled.[2]

Although the ideal goal to ensure adequate pharmaceutical services in all hospitals, irrespective of size, is to place a pharmacist on each staff, we fully realize that this would be a utopian state. Accordingly, a more practical approach must be sought.

Fortunately, a number of far-sighted, economically and safety minded small hospital administrators have explored and developed a number of plans for the provision of adequate pharmaceutical services with their institutions.

This chapter concerns the study of the four principal methods of handling drugs in the hospital without a full-time pharmacist. These same methods may be utilized in the nursing home or extended care facility with minor modification.

MODEL NURSING HOME-PHARMACIST RETAINER AGREEMENT

Whereas, the _____ (hereinafter referred to as "Nursing Home") desires to provide
(name of Nursing Home)
quality pharmaceutical services to its inpatients; and

Whereas, _____ (hereinafter referred to as "Pharmacist") is a pharmacist in good
(name of Pharmacist)
standing licensed to practice his profession under the laws of this state;

Now, therefore, on this _____ day of _____, 196__, in consideration of the mutual agreements and promises hereinafter set forth, the parties hereto agree:
(date) (month)

1. The _____ Nursing Home agrees to retain Pharmacist and Pharmacist agrees to provide Nursing Home with pharmaceutical services. Nursing Home agrees that during the period of this retainer that Pharmacist shall have the exclusive right to furnish medication and all related medical and health supplies and devices which Pharmacist is legally and professionally qualified to provide.

2. The retainer of Pharmacist shall commence on the date of this Agreement and shall continue for _____ (months, years) from the date hereof. Subject to this Agreement continuing in full force and effect for said period, Pharmacist shall have the option to continue his retainer hereunder for an additional like period by giving Nursing Home written notice of his intention so to do not less than _____ days nor more than _____ days prior to the expiration of the initial term. Upon the exercise of this option by Pharmacist, all of the terms and conditions of this Agreement shall continue in full force and effect for such additional period, except the option to continue the retainer.

3. During the period of the retainer hereunder, Pharmacist shall serve Nursing Home and shall perform any and all services in pharmaceutical matters required or requested in connection with the operation of the Nursing Home premises located at _____, including compliance with all regulatory requirements to meet the conditions or
(street address)
standards of participation in any governmental medical or health assistance programs. Pharmacist will perform such other services of an advisory or educational nature which are related to pharmaceutical services or for which his education, training, and experience as a pharmacist are especially suited, without further compensation other than that provided for in this Agreement.

4A. Pharmacist shall devote such time, energy, and skill as his duties hereunder shall require and shall, at least quarterly, or at any time upon request, submit a report of principal activities performed and to be performed by him for Nursing Home, and shall render such assistance as may be requested by Nursing Home in reviewing the provisions and activities relating to pharmaceutical services in connection with governmental inspections or voluntary accreditation programs.

4B. Pharmacist shall devote not less than _____ hours but not more than _____ hours per _____ (week, month, year) to the performance of his duties under this retainer which shall include all time expended in preparing reports of activities performed or to be performed by him for Nursing Home and time expended in reviewing the provisions and activities relating to pharmaceutical services in connection with governmental inspections or voluntary accreditation programs.

5A. Nursing Home shall pay to Pharmacist as fees for his professional services under this retainer an aggregate of $ _____ (_____ dollars) per _____ (month, year), in addition to the actual cost of medication supplied. Nursing Home shall reimburse pharmacist monthly for the actual cost of medication dispensed to patients upon written statements of account.
(number) (spell out)

5B. Nursing Home shall pay to Pharmacist his usual and customary fee for each prescription order dispensed to Nursing Home patients which shall not be greater than that Pharmacist charges other noninstitutionalized patients. In addition, Nursing Home shall pay Pharmacist for his professional consultation and other services performed on Nursing Home premises a retainer in the aggregate sum of $_____ (_____ dollars) per _____ (month, year).
(number)

5C. Nursing Home shall pay to Pharmacist his actual cost of ingredients plus a professional fee of $_____ (_____ dollars) for each prescription order dispensed to Nursing Home's patients. In addition, Nursing Home shall pay Pharmacist for his professional consultation and other services performed on Nursing Home premises a retainer in the aggregate sum of $_____ (_____ dollars) per _____ (month, year).
(number) (number)

6. Nursing Home agrees to provide Pharmacist with office and pharmacy space needed in performing the services of his retainer and with such secretarial service as may be required. Nursing Home agrees to reimburse Pharmacist for expenditures made on behalf of Nursing Home for reference works, physical equipment, and supplies other than drugs needed in performing his professional duties upon written statements of account rendered monthly: Provided, however, that any expenditure in excess of $_____ for any one item shall first require the approval of the Nursing Home.

7. Pharmacist is retained and employed by Nursing Home only for purposes and to the extent set forth in this Agreement, and his relation to Nursing Home shall, during the period that this retainer is in effect, be that of an independent practitioner, and Pharmacist shall be free to dispose of such portion of his time, energy, and skill not required in the performance of his duties hereunder in such manner as he may choose and to such persons, firms, or corporations as he deems advisable. Pharmacist shall not be considered under the provisions of this Agreement or otherwise as having an employee status or as being entitled to participate in any plans, arrangements, or other benefits pertaining to pension, or other employee-benefit plans.

8. Pharmacist agrees to obtain and maintain a suitable professional liability policy to provide adequate coverage against mistake or neglect in the performance of his professional services under this retainer.

9. Nursing Home shall make such arrangements as may be necessary to assure Pharmacist of effective and actual control of drugs and related supplies, and the records pertaining thereto, under policies and procedures developed in accordance with sound pharmaceutical practices.

10. Pharmacist shall arrange to provide the services of another pharmacist to perform the obligations of this retainer during any absence, vacation or other limited periods when Pharmacist is not personally available.

11. This agreement may be terminated by either party at any time for good and sufficient cause provided the alleged grounds for termination have been presented in writing at least 30 days prior to the effective date of the termination.

In witness whereof, Nursing Home has caused this agreement to be executed through its duly authorized representative and Pharmacist has accepted its terms and promises on this _____ day of _____, 196____.

Name of Nursing Home _____

By: (Signature) _____

Title: _____

Signature of Pharmacist _____

Fig. 93. Model Nursing Home-Pharmacist Retainer Agreement of the type recommended by the American Pharmaceutical Association and the American Society of Consultant Pharmacists.

METHODS OF HANDLING DRUGS IN HOSPITALS WITHOUT A FULL-TIME PHARMACIST

The four principal methods of handling drugs in hospitals without a full-time pharmacist are as follows:

1. A community pharmacist contracts to provide a full pharmaceutical service to the hospital and he, or his duly licensed agent, goes to the institution and actively participates in performing the service contracted for (Fig. 93).
2. A community pharmacist contracts to provide drug merchandise only. He does not go to the hospital. In this situation, other hospital personnel, principally nurses, function in the institution as drug dispensers or distributors.
3. Pharmacy service in the small hospital is provided by the department of pharmacy of a nearby large hospital.
4. No pharmacist is involved in the hospital's drug service, which is carried on by nurses, technicians or aides.

SMALL HOSPITAL-COMMUNITY PHARMACIST RELATIONSHIP

It has been reported[2] that to insure that a part-time pharmaceutical program in the small hospital will succeed, the following are essential:

1. "a compact, adequate (but not necessarily large) separate drug room."
2. "a pharmacist on active duty in the hospital on an average of three hours per day."
3. "a direct telephone service between the small hospital's drug room to the independent pharmacy for consultation services."
4. "stand-by delivery service from the independent pharmacy to the hospital."
5. "the availability of an emergency telephone number and service for the use of the hospital at all hours."

Since this initial attempt was made to develop ground rules for the quasi professional-commercial relationship between the small hospital and the community pharmacist, the American Hospital Association and the American Society of Hospital Pharmacists have cooperated in the development of the following *Suggested Principles of Relationship Between Smaller Hospitals and Part-Time Pharmacists.*[3]

PRINCIPLES OF RELATIONSHIP BETWEEN SMALL HOSPITALS AND PART-TIME PHARMACISTS[a]

Preamble

ALL HOSPITALS should be cognizant of the contribution made by a sound and organized pharmaceutical service for improved patient care and treatment. The introduction annually of numerous potent drugs requires that all hospitals have the full or part-time service of a registered pharmacist. In small hospitals which cannot obtain or afford a full-time hospital pharmacist, the services of a pharmacist on a part-time or consultative basis may be obtained.

If the services of a hospital pharmacist of another hospital are not obtainable, the services of a local registered pharmacist should be utilized whenever possible. When pharmaceutical service from a local pharmacy is considered, the part-time pharmacist and the hospital might consider certain guiding principles of affiliation. The Principles of Relationship Between Smaller Hospitals and Part-time Pharmacists are suggested to achieve the objective of better patient care.

Basic Principle

1. *The pharmaceutical service of the hospital shall be organized and maintained primarily for the benefit of hospital patients.*

In any hospital, the individual elements which are maintained and coordinated are all subordinate to the main objective of providing care to the sick and injured. Any function either newly added or strengthened, as in this instance drug or pharmaceutical services (from any source whatever or by any arrangement), must be in agreement with this basic principle.

Organization

1. *The hospital pharmaceutical service should be under the direction of a professionally competent legally qualified pharmacist.*

The hospital must exercise due care in its selection of personnel. The hospital safeguards the patient and its public trust by fixing the responsibility for its varied functions by appointing adequately qualified individuals.

2. *A part-time pharmacist, as a professional member of the hospital staff and as the head of a hospital function or department, must assume the responsibilities involved.*

Recognition as a member of the hospital organization will be in direct proportion to the responsibility which the individual is capable of accepting on a part-time basis.

3. *The part-time pharmacist shall be responsible to the proper administrative authority of the hospital for developing, supervising and coordinating the activities of the pharmaceutical services to hospital patients and departments.*

With hospital affiliation, an attendant responsibility is placed on the part-time pharmacist to preserve the unity and coordination of the hospital's component activities as directed by the administrator in policies laid down in behalf of the public which the hospital governing board represents. Thus the part-time pharmacist subscribing to a hospital connection in terms of relationships

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[a]Approved by the Board of Trustees of the American Hospital Association and the Executive Committee of the American Society of Hospital Pharmacists February, 1959

is primarily responsible to the hospital administrator for those services provided to hospital patients and departments.

