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The Pharmacy Procedural Manual

Journals and texts concerned with the broad subject of management are replete with articles and chapters on the importance of written policies as a managerial control tool. The hospital, in general, and the pharmacy, in particular, should have written policies for a number of reasons:

(a) They serve as a guide for the training of new employees.
(b) They prevent error resulting from the verbal transmission of the policy from one employee to another.
(c) They insure the fact that the same policy will apply in all like situations.
(d) They serve as a control tool in ensuring a defined procedure for performing a task, thereby eliminating waste of materials through error or carelessness.
(e) In the hands of the supervisor, they serve as a means of evaluating job performance.
(f) In a legal suit, they may serve as an important element in the hospital's defense of an action in tort arising out of a pharmacy error.

The management of the department of pharmacy in the hospital utilizes the same concepts which are commonly utilized in industry; namely, the pharmacist-in-chief as the manager or supervisor must coordinate people, supplies and equipment in such a manner as to produce efficiently an end-product which in the case of a hospital pharmacy is efficient and economical drug service.

Because of the number of people who may become involved, as well as the myriad of processes which must be utilized and controlled, the manager should, for the sake of uniformity and control, record the policy and technics in a manual.

Unfortunately, too many hospital pharmacists do not develop a policy manual for a number of reasons, the most common of which may be simple procrastination or lack of appreciation of its value. In other instances, it may be due to a false sense of security resulting from the

belief that if no one else knows how to do a particular job, the individual who does know how is an indispensable being. And finally, the plain truth in many instances is the fact that many pharmacists do not even know what a procedural manual is nor how to commence work for its development.

The importance of a policy and procedural manual is stressed by the following excerpt from the ASHP Technical Assistance Bulletin on Hospital Drug Distribution and Control.[1]

POLICY AND PROCEDURES MANUALS' STATEMENT FROM ASHP TECHNICAL ASSISTANCE BULLETIN ON HOSPITAL DRUG DISTRIBUTION AND CONTROL

Policy and Procedure Manuals. The effectiveness of the drug control system depends upon adherence to policies (broad, general statements of philosophy) and procedures (detailed guidelines for implementing policy). The importance of an up-to-date policy and procedure manual for drug control cannot be overestimated. All pharmacy staff must be familiar with the manual; it is an important part of orientation for new staff and crucial to the pharmacy's internal communication mechanism. In addition, preparing written policies and procedures requires a thorough analysis of control operations; this review might go undone otherwise.

Drug control begins with the setting of policy. The authority to enforce drug control policy and procedures must come from the administration of the institution, with the endorsement of the medical staff, via the pharmacy and therapeutics (P&T) committee and/or other appropriate committee(s). Because the drug control system interfaces with numerous departments and professions, the P&T committee should be the focal point for communications relating to drug control in the institution. The pharmacist, with the cooperation of the P&T committee, should develop media such as newsletters, bulletins, and seminars to communicate with persons functioning within the framework of the control system.

In-service Training and Education. Intra- and inter-departmental education and training programs are important to the effective implementation of policies and procedures and the institution's drug control system in general. They are part of effective communication and help establish and maintain professional relationships among the pharmacy staff and between it and other hospital departments. Drug control policies and procedures should be included in the pharmacy's educational programs.

Standards, Laws, and Regulations

The pharmacist must be aware of and comply with the laws, regulations, and standards governing the profession. Many of these standards and regulations deal with aspects of drug control. Among the agencies and organizations affecting institutional pharmacy practice are those described below.

Regulatory Agencies and Organizations. The U.S. government, through its Food and Drug Administration (FDA), is responsible for implementing and enforcing the federal Food, Drug and Cosmetic Act. The FDA is responsible for the control and prevention of misbranding and of adulteration of food, drugs, and cosmetics moving in interstate commerce. The FDA also sets label requirements for food, drugs, and cosmetics; sets standards for investigational drug studies and for marketing of new drug products, and compiles data on adverse drug reactions.

The U.S. Department of the Treasury influences pharmacy operation by regulating the use of tax-free alcohol through the Bureau of Alcohol, Tobacco and Firearms. The U.S. Department of Justice affects pharmacy practice through its Drug Enforcement Agency (DEA) by enforcing the Controlled Substances Act of 1970 and other federal laws and regulations for controlled drugs.

Another federal agency, the Health Care Financing Administration, has established Conditions of Participation for hospitals and skilled nursing facilities to assist these institutions to qualify for reimbursement under the health insurance program for the aged (Medicare) and for Medicaid.

The state board of pharmacy is the agency of state government responsible for regulating pharmacy practice within the state. Practitioners, institutions, and community pharmacies must obtain licenses from the board to practice pharmacy or provide pharmacy services in the state. State boards of pharmacy promulgate numerous regulations pertaining to drug dispensing and control. (In some states, the state board of health licenses the hospital pharmacy separately or through a license that includes all departments of the hospital.)

Standards and guidelines for pharmaceutical services have been established by the Joint Commission on Accreditation of Hospitals (JCAH)[2] and the American Society of Hospital Pharmacists (ASHP).[3] The United States Pharmacopeial Convention also promulgates certain pharmacy practice procedures as well as official standards for drugs and drug testing. Professional practice guidelines and standards generally do not have the force of law, but rather, are intended to assist pharmacists in achieving the highest level of practice. They may, however, be employed in legal proceedings as evidence of what constitutes acceptable practice as determined by the profession itself.

In some instances, both federal and state laws may deal with a specific activity; in such cases, the more stringent law will apply.

The Joint Commission on Accreditation of Hospitals has created a standard for pharmaceutical services which mandates the preparation of written policies and procedures that pertain to the intrahospital drug distribution system.[2] The interpretation of this standard provides the hospital pharmacist with an appropriate guideline as to what must be included in the procedural manual in order for the hospital to be accredited. These are hereinafter reproduced but the student is referred to other sections of this chapter for concepts in format and sample policies.

Drug preparation and dispensing shall be restricted to a licensed pharmacist, or to his designee under the direct supervision of the pharmacist. A pharmacist should review the prescriber's order, or a direct copy thereof, before the initial dose of medication is dispensed (with the exception of emergency orders when time does not permit). In cases when the medication order is written when the pharmacy is "closed" or the pharmacist is otherwise unavailable, the medication order should be reviewed by the pharmacist as soon thereafter as possible, preferably within 24 hours.

The use of floor stock medications should be minimized; the unit dose drug distribution system, which permits identification of the drug up to the point of administration, is recommended for use throughout the hospital.

Written policies and procedures that are essential for patient safety and for the control, accountability, and intrahospital distribution of drugs shall be reviewed annually, revised as necessary, and enforced. Such policies and procedures shall include, but not be limited to, the following:

- All drugs shall be labeled adequately, including the addition of appropriate accessory or cautionary statements, as well as the expiration date when applicable.
- Discontinued and outdated drugs, and containers with worn, illegible, or missing labels, shall be returned to the pharmacy for proper disposition.
- Only a pharmacist, or authorized pharmacy personnel under the direction and supervision of a pharmacist, shall dispense medications, make labeling changes, or transfer medications to different containers.
- Only prepackaged drugs shall be removed from the pharmacy when a pharmacist is not available. These drugs shall be removed only by a designated registered nurse or a physician, and only in amounts sufficient for immediate therapeutic needs. Such drugs should be kept in a separate cabinet, closet, or other designated area and shall be properly labeled. A record of such withdrawals shall be made by the authorized individual removing such drugs and shall be verified by a pharmacist.
- There shall be a written drug recall procedure that can be implemented readily and the results documented. This requirement shall apply to both inpatient and ambulatory care patient medications.
- Drug product defects should be reported in accordance with the ASHP-USP-FDA Drug Product Problem Reporting Program.
- Medications to be dispensed to inpatients at the time of discharge from the hospital shall be labeled as for ambulatory care patient prescriptions.
- A system designed to assure accurate identification of ambulatory care

patients at the time they receive prescribed medications should be established.

- Unless otherwise provided by law, ambulatory care patient prescription labels should bear the following information:

  - Name, address, and telephone number of the hospital pharmacy;
  - Date and pharmacy's identifying serial number for the prescription;
  - Full name of the patient;
  - Name of the drug, strength, and amount dispensed;
  - Directions to the patient for use;
  - Name of the prescribing practitioner;
  - Name or initials of the dispensing individual; and
  - Any required Drug Enforcement Administration cautionary label on controlled substance drugs, and any other pertinent accessory cautionary labels.

- In the interest of effective control, the distribution of drug samples within the hospital should be eliminated if possible. Sample drugs brought into the hospital shall be controlled through the pharmaceutical department/service.

Written policies and procedures governing the safe administration of drugs shall be reviewed at least annually, revised as necessary, and enforced. Such policies and procedures shall include, but not necessarily be limited to, the following:

- Drugs shall be administered only upon the order of a member of the medical staff, an authorized member of the house staff, or other individual who has been granted clinical privileges to write such orders. Verbal orders for drugs may be accepted only by personnel so designated in the medical staff rules and regulations and must be authenticated by the prescribing practitioner within the stated period of time.
- All medications shall be administered by, or under the supervision of, appropriately licensed personnel in accordance with laws and governmental rules and regulations governing such acts and in accordance with the approved medical staff rules and regulations.
- There shall be an automatic cancellation of standing drug orders when a patient undergoes surgery. Automatic drug stop orders shall otherwise be determined by the medical staff and stated in medical staff rules and regulations. There shall be a system to notify the responsible practitioner of the impending expiration of a drug order, so that the practitioner may determine whether the drug administration is to be continued or altered.
- Cautionary measures for the safe admixture of parenteral products shall be developed. Whenever drugs are added to intravenous solutions, a distinctive supplementary label shall be affixed to the container. The label shall indicate the patient's name and location; the name and amount of the drug(s) added; the name of the basic parenteral solution; the date and time of the addition; the date, time, and rate of administration; the name or identifying code of the individual who prepared the admixture; supplemental instructions; and the expiration date of the compounded solution.
- Drugs to be administered shall be verified with the prescribing practitioner's orders and properly prepared for administration. The patient shall

be identified prior to drug administration, and each dose of medication administered shall be recorded properly in the patient's medical record.