Rules, regulations and procedures regarding drug services to hospital patients and departments should not be counter to or in opposition to the hospital's administrator in behalf of the medical staff, and of the hospital governing board and the public it represents.

4. *The organization of hospital pharmaceutical services, the relationship to the hospital and its elements, and the specific services to be provided should be outlined and reviewed periodically by the hospital administrator and the part-time pharmacist who provides pharmaceutical services to hospital patients and departments.*

To keep abreast of changing developments or staff demands for high standards of service and to obviate misunderstandings, relationships should be outlined initially and reviewed periodically. This appears to be particularly necessary in those situations where certain elements of services are provided on the hospital premises, and others in varying degrees emanate from sources away from the hospital environment arranged by delegation to others who may be unfamiliar with hospital safeguards and policies.

5. *The organization of pharmaceutical services should include the utilization of an organized Pharmacy and Therapeutics Committee responsible for the development of rules and regulations pertaining to professional policies related to pharmaceutical services for hospital patients.*

Following the usual practice in hospitals, the medical and pharmacy staffs acting in an advisory capacity are the most qualified to recommend to the hospital such policies as relate to selection, evaluation and distribution of drugs used in the hospital. The composition and specific objectives of the Pharmacy and Therapeutics Committee as well as its appointment may be developed to best meet the needs of the hospital and its standards.

Functions

1. *The primary functions of the service provided by a part-time pharmacist should be to furnish drugs with sufficient dispatch so that patient care will not be hindered, to provide adequate safeguards for the patient and hospital personnel, and to provide therapeutic agents of respected quality.*

Responsibilities do not begin or end with filling prescriptions or furnishing drugs remotely from the hospital. The well-rounded and minimum responsibility might include such personal services by the part-time pharmacist as staff education related to safeguards in use of drugs on the premises, contribution to educational or research programs where extant, provision of maximum consultation services to nursing and medical staffs, inspection of drug storage and distribution throughout the hospital, attendance at committee and department meetings, preparation of fiscal and professional reports where necessary, maintenance of an approved stock of emergency drugs, provision for 24-hour drug services, elimination of waste, etc.

2. *Records concerned with hospital patient services should be maintained separately, preserved for the period prescribed by legal or hospital requirements, and be readily available.*

Such records as narcotic, barbiturate, alcohol, prescription, and requisition requests differ between hospitals and retail pharmacy practice. Identification with a hospital transaction or treatment may be of prime importance.

3. *The relationship between the hospital and the part-time pharmacist in the function of drug procurement or purchasing for both patient and general*

hospital use should be based on fixed responsibilities and meet the following principles on Business Relationships.

The smaller hospital generally purchases supplies through a modified central channel in the organization. The need for expert evaluation of specifications in the drug field is recognized. Hospitals contributing services to indigent patients enjoy special price privileges, and drugs in this category ethically should not be diverted to other outlets. The complexity in the area of procurement and possibility of abuses by either the hospital or the part-time pharmacist require careful evaluation of the procedure.

a. That basis of financial arrangement between a hospital and part-time local pharmacist should be followed which would best meet the local situation. It is recognized that no one basis would seem applicable or suitable in all instances.

The hospital and the part-time pharmacist must have a thorough appreciation of each other's business systems and controls. This may involve detailed exploration.

b. Arrangements involving services to patients through voluntary insurance, indigent patients, or employees should be established in accordance with accepted hospital relationships and philosophies involving such programs.

Some insurance plans vary between localities, and in some instances the so-called "no-pay or part-pay" patients comprise a sizable number of persons. Special financial arrangements in accord with hospital policy for other services provided may be required.

c. Arrangements for a regular schedule for the personal services of the part-time pharmacist on the hospital premises should be made on a flexible basis related to time spent and services provided.

The hospital schedule and its 24-hour service to patients demands a varying amount or period spent during regular visits or to meet emergency requirements. In general, an average amount of time may be considered initially. Such an arrangement should be included in a plan, even though many services are provided remotely from the hospital premises.

d. Solicitation of patients or rendering services to the medical staff for their private practice through hospital channels by any person connected with the hospital is unethical.

The privilege of hospital affiliation should not be used to gain unfair advantage over other members of the profession. Patients and physicians are attracted to a particular pharmacy because of its known merit and established reputation for satisfactory service. Implied or open solicitation through hospital connections should not be indulged in by part-time pharmacists.

e. Relationships between a part-time pharmacist and the hospital are considered on the merit of reputable, prompt service to patients at reasonable cost, ability to serve the hospital in all phases of pharmacy service demanded by hospital requirements, and should subscribe to the suggested principles.

In communities where several pharmacies are available, a hospital may hestitate to engage the services of any one pharmacist because of pressures and ill-feeling against the hospital by other pharmacists. Intra-professional rivalry should not place the hospital in a position of not raising its own pharmacy service standards. The hospital as a community institution should be allowed the privilege of judging its future relationships for expanded services

on the basis of a part-time pharmacist's ability to provide those services in the spirit in which patient care is provided in that hospital.

Conclusion

These Principles of Relationship Between Smaller Hospitals and Part-time Pharmacists for Hospitals are suggested. These recommended guides for further development and discussion are a beginning for those hospitals and pharmacists who wish to explore possibilities for developing higher standards of pharmaceutical service in institutions without full-time pharmacists.

A combination of such principles and the Minimum Standard for Pharmacies in Hospitals can provide both smaller hospitals and part-time pharmacists a working basis for a higher level of pharmaceutical service.

Under a part-time plan, the community pharmacist contracts to provide the small hospital with prescription orders and other drug merchandise. He does not agree to partake in any of the routine activities normally engaged in by the hospital pharmacist.

An agreement of this type usually provides that the nurse or the physician telephone to the community pharmacist the patient's drug needs. The compounded prescription is then to be delivered to the hospital with a properly identified charge slip. The hospital then bills and collects for the prescription medication along with the routine hospital charges. At the end of a specified billing period, the community pharmacy renders to the hospital a detailed bill of all prescriptions and other drug stocks less a previously agreed upon discount from the total charges. This discount, therefore, provides the community hospital with a small income from its drug service to compensate for its expenses in the billing and collection of the drug charges.

RESPONSIBILITIES OF COMMUNITY OR CONSULTING PHARMACISTS EXTENDED CARE FACILITIES AND SMALL HOSPITALS

Since most extended care facilities and small hospitals do not employ full time pharmacists, many of them contract for such service. Pharmacists who agree to provide such a service are required by the Medicare law to assume certain responsibilities and perform specific functions. These go far beyond the dispensing of prescriptions for patients but include an interdisciplinary approach towards the provision of consulting pharmaceutical service.

DISPENSING PRESCRIPTIONS FOR EXTENDED CARE FACILITIES AND SMALL HOSPITAL PATIENTS

Extended care facilities, nursing homes and small hospitals do not maintain a full service pharmacy on the premises. Thus, the medical staff relies upon community pharmacists to dispense medications from the local pharmacy and have them delivered to the facility. The labels on these prescriptions, in addition to the customary information, should also indicate:

a. Name of Medication
b. Strength
c. Name of Manufacturer
d. Lot and/or control number

The above information is desirable in the event of a drug recall.

CONSULTING PHARMACEUTICAL SERVICE

Generally, the community or consulting pharmacist is expected to work with the organized medical staff, the Director of Nursing and the Administrator for the purpose of establishing written policies and procedures for the control and utilization of medications in the facility.

These policies are normally referred to as the *Policy and Procedural Manual for Pharmacy Services* and should include, among others, the following subject headings:

1. Automatic "Stop Order" policy.
2. Control system for alcohol and spiritous liquors.
3. Control system for all drugs covered by the Controlled Substances Act of 1971. This Act controls the use of narcotics, barbiturates, amphetamines and certain stimulant and depressant medications.
4. Controls for the use of research drugs.
5. Control of physician's drug samples.
6. Policy governing self administration of medications.
7. Emergency drug kits
   a. Contents
   b. Inspection procedure.
8. Reporting of medication errors.
9. Reporting of adverse drug reactions
10. Periodic inspection of nursing station medication cabinets to insure—
    a. That external medications are kept apart from internal use drugs.
    b. That biological refrigerator has a thermometer, that temperature range of refrigerator is 35.5° to 50° F. (Ice cube section used for small pox, yellow fever, measles and polio vaccines, if stocked, and of types requiring below freezing storage.) Biologicals may also be kept in general use refrigerator providing they are stored in a separate box.
    c. That there are no outdated medications (antibiotics, biologicals, etc.).
    d. That medication cabinets are kept locked.

e. That Metric-English weight and measure conversion charts are at each nursing station medication center.
f. That working text references on drug uses, side effects and contraindications, such as the American Hospital Formulary Service of the American Society of Hospital Pharmacists are at nursing station medication centers.

11. Policy on medication labeling.
12. Policy and procedure on removal of medications from pharmacy or drug room in absence of pharmacist.
13. Policy and procedure on medications to be taken home by the patient.
14. Pharmacy or store room inventory control system including the dating of stocks on receipt.
15. Macroscopical (light-testing) examination of parenterals.
16. Policy concerning additives to parenterals.
17. The creation and activities of the Pharmacy and Therapeutics Committee including the keeping of written minutes of meetings.
18. The establishment and maintenance of a formulary of drug list.
19. Fire control provisions.
20. Qualification of pharmacists and experience requirements.
21. Policy on record keeping.
22. Policy on Poison Control Center Communications and references.
23. Audit of narcotics and other "controlled" drugs at nursing stations.
24. An "official" (medical staff approved) list of medical abbreviations applicable to drug administration and dispensing.
25. Application of FDA medication lot number recall "alarm" to the facility.
26. Policy and procedures relative to the writing and signing of medication orders.

SMALL HOSPITAL-LARGE HOSPITAL PHARMACY RELATIONSHIP

Many large hospitals often provide assistance to the smaller hospitals by providing pathology and radiology services. In addition, the small hospital often sends to the larger hospital various specimens of human fluids for comprehensive or special laboratory procedures. Since the avenue of cooperation is opened by the above, is there any reason why the large hospital cannot also provide pharmaceutical coverage?