- Medication errors and adverse drug reactions shall be reported immediately in accordance with written procedures. This requirement shall include notification of the practitioner who ordered the drug. An entry of the medication administered and/or the drug reaction shall be properly recorded in the patient's medical record. Hospitals are encouraged to report any unexpected or significant adverse reactions promptly to the Food and Drug Administration and to the manufacturer.
- Drugs brought into the hospital by patients shall not be administered unless the drugs have been identified and there is a written order from the responsible practitioner to administer the drugs. If the drugs are not to be used during the patient's hospitalization, they should be packaged and sealed, and either given to the patient's family or stored and returned to the patient at the time of discharge, provided such action is approved by the responsible practitioner.
- Self-administration of medications by patients shall be permitted on a specific written order by the authorized prescribing practitioner and in accordance with established hospital policy.
- Investigational drugs shall be properly labeled and stored, and shall be used only under the direct supervision of the authorized principal investigator. Such drugs should be approved by an appropriate medical staff committee. Investigational drugs should be administered in accordance with an approved protocol that includes any requirements for a patient's appropriate informed consent. On approval of the principal investigator, registered nurses may administer these drugs after they have been given, and have demonstrated an understanding of, basic pharmacologic information about the drugs. In the absence of an organized pharmaceutical department/service, a central unit should be established where essential information on such drugs is maintained.
- Orders involving abbreviations and chemical symbols should be carried out only if the abbreviation/symbols appear on an esplanatory legend approved by the medical staff. In the interest of minimizing errors, the use of abbreviations is discouraged, and the use of the leading decimal point should be avoided. Each practitioner who prescribed medication must clearly state the administration times or the time interval between doses. The use of "prn" and "on call" with medication orders should be qualified.
- Drugs prescribed for ambulatory care patient use in continuity with hospital care shall be released to patients upon discharge only after they are labeled for such use under the supervision of the pharmacist and only on written order of the authorized prescribing practitioner. Each drug released to a patient on discharge should be recorded in the medical record.
- Individual drugs should be administered as soon as possible after the dose has been prepared, particularly medications prepared for parenteral administration, and, to the maximum extent possible, by the individual who prepared the dose, except where unit dose drug distribution systems are used.

Unless otherwise provided by the medical staff bylaws, rules and regulations or by legal requirements, prescribing practitioners may, within their discretion at the time of prescribing, approve or disapprove

the dispensing of a nonproprietary drug or the dispensing of a different proprietary brand to their patients by the pharmacist.

DEFINITION

A procedural manual may be defined as a series of administrative and professional policies which may serve as guide to the hospital pharmacist in the development and execution of effective and proficient pharmaceutical services in the hospital.

SCOPE

Of necessity, the scope of the pharmacy procedural manual must be as broad as that of the department which it is to serve.

Berenice[3] in describing operational manuals in hospital pharmacy provides an example of the comprehensiveness of a good manual:

"The first operational manual of any pharmacy department must contain the recorded development of the operation of the department from its very beginning, its objectives, philosophy, motivation, policies, regulations, departmental procedures, staffing pattern, job specifications, organizational plan and chart, floor plans, plot plans, description of the department, listing of physical facilities and library holdings, its intradepartmental, and interdepartmental relationships, description of its Formulary System, its Pharmacy and Therapeutics Committee and its activities, guidance manual for Internship and/or Residency Program in Hospital Pharmacy when such a program is offered. At the outset, one should give a short history of the institution and also state the purpose of the manual itself."

CONTENTS AND FORMAT

The organization of the wealth of administrative and professional policy material requires a great deal of thought and planning, for to do otherwise will result in a chaotic presentation which may complicate rather than elucidate matters.

Latiolais[4] has suggested that the procedural manual be divided into four general sections: Organization; Facilities; Personnel; Services and Activities, with this section being subdivided into an Administrative and a Professional division.

This concept is adequate and is recommended to those who may wish to organize and develop a procedural manual for their hospital pharmacy. One must, however, bear in mind that no two manuals or hospitals will have the exact same policy and, therefore, in some instances even this general classification will not suffice. For the purpose of this chapter, the four sections suggested above will be developed in order that the student may have some insight into the subject.

The following is a presentation of a format which may be readily adapted to a specific operation by any pharmacist.

The main sections are identified by a numeral from 1 to 4. Therefore, each subject under each main section is identified by the section number plus a second number to identify the subject. For example, the first topic under Organization would be identified by the numerals 1-1; the second by 1-2, etc.

In addition, the student is provided with a reasonably comprehensive check list under each main heading which will serve as a guide, as well as a reminder as to the type of subject material which might well fall within the scope of a particular section.

1. *ORGANIZATION*
   - 1-1. Organization of the hospital
   - 1-2. Organization of the pharmacy
   - 1-3. Services offered by the department
   - 1-4. Intra and Interdepartmental Relationships
   - 1-5. The Pharmacy and Therapeutics Committee
   - 1-6. The Antibiotics Committee

2. *EQUIPMENT and PHYSICAL PLANT*
   - 2-1. General policies relating to the use, maintenance and repair of equipment
     - 2-1-1. The distilled water still
     - 2-1-2. Ointment mill
     - 2-1-3. High speed mixer
     - 2-1-4. Variable speed mixer
     - 2-1-5. Homogenizer
     - etc.
   - 2-2. Policy and procedure governing the loan of pharmacy equipment.
   - 2-3. Obtaining maintenance department services for the pharmacy.
   - 2-4. Obtaining engineering department services for the pharmacy.
   - 2-5. Policy governing the use of Central Sterile Supply Department autoclaves and sterilizers.
   - 2-6. Policy governing the use of laboratory equipment in control procedures.

3. *PERSONNEL POLICIES*
   - 3-1. Job descriptions
   - 3-2. Fringe benefits—General Policy
     - 3-2-1. Sick leave
     - 3-2-2. Vacation
     - 3-2-3. Holidays
     - 3-2-4. Jury duty
     - 3-2-5. Attending institutes, seminars or conventions
     - etc.
     - 3-3-1. Hospital Employee Relations
     - 3-3-2. Discipline—Criteria for Warning, Probation and Dismissal

4. *SERVICES and ACTIVITIES*

4-1. *ADMINISTRATIVE*

4-1- 1. Hours of operation
4-1- 2. Purchasing procedure
4-1- 3. Pricing policy
4-1- 4. Refund policy
4-1- 5. Handling of cash receipts
4-1- 6. Requisitioning of charge floor stock
4-1- 7. Requisitioning of non-charge floor stock
4-1- 8. Requisitioning of special patient charge drugs
4-1- 9. Requisitioning of ancillary surgical and medical supplies
4-1-10. Alcohol records and controls
4-1-11. Controlled substances records and controls
4-1-12. Inventory taking and its records
4-1-13. Compounding records
4-1-14. The monthly and annual report.
4-1-15. Drug Recall Program
4-1-16. Capital Expenditure Budget
4-1-17. Competitive Bid Policy
4-1-18. Policy re: Pharmaceutical Company Representatives
4-1-19. Policy re: After Hours Procurement of Drugs
4-1-20. Policy re: Drug Defects
4-1-21. Use of Approved Abbreviations in the Hospital
4-1-22. Policy re: Prescriptions—New and Discharge
4-1-23. Policy re: Prescription Refills
4-1-24. Policy re: Forged or Altered Prescriptions
4-1-25. Policy re: Nursing Responsibilities for the Management of Narcotics and Other Controlled Substances

4-2. *PROFESSIONAL*

4-2- 1. Narcotic regulations
4-2- 2. Use of research drugs
4-2- 3. Automatic stop orders
4-2- 4. The Formulary System
4-2- 5. Policy governing drugs brought to the hospital by patients
4-2- 6. Labels and labelling
4-2- 7. Use of the metric system
4-2- 8. Prepackaging of bulk drugs
4-2- 9. Dispensing policies
4-2-10. On-call service
4-2-11. Bulk compounding
(Formula, procedure, etc. for each product.)
4-2-12. Sterile compounding
(Formula, procedure, etc. for each product.)
4-2-13. The residency training program in the hospital pharmacy
4-2-14. Poison Control Center
4-2-15. Information Services
4-2-15-1. Pharmacy Library
4-2-15-2. Pharmacy Bulletin
4-2-15-3. Lecture Service
4-2-15-4. Drug Displays
4-2-16. The addition of drugs to intravenous solutions by nurses.

4-2-17. Patient Counseling
4-2-18. Medication Quality Assurance Rounds
4-2-19. Pharmacist's Notations in the Medical Record
4-2-20. Policy re: Radiopharmaceutical Procedures
4-2-21. Policy re: Medication Errors
4-2-22. I.V. Admixture Program and Policy
4-2-23. Hyperalimentation Program and Policy
4-2-24. Clinical Pharmacy Activities
4-2-25. Policies Regarding Confidentiality and Conduct in Patient Areas
4-2-26. Policy re: Regional Poison Control Center
4-2-27. Policy re: Pharmacy and Therapeutics Committee
4-2-28. Policy re: Patient's Self-administration of Drugs
4-2-29. Policy re: Prescription Blank Control

SAMPLE BULLETINS FOR A MANUAL

The style of writing the procedural manual need not be restricted; it may be in outline form or in text style. The language used should be simple and direct. Verbosity should be avoided for the sake of clarity, brevity and safety.

Division 1–16
Bulletin -5-

Requisitions for Pharmacy Supplies

In order to account accurately for the distribution of Pharmacy supplies issued to the various hospital departments the proper requisition must be completed.

Ward Stock Medications must be requisitioned on Form No. 16.

Laboratory and Medical and Surgical Supplies must be requisitioned on Form No. 16a.

Prescription drugs for personal use must be requisitioned on Form 29-12-59.

All of the above requisition forms must be legibly and completely filled out including the proper code number to which the charge is to be made.

Division 1–16
Bulletin -6-

Hospital Prescriptions

Hospital policy requires that a prescription be written for any drug, prescribed for clinic patients, discharge patients, or employees regardless of its nature, which is to be issued from the Hospital Pharmacy.

As the Hospital Pharmacy is not a licensed retail drug outlet, and in

order that the hospital may meet fully the requirements of the State Board of Registration in Pharmacy, all such prescriptions must be written on Hospital prescription blanks (white for discharge patients, yellow for clinic patients and employees).

Division 1–16
Bulletin -7-

Automatic Stop Order for Dangerous Drugs

1. *Controlled Substances:* Orders are automatically discontinued after 72 hours.
2. *Anticoagulants:* Low dose subcutaneous heparin (defined as less than 5000 units of heparin administered 2 hours before surgery and repeated every 8 to 12 hours thereafter) for primary prophylaxis of deep vein thrombosis is automatically discontinued after 7 days. Orders for all other anticoagulants are discontinued after 24 hours unless the physician indicates otherwise.
3. *Oxytocics:* Parenteral drugs are automatically discontinued after 24 hours unless physician indicates otherwise. Oral drugs are automatically discontinued after 72 hours.
4. *Post-operative medications:* All standing orders are cancelled when a patient undergoes surgery and must be reordered post-operatively.
5. *Other drugs:* All other drugs are automatically discontinued after seven days unless the physician indicates otherwise.

Your compliance with this policy will insure that your patient's drug therapy will continue uninterrupted and will obviate the need for a pharmacist to inform you that a medication is about to expire.

Division 1–16
Bulletin -8-

Separation of Internal Use Preparations from Those for External Use

The licensure rules and regulations for hospitals in Massachusetts specifically state that "poisons and medications for external use shall be kept in a separate compartment."

Accordingly, all drug supplies shall be arranged in such manner as to comply with the above regulation.

If you have any question as to what products should be classed in the category "poisons and medications for external use," please call the Pharmacist-in-Chief, Ext. xxx or the Associate Director, Ext. xxx.

Division 1–16
Bulletin -10-

Pharmacy Hours

The Pharmacy is open during the following hours for use by both clinic and house patients.

Monday–Saturday ..... 8:00 A.M.–9:00 P.M.
Sunday and Holidays ..... 9:00 A.M.–9:00 P.M.

House patients requiring special medications after these hours may have them dispensed by the Nursing Supervisor from the Emergency Drug Cabinet.

The Nursing Supervisor may not mix or compound medications. Should this be necessary, the Nursing Supervisor shall call in the "on call" pharmacist.

A list of the "on call" pharmacists is maintained by the switchboard operator.

Division 1–16
Bulletin -11-

Intravenous Solutions, the Addition of Drugs by Nurses

1. The addition of drugs for intravenous administration to intravenous solutions is often most conveniently and expeditiously performed by the Nursing Service and may thereby facilitate patient care.
2. In all circumstances this may be performed only under specific written order in the appropriate order book by the doctor responsible for the patient's care.
3. This addition may be performed only by graduate nurses and senior class nursing students under supervision of a graduate nurse.
4. No medication may be given by the Nursing Service directly intravenously, *i.e.*, without further dilution by an appropriate and specified volume of intravenous fluid.
5. Also excluded specifically are phenolsulfonphthalein (PSP), sulfobromophthalein sodium (Bromsulphalein, BSP), similar testing drugs and solutions commonly used without dilution, and experimental drugs and solutions not yet accepted for routine use by the Pharmacy and Therapeutics Committee.
6. The following medications and solutions in preparations specifically for intravenous use may be added under the rules of this bulletin.

a. Antibiotics
b. Electrolyte solutions, *e.g.*, sodium bicarbonate, potassium chloride, sodium lactate, sodium iodide, sodium chloride and all other intravenous electrolyte solutions
c. Vasopressors, *e.g.*, Phenylephrine (Neo-Synephrine), 1-arterenol (Levophed) and other such agents
d. Vitamins
e. Aminophylline
f. Barbiturates
g. Diphenylhydantoin (Dilantin)
h. Hormonal preparations for intravenous use, *e.g.*, hydrocortisone

7. The following drugs may be administered by a graduate nurse provided that the initial dose has been administered by a physician, the dosage and its dilution are specifically written in the Doctor's Order Book and the medication order is re-written on a *daily basis.*
   a. 5-fluouracil
   b. Heparin

Division 1–16
Bulletin -12-

Medications, Preparation and Administration by Nurses

Purpose: To prepare and administer medications as ordered by the physician safely, accurately and efficiently.

Responsibilities of the Nurse

1. The nurse must know the nature of the drug, the desired effect, the average dose, the mathematical preparation of the dose, the toxic symptoms, the method of preparation and administration and the antidote before administering any medication.
2. The nurse must clearly understand all medication orders before carrying them out.
3. The nurse must administer and chart only those medications which she herself has prepared.
4. Medications poured but not administered must be discarded and may not be returned to the drug bottle.
5. See Bulletin 1–16–2 for reporting adverse drug reactions
   1–16–3 for reporting drug intoxication
   1–16–4 for emergency drugs
   1–16–5 and 1–16–6 for ordering from Pharmacy
   1–16–7 for automatic stop orders
   1–16–8 for the storage of internal and external preparations

Regulations Concerning Narcotics

1. See Bulletin 1–16–1 for federal and hospital regulations.
2. All narcotics must be counted at each change of shift by two nurses, one from each tour of duty. Both nurses must sign that the count was made and was correct. Errors in the count must be reported to the supervisor.
3. All narcotics obtained from the Pharmacy are to be counted and signed for by a professional nurse. Any discrepancy is to be reported to the pharmacist at once.

Medications at Bedside

1. Nitroglycerin tablets may be left at the bedside if so ordered by the doctor. No more than ten tablets should be left with the patient. At 7 A.M. and 7 P.M., the tablets are to be counted, the number used by the patient recorded and additional tablets added to the bedside supply to maintain the supply of ten.
2. Medication brought to the hospital with the patient is not kept at the bedside. It is shown to the physician, then sent home with a responsible family member or friend. If this is not possible, the medication is labeled with the patient's name, locked in the medication cabinet and, with the permission of the physician, sent home with the patient at the time of his discharge.
3. No medication other than nitroglycerin is maintained or left at the bedside of any patient.

Administration of Medications

1. *Policies*
   a) Medication cards are made out by the nurse in charge, noting the patient's name, full name of the drug, dose, route of administration, times ordered or frequency of administration. Each card is initialled by the nurse who makes it out. All 'stat' and single dose orders are written on red cards; all other medications on white cards.
   b) The medicine card is checked against the Kardex and/or Doctor's Order Book for drug, route, patient's name, date and time.
   c) The drug label is checked with the medication card at least three times: before removing the bottle from the shelf, before pouring, when returning to the shelf.
   d) At the bedside, before the medication is administered, the patient is identified by checking the medication card against the name on the wrist band, with the name on the bed card and by asking the patient to state his name if he is able to do so.
   e) The nurse remains at the bedside until the patient has taken the medication; medication is never left at the bedside.

f) The medication is charted immediately after administration.

g) Any untoward situation (patient refuses medication, is absent from the pavilion etc.) is reported to the Head Nurse and noted on the Kardex.

2. *Intravenous Medication*

No medication may be given intravenously by nurses at this hospital.

3. *Liqid Medications*

a) Spirits and tinctures must be kept tightly capped since the strength of the drug increases as the solvent evaporates.

b) Acids are to be given through a straw to avoid discoloration of the teeth.

c) Iodine preparations are to be given in milk or well diluted with fruit juice or water.

4. *Rectal Medications*

a) Rectal medications may be administered by retention enema or by suppository.

b) It is explained to the patient that the medication is to be given rectally and to be retained. The patient is assisted to turn on his left side.

c) If medication is given by suppository, the nurse puts on a glove or finger cot, lubricates the tapered end of the suppository and inserts it well beyond the sphincter.

d) If medication is given by retention enema, the least amount of solution which will dissolve the drug and provide safe dilution is used and the solution is allowed to run in slowly.

e) The patient remains quietly on the left side for a few minutes to aid in retention.

5. *Parenteral Medications*

a) Policies—Graduate Nurses

Nurses may give parenteral medications (subcutaneous, intramuscular, intradermal) if they have had adequate instruction and supervision in the method used and have adequate knowledge of the drug.

Nurses may not administer tetanus anti-toxin.

Special restrictions may be imposed on non-formulary drugs. The nurse must check with her immediate superior (head nurse or supervisor) before administering these drugs.

No more than 5 ml of medication may be injected intramuscularly into one site at any one time.

b) Policies—Student Nurses

Student nurses may not administer narcotics without first obtaining the permission of the head nurse. The student must be prepared to give the following information: patient's full name, medication and dose ordered, frequency with which medica-

tion may be given, time medication was last given, pulse and respiration of the patient.

Student nurses may never administer medication intravenously or into the I.V. tubing.

Student nurses may add medication to intravenous solutions only under the direct supervision of an instructor.

c) Administration of Parenteral Medications

Medication is prepared in the syringe. With a transfer forceps, a sponge moistened with benzalkonium chloride (Zephiran) 1:750 is removed from the container and placed in a medicine cup. The cup and syringe with needle protected by a needle guard are carried to the bedside.

Disposable needles are bent after use to prevent re-use and discarded *only* in the container provided for needles.

Injection sites and methods:

Subcutaneous—injected at a 45° angle into the lateral aspect of the upper arm.

Intramuscular—injected at a 90° angle. The injection is given in the upper portion of the upper outer quadrant of the buttocks, two inches below the crest of the ileum. The deltoid or the lateral aspect of the thigh may also be used. Sites of injection should be rotated.

Intradermal—injected as nearly parallel as possible in the skin of the anterior forearm. Only the tip of the needle should be inserted in the skin and a wheal should appear as soon as the medication is injected.

SPECIAL MANUALS

Hospital pharmacies within large teaching hospitals generally require, in addition to the standard procedural manual, a special manual to cover specific aspects of the operation. These may be for use in such areas as the control laboratory, sterile technics laboratory, manufacturing laboratory, hyperalimentation unit and unit dose section.