The pharmacy service between the two hospitals can be handled in the same manner that a retail pharmacist would assume full responsibility for the pharmacy service. In this case it is much simpler for telephone service between the two institutions is open around-the-clock, the pharmacist who is on-call at the larger hospital may also cover the small hospital; and finally the inventory of the large hospital is usually more than adequate to provide for emergency items for the small hospital.

This type of arrangement is mutully advantageous to both hospitals in that it provides the smaller hospital with the services of experienced hospital pharmacists and permits the larger hospital with another op-

portunity to contribute to the over-all improvement of medical care in the community.

PROGRAM FOR SMALL HOSPITAL WITH NO PHARMACY OR PHARMACIST RELATIONSHIP

Hospitals in this category of having no pharmacy or pharmacist relationship usually rely upon other personnel to handle their daily services. Although nurses are primarily engaged in this practice, it is a known fact that the aides and technicians are also utilized.[1]

Drugs used by these institutions are usually stored in a small room, often referred to as the "drug room." Invariably, it is overcrowded, with no semblance of inventory control.

Even under these conditions, the hospital administrator can undertake a simple program to improve his pharmacy service even though he is unable to secure the minimal services of a part-time pharmacist. The proposed program consists of the following steps:

1. The administrator should call a meeting of representatives of his medical and nursing staffs for the purpose of reviewing the present drug inventory and selecting the medications which the hospital should keep and at the same time ascertain those items not in the inventory but which should be procured.
2. Merchandise in the drug room, not on this list, should be discarded or, where possible, exchanged for medications which have been requested to be added to the inventory.
3. A subscription to the American Hospital Formulary Service should be entered because this will make available to the administrator, doctor and nurse a single, concise and authoritative source of information on the drugs carried in the drug room.
4. All of the drugs and related diagnostic agents should then be purchased in the smallest units possible in order that they may be dispensed to the nursing station without repackaging or labeling (both of which are pharmacy acts). Strip packaging is ideally suited for this type of dispensing.
5. If at all possible, place the responsibility for the drug room in the hands of the hospital's most competent nurse or nursing supervisor.
6. Make some arrangement with the local pharmacy for the purchase of prescriptions calling for mixtures of medications for individual patients.
7. The administrator should meet with his medical and nursing staff at least twice a year in order to keep the inventory current and maintain the interest of all concerned in this aspect of patient care.

Because this program requires the purchase of medications in small individual use packages, the cost per dose of the medication will necessarily be higher to both the hospital and to the patient. This, however, should not deter the administrator from undertaking such a program for in exchange for this slightly higher cost per dose of medication he

is providing as safe a pharmaceutical service as is possible under the circumstance.

PHARMACY'S ROLE IN NURSING HOMES—EXTENDED CARE FACILITIES

The United States Public Health Service in its Nursing Home Standards Guide defines the term nursing home as—

"a facility or unit which is designated, staffed and equipped for the accommodation of individuals who are not in need of hospital care but who are in need of nursing care and related medical services which are prescribed by or performed under the direction of persons licensed to provide such care or services in accordance with the laws of the state in which the facility is located."

With the advent of Medicare, a great deal of attention has been focused on the nursing home and the role which it must play in the care of our elderly citizens.

The Nursing Homes and Related Facilities Branch, Division of Medical Care Administration, Public Health Service published a report on licensed nursing homes[4] and related facilities which showed that as of June 1965, there were 18,958 facilities with 760,441 beds in the country who were providing either nursing home services, personal care with nursing services, or plain custodial care.

Other statistics that are of interest are that in 1975 there were as many as 25 million people in this country who were 65 years of age or older; that an additional 70,000 nursing home beds were under construction and that the average nursing home had approximately 66 beds with a range of 40- to 100-bed capacity.

Clearly then, these patients require medical, nursing and pharmaceutical services in a volume which is far greater in scope and concentration than we are able to provide due to the personnel shortages within these three professions.

Thus many community pharmacists and hospital pharmacists will have to do double duty in order for the profession of pharmacy to meet its obligation to these patients.

The relationship between the community pharmacist and/or the local hospital pharmacist would be similar to that of servicing a small community hospital. Since these have been presented earlier in the chapter they will not be repeated here.

Public Law 89–97 provides for certain conditions for a pharmaceutical service in the extended care facility. For the convenience of the reader these are hereinafter reproduced and will serve as guidelines for those pharmacists who do respond to the call for pharmaceutical services in the nursing home.

CONDITION OF PARTICIPATION FOR EXTENDED CARE FACILITIES

PHARMACEUTICAL SERVICES

WHETHER DRUGS ARE GENERALLY PROCURED FROM A COMMUNITY PHARMACY OR STOCKED BY THE FACILITIES, THE EXTENDED CARE FACILITY HAS METHODS AND PROCEDURES FOR ITS PHARMACEUTICAL SERVICES THAT ARE IN ACCORD WITH ACCEPTED PROFESSIONAL PRACTICES.

Standard A

Procedures for Administration of Pharmaceutical Services

The extended care facility provides appropriate methods and procedures for the obtaining, dispensing and administering of drugs and biologicals, developed with the advice of a staff pharmacist, a consultant pharmacist, or a *pharmaceutical advisory committee* which includes one or more licensed pharmacists.

FACTOR 1. If the extended care facility has a pharmacy department, a licensed pharmacist is employed to administer the pharmacy department.

FACTOR 2. If the facility does not have a pharmacy department, it has provision for promptly and conveniently obtaining required drugs and biologicals from community pharmacies.

FACTOR 3. If the facility has only a drug room where bulk drugs are stored:

(i) The consultant pharmacist is responsible for the control of all bulk drugs and maintains records of their receipt and disposition.

(ii) The consultant pharmacist dispenses drugs from the drug room, properly labels them and makes them available to appropriate licensed nursing personnel. Wherever possible, the pharmacist in dispensing drugs works from the prescriber's original order or a direct copy.

(iii) Provision is made for emergency withdrawal of medications from the drug room.

FACTOR 4. An emergency medication kit approved by the facility's group of professional personnel is kept readily available.

Standard B

Conformance With Physician's Orders

All medications administered to patients are ordered in writing by the patient's physician. Oral orders are given only to a licensed nurse, immediately reduced to writing, signed by the nurse and countersigned by the physician within 48 hours. Medications not specifically limited as to time or number of doses, when ordered, are automatically stopped in accordance with written policy approved by the physician or physicians responsible for advising the facility on its medical administrative policies.

FACTOR 1. The charge nurse and the prescribing physician together review monthly each patient's medications.

FACTOR 2. The patient's attending physician is notified of stop order policies and contracted promptly for renewal of such orders so that continuity of the patient's therapeutic regimen is not interrupted.

FACTOR 3. Medications are released to patients on discharge only on the written authorization of the physician.

Standard C

Administration of Medications

All medications are administered by licensed medical or nursing personnel in accordance with the Medical and Nurse Practice Acts of each State.
Each dose administered is properly recorded in the clinical record.

FACTOR 1. The nursing station has readily available items necessary for the proper administration of medication.

FACTOR 2. In administering medications, medication cards or other State approved systems are used and checked against the physician's orders.

FACTOR 3. Medications prescribed for one patient are not administered to any other patient.

FACTOR 4. Self-administration of medications by patients is not permitted except for emergency drugs on special order of the patient's physician or in a predischarge program under the supervision of a licensed nurse.

FACTOR 5. Medication errors and drug reactions are immediately reported to the patient's physician and an entry thereof made in the patient's clinical record as well as on an incident report.

FACTOR 6. Up-to-date medication reference texts and sources of information are provided, such as *ASHP Hospital Formulary* and *Physicians Desk Reference.*

Standard D

Labeling and Storing Medications

Patients' medications are properly labeled and stored in a locked cabinet at the nurses' station.

FACTOR 1. The label of each patient's individual medication container clearly indicates the patient's full name, physician's name, prescription number, name and strength of drug, date of issue, expiration date of all time-dated drugs, and name, address and telephone number of pharmacy issuing the drug. It is advisable that the manufacturer's name and the lot or control number of the medication also appear on the label.

FACTOR 2. Medication containers having soiled, damaged, incomplete, illegible, or makeshift labels are returned to the issuing pharmacist or pharmacy for re-labeling or disposal. Containers having no labels are destroyed in accordance with State and Federal laws.

FACTOR 3. The medications of each patient are kept and stored in their originally received containers and transferring between containers is forbidden.

FACTOR 4. Separately locked, securely fastened boxes (or drawers) within the

medicine cabinet are provided for storage of narcotics, barbiturates, amphetamines and other dangerous drugs.

FACTOR 5. Cabinets are well lighted and of sufficient size to permit storage without crowding.

FACTOR 6. Medications requiring refrigeration are kept in a separate, locked box within a refrigerator at or near the nursing station.

FACTOR 7. Poisons and medications "for external use only" are kept in a locked cabinet and separate from other medications.

FACTOR 8. Medications no longer in use are disposed of or destroyed in accordance with Federal and State laws and regulations.

FACTOR 9. Medications having an expiration date are removed from usage and properly disposed of after such date.

Standard E

Compliance With Laws Controlling Narcotics, Etc.

The extended care facility complies with all Federal and State laws relating to the procurement, storage, dispensing, administration and disposal of narcotics, hypnotics, amphetamines, certain psychosomatic medications, and other legend drugs.

FACTOR 1. A narcotic record is maintained which lists on separate sheets for each type and strength of narcotic the following information: date, time administered, name of patient, dose, physician's name, signature of person administering dose, and balance.

DRUG SAFETY

The consultant pharmacist serving the nursing home and the extended care facility has the obligation of ensuring safe medication practices in the facility. This goes far beyond the accepted procedures of proper dispensing and labeling of medications and their containers. The horizon for the initiation of control measures is limitless and depends upon the ingenuity of the consultant. However, two tried and true methods are readily available.