In preparing the sections of the special manuals, it is essential that specific detail be provided in order that the special manual be useful.[6]

After all is said and done with regard to this topic of procedural manuals, the student as well as the seasoned hospital pharmacist will benefit greatly from the wisdom afforded by the following excerpt from an editorial.[4]

"Procedural manuals can be a great asset in the proper management of the Pharmacy Department and the coordination of its activities with other departments and the professional and administrative staffs. Hospital pharmacists will

find them valuable tools, tools however, which can never replace the professional judgment of the pharmacist."

SPECIAL SECTION ON CLINICAL PHARMACY

All institutional practitioners recognize the need and value of a procedural manual, yet they do not always recognize the needs of clinical pharmacists operating within that hospital unit recognized in the organizational chart as the Pharmacy Department or Pharmaceutical Service. Too often the procedural manual deals with the departmental operations and excludes the functions of the clinical pharmacist which are predominantly external to the central pharmacy. These services are patient-oriented and as such will require acceptance by the medical and nursing staffs. As a start in this direction, it is suggested that the procedural manual give consideration to the scope and degree of clinical pharmacist functions in the hospital.

Accordingly consideration should be given to including in the departmental manual the responsibilities of the clinical pharmacist via a review of two very important ASHP Guidelines which are hereinafter reprinted.[7]

ASHP STATEMENT ON CLINICAL FUNCTIONS IN INSTITUTIONAL PHARMACY PRACTICE[a]

Contemporary pharmaceutical services include clinical functions such as drug-related decision making and patient-care activities as well as drug preparation, distribution, and control. These clinical functions often are performed in patient-care areas in association with or in support of physicians and other health-care practitioners. They are an integral component of a pharmaceutical service program and consist primarily of drug-therapy monitoring, consultation, and patient education.

The scope and degree of clinical pharmacy services should be commensurate with the goals of the institution. Each director of pharmaceutical services is responsible for establishing and maintaining an appropriate clinical services program.

The American Society of Hospital Pharmacists believes that pharmacists must be able to develop and provide clinical pharmacy services, and it supports and endorses the following clinical functions:

1. Preparation of medication histories for the patient's permanent medical record or other database or both.

[a]Approved by the ASHP House of Delegates, June 7, 1983. Approved by the ASHP Board of Directors, November 19, 1982. Developed by the ASHP Council on Clinical Affairs. Supersedes an earlier version approved by the House of Delegates on May 15, 1978.

2. Monitoring of drug therapy by direct involvement with the patient and routine evaluation of the patient's drug regimen, medical problems, laboratory data, and special procedures, and communicating relevant findings and recommendations to other clinicians who are also responsible for the patient's care.
3. Patient education and counseling.
4. Participation in management of medical emergencies, adverse drug reactions, and acute and chronic disease states.
5. Provision of written consultations in such areas as drug therapy selection, pharmacokinetics, nutritional support, and determination of therapeutic endpoints.
6. Initiation and participation in research, including clinical drug investigations.
7. Control of medication administration and drug distribution in the patient-care area.
8. Detection and reporting of adverse drug reactions.
9. Participation in the education of health-care practitioners.
10. Participation in drug-use review and other quality-assurance programs.

In addition to providing the aforementioned services, pharmacists have a responsibility to communicate advances in development and delivery of clinical pharmacy services to the health-care community through appropriate publications, presentations, and programs.

ASHP STATEMENT ON THE ROLE OF THE PHARMACIST IN CLINICAL PHARMACOKINETIC SERVICES[8]*

Clinical pharmacokinetics is a health science discipline that applies the principles of pharmacokinetics to the development of safe and effective drug therapy. Pharmacists involved in this discipline must understand and apply those pharmacokinetic principles of drug absorption, distribution, metabolism, and excretion, as well as the physicochemical properties of drugs, in the selection of appropriate doses and dosage intervals of medications for individual patients. Since drugs must be looked at in terms of their pharmacokinetic behavior, pharmacists must understand how the pharmacokinetic characteristics can be profoundly changed by disease or altered pathophysiological states.

As previously defined in the ASHP Statement on Clinical Functions in Institutional Pharmacy Practice,[1] pharmacists' clinical functions include monitoring of drug therapy and the provision of clinical pharmacokinetic consultations. Specific training or experience is required to fulfill pharmacokinetic functions. Pharmacists involved in the application of clinical pharmacokinetics to drug therapy management should strive to participate in the following.

*Developed by the ASHP Council on Clinical Affairs. Approved by the ASHP Board of Directors, November 19–20, 1981, and by the ASHP House of Delegates, June 7, 1982.

1. Design of individualized drug dosage regimens based on the pharmacokinetic principles of the drug, the purpose of the medication, concurrent diseases and drug therapy, and the patient's clinical data base.
2. Adjustment of dosage regimens in response to drug concentrations of other biochemical or clinical markers.
3. Evaluation of unusual patient responses to drug therapy for possible pharmacacokinetic explanations.
4. Recommendation of procedures and assays for the analysis of drug concentrations in order to facilitate the evaluation of dosage regimens.
5. Formation of collaborative relationships with individuals and departments involved in drug therapeutic monitoring services to encourage the development and appropriate use of these services. When such collaboration is not feasible, pharmacists should participate in the administrative, technical, and quality control activities involved in providing analytical services.
6. Development of effective written and oral communication skills to relate to physicians, nurses, and other health-care practitioners, information on the individualized drug therapy of patients they serve.
7. Education of pharmacists, physicians, nurses, and other clinical practitioners on pharmacokinetic principles to improve drug safety and efficacy and to encourage the development and application of those principles in therapeutic drug monitoring programs provided by pharmacists and other clinical practitioners.
8. Design and conduct of research that will expand the clinical pharmacokinetic data base and contribute to the documentation, assessment, and expansion of clinical pharmacokinetic services.

The responsibility of the pharmacist to contribute to drug therapy knowledge in the management of the patient increases as the pharmacokinetic characteristics of drugs become clearly defined and therapeutic concentrations are established. Education, training, and experience should prepare the pharmacist to accept the challenges and opportunities of providing clinical pharmacokinetic services.

REFERENCE

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ASHP GUIDELINES FOR OBTAINING AUTHORIZATION FOR PHARMACISTS' NOTATIONS IN THE PATIENT MEDICAL RECORD[a]

Introduction

The clinical influences and functions of pharmacists are well established and accepted in many health care settings. To develop and provide patient-oriented services, pharmacists must communicate with physicians, nurses and other health care practitioners about the patients they serve. One important

[a]Approved by the ASHP Board of Directors, November 16–17, 1978. Originally developed by the ASHP Council on Clinical Pharmacy and Therapeutics.

means of communication is the written notation in the patient medical record. While it is understood that information placed in the patient medical record should be selective, specific drug information influencing patient care should become a permanent part of the patient record. It is also understood that some information may be better provided orally or in such a manner which does not become a permanent part of the patient record. Written communication should complement, not replace, oral communication.

Authority

The Joint Commission on Accreditation of Hospitals (JCAH) regulations specify that "entries in medical records may be made only by individuals given this right as specified in hospital and medical staff policies." Pharmacists, as responsible health care providers involved in patient care, should communicate in writing with other members of the health care team, when appropriate, by notations in patient medical records.

In settings where no such authority exists, the following steps are recommended:

1. Development of a statement by the department of pharmacy services which defines the types of solicited entries or unsolicited entries or both, the pharmacist should make in the patient medical record; identifies the location of such entries; describes the format in which the entries will be made; defines the types of entries that should not be included in the patient medical record; and outlines a procedure for periodic review of entries made by the pharmacist in the medical record.
2. Submission of the statement to the pharmacy and therapeutics committee for review and approval. The statement also should be submitted to other committees of the medical staff responsible for granting the right of staff members to make written notations in patient medical records.
3. Attainment of authorization of the pharmacist's written notations in the patient medical record. A recommendation from the appropriate committee of the medical staff should be submitted to the medical staff executive body for authorization of the pharmacist's written notations in the patient medical record according to the guidelines contained in the statement of the department of pharmacy service.
4. Submission of the statement to hospital administration.

Types of Entries

Examples of information a pharmacist may wish to document in the patient medical record include, but are not limited to:

1. Admission medication history summary.
2. Drug therapy consultations, including pharmacokinetic monitoring data.
3. Documentation of clinical pharmacy services (e.g., drug-related patient education and discharge counseling).
4. Recording physicians' drug orders—reducing physicians' oral drug orders to written form.
5. Potential drug-related problems which should be called to the attention of medical care providers.
6. Patient progress notes—documentation of patient assessments (e.g., blood pressure measurements, urine sugars) which are performed by the pharmacist in the determination of therapeutic outcomes.

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Anon. Policy and Procedural Manual: Drug Recall Program. Current Concepts in Hosp. Pharm. Mgt., *6*:3:19, (Fall) 1984.

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1. ASHP Technical Assistance Bulletin on Hospital Drug Distribution and Control. Am. J. Hosp. Pharm., *37*:1097–1103, (Aug.) 1980.
2. Accreditation Manual for Hospitals—AMH-85, Joint Commission on Accreditation of Hospitals, 875 No. Michigan Ave., Chicago, Ill. 60611.
3. Berenice, Sr. Mary: Operational Manuals in Hospital Pharmacy. Am. J. Hosp. Pharm., *16*:6:269, 1959.
4. Latiolais, Clifton J.: Pharmacy Procedure Manual, Hospitals. J.A.H.A., *33*:13:77, 1959.
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6. Avis, Kenneth E., Carlin, Herbert S., Flack, Herbert L.: Procedure Manual for Parenteral and Other Sterile Preparations (1960), Sterile Technics Laboratory, Jefferson Medical College, Philadelphia, Pa.
7. ASHP Statement on Clinical Functions in Institutional Pharmacy Practice. Am. J. Hosp. Pharm., *40*:1385–1386, (Aug.) 1983.
8. ASHP Statement on the Role of the Pharmacist in Clinical Pharmacokinetic Services. Am. J. Hosp. Pharm., *39*:1369, (Aug.) 1982.
9. ASHP Guidelines For Obtaining Authorization for Pharmacists Notations in the Patient Medical Record. Am. J. Hosp. Pharm., *36*:222–223, (Feb.) 1979.

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Policy and Procedure for Drug Distribution and Administration

The pharmacist's responsibility for drugs in the institutional setting does not end with the dispensing or distribution of the medication. Practitioners must provide for special labeling and packaging to meet the needs of the physicians and nurses in the areas where the drugs are to be administered. In addition, pharmacists should work closely with the Nursing Service to develop policy and procedure for drug distribution and administration.

PRESCRIBING OF FLOOR STOCK DRUGS

There are three techniques employed in transmitting drug order information from the nursing stations to the pharmacist. They are:

(i) Prescription order is written on a separate blank by the physician (Fig. 34).
(ii) A copy of the chart order (Physician's Order Sheet) is sent to the pharmacist.
(iii) Chart order is transcribed by hospital personnel assigned to the nursing station.

In hospitals where the pharmacy operation is a decentralized one, pharmacy personnel pick-up physicians' orders at the nursing stations at predetermined intervals and deliver the medication to the floor. This provides the patient with therapy until the next unit dose cart exchange. Some hospitals use their on-line computer to transmit the drug order to the pharmacy and also create a hardcopy for subsequent use. See Chapter 13 for details concerning entering the patient into the system. When a physician's order is received in the pharmacy and the order appears to be incorrect, for whatever reason, it is the responsibility of the dispensing pharmacist to clarify the problem with the physician and so notify the nursing station of the correction. It is also good policy

PHYSICIAN'S ORDERS

John Doe
Hosp. #12-34-56
Location B25
Dr. Smith

Date Ordered	Date Discontinued	ORDERS
1/1/80		Digitoxin 0.1 mg one at 7:00 a.m.
		Hexavitamin Capsule one daily
1/2/80		Secobarbital 100 mg one h.s. prn
1/3/80	1/5/80	Potassium Chloride 1 gm one daily in a.m.

Fig. 34. An example of a Physician's Order Sheet found in the patient's medical record. The orders shown here are typed. Under normal circumstances, these are written by the physician in ink.

to have the prescribing physicians telephone the nursing unit with the corrected order and follow-up with a written order for confirmation.

Some of the smaller hospitals continue to require separate prescriptions for all medications. The student must bear in mind that there is nothing wrong with this in that it establishes the same professional relationship and fosters the same practice existing in the community practice of pharmacy. In the larger hospitals, this system is not favored by the physicians.

A second method consists of using a copy of the doctor's written order as a prescription order. In this system the pharmacist receives a copy of the original medication order. No transcribing or copying is required of hospital personnel assigned to the nursing station in order to obtain prescribed medication as initially ordered. It has been demonstrated that this system reduces medication errors because of the review by pharmacists of all drug orders for each patient in the original handwriting of the physician ordering the medication.

In one version of this system, physicians are allowed to mix all types of orders for the patient on one sheet. Although this has the advantage of providing the pharmacist with a total picture of what is happening to the patient, it is preferable to educate the physicians to limit the writing of their drug orders to a single medication order sheet (Fig. 34). Once written, it behooves the responsible party to promptly remove the copy portion of the medication order and transmit it to the pharmacy in order to obviate dispensing delays.

The method most widely employed at present is that in which the nurse, nursing unit manager, or ward secretary transcribes or copies

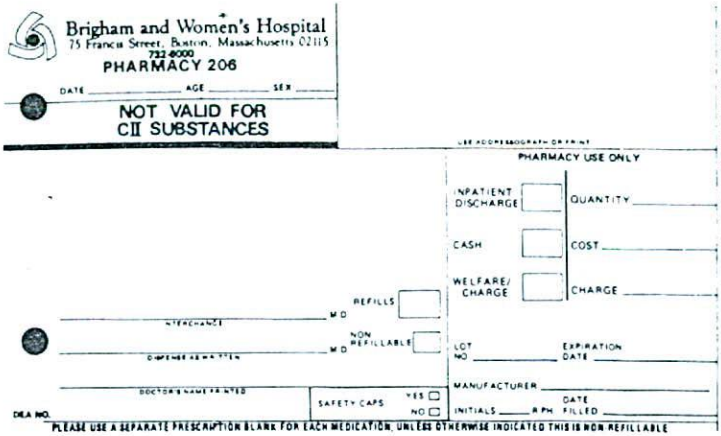

Fig. 35. Prescription form used to order medications other than controlled substances. The reverse side of this form contains the refill record. (See Fig. 36). Controlled substances are dispensed on a similar form but of a different color.

REFILL RECORD

NO.	DATE	QUAN.	INITIALS		EXPIRATION DATE, LOT NO. & MFG.
			BY	R PH	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Fig. 36. Refill record printed on the reverse side of prescription blank.

via a mechanical copying device the physician's written order on to another document (Figs. 39 and 40), sometimes called a drug requisition slip, and sends it to the pharmacy for reviewing and dispensing. This transcribed or copied order is also used by the pharmacist to create his *patient drug profile* and to initiate the medication charge.

If the medication ordered is a non-charge drug, the nurse makes an entry on her records and at the proper time will remove the drug from the ward stock container and administer it to the patient.

PATIENT TRANSFER OR DISCHARGE

The finest drug distribution system will fail if appropriate measures are not taken to record the transfer or discharge of a patient from a nursing unit. If this information is not sent to the pharmacy on a timely basis, the patient's medication may become lost and therefore create a delay in the patient's medication schedule or cause the patient to be charged for drugs never received. To prevent these problems from arising, the pharmacy and nursing services must cooperate with each other. Nursing should notify the pharmacy then remove the medication from the patient's drawer in the unit dose cart, properly identify it with the patient's name and hospital identification number and send it to the patient's new location or return it to the pharmacy, in the case of a discharge, where the necessary credits will be issued. It is also the responsibility of the pharmacy to transfer the patient's drug profile to the new location.

LABELING OF FLOOR STOCK DRUGS

Of further interest to the non-hospital pharmacist members of the profession is the fact that none of the ward stock drugs is labeled with the directions for use. This is so because of the fact that many patients may be receiving the same drug but under a different therapeutic regimen. If one set of directions was affixed to the container under these circumstances, then it is obvious that confusion and error may result. Therefore, packages containing non-charge as well as generally used charge floor stock medications bear a label which shows the name of the ward and the name and strength of the preparation as well as any other pertinent information (Fig. 37).

In contrast, medications being sent to the floor for the specific use of a single patient bear a similar label with the addition of the patient's name (Fig. 38). Once again, the specific directions for use are eliminated because of the fact that the therapeutic regimen may be altered from day to day by the physician in charge. Therefore, the nurse must make frequent checks of the patient's record in order to keep informed of the latest treatment prescribed.

Fig. 37. An example of a non-charge floor stock medication label.

Fig. 38. An example of a charge floor stock medication label.

NURSING POLICY AND PROCEDURE FOR ADMINISTRATION OF A DRUG

Although the hospital pharmacist does not become involved with this aspect of patient care, he should become thoroughly familiar with the procedure used in his particular institution.

There are many different procedures for the administration of drugs by nurses employed in the hospitals of this country; therefore, space will permit only the methodologies employed by one medical center.[1] For other techniques, see Chapter 13.

NURSING MEDICATION ADMINISTRATION REGULATIONS

Purpose

To describe the policy and procedures which guide nursing personnel in the administration of medications, within the limits imposed by Federal and State Law, Professional Nurse Practice Acts and Hospital Policy.

General Regulations for Medication Orders

1. Medications are not to be administered without a written order from the physician.

2. *Verbal Orders*—may be accepted by a registered nurse, from a physician, nurse mid-wife or nurse practitioner, only in an emergency situation and must be countersigned by the physician within 24-hours. *Under no circumstances, including an emergency, may anyone other than a registered nurse accept a verbal order.*
3. *Telephone Orders*—if it should be necessary for a registered nurse to accept a telephone order, the order will be valid only until the following 10:00 AM and the order must be countersigned by the responsible physician as soon as possible, but within 24-hours. *Under no circumstances, including an emergency, may anyone other than a registered nurse accept a telephone order.*
4. A medication may be administered only if a specific dose, route and frequency is ordered.
5. Only those medications which have been dispensed by the Brigham and Women's Hospital Pharmacy may be administered by nursing staff.
6. Medications prepared, but not administered, must be discarded and may not be returned to the drug container. Controlled Substances that have been removed from the narcotic drawer-cabinet and not used must be discarded, witnessed and the narcotic record signed by two (2) professional nurses.
7. Specific regulations for nurses:
   a) The nurse must know the nature of the drug, the desired affect, the average dose, the mathematical preparation of the dose, the toxic symptoms, and the methods of preparation and administration before administering any medication.
   b) The nurse may administer only those medications s/he has prepared (mixed) personally or those premixed by Pharmacy.
   c) The nurse must be familiar with the bulletins and directives relating to medication administration in the Nursing Service Policy Manual and the Nursing Service Procedure Manual.

Regulations for Specific Drugs

Narcotic Medications

1. Narcotic medication (Schedule II drugs) should not be administered if the patient's respiratory rate is below 12 per minute without further orders from the physician. (Exceptions: Patient on a ventilator.)
   a) *Parenteral SC, IM, IV*—narcotic medication and other analgesics may be ordered with a dosage and frequency range as long as the range does not exceed 50 percent of the indicated lower limit. EXAMPLE: Demerol, 60–75 mg, IM every 4–6 hours.

b) *Oral/Rectal*—narcotic medication and other analgesics may be ordered with a dosage and frequency range as long as the range does not exceed 100% of the indicated lower limit.
EXAMPLE:

Percodan $\overline{1}$ to $\overline{\overline{11}}$ tabs p.o. every 4–6 hours.