First, the consultant pharmacist should maintain a patient drug profile on each and every patient in the unit. Again, these profiles vary with the facility and the pharmacist however. Reference to Figure 94 provides the pharmacist with one type of profile. Some of the items on this profile may appear to be superfluous to some yet they have proven useful on occasion. These are the data on "religion" and SIL (seriously ill list). The religion information has been useful whenever the patient was likely to have blood or blood products prescribed and the use of such products was against his religious beliefs. The data indicating whether or not the patient was considered so ill as to warant placement on the seriously ill list may be of use to the pharmacist in his discussions

PBBH

I. GENERAL INFORMATION | Frequency

TPR _____ _____
BP _____ _____
Intake _____ _____
Output _____ _____

Diet: Regular _____
Special: specify _____
_____
Fluids: _____

Activities of Daily Living:
Bathing: _____
Eating: _____
Mobility: _____

Date	II. Medications	III. Diagnostic Tests				
		Date Ord.	X-ray	Date Done	Lab.	Date Done
			EKG			
			Special			

IV.

No. _____ Adm. Date _____ Religion _____ SIL _____

Name _____ Adm. Diagnosis _____

FORM 241

Fig. 94. Patient profile form in use in one institution.

with the physician and nursing staff. In addition, it helps to emphasize the urgency with which changes in the therapeutic regimen must be made.

Second, the routine inspection of the nursing station is of great importance in that it helps to remove out-dated and deteriorated medications from the medication closet and helps to check to see that products are properly labeled and stored. A sample check list is presented in Figure 95.

HOSPICE PROGRAMS

The National Hospice Organization defines the hospice concept as follows:[5]

A hospice is a centrally administered program of palliative and supportive services which provides physical, psychological, social, and spiritual care for dying persons and their families. Services are provided by a medically supervised interdisciplinary team of professionals and volunteers. Hospice services may be available in either the home or in an institutional setting. Home care can be provided on a parttime, intermittent, regularly scheduled, or around the

PETER BENT BRIGHAM HOSPITAL
Nursing Unit Inspection Guide
Department of Pharmacy

Unit_____ Routine_____
Date_____ Follow-up_____

A. INDIVIDUAL PATIENT DRUGS:
1. Present arrangement and space allotment for inpatient medications is satisfactory . . . . . Yes___No___
2. All drugs have been returned to pharmacy for credit following discontinuation or patient discharge . . . . . Yes___No___
3. All labels on medication containers are accurate, are not defaced, and necessary accessory labels are present . Yes___No___
4. Injectable medications are properly labeled as to date of reconstitution, concentration, expiration date (in addition to patient room-number, name and date). . . . . Yes___No___
5. Drugs requiring refrigeration are properly stored . . . . Yes___No___

B. CHARGE FLOOR STOCK DRUGS:
1. Stock level for each item is adequate . . . . . Yes___No___
2. All items have charge voucher attached . . . . . Yes___No___
3. All items are appropriately labeled and stored . . . . . Yes___No___

C. FREE FLOOR STOCK-DRUGS:
1. Present arrangement and space allotment for floor stock is satisfactory . . . . . Yes___No___
2. All items are properly labeled . . . . . Yes___No___
3. All labels are in satisfactory condition . . . . . Yes___No___
4. Internal drugs are separated from external drugs . . . . . Yes___No___
5. All items are in adequate supply . . . . . Yes___No___

D. EMERGENCY STOCK DRUGS:
1. Emergency box is in proper place . . . . . Yes___No___
2. Emergency cart is ready for use . . . . . Yes___No___
3. All drugs are in date . . . . . Yes___No___

E. REFRIGERATED DRUGS:
1. All drugs are in the appropriate compartment . . . . . Yes___No___
2. All drugs are properly and completely labeled (expiration date, concentration, reconstitution date etc.) . . . . . Yes___No___

F. NARCOTICS, BARBITURATES AND CONTROLLED SUBSTANCES:
1. The narcotic drawer is locked . . . . . Yes___No___
2. The key is with the Head Nurse (or nurse in charge) . . . Yes___No___
3. All drugs are currently being used . . . . . Yes___No___

Notes and comments as a result of discussion of inspection form with Nurse:_____

All Drugs Removed from the Unit have been reviewed with the Nurse.

Signed:
_____Pharmacist_____Nurse

Copy-1 - Pharmacy Copy-2 - Nursing Unit Copy-3 - Nursing Unit

Fig. 95. Sample Nursing Unit Inspection Guide.

clock on-call basis. Bereavement services are available to the family. Admission to hospice program of care is on the basis of patient and family needs.

Many home health agencies have developed hospice care programs designed to meet the needs of the terminally ill patient and his or her family. Pharmacist involvement with hospices has been limited and varies with each setting. Some functions performed by consulting pharmacists include but are not limited to the following.[5]

1. Provides skilled evaluation of the use of drugs and biologicals in hospice care with emphasis on drug interactions and symptom control.
2. Conducts a monthly review of the drug protocol of each hospice patient.
3. Serves as a liaison with other community pharmacists and pharmacies to provide 24-hour pharmaceutical service for patients and their families.
4. Conducts in-service training for hospice staff.

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30

Computers in the Hospital Pharmacy

With the improved technology in word processing and computer hardware, the cost of this equipment is within reach of most hospital pharmacies. The literature is replete with innovative programs utilizing computers for automated inventory control,[1] drug interaction computer data base,[2] IV admixture programs,[3] clinical pharmacy services,[4] departmental productivity reporting,[5] drug information filing[6] and unit dose drug distributions.[7]

Prior to commencing work on the acquisition of a computer, the hospital pharmacist should become knowledgeable with the specialized terminology used by computer sales personnel; consult with the institutional data processing manager to determine whether the system to be installed is dependent or independent of the central computer; and finally to ascertain the capability of the equipment and program.

TERMINOLOGY

The following are some of the commonly used words and phrases that the student should master prior to embarking upon a program to acquire a computer.[8]

A *computer* is an apparatus that can perform logical and mathematical operations by mechanical or electrical means, or both, following specific instructions in a controlled sequence.

Hardware means the physical equipment, i.e., the mechanical, magnetic, electrical or electronic devices.

Software means a set of procedures, programs concerned with the operation of the data processing system.

Bytes are characters, either numbers or letters.

Megabytes means 1 million bytes.

32K memory means 32 thousand positions of memory storage.

CPU stands for a central processing unit.

CRT is a cathode-ray tube, a video screen, that is used to display information.

VDT is a video display terminal. Same as CRT.

Mainframe or *HIS (Hospital Information System)* is a hospital-wide system that consists of various departmental modules and can enter or *input* information to and retrieve, or *output*, information from a central source, i.e., the mainframe or computer bank.

"Down" means that period when the system is not operable.

Hard copies are printed records of information that has been entered into the system.

"Stand-alone system" is one that does not depend on the in-house mainframe to operate.

"Floppy" disc is a magnetic recording device, similar to a phonograph record.

Default may be defined as a type of programmed shorthand whereby the system has defined the usual form of data entry for that practice setting.

RAM stands for random access memory.

LANs stands for local area network.

Network is a system of connected computers that permits communication between computers.

PROGRAM CRITERIA

One of the preliminary steps that must be undertaken is to ascertain the capability of the hardware and software to be installed. There are many ways of doing this but the simplest is to interrogate the vendor and the data processing manager. Typical questions are . . . can the proposed system:

1. respond to the need to update patient profiles;
2. readily provide the patient's medication profile;
3. reduce or eliminate the ministerial functions associated with the ordering of patient medications;
4. be supportive of ongoing unit dose dispensing, IV admixture and hyperalimentation programs;
5. be readily accessed in order to update cost price and charge price. In this same regard, can the system reduce or eliminate the burden or pricing drug order slips for the accounting department;
6. eliminate prescription label typing;
7. provide adequate inventory control;
8. provide better control through effectively monitoring allergies and interactions between two or more drugs, drugs and foods or drugs and laboratory procedures;
9. accommodate the hospital formulary, National Drug Code or the Drug Product Information file of the American Society of Hospital Pharmacists;
10. provide medication labels as a by-product of order entry;
11. accommodate support of an IV admixture program by calculating hand times and drip rates;
12. upon ordering of medications can the system automatically update the medication profile;

13. display all active and discontinued medications plus patient's diagnosis, dietary and allergy precautions;
14. provide a daily "medication administration record" which lists all medications to be administered to a patient during the next 24 hours. This hard copy should be able to be used for the charging function;
15. be used to provide a count of all drugs administered during the patient's entire hospitalization;
16. be used to support a unit dose program by providing daily "fill reports."

Reid[9] reports that computer technology has advanced at such an awesome speed during the last few years that even sophisticated specialists find it difficult to keep up with the latest developments in computer equipment and programs. Thus, he advocates the following "Ten Commandments for Computer Health."

1. Know the vendor's reputation.
2. Know the vendor's experience.
3. Know what features you want and need.
4. Know the true cost.
5. Examine the vendor's proposal.
6. Know and test the system's design quality.
7. Know the system's performance and reliability.
8. Know who's going to install it.
9. Be sure of ongoing support.
10. Is the vendor willing to negotiate?

MANAGING COMPUTER SYSTEM DEVELOPMENT

Once the decision concerning development of a computer system has been made, authorities[10] in the field believe that for the program to succeed consideration should be given to the following:

1. An employee training program should be developed and initiated.
2. A pharmacist should be appointed to coordinate the continued development of the system.
3. Responsibility and methodology for data base accuracy and integrity must be assigned from the start.

The training program may be divided into two parts: a general orientation and a formal training program which should include the following:[11]

1. Computer terminology,
2. Hardware operation demonstration,
3. Description of each function,
5. Delineation of policy and procedures,
6. Manual back-up system description and demonstration of printouts, reports and labels.

Pickett[12] has stated that after recognition of the need to computerize, three general planning or developmental processes need to be completed by the pharmacy manager—operations analysis, financial analysis and administrative analysis. Although these processes represent a common approach to computerization planning for all pharmacy managers, they will vary by degree from one hospital to another.

Operations analysis in computer planning is sometimes called systems audit and serves to quantify and qualify the functions of a department.[12]

The financial analysis must be well developed, with all potential costs and benefits addressed. Examples of costs beyond hardware and software purchases as least costs, include the cost of redundant systems during conversion; additional personnel in training and adaptation; form changes and the purchase of computer paper; professional consultation for problems or changes; additional utility overhead, system maintenance; remodeling and installation requirements; and interface with other automated systems.[12]

Administrative analysis is the consideration of activities and variables that are not part of a financial or operations analysis. For example, reduction in medication error potential or reduction in employee orientation time. The use of the computer may also affect legal or regulatory compliance.[12] System Selection

Because of the widespread use of computers and the lower acquisition cost of hardware and related programs, pharmacists have a choice as to the route to automation. Generally the two routes most considered are the mainframe and the mini-HIS, dedicated standalone.