2. *Tetanus Antitoxin—Nurses May Not* administer tetanus antitoxin.
3. *Digitalis*—preparations may not be administered if the patient's apical pulse is below 50 without first consulting with the physician, unless other parameters have already been specified by the physician.
4. Registered nurses and licensed practical nurses may administer Rho-GAM (Mass-GAM) according to the procedure found in the Procedure Manual.
5. *Magnesium Sulfate*—must be administered *by a physician* by IV Push. An RN may administer Magnesium Sulfate IV piggyback via pump.
6. Blood pressure must be taken before giving Ergonovine or Methylergonovine. If blood pressure exceed 130/90, consult physician before giving.
7. Orders for Antihypertensives must be accompanied by upper and lower limits of blood pressure to be observed.

Regulations for Various Routes of Administration

1. *Oral Medications*
   a) Only scored tablets may be divided.
   b) Capsules may not be opened in an attempt to alter dose.
2. *Parenteral Medications*—no more than 5ml of any medication may be injected intramuscularly into one (1) site at any time and no more than 2ml of any medication subcutaneously.
3. *Intradermals*—may be performed by an RN who is skilled in the technique.
4. *Rectal Medications*—rectal medications may be administered by retention enema or by suppository.
5. *Intra-arterial Medications*—these are prepared and administered by physicians on the general units. (Exceptions made in specialty units will be specified in writing in the Unit's Policy Manual.)
6. *Instillations*—all genito-urinary irrigants are prepared in the Pharmacy.

Restrictions for Nurses in the Administration of Drugs

The preceding regulations of this bulletin apply to all classifications of nurses (i.e., RN, LPN and student nurse) in conjunction with the following specific instructions:

NOTE: Specific Units in the Hospital, such as the Dialysis Unit, many have policies applicable to that Unit's personnel, based on the staff's specialized training and experience.

1. *Registered Nurses*
   Registered professional nurses may give parenteral medications if they have had adequate instruction and supervision in the method used and have adequate knowledge of the drug.
   They may add medication to IVs in accordance with Intravenous Medication Policy.
2. *Licensed Practical Nurses*
   a) LPNs may administer heparinized saline via heparin lock by IV push. NO other medications may be administered by LPNs by IV push.
   b) LPNs May Hang: IV solutions prepared and labeled by the Pharmacy, IV solutions from the manufacturers to which nothing has been added, hyperalimentation and intralipids piggybacking.
   c) LPNs May Not administer research or investigational drugs.
   d) LPNs May Not administer allergenic extracts.
   e) All restrictions for RNs are also applicable to LPNs.
   Before administering Schedule II drugs, insulin and anticoagulants, the LPN must check the preparared drug and order with a registered nurse.
3. *Professional Nursing Students*
   Students may administer oral, rectal, intramuscular and subcutaneous medication only after qualifying by demonstration to an Instructor. Until that time, a student must check with an instructor or designated alternate relative to the intent and reason for giving the drug; the preparation, action, and anticipated response, the last dose, and the patient's vital signs, if applicable.

MEDICATION PROCEDURE—UNIT DOSE SYSTEM

Purpose: To provide a consistent, safe manner of administering medications to patients.

Equipment: Medication Keys
Medication Cart
Medication Kardex
Ball Point Pen

Procedure:

STEPS	KEY POINTS
A. Preparation	
1. Check Kardex listing and medication cassette drawers to determine that patient's bed location and listing in Kardex correspond.	When a patient is admitted to the Unit or transferred in from another area the Unit Secretary or Nurse will notify the Unit Pharmacy of the room or bed number. Anytime bed numbers are changed within the Unit the Unit Dose Pharmacist must be notified so that the change can be made in the Unit Dose Pharmacy records.
2. Prepare Medication Cart with extra souffle cups, 30 ml medication cups; 90 ml cups—fruit juice, water; straws, alcohol swabs, syringes; etc.	This is helpful when giving medication to a large number of patients. Some "unit of use" packaging is not adequate to serve as a cup, so medication may have to be placed in a cup for administration.
B. Administration	
1. Take Medication Cart and Medication Kardex to patient's bedside and unlock Medication Cart.	There is no need to set up separate tray. Lock releases cassette drawers. Do not unlock the Narcotic drawer unless necessary.
2. Greet patient and explain your purpose.	
3. Check patient's Medication Administration Record information with band. Establish positive patient identification by asking patient to state his/her name.	If a patient does not have on an identification band, inform the Unit Secretary, who should prepare one.
4. Assess patient for special needs pertinent to medication to be administered.	e.g., swallowing, position, state of consciousness, presence of fever, diarrhea, constipation, nausea or vomiting, etc. Some medications require the checking of vital signs, urine or blood tests before administration.

STEPS	KEY POINTS
5. Using the patient's Medication Administration Record, select the unit dose preparation from the patient's cassette drawer to be administered to that patient at that time. Check: a) name of the drug b) dosage of the drug c) route of administration d) date and time drug to be given e) medication order transcription was checked by R.N. f) renewal date if pertinent.	If there is any discrepancy between the unit dose preparation and the medication order in the Medication Administration Record: DO NOT GIVE THE MEDICATION. Check the physician's Order Sheet and/or consult with Unit Dose Pharmacy. Physician's order may be transcribed by Unit Secretary, but must be checked by an R.N. Initials beside order on Medication Administration Record indicate that order was checked. Initials, signature and status should be recorded in upper right column of Record.
6. Take medication and Kardex to the bedside. Verify the patient's identification; the unit dose with the Administration Record, and administer the medication.	Remain with the patient until he/she swallows oral medication. NEVER LEAVE MEDICATION AT THE BEDSIDE except those specified by Pharmacy and Therapeutics Committee.
C. Charting Medication	
1. Chart medication *immediately* on the patient's Medication Record in the Kardex, using ball point pen.	This is the permanent record. Charting immediately insures accuracy and up-to-date record keeping and decreased errors in medication administration.
a) On the appropriate date, sign the time drug was given, injection site if indicated, and your initials.	
b) Sign your name and status beside your initials in the upper right column of the patient's Medication Administration Record.	e.g., J.D.—Jane Doe, R.N.
c) If a medication was not given:	If a drug was given late because of a special test or other reason—record the time the drug was given—not the time scheduled. This may necessitate a change in the schedule.
1. See code on the medication record and indicate reason by using the appropriate code; record the time and encircle the two to indicate "not given."	

STEPS	KEY POINTS
2. Make out "Medication Not Given Notice" with patient's name, date, time, bed number, medication and reason not given. Sign form and place in patient's cassette.	This assists Pharmacist in maintaining accurate patient profile.
D. Security of Medication Cart	
1. When medication has been administered LOCK Medication Cart.	It is the responsibility of the nurse administering medications to provide absolute security of the Medication Cart. DO NOT LEAVE THE CART UNATTENDED AND/OR UNLOCKED.
2. Return Kardex to Kardex shelf on cart.	
3. Return cart to designated storage area.	
4. Maintain cleanliness of cart. Discard waste materials. Wipe off cart.	

MEDICATION ADMINISTRATION—GENERAL

Purpose: For uniform administration of oral, parenteral, rectal and vaginal medications.

PROCEDURE	POINTS OF EMPHASIS
1. Check physician's order sheet and medication kardex for physician's order.	
2. Explain medication use and side effects to patient.	
3. Read label on medication.	3. Medications must be checked 3 times: a) When being taken from drawer. b) When preparing medication. c) Before giving medication to patient.
4. After administering, always chart medication given with time and initials on medication kardex. Also, include initials and signature in spaces provided.	

A. INTRAMUSCULAR AND SUBCUTANEOUS

Purpose: Injectable medications are given for more rapid absorption of the drug, if the patient is unable to take medication orally, or to avoid inactivation of drug action by gastric enzymes.

PROCEDURE	POINTS OF EMPHASIS
Equipment: Syringe and needle (23/25g for subcutaneous, 21/22g for intramuscular). Two alcohol sponges. Medication as ordered. **Single Dose Vial and Ampules*	
1. Wipe the neck of the ampule or the top of a vial with an alcohol sponge; break off the top of the ampule with a gauze sponge.	
2. Draw up medication into syringe.	2. Leave a 0.2ml bubble of air in syringe after proper dose is drawn up; this bubble will be injected last and block leakage from tissue.
3. Take empty vial or ampule, syringe and alcohol sponge to patient's bedside.	
4. Select site of injection	4. Subcutaneous injections are given in upper anterior arm over the tricep muscle, abdomen for heparin and in the anterior portion of the thigh and rotated with each injection. Intramuscular injections are given in upper outer quadrant of the buttocks or thigh. *Never* given IM injection in the deltoid unless approved by Head Nurse or Supervisor. The maximum amount given by s.c. is 1 cc. and by IM is 3 cc. (except 5 cc. of decadron & 4 cc. for procaine penicillin 2.4 m.u. syringe).
5. Administer medication	5. When giving an injection, make sure that you aspirate the syringe before giving the medication. If blood is aspirated, prepare a new medication.
6. When long term or irritating injections are given, a body chart should be placed on the patient's chart next to medicatition record and the site chart by date and time.	6. Change needles before injecting into patient when irritating medicaitons are being injected, to reduce tissue irritation. Rotating sites helps to reduce tissue irritation and injury.
***Multiple Dose Vial:*	
1. Wipe rubber stopper on vial with an alcohol sponge.	1. This will cleanse area to be punctured.

PROCEDURE	POINTS OF EMPHASIS
2. Draw the amount of air equal to the amount of medication to be withdrawn into the syringe. Introduce the needle through the rubber stopper and inject the air. Next, withdraw the correct dose of medication.	2. This is essential so that the liquid in the bottle will not develop either positive or negative pressure.
3. Take medication to patient and administer. Always check patient's identification band and question her regarding allergies prior to administering any medication.	
4. Dispose of used equipment. All needles must be removed from the syringes, using the destrucuclip and plastic syringes must have hub removed also by destructuclip. The remainder of the syringe may be disposed of in a properly labeled syringe disposal box.	4. These steps are necessary to prevent accidents and reuse of contaminated equipment.

B. OPHTHALMIC PREPARATIONS

Purpose: To dilate or contract pupils, to relieve inflammation and to produce local anesthesia.

Equipment: Medication in dropper bottle or tube of ophthalmic ointment, as ordered box.
Disposable tissues.