The mainframe system is the most complex to install yet offers the advantage of being able to serve multiple users and to integrate vast amounts of data, such as patient information, laboratory data, physicians' orders as they are written and daily billing via the patient profile.[13]

The stand-alone system is one that does not have to rely on the in-house mainframe to operate. The advantage of this is that the system remains functional when the mainframe is non-operational. Because this system operates independently of the main system, information present in the main unit has to be entered separately into this system. One way to reduce this duplication of effort is to interface the stand-alone system with the main unit via cable connections and special programming or by having the standalone system produce output in a format that can be interpreted by the main unit through a buffer mechanism which possesses the data.[8]

The disadvantages are that it must serve too many users with varying requirements thus making it difficult to make program changes without compromise, a route that is time consuming and often frustrating.[13] In

addition, if the main hospital system is not in operation, the pharmacy module is also non-functional.

The New England Medical Center[14] and The Ohio State University Hospitals[15] have chosen the mainframe system. The success of these installations is purported to be that the control of the system design was vested in pharmacist users and not in system analysts at a distant headquarters.[13]

The pharmacy computer system at the Ohio State University Hospitals was developed to make more efficient use of equipment and professional staff time. Like many other pharmacy systems, this one operates on the mainframe hospital system using computer terminals with light-pen and keyboard access. On-line applications include order entry, patient profiles, pharmacokinetic calculations, and preparation of unit dose cart fill lists. Batch processing functions include drug-use review, drug-drug interactions and financial management reports. It is reported that the system saves considerable staff time in the i.v. admixture and billing areas and relieves pharmacists from performing many clerical and repetitive tasks. The disadvantages of the system include (i) its dependence on another department for patient admission, transfer and discharge information and (ii) delays in obtaining approval for program modification and applications.[15]

The ASHP Technical Assistance Bulletin on Hospital Drug Distribution and Control[16] provides the following data on computerization of the hospital pharmacy.

ASHP TECHNICAL ASSISTANCE BULLETIN ON HOSPITAL DRUG DISTRIBUTION AND CONTROL

Computerization. Many information-handling tasks in the drug control system (e.g., collecting, recording, storing, retrieving, summarizing, transmitting and displaying drug use information) may be done more efficiently by computers than by manual systems. Before the drug control system can be computerized, however, a comprehensive, thorough study of the existing manual system must be conducted. This study should identify the data flow within the system and define the functions to be done and their interrelationships. This information is then used as the basis to design or prospectively evaluate a computer system; any other considerations, such as those of the hospital accounting department, are subordinate.

The computer system must include adequate safeguards to maintain the confidentiality of patient records.

A backup system must be available to continue the computerized functions during equipment failure. All transactions occurring while the computer system is inoperable should be entered into the system as soon as possible.

Data on controlled substances must be readily retrievable in written form from the system.

IMPACT OF THE COMPUTER ON DISPENSING TIME

The effect of computerization on dispensing time in a hospital-affiliated ambulatory care pharmacy was studied.[17]

Based on mean times for each activity, prescription processing time per patient (average of 1.5 prescriptions) was 7.0 minutes for both new and refill prescriptions using manual dispensing, 6.28 minutes for new prescriptions using computer-assisted dispensing, and 4.61 minutes for refill prescriptions using computer-assisted dispensing. Computerization eliminated 78 minutes of time spent on miscellaneous activities each day and added 58.67 minutes of time for computer related activities each day. A net time savings of 196.58 minutes was realized for a prescription volume of 176 prescriptions per day.

MODEL COMPUTER REGULATIONS

The National Association of Boards of Pharmacy has developed a set of Model Computer Regulations[a] which contain important information for use in planning for the computerization of a pharmacy. They are hereinafter reproduced for the convenience of the student and practitioner.

Purpose and Scope

It is the intent of this model regulation to deal with and to define certain procedures that will not only comply with state and federal regulations, but will assist to facilitate the inspection of those pharmacies employing the use of a computer, by the regulatory body charged with compliance. Computerization is a vital component of the pharmacy profession, primarily related to the facet of recordkeeping.

This model regulation will serve as a guideline for all NABP member states wishing to utilize such a composite in developing their own legislation. Jurisdictions may use all or part of this model in promulgating their own regulation or rules to insure compliance with their statutes and/or regulations or rules.

NOTE: Information presented in brackets [ ] represents institutional pharmacy requirements.

[a]Available from the NABP copy desk at 1 East Wacker Drive, Suite 2210, Chicago, Ill. 60601

Glossary

AUTOMATED DATA PROCESSING SYSTEM: a system utilizing computer software and hardware for the purposes of recordkeeping

CRT: cathode ray tube used to impose visual information on a screen

COMPUTER: programable electronic device capable of multifunctions including but not limited to storage, retrievel, and processing of information

CONTROLLED (DANGEROUS) SUBSTANCES: those drug items regulated by federal (CSA of 1970) and/or state controlled (dangerous) substances acts

DOWNTIME: that period of time when a computer is not operable

HARDWARE: the fixed component parts of a computer

NABP: National Association of Boards of Pharmacy

PHYSICIAN DRUG ORDER: In institutional practice/settings, this is a drug order written in the patient's chart for a specific patient which is generally sent by the pharmacy to the nursing station for administration. It is not necessarily reduced to writing as a prescription would be.

PRESCRIBER: a practitioner authorized to prescribe and acting within the scope of this authorization

PRESCRIPTION: a written order from a practitioner authorized to prescribe and acting within the scope of this authorization (other terminology: prescription order), or a telephone order reduced to writing by the pharmacist.

PRINTOUT: a hard copy produced by computer that is readable without the aid of any special device

REGULATORY AGENCY: any federal or state agency charged with enforcement of pharmacy or drug laws and regulations

SOFTWARE: programs, procedures and storage of required information data

STOP DATE: In institutional settings, the physician normally indicates on his drug order, the length of time to administer the medication. In absence of such a notation, a committee will have determined by policy, the length of administration of drugs by category.

Regulation

I. Prescription [or drug order] Requirements
   A. Prescriptions [or drug orders] shall include, but not be limited to:
      1. date of issuance;
      2. name and address of patient [or patient location if an institution];
      3. name and address of prescriber [if not a staff physician of institution];
      4. DEA number of prescriber in the case of controlled substances;

5. name, strength, dosage form and quantity [or stop date, and route of administration] of drug prescribed;
6. refills authorized;
7. directions of use for patient.

II. Records of Dispensing

A. Records of dispensing for original and refill prescriptions are to be made and kept by pharmacies for five years and shall include, but not be limited to:

1. quantity dispensed, if different;
2. date of dispensing;
3. serial number [or equivalent if an institution];
4. the identification of the pharmacist responsible for dispensing;
5. documentation of satisfaction of state requirements for drug product selection;
6. records of refills to date.

III. Automated Data Processing Systems

A. As an alternative to procedures in section I and II, an automated data processing system may be employed for the recordkeeping system if the following conditions have been met:

1. the system shall have the capability of producing sight-readable documents of all original and refilled prescription information. The term sight-readable means that a regulatory agent or Attorney General shall be able to examine the record and read the information. During the course of an on-site inspection, the record may be read from the cathode ray tube (CRT), microfiche, microfilm, printout or other method acceptable to the Board. In the case of administrative proceedings before the Board, records must be provided in a paper printout form.
2. such information shall include, but not be limited to the prescription requirements and records of dispensing as indicated in sections I and II of this regulation.
3. the individual pharmacist responsible for completeness and accuracy of the entries to system must provide documentation of the fact that prescription information entered into the computer is correct. In documenting this information, the pharmacy shall have the option to either:
   a. maintain a bound log book, or separate file, in which each individual pharmacist involved in such dispensing shall sign a statement each day, attesting to the fact that the prescription information entered into the computer that day has been reviewed and is correct as shown. Such a book or file must be maintained at the pharmacy employing such a system for a period of five years after the date of last dispensing; or
   b. provide a printout of each day's prescription information. That printout shall be verified, dated, and signed by the individual pharmacist verifying that the information indicated is correct and then sign this document in the same manner as signing a check or legal document (e.g., J. H. Smith, or John H. Smith). Such printout must be maintained five years from date of last dispensing.
4. Documentation in No. 3 above, must be provided to the pharmacy within 72 hours of date of dispensing.
5. An auxiliary recordkeeping system shall be established for the

documentation of refills if the automated data processing system is inoperative for any reason. The auxiliary system shall insure that all refills are authorized by the original prescription and that the maximum number of refills is not exceeded. When this automated data processing system is restored to operation, the information regarding prescriptions filled and refilled during the inoperative period shall be entered into the automated data processing system within 96 hours. However, nothing in this section shall preclude the pharmacist from using his professional judgment for the benefit of a patient's health and safety.

6. Any pharmacy using an automated data processing system must comply with all applicable state and federal laws and regulations.
7. A pharmacy shall make arrangements with the supplier of data processing services or materials to assure that the pharmacy continues to have adequate and complete prescription and dispensing records if the relationship with such supplier terminates for any reason. A pharmacy shall assure continuity in the maintenance of records.

IV. Security
   A. To maintain the confidentiality of patients' prescriptions [or drug orders], there must exist adequate safeguards or security of the records.

(Optional Sections)

V. Pharmacies utilizing automated data processing systems must satisfy all information requirements of a manual mode for prescription transferral. Transfer between pharmacies of prescription information for refill purposes:
   A. The transfer of original prescription information for the purpose of refill dispensing is permissable between pharmacies subject to the following requirements:
      1. The transfer is communicated directly between two licensed pharmacists and the transferring pharmacist records the following information:
         a. write the word "VOID" on the face of the invalidated prescription;
         b. record on the reverse of the invalidated prescription the name and address of the pharmacy to which it was transferred and the name of the pharmacist receiving the prescription information;
         c. record the date of the transfer and the name of the pharmacist transferring the information.
   B. The pharmacist receiving the transferred prescription information shall reduce to writing the following:
      1. write the word "TRANSFER" on the face of the transferred prescription;
      2. provide all information required to be on a prescription pursuant to state and federal laws and regulations and include:
         a. date of issuance of original prescription;
         b. original number of refills authorized on original prescription;
         c. date of original dispensing;

d. number of valid refills remaining and date of last refill;
e. pharmacy's name, address, and original prescription number from which the prescription information was transferred;
f. name of transferor pharmacist.

C. Both the original and transferred prescription must be maintained for a period of five years from the date of last refill.
1. Pharmacies utilizing automated data processing systems must satisfy all information requirements of a manual mode for prescription transferral.

VI. Pharmacies utilizing automated data processing systems must satisfy all information requirements of a manual mode for prescription transferral. Transfer between pharmacies of prescription information for Schedules III, IV, and V controlled (dangerous) substances for refill purposes:

A. The transfer of original prescription information for a controlled (dangerous) substance listed in Schedules III, IV, or V for the purpose of refill dispensing is premissable between pharmacies on a one time basis subject to the following requirements:
1. The transfer is communicated directly between two licensed pharmacists and the transferring pharmacist records the following information:
a. write the word "VOID" on the face of the invalidated prescription;
b. record on the reverse of the invalidated prescription the name, address, and DEA registration number of the pharmacy to which it was transferred and the name of the pharmacist receiving the prescription information;
c. record the date of the transfer and the name of the pharmacist transferring the information.

B. The pharmacist receiving the transferred prescription information shall reduce to writing the following:
1. Write the word "TRANSFER" on the face of the transferred prescription.
2. Provide all information to be on a prescription pursuant to state and federal laws and regulations and include:
a. date of issuance of original prescription;
b. original number of refills authorized on original prescription;
c. date of original dispensing;
d. number of valid refills remaining and date of last refill;
e. pharmacy's name, address, DEA registration number, and original prescription number from which the prescription information was transferred;
f. name of transferor pharmacist.
3. Both the original and transferred prescription must be maintained for a period of five years from the date of last refill.

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31

Professional Practices and Relations

The hospital pharmacists of this country can, and in many instances do, carry on a professional and public relations program. The literature is replete with evidence of the need of promoting pharmacy to its kindred professions and to the public.

Hospital pharmacists are in an excellent position to do the profession a great service because of their daily contact with the members of the allied professions and a sizeable segment of the public.

OPPORTUNITIES FOR A PUBLIC RELATIONS PROGRAM

The hospital pharmacy in an average size hospital is the focal point for about 15 to 20 physicians each day in addition to a number of nurses, technicians, and other allied specialists. Therefore, hospital pharmacists can promote pharmacy by instituting and following through with a good professional relations program. Obviously, the execution of such a program will cost very little from a monetary standpoint but will call for an investment of time and effort on the part of those participating. Moreover, despite the tremendous amount of money spent by the drug industry in promoting their products to physicians, there are some doctors who just will not be detailed, will not read their direct mail or journal advertising or who cannot be contacted; but there are relatively few doctors who do not have hospital affiliations and, therefore, they can be contacted by the hospital pharmacist.

Walsh and Hassan[1] have stated that a reasonable program of professional promotion for hospital pharmacy involves the application of the following:

1. Publishing and distributing a pharmacy bulletin.
2. Cooperating in hospital teaching program.
3. Taking an active role in administrative committee work.
4. Taking an active role in pharmaceutical organizations.
5. Cooperating with the medical research staff.
6. Maintaining an adequate reference library.
7. Cooperating with community pharmacists.

8. Accepting speaking engagements.
9. Preparing hospital-pharmacy displays.
10. Developing and maintaining the hospital formulary.
11. Maintaining an efficient, professional pharmacy.
12. Being a safety expert.
13. Maintaining a well-controlled manufacturing section.
14. Making special promotional efforts.

PARTICIPATION IN ADMINISTRATIVE COMMITTEE WORK

There seems to be no limit to the number and kind of committees on which the hospital pharmacist may serve. This type of work offers him the opportunity of demonstrating his ability and college training in the medical sciences as well as business administration. Many hospital pharmacists are currently serving on such committees as the Current Practice Committee, Safety Committee, Infection Control Committee, Antibiotics Committee and the Administrative Policy Committee.

The American Society of Hospital Pharmacists has long recognized the important role to be played by the hospital pharmacist as a member of the institution's infection control committee, a view that has now been supported by the American Hospital Association. The following **Statement on the Hospital Pharmacist's Role in Infection Control**[7] is a valuable tool for the institutional practitioner:

ASHP STATEMENT ON THE HOSPITAL PHARMACIST'S ROLE IN INFECTION CONTROL[a]

Hospital-acquired (nosocomial) infections are a significant and complex problem having broad implications for almost every hospital department. In addition, infections acquired in the community and present at the time of hospital admission have nosocomial significance because of the measures required to prevent their spread to other patients and hospital personnel.

Therefore, it is imperative that a hospital have an infection control committee or an equivalent organized method for dealing with the probelm of hospital-associated infections. This "infection control mechanism" should include (at a minimum) representatives from the medical, nursing, pharmaceutical,[b] microbiological and administrative staffs of the hospital. Among its basic responsibilities are the following:

1. Development of written standards for hospital sanitation and asepsis.
2. Development and promulgation of procedures and techniques for meeting these standards and monitoring compliance with them.
3. Development and implementation of a system for eliciting, reporting and

[a]Approved by the ASHP Board of Directors, November 14–15, 1977, and by the ASHP House of Delegates, May 15, 1978.

[b]The American Hospital Association has endorsed the recommendation that infection control committees include a pharmacist.

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evaluating data concerning infections in the hospitals' patient and personnel populations.
4. Development and implementation of a system for the routine surveillance and review of antimicrobial use within the hospital.

The infection control system operates through, and in cooperation with, the appropriate hospital committees and departments.

Infection Control and the Department of Pharmaceutical Services

The department of pharmaceutical services in a hospital, via its role in controlling and distributing antimicrobial drugs and disinfectants, will obviously play an important part in such infection-control activities as antibiotic use monitoring. However, it also is true that the hospital pharmacy can be the cause, as well as part of the cure, of nosocomial infection problems. Contaminated drug products, prepared and/or distributed by the pharmacy, can and have been the source of hospital-acquired infections. Few hospitalized patients do not receive drugs. Therefore, pharmacists have a clear mandate to take the steps necessary to eliminate, to the extent possible, this source of infection.

The Pharmacist's Role in Infection Control

In light of the foregoing, it is obvious hospital pharmacists have a key role in hospital infection control. In meeting this obligation, they must:

1. Actively participate in the affairs of the infection control committee or its equivalent.
2. Assure the microbiological integrity of all products distributed by the pharmacy, particularly those required to be sterile. Of utmost importance is that the best possible aseptic technique and attendant environmental control be used in the preparation and administration of parenteral admixtures, prefilled syringes, ophthalmics and other sterile products.
3. Advise the hospital on the selection and use of appropriate antimicrobial drugs, disinfectants and sterilants.
4. Establish and operate (in cooperation with the medical staff) an ongoing antibiotic use review program for assessing and improving the quality of antibiotic therapy. In addition to this quality assurance mechanism, quantitative data on antimicrobial drug use should be routinely generated and analyzed.
5. Develop and conduct relevant continuing education programs for hospital staff concerning antimicrobial drug products and their use.
6. Encourage the use of single dose packages of sterile drugs in place of multiple-dose containers.
7. Work with the microbiology laboratory to improve microbial sensitivity screening tests and the reporting of their results.

Through these and other activities, pharmacists can help reduce the problems of hospital-associated infections to the lowest possible level.

Those pharmacists who feel that they are too busy to undertake these extra-curricular activities soon find that they are excluded from the professional group within the hospital. This is brought about by the fact that the failure to participate in the problems of the hospital and related professions implies that the pharmacist is either not knowledgeable or is uninterested in the welfare of the institution and, indirectly, the patient.

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS

There are a number of associations which represent the various segments of American pharmacy. Of these, the *American Pharmaceutical Association* purports to represent the profession as a whole; the *American Society of Hospital Pharmacists* represents the hospital pharmacist; the *American College of Apothecaries* speaks for the professional pharmacist; the *National Association of Retail Druggists* represents the retail store owner plus a number of other associations representing manufacturers, wholesalers, colleges of pharmacy and the various scientific disciplines of pharmacy.

The American College of Clinical Pharmacy (ACCP) was founded on October 8, 1979 and is the profession's first formally established organization devoted entirely to the advancement of clinical pharmacy. The goal of this group is to foster the clinical pharmacy movement and promote the clinical pharmacist as an individual who is competent to participate in the decision-making progress of drug therapy.

With the specialization of the practice of hospital pharmacy, numerous specialty organizations have developed and concentrate on areas of the practice. Examples include but are not limited to the American Society of Consultant Pharmacists, the Academy of Pharmaceutical Management and the Society of Veterinary Hospital Pharmacists which was established in 1980.

Certainly, the minimal membership which the hospital pharmacist should hold should be in the *American Pharmaceutical Association* and the *American Society of Hospital Pharmacists*. It is also desirable for him to belong to his regional and local pharmaceutical associations.

Many hospital administrators advocate personal membership in state and national hospital associations. If the pharmacist finds it possible to become a member of these groups, he will not only enhance his professional stature, but will also give himself an opportunity to learn about and understand the problems of his professional associates, thereby better qualifying him for his own position.

It has been stated[1] that approximately 63% of the practicing physi-

cians of the United States belong to the *American Medical Association*, whereas about 20% of the practicing pharmacists belong to the *American Pharmaceutical Association*.

Clearly then the pharmacists of America, and more particularly the hospital pharmacists, must make every effort to strengthen their professional organizations in order that they may provide all branches of pharmacy with the leadership and services essential to a growing profession.

In addition, the mere joining of our professional associations is not sufficient. It is mandatory that, in order to ensure developmental growth of both the individual and the association, each member must take an active role in the sponsored programs and committee assignments.

COOPERATE WITH MEDICAL RESEARCH STAFF

Clinical research, as it is conducted today, requires the cooperation of all of the allied health services. Pharmacy is no exception. The hospital pharmacist can become an integral part of this research in a number of ways.