1. Have patient in bed in supine position.	1. Be sure medication is for the EYES and not the EAR.
2. Evert lower eyelid gently, instruct patient to look upward.	
3. Allow number of drops ordered to fall on center of inner surface of lower lid.	3. Do Not allow tips of medicine dropper or tube to touch inner surface of lid or eye. Do Not allow medicine dropper to touch your fingers.
4. If ointment is ordered, apply thin line along inner surface of lower lid, from inner to outer canthus.	
5. Instruct patient to close eyes for a moment.	
6. Wipe off excess with tissue, and discard.	6. Wipe from inner to outer canthus of eye.
7. Replace cover of ointment or medication securely, then replace in medication cart.	
8. Discard waste.	

C. RECTAL MEDICATIONS

Purpose: Medications are introduced into the rectum for a direct or systemic effect.

Equipment: Suppository
Lubricant
Disposable glove

1. Have the patient turn on her/his side and assume a Sim's position.
2. Lubricate index finger of the glove and the end of the medication. Insert medication into the rectum well beyond the internal sphincter.
2. Gentle insertion and withdrawal of the finger minimizes the defecation reflex. By placing the medication beyond the internal sphincter, the possibility of it being readily expelled is reduced.
3. Remove glove, discard in wastebasket.

D. VAGINAL MEDICATIONS

Purpose: To apply medications locally to the cervix and vagina. These are available in creams and suppositories.

Equipment: Medication
Applicator
Glove and lubricant

1. Assist the patient in assuming the lithotomy position and place a drape to maintain privacy.
2. Place cream or suppository into the tip of the applicator and separating the labia gently, insert the applicator into the vagina at an angle toward the back, as far as possible.
2. Gentle insertion will reduce the danger of trauma to sensitive vaginal mucosa.
3. Push the plunger to release the medication and gently withdraw the applicator.
3. Always wash the applicator in warm soapy water immediately after use. Instruct the patient to remain in bed for 15–30 minutes to obtain full benefit from the medication.
4. If no applicator is available, the nurse (or patient, when appropriate) should use a clean glove and gently insert suppository in the same manner.
4. The use of lubricant on the glove will eliminate friction during insertion.
5. Inform the patient that the medication will melt at body temperature and a mini pad can be worn to absorb any leakage and prevent staining of underwear.
5. Tampax should *not* be used.

INSPECTION OF NURSING DRUG CABINETS

Once a large supply of drugs is placed in the nursing station, the hospital pharmacist's responsibility is increased. The only way the pharmacist can be sure that the drug supplies on the pavilions are being properly cared for is by personal inspection of the drug cabinets.

Too often, this facet of the pharmacist's responsibility is taken too lightly and may oftentimes be delegated to nursing supervisory personnel who, although well motivated, are not trained to evaluate the state of deterioration of drugs.

In order that the inspection program be successful, it should be carried out by pharmacy and nursing personnel on a regular basis. In addition, there should be developed a regular check list of points to be looked for during each inspection tour.

The following is a check list which may, with modification, be used for the inspection of the drug cabinets on the nursing station of any hospital.

1. Check lock mechanism for security.
2. Check lighting and refrigeration.
3. Check the uniformity of containers.
4. Check the uniformity and completeness of labeling.
5. Check to see that minimal and maximal inventories are being adhered to.
6. Check to see that internal use medications are separated from external use products.
7. Ascertain that all dated pharmaceuticals and related products are still usable.
8. Determine whether non-dated drugs have deteriorated.
9. Check whether research drugs are properly labeled and segregated.
10. Eliminate any samples, non-approved drugs, or non-drug items from the cabinet.
11. Check the storage and rotation of IV solutions.
12. Check emergency or "crash carts" for appropriate drug levels and status of drugs if dated.
13. Check DEA mandated record keeping.
14. Check to see if previous inspection citations have been adequately corrected.
15. Check the general appearance of the drug preparation area.

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REFERENCES

1. Nursing Proc. Manual—1982. Brigham and Women's Hospital, Boston, Mass. 02115.
2. McKenney, J.H. and Wasserman, A.J.: Effect of Advanced Pharmaceutical Services on the Incidence of Adverse Drug Reactions, Am. J. Hosp. Pharm., *36*:1691–1697, (Dec.) 1979.

13

Dispensing to In-Patients

The increased demand for the utilization of hospitals coupled with the growing shortage of professional personnel—nurses, pharmacists, dietitians and social workers—has stimulated thought and research in work simplification through the establishment of criteria which define each and every job performed by this category of personnel.

A great deal of nursing time was consumed by frequent trips to the pharmacy to obtain medications and other ancillary supplies. As a direct result thereof, many administrators have requested the hospital pharmacist and nursing administrative staff to scrutinize present procedures and develop new systems for the distribution and dispensing of drugs.

In the interim, many stop-gap measures were taken simply because they appeared to be the most expedient but which, when viewed in the light of experience and reasoning, were in reality a direct violation of the law.

One such approach was the indiscriminate stocking of drugs on the nursing station in bulk quantities, thereby eliminating the pharmacist's control, for here the physician prescribed, the nurse *dispensed,* and the nurse *administered.* Clearly, in a situation such as this the nurse in performing the dispensing act is infringing upon the professional as well as the legal prerogatives of the pharmacist.

Archambault[1] has stated that drug administration is a nursing act which consists of the removal or withdrawal of a single dose from a drug container and its administration to a patient on the order of a physician or dentist. He has further stipulated that dispensing is a pharmacy act and consists of the pharmacist removing two or more doses from a bulk drug container and placing them in another container for subsequent use.

Pharmacists should be alert to such infringements and should not lend their approval to such procedures. Many hospital administrators would support the pharmacists' stand on this if the matter is brought to his attention with adequate particularity.

Another hasty decision, in some areas, was the installation of vending type machines, only to have the attorneys-general of several states rule that they were illegal. Most of the decisions were based on the fact that

state laws provide that registered nurses are not authorized under statute to dispense drugs, but may "administer" them after the prescription has been "dispensed" by a licensed person.

A more rational approach to the subject might be the installation of a messenger service between the pharmacy and the nursing stations, installation of mechanical conveyor systems or pneumatic tube systems or to develop emergency boxes, or the placing of charge floor stock drugs on the pavilion after a limited selection of drugs for this use has been made by the Pharmacy and Therapeutics Committee.

In order to alleviate the nursing burden, some hospital administrators contend that hospital pharmacists must assume responsibility for medications from the time of their selection to the time of their administration. Yet, in designing a system which incorporates this concept, consideration must be given to alleviate the burden placed upon the nursing service for the ordering, preparation and administration of medications.[2]

Many examples are recorded in the literature that illustrate the relationship between a drug distribution system and the nursing system.

One study of nursing activities indicated that approximately 15% of a professional nurse's time is spent in the communication aspects of medication procedures.[3] This is not unusual when compared to other studies which show that: a 22% increase in the amount of time nurses were able to spend at the patient's bedside as a result of changing the drug dispensing system[4]; 5.5 hours per day of nursing time were saved as a result of the installation of a unit dose system[5]; 14.4 hours per day of nursing time for four medical wards were freed by the use of a unit-dose system.[6]

ASPH GUIDELINES FOR HOSPITAL DRUG DISTRIBUTION SYSTEM

Because of the importance of drug distribution systems in the hospital, the American Society of Hospital Pharmacists approved and the American Hospital Association endorsed a *Statement on Hospital Distribution Systems.*[7]

The following guidelines for planning and evaluating hospital drug distribution systems are abstracted from the aforementioned statement:

Traditional methods of distributing drugs in hospitals are now undergoing reevaluation, and considerable thought and activity is being directed toward the development of new and improved drug distribution systems. Some of the newer concepts and ideas in connection with hospital drug distribution systems are centralized or decentralized (single, or unit-dose) dispensing, automated (mechanical and/or electronic) processing of medication orders and inventory control, and automated (mechanical and/or electronic) storage and delivery

devices. Several investigators are at work in each of these areas, and the results of their studies may greatly alter current practices and procedures.

Because of the present state of uncertainty regarding the proper scope and optimum design of drug distribution systems for the modern hospital, and as an aid to pharmacists, nurses, physicians, and administrators who are faced with making decisions concerning drug distribution systems during this period of change, the following guidelines for evaluating proposed changes or new ideas or equipment are presented.

Though some of the practices recommended may not be widespread at the present, the adoption of these practices is believed to be a desirable and practical goal. Therefore, it is urged that they be given prime consideration in the design of new drug distribution systems and in modifications of existing ones (particularly where such changes would commit a hospital to a considerable financial investment in a system not including, or not easily altered to include, the recommended practices).

1. Before the initial dose of medication is administered the pharmacist should review the prescriber's original order or a direct copy.
2. Drugs dispensed should be as ready for administration to the patient as the current status of pharmaceutical technology will permit, and must bear adequate identification including (but not limited to); name or names of drug, strength or potency, route(s) of administration, expiration date, control number, and such other special instructions as may be indicated.
3. Facilities and equipment used to store drugs should be so designed that the drugs are accessible only to medical practitioners authorized to prescribe, to pharmacists authorized to dispense, or to nurses authorized to administer such drugs.
4. Facilities and equipment used to store drugs should be designed to facilitate routine inspection of the drug prior to the time of administration.
5. When utilizing automated (mechanical and/or electronic) devices as pharmaceutical tools, it is mandatory that provision be made to provide suitable pharmaceutical services in the event of failure of the device.
6. Such mechanical or electronic drug storage and dispensing devices, as require or encourage the repackaging of drug dosage forms from the manufacturer's original container, should permit and facilitate the use of a new package, which will assure the stability of each drug and meet U.S.P. standards for the packaging and storing of drugs, in addition to meeting all other standards of good pharmacy practice.
7. In considering automated (mechanical and/or electronic) devices as pharmaceutical tools, the distinction between the accuracy required in accounting practices versus that required in dispensing practices should be clearly distinguished.

Subsequently the following ASHP Statement on Unit Dose Drug Distribution was issued.[30]

ASHP STATEMENT ON UNIT DOSE DRUG DISTRIBUTION[a]

The unit dose system of medication distribution is a pharmacy-coordinated method of dispensing and controlling medications in health-care institutions.