1. He can be of invaluable assistance to the busy physician by controlling the inventory and distribution of the investigative material.
2. He can maintain an accurate record on the chemistry, pharmacology, posology, and toxicology of the compounds being studied. This information is oftentimes vital to another physician who is called in an emergency to treat a patient who is taking the research drug when the original investigator cannot be located.
3. By suggesting and preparing better vehicles or physical forms of the new compounds undergoing trial.
4. The astute pharmacist will offer to develop and operate a double or triple blind study for the clinical evaluation of the research drug.
5. Because the pharmacist is usually a member of local social or fraternal groups, he is in an excellent position to assist the physician in the recruiting of normal human subjects for controlled *in vivo* studies of investigational use drugs.

COOPERATE WITH LOCAL PHARMACISTS

This phase of the program requires delicate handling on the part of those concerned. Many times the cry is heard from the community practitioner of pharmacy that the hospital pharmacist is not cooperative and is driving him into bankruptcy because of the low prices quoted in hospitals for many medications. This fighting between the ranks is uncalled for and can be eliminated if both parties will learn to cooperate with and not compete against each other.

Some means of cooperation between retailer and hospital pharmacist

are as follows: lending each other products, making available from the hospital pharmacy special formula medications, supplying copies of prescriptions when legal restrictions do not apply, and finally, supporting organizations and legislation sponsored by the community pharmacists.

A step in the right direction was taken when the *American Pharmaceutical Association* and the *American Society of Hospital Pharmacists* joined together to create a *Commission to Study Outpatient Hospital Pharmacy Service.*

Among the elements to be studied by the commission will be (1) the hospital pharmacy in essential patient service, (2) the need for the public to have medications dispensed by pharmacists, (3) professional opportunities in community and hospital pharmacy, (4) the effect of the number of community and hospital pharmacies on professional opportunities, (5) effects of location on status, and (6) legal implications.

COOPERATE WITH NURSING STAFF

ASHP AND ANA GUIDELINES FOR COLLABORATION OF PHARMACISTS AND NURSES IN INSTITUTIONAL CARE SETTINGS[a]

This document describes the benefits and responsibilities of pharmacy and nursing collaboration within the institutional setting. The value of this collaborative effort is reflected in the quality of patient care. The responsibilities of the nurse and the pharmacist are to their respective professions; their accountability is to their patients. As members of the health care team, nurses and pharmacists collaborate with other professionals and members of other disciplines. The complexity of drug therapy requires consultation between nurses and pharmacists on a regular basis.

Pharmacists are well acquainted with the complex problems associated with drug therapy and possess knowledge concerning medications that is useful to nurses in providing patient care. Pharmacists' intensive basic and continuing education in drug therapy, practical application of this knowledge, and presence in institutions make them the appropriate health professional to supply drug information. Since nurses are responsible for direct patient care and are in close contact with the patient, they can provide valuable information regarding beneficial and adverse responses to drug therapy.

In order to promote the exchange of information between nurses and pharmacists, the following guidelines are proposed:

1. Orientation for nurses and student nurses to the institution should include introduction to the pharmacy so that the available services can be discussed and demonstrated.
2. Orientation for pharmacists and pharmacy students should include in-

[a]Approved by the ASHP Board of Directors on April 21, 1979, and by the ANA Congress for Nursing Practice on July 12, 1979; developed by the Joint Committee of the American Nurses' Association and the American Society of Hospital Pharmacists.

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troduction to a patient-care unit so that its services can be discussed and demonstrated.

3. Collaboration between the nurse and the pharmacist should occur on a regular basis whenever either professional is developing a program to which the other can contribute. Interprofessional collaboration should also occur whenever the perceived roles of the professionals overlap, e.g., in patient education, monitoring adverse drug reactions, cardiopulmonary resuscitation, nurse-pharmacist rounds in critical care areas, and nursing care plans.

Nurses equipped with adequate drug information and knowledge of the patient are able to administer drugs properly and detect the occurrence of desirable or undesirable drug effects.

It is important for the pharmacist to work in collaboration with the nurse when medications are administered. The following are examples of information that should be provided to the nurse by the pharmacist:

Information on new drugs
Information on investigational drugs used in the institution
Drug side effects and therapeutic risks
Contraindications to particular drug therapy
Compatibility and stability of drugs, including intravenous admixtures
Drug computations
Drug metabolism, excretion, and blood level data (and likelihood of a cumulative effect)
Drug interactions (including drug/drug, drug/food, and laboratory test modifications)
Effect of patient age and pathophysiology on drug action

Drug information services should include the following:

1. A pharmacist should be available on site or on call 24 hours a day to provide drug information when needed. It is important that nurses have sufficient information to instruct patients in the use of their medications. Telephone communication should be used only if personal contact in the patient-care area cannot take place.
2. The pharmacist should consult with the nurse, preferably by personal contact, in regard to drugs prescribed for specific patients. The information exchange is best provided in the patient-care area, where the pharmacists can obtain patient data from other professionals, the patient, and the patient's record, as well as from the nurse. The pharmacist should record information that is important to the patient's medication regimen in the patient's record. Specific allergies to drugs should be highlighted on the patient's record.
3. Drug information bulletins and newsletters compiled by pharmacists should be distributed to the nursing staff.
4. Each nursing unit should be provided with reference material on drugs, e.g., *American Hospital Formulary Service*, and the staff should be instructed on the efficient use of these resources. A current formulary, accessible in the patient-care area, should be provided and should contain information about drugs used in the institution.
5. Pharmacists should participate with nurses and physicians in review of patients' medications in relation to patient need, therapeutic duplications, and possible drug interactions. This can be done either by making

rounds or jointly reviewing records, including the drug history. The pharmacist should maintain a drug profile, which can be useful in this review.

6. A program of continuing education on drug therapy should be provided by pharmacists in the institution. New information on drugs and information on new drugs should also be provided.

Pharmacists and nurses can both be involved in providing patient education. A collaborative team effort should be made in the development of programs for patient education. Counseling, teaching, and informing patients on their drug therapy should be a part of the patient education program in all institutions.

Communication among health professionals should begin during their educational years. Pharmacy and nursing organizations should offer periodic joint continuing education programs that provide drug information and programming on patient education and other areas where these two professions can share information. As fellow professionals, nurses and pharmacists should strive toward the common goal of quality patient care.

MAINTAIN AN EFFICIENT PROFESSIONAL PHARMACY

A clean, well-organized pharmacy with alert personnel can do much toward the furtherance of professional and public good will. It makes no difference where the pharmacy is located, how old it is, or how little equipment it has; it can still reflect cleanliness, organization, and alertness of personnel. The effect of a good library and reference files and of committee participation has already been discussed.

ACCEPT SPEAKING ENGAGEMENTS

The hospital pharmacist is usually the unseen but essential member of the hospital health team. Patients expect and get his services; however, they seldom if ever get to know anything about the role played by the hospital pharmacist.

Therefore, the public relations aspect of the recommended program can be greatly benefited if the hospital pharmacists will give a part of his free time to the addressing of civic, fraternal, and church organizations.

Another means of creating good professional relations is to be of service to the pharmaceutical manufacturers by accepting invitations to appear on their sales training programs.

It goes almost without saying that hospital pharmacists should welcome a chance to appear on refresher course programs offered by the colleges of pharmacy or on the programs of local, regional or national hospital and pharmaceutical associations.

HOSPITAL PHARMACY DISPLAYS

The old Chinese proverb of "one picture is worth a thousand words" can be readily applied to this part of the program.

A display in the hospital lobby during *National Pharmacy Week* can do a great deal for both public and professional relations. Displays depicting the role of hospital pharmacy in the hospital picture can be of inestimable value when arranged in conjunction with local nursing and medical meetings or conventions.

PARTICIPATION IN COMPREHENSIVE HEALTH CARE PROGRAMS

The preparation and formulation of a health services delivery system designed to meet the legislative and administrative guidelines developed by the Federal Government have been delegated to the local community. In this setting providers of all facets of health care are expected to interface and work cooperatively with the consumer to develop new systems for the delivery of comprehensive medical care at reasonable cost. As a result thereof, programs such as the Regional Medical Programs (RMP), Model Cities Demonstration Act, Health Maintenance Organizations (HMO's), Home Care Services and neighborhood health centers have developed. In July of 1973, the Federal Government introduced Professional Service Review Organizations (PSRO's) and Certificate of Need (CofN) requirements for the review of medical care and utilization and for the determination of need for new facilities, equipment and services. In addition, a number of new prepaid health insurance plans have come upon the scene. Pharmacists, pharmacy as a profession and colleges of pharmacy must be prepared to participate in the planning, organization and operation of these units if pharmacy is to be included in the reimbursement rate for the so-called "comprehensive health care services."[2]

Of primary importance to the institutional pharmacist is the position taken by the American Hospital Association as is evidenced by the following excerpts from its *Statement* on *Health Care for the Disadvantaged:*

"The fullest possible involvement of hospitals in the delivery of community health services is in the best interests both of the citizens of the community and the hospital. It guarantees an improvement in the total fabric of health care."[3]

From the point of view of having an experienced force participate in the planning of community health needs, the *Statement* provides:

"The hospital is the key community center of high quality health services. The hospital, together with its medical staff, is the health resource that has demonstrated great success in assembling sophisticated equipment and expert personnel. It has also encouraged the introduction of the improvement of elements of community control, and internal quality checks, and administrative and organizational knowledge. These factors qualify it to assume leadership in improving health care for all, rich and poor, urban and rural."[3]

Although it is not possible to provide the student with a detailed discussion of all of the concepts for providing comprehensive health care to all Americans, it is important to touch upon some of the better known and utilized plans. In this connection, the American people have decided that the right to optimal health care is necessary for all people to enjoy their constitutional right to life, liberty, and the pursuit of happiness. To achieve this, a great deal of thought and study went into various methodologies and there merged a general consensus that the ideal health system should achieve the following goals:[4]

a. Accessibility.
b. Availability.
c. Acceptability to the consumer and provider.
d. Phased implementation, assuring that the system is able to accept the increased demand before money is poured into health care.
e. Minimal government regulation.
f. Consumer participation in the cost and in the organization of services.
g. Quality assurance.
h. Cost predictability.

HEALTH MAINTENANCE ORGANIZATIONS

On February 18, 1971, President Richard M. Nixon delivered a special message to the Congress titled "Building a National Health Strategy." In it he stated:[5]

"In recent years, a new method for delivering health services has achieved growing respect. This new approach has two essential attributes. It brings together a comprehensive range of medical services in a single organization so that a patient is assured of convenient access to all of them. And it provides needed services for a fixed contract fee which is paid in advance by all subscribers."

"Such an organization can have a variety of forms and names and sponsors. One of the strengths of this new concept, in fact, is its greater flexibility. The general term which has been applied to all of these units is 'HMO'—Health Maintenance Organizations."

The term "Health Maintenance Organization" or "HMO" was coined by Dr. Paul M. Elwood, Jr. in a January 1970 meeting with federal

officials considering ways and means to contain the $2 billion cost overrun in Medicare and Medicaid programs.

Thus, it is clear that a Health Maintenance Organization (HMO) is based upon four principles:[5]

a. "It is an *organized system* of health care which assures the delivery of
b. "an agreed upon set of *comprehensive health maintenance* and *treatment services* for
c. "a voluntarily *enrolled group* of persons in a geographic area and
d. "is reimbursed through a pre-negotiated and fixed periodic payment made by or on behalf of each person or family unit enrolled in the plan."

Each of these principles should be more fully defined and described. An *organized system* of health care is one that is capable of bringing together directly, or arranging for, the services of physicians and other health professionals with the services of inpatient and outpatient facilities for preventive, acute, and other care, as well as any other health services which a defined population might reasonably require. The system is organized in such a way as to assure for the enrollee the most efficient and effective entry into the health care system. In addition, it arranges for continuity of care for the enrollees through linkages between the components of the system via the utilization of a single medical record.

Comprehensive health maintenance and treatment services means that the HMO is capable of providing or arranging for the provision of the health services that a population of enrollees might require, including primary care, emergency care, acute inpatient hospital care, and inpatient and outpatient care and rehabilitation for chronic and disabling conditions.

An agreed upon set of services means that the consumers and the HMO will agree upon which services will be purchased from the HMO in return for the pre-payment figure. Since some HMO's may have groups of enrollees paid for by Medicare or Medicaid, or by employer-employee arrangements, the benefit schedule for various groups within an HMO may differ.

The *enrolled group* means those individuals or groups of people who voluntarily join the HMO through a contract arrangement in which the enrollee agrees to pay the fixed monthly or other periodic payment (or have it paid on his behalf) to the HMO. The enrollee agrees to use the HMO as his principal source of health care. The contract is for a specified period of time—usually a year.

An HMO can be organized and sponsored by either a medical foundation (usually organized by physicians), by community groups who bring together various interested leaders or organizations, by labor

unions, by a governmental unit, by a profit or non-profit group allied with an insurance company (Blue Cross) or some other financing institution. The HMO may be hospital-based, medical school-based, or be a freestanding outpatient facility or group of such facilities.

CONTINUING CARE SERVICE—HOME CARE SERVICE

In addition to being responsible for inpatient care, the hospital must also help to provide a matrix in which seemingly disparate parts of the health care rendered can be linked into an organic whole—a health care network. Thus, hospitals, particularly those in the medical center setting, have developed continuing care and home care services.

The Continuing Care Service is the link between the hospital, nursing home, extended care facility or rehabilitation facility. At times, it can include the patient's home. The service generally plans for the range of continuing care needs of patients after discharge from the hospital.

The Home Care Service provides continuing medical care of the patient when he has been discharged to his home. Such a service coordinates the activities of the patient's physician and the visiting nurse and brings into the home environment the services of the dietitian and social service workers.

DRUG REHABILITATION PROGRAMS

Because of the widespread abuse of drugs, this area of endeavor is quite popular on the community front. Accordingly, participation in these programs by the individual who knows most about drugs—the pharmacist—is mandatory in order to preserve good public and professional relations. In addition to drug abuse educational programs, the pharmacist should encourage these members of the program to study and participate in the following areas:

a. Drug abuse problems treated in the hospital.
b. Legal and ethical issues involved in treating drug abuse.
c. Medical and psychiatric approaches to the treatment of drug abuse.
d. Problems associated with detoxification, especially with concurrent medical or surgical disease.
e. The use of various drugs in detoxification programs.
f. Drug abuse treatment programs in the urban and suburban areas served by the hospital.

DRUG CONSULTATION PROGRAMS

One study on the significance of drug consultation programs conducted by pharmacists to the discharged hospital patient concluded that discharged patients who had such consultation showed less de-

viation from prescribed drug regimens and had fewer medication problems at home than did patients who had not been accorded this service.[6]

Obviously, drug consultation programs are important from the point of view of patient safety, however, a great deal of good public relations benefit can accrue to the hospital from this professional practice.

In discussing drug therapy with the patient, the following points are recommended for discussion by Cole and Emanuel:[6]

1. "Determination of medication already being taken which may duplicate or interfere with newly prescribed medications.
2. The optimum dosage administration schedule to be followed.
3. Measures to be taken in the management of side effects of the prescribed medications.
4. The importance of administering all doses of the medications as prescribed."

CONTINUING EDUCATION PROGRAMS

It is recognized and accepted that the modern day health care professionals must continually update their basic education in order to provide safe and skillful care to their patients. Continuing education has been mandated by professional organizations and some regulatory bodies for re-licensure. Therefore, the program content of many institutes, conventions and seminars carries continuing education unit credits which the individual must submit to the regulatory agency in order to satisfy the re-licensure requirement. Currently, not all jurisdictions require pharmacists to participate in continuing educational programs as a pre-requisite for re-licensure; nonetheless, most hospital and clinical pharmacists voluntarily participate.

The American Society of Hospital Pharmacists has been a major provider of continuing educational programs for the hospital practitioner. In recognition of its obligation to its membership, the Society has enunciated its commitment to continuing education in the following **ASHP Statement on Continuing Education:**[8]

ASHP STATEMENT ON CONTINUING EDUCATION*

Next to integrity, competence is the first and most fundamental moral responsibility of all the health professions. . . . Each of our professions must insist that competence will be reinforced through the years of practice. After the degree is conferred, continuing ed-

*Approved by the ASHP Board of Directors, November 14–15, 1977, and by the ASHP House of Delegates, May 15, 1978. Supersedes the Statement dated December 2–3, 1971.
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ucation is society's only real guarantee of the optimal quality of health care.

—Edmund D. Pellegrino

Preamble

In an era of rapidly accelerating change in health care delivery, the roles of institutional pharmacy practitioners are being constantly redefined. As roles change, competency requirements change, and as institutional pharmacy practitioners assume the increased responsibilities demanded in these new roles, they must make a corresponding commitment to improve their professional competence. Continuing education is the primary means by which practitioners can gain the knowledge and skills necessary to maintain and improve their performance.

The purpose of continuing education for health professionals is the improvement of patient care and health maintenance and the enrichment of health careers. Every institutional pharmacist should set for himself personal educational objectives based upon his needs for performance improvement and his career goals. He should attempt to achieve these objectives through continuing education experiences judiciously selected from among area, regional and national resources which most effectively serve his needs. While every practitioner should assume personal responsibility for maintaining and improving professional competence through life-long, self-directed education, he may often require assistance in identifying gaps between actual and desired performance, in setting educational objectives and establishing their relative priorities, and in selecting learning activities which will contribute most toward achieving the objectives. It should be the role of the Society to facilitate the efforts of the institutional pharmacist in his self-directed education.

Objectives

The objectives of the continuing education program of the American Society of Hospital Pharmacists shall be:

1. To help institutional pharmacists develop a more complete understanding of the importance and methods of life-long, self-directed education and to encourage and assist them toward this goal;
2. To help institutional practitioners evaluate their professional performance, identify areas where improvement is needed, and set realistic, attainable educational goals;
3. To provide to practitioners information on available area, regional and national educational resources which will help achieve their personal educational objectives;
4. To assist institutional pharmacists in selecting educational resources which fulfill most effectively their individual needs;
5. To provide to pharmacists continuing education resources in a variety of formats and media best suited for the subject matter and the needs of the greatest number of learners; and
6. To assist pharmacists in evaluating the effectiveness of their continuing education experiences.

Implementation

To achieve the foregoing objectives, the Society recognizes the necessity to develop appropriate procedures which identify the real educational needs of

practitioners, based upon expected or acceptable standards of performance. The Society also recognizes that such standards, expressed in terms of observable and measurable behaviors, do not now exist. Therefore, it will be a long-range goal of the Society to work toward the development of standards of performance for institutional pharmacy practitioner, based upon the competencies expected of them. Concomitantly, the Society will also seek to develop effective methods of assisting practitioners in assessing their personal professional educational needs through self-evaluation.

Authority

The continuing education program of the American Society of Hospital Pharmacists is established by the authority of its Board of Directors under the direction of the Council on Education and Manpower. All matters of policy relating to this program will be considered by the Council on Education and Manpower and will be submitted to the Board of Directors of the Society for approval.

Policies

The following policies will guide the development and conduct of the continuing education programs and activities of the American Society of Hospital Pharmacists, including classroom, self-study and other formats, where applicable:

1. Continuing education programs will be planned and conducted in accordance with the Criteria for Quality of the Continuing Education Provider Approval Program of the American Council on Pharmaceutical Education.
2. Continuing education activities will be cost justified. The Society's overall continuing education program is intended to be self-supporting.
3. The Society may limit or restrict the enrollment for any continuing education program, depending upon the nature and requirements of the particular program.
4. The Society will collaborate, when appropriate, with other professional organizations, agencies, and educational institutions in the planning and conduct of continuing education activities.
5. The Society will maintain close liaison with affiliated chapters and other institutional pharmacy groups in the planning and conduct of continuing education activities.
6. When appropriate, due consideration will be given to the multidisciplinary approach in the planning and conduct of continuing education activities.

SUMMARY

The points and the program that have been discussed are basic signs that can be followed on the road to better professional relations between all branches of the medical profession and the laymen.

Better understanding, however, achieved, always leads to better and mutual respect.

A better program of professional relations will help us as pharmacists

to better serve the needs of humanity. Perhaps the great Dr. Albert Schweitzer summed up what should be our real objective when he said:

"I do not know what your destiny will be, but one thing I do know: The only people who will be really happy are those who will have sought and found how to serve."

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