[a]Approved by the ASHP House of Delegates on June 8, 1981. Revision approved by the ASHP Board of Directors at its meeting of November 13–14, 1980. Originally approved by the Board of Directors on April 19, 1975.

The unit dose system may differ in form depending on the specific needs of the institution. However, the following distinctive elements are basic to all unit dose systems: Medications are contained in single unit packages; they are dispensed in as ready-to-administer form as possible; for most medications not more than a 24-hour supply[a] of doses is delivered to or available at the patient-care area at any time.

Numerous studies concerning unit dose drug distribution systems have been published over the past several decades. These studies indicate categorically that unit dose systems, with respect to other drug distribution methods, are: (1) safer for the patient, (2) more efficient and economical for the institution, and (3) a more effective method of utilizing professional resources.

More specifically, the inherent advantages of unit dose systems over alternative distribution procedures are:

1. A reduction in the incidence of medication errors.
2. A decrease in the total cost of medication-related activities.
3. A more efficient usage of pharmacy and nursing personnel, allowing for more direct patient care involvement by pharmacists and nurses.
4. Improved overall drug control and drug-use monitoring.
5. More accurate patient billings for drugs.
6. The elimination or minimization of drug credits.
7. Greater control by the pharmacist over pharmacy workload patterns and staff scheduling.
8. A reduction in the size of drug inventories located in patient-care areas.
9. Greater adaptability to computerized and automated procedures.

In view of these demonstrated benefits, the American Society of Hospital Pharmacists considers the unit dose system to be an essential part of drug distribution and control in hospitals and other institutional health-care settings in which drug therapy is an integral component of health care delivery.

REFERENCES

1. Sourcebook on unit dose drug distribution systems. Bethesda, MD: American Society of Hospital Pharmacists; 1978.
2. ASHP guidelines on hospital drug distribution and control (with references). Am. J. Hosp. Pharm., 1980; *37*:1097–1103.

Accordingly, this chapter will be devoted to the various means employed by the hospital pharmacist to dispense and distribute various categories of drugs throughout the hospital.

[a]In long-term care facilities, a larger supply of medication (e.g., 48 or 72 hours) may be acceptable.

DRUG DISTRIBUTION—FLOOR STOCK SYSTEM

Each pavilion in the hospital, regardless of its size or specialty care, has a supply of drugs stored in the medicine cabinet even though the nursing unit is serviced by a unit dose system. However, the JCAH specifies that the use of floor stock medications should be minimized. In addition, research has shown[2] that the system of drug distribution has an effect upon the incidence of adverse drug reactions. These medications may be classified under two separate headings, each of which serves a specific purpose. Drugs on the nursing station may be divided into *"charge floor stock drugs"* and *"non-charge floor stock drugs."* It is the responsibility of the hospital pharmacist, working in cooperation with the nursing service, to develop ways and means whereby adequate supplies of each are always on hand and, in the appropriate situation, that proper charges are made to the patient's account.

This section will deal with the means whereby floor stock drugs are selected, and leave the methods whereby they are requisitioned by nursing service, distributed by pharmacy personnel and methods of issuing charges to patients, where the situation so warrants, to a later chapter on dispensing and distribution systems in the hospital pharmacy.

Definitions

Charge floor stock drugs may be defined as those medications that are stocked on the nursing station at all times and are charged to the patient's account after they have been administered.

Non-charge floor stock drugs represent that group of medications that are placed at the nursing station for the use of all patients on the pavilion and for which there may be no direct charge to the patient's account. In fact, the cost of this group of drugs is usually calculated in the per diem cost of the hospital room.

Today, there are four systems in general use for dispensing drugs for inpatients. They may be classified as follows: (i) Individual Prescription Order System, (ii) Complete Floor Stock System and (iii) Combinations of (i) and (ii) and the unit dose method.

INDIVIDUAL PRESCRIPTION ORDER SYSTEM

As has been previously stated, this system is generally used by the small and/or private hospital because of the reduced manpower requirements and the desirability for individualized service. Inherent in this system is the possible delay in obtaining the required medication and the increase in cost to the patient. At the same time, there are very definite advantages: (i) all medication orders are directly reviewed by

the pharmacist; (ii) provides for the interaction of pharmacist, doctor, nurse and patient and (iii) provides closer control of inventory.

THE "COMPLETE" FLOOR STOCK SYSTEM

Under this system, the nursing station pharmacy carries both "charge" and "non-charge" patient medications. Rarely used or particularly expensive drugs are omitted from floor stock but are dispensed upon the receipt of a prescription or medication order for the individual patient.

Although this system is used most often in governmental and other hospitals in which charges are not made to the patient or when the all inclusive rate is used for charging, it does have applicability to the general hospital.

Obviously, there are both advantages and disadvantages to the complete floor stock system. Advantages include: (i) ready availability of the required drugs; (ii) elimination of drug returns; (iii) reduction in number of drug order transcriptions for the pharmacy and (iv) reduction in the number of pharmacy personnel required. The disadvantages of such a system are: (i) medication errors may increase because the review of medication orders is eliminated; (ii) increased drug inventory on the pavilions; (iii) greater opportunity for pilferage; (iv) increased hazards associated with drug deterioration; (v) lack of proper storage facilities on the ward may require capital outlay to provide them and (vi) greater inroads are made upon the nurses' time.

To be borne in mind by the student is the fact that in some hospitals the complete floor stock system is successfully operated as a decentralized pharmacy under the direct supervision of a pharmacist.

Obviously, when this occurs, many of the disadvantages associated with such a system disappear. In addition, the use of the decentralized pharmacy concept provides for a "home base" for the clinically oriented pharmacist.

In the past, floor stock containers were pre-labeled multiple dose units. Today, the floor stock is in unit-of-use packaging thereby assuring better packaging, control and identity of the medication.

COMBINATION OF INDIVIDUAL DRUG ORDER AND FLOOR STOCK SYSTEMS

Falling into this category are those hospitals which use the individual prescription or medication order system as their primary means of dispensing, but also utilize a limited floor stock. This combination system is probably the most commonly used in hospitals today and is modified to include the use of unit dose medications.

SELECTION OF CHARGE FLOOR STOCK DRUGS

The final decision as to which drugs shall be placed on the pavilions should rest with the Pharmacy and Therapeutics Committee, because this representative group of clinicians possesses a unique and intimate knowledge of the medicinal requirements of the patients within the institution.

This does not mean that the decision as to which drug shall or shall not be admitted to floor stock status should be arbitrarily arrived at. Representatives of nursing service, pharmacy and administration should be consulted for guidance and advice.

Once a floor stock list has been determined, it becomes the responsibility of the hospital pharmacist to make the drugs available, enforce the decision of the Pharmacy and Therapeutics Committee by not permitting deviations, and periodically to re-submit the list to the Pharmacy and Therapeutics Committee for re-evaluation in the light of later experience and therapeutic trends.

In arriving at a list of charge floor stock drugs, the Pharmacy and Therapeutics Committee will be concerned, in all probability, with having available for immediate use drugs of proven efficacy and which the average clinician considers necessary to administer to the patient as soon as a diagnosis is made or, at least, for the immediate symptomatic treatment.

Aside from the storage problem on the pavilion, there should be no valid reason why the decision of the Committee in this respect should not be honored, since each of these agents is chargeable to the patient's account. The only really important criteria to be considered here are the patient's clinical needs. The patient's financial status or ability to pay should have no bearing on his clinical need.

The following represents a typical list of injectable charge floor stock drugs in a large teaching hospital:

Medication and Strength

Parenteral

Ampicillin 1gm
Atropine 0.4mg
Cefoxitin 1gm
Cephalothin 1gm
Diazepam 10mg
Diphenhydramine 50mg
Dexamethasone 4mg
Gentamicin 80mg
Hydralazine 20mg
Hydroxyzine 100mg/2ml
Magnesium sulfate 1gm
Magnesium sulfate 5gm
Pitocin 10U
Prochlorperazine 10mg

Promethazine 25mg
Phenobarbital 60mg
Potassium chloride 40mEq
Scopolamine 0.43mg
Terbutaline 1mg
Trimethobenzamide 200mg

Oral
Acetaminophen 325mg
Aspirin 325mg
Ampicillin 250mg
Cephalexin 250mg
Diazepam 2mg
Diphenhydramine 25mg
Ergotrate 0.2mg
Fiorinal
Hydralazine 10mg
Chloral Hydrate 500mg
Methyldopa 250mg

Medication and Strength
Darvocet N 100
Flurazepam 15mg
Flurazepam 30mg
Lomotil
Chloral Hydrate 500mg
Methylergonovine 0.2 mg
Milk of Magnesia
Mineral Oil
MON/MO
Mylanta
Phenobarbital 15mg
Promethazine 25mg
Prochorperazine 5mg
Terbutaline 2.5mg
Terbutaline 5 mg

Refrigerator
Dulcolax supp
Prochlorperazine supp 25 mg
Promethazine supp 25mg
Methylergonovine amps 0.2mg
Trimethobenzamide supp 200mg

SELECTION OF NON-CHARGE FLOOR STOCK DRUGS

With regard to the non-charge floor stock drugs a different set of criteria are employed. Here, consideration is usually given to the cost of the preparation, the frequency of use, the quantity used, and the effect upon the hospital budget and reimbursement from third party payors.

In many hospitals, this list is exceptionally small and therefore the patient is billed for numerous single doses of drugs. This, of course,

produces bad public relations and the pharmacist should do all in his power to correct the situation.

A list of pharmaceutical and related preparations that are considered to be non-charge floor stock drugs in a university teaching hospital will be found in this Chapter. Each hospital should, of course, arrive at its own list based upon the needs of the staff and the type of patient cared for. Too brief a list will necessarily mean frequent small charges for pharmaceuticals. The sum of several such charges for each dose is usually more than would be charged for a like number of doses issued in one package. This has been a prime cause of adverse public relations for the hospital and should be guarded against whenever possible.

DISPENSING OF CHARGE NON-FLOOR STOCK DRUGS

Perusal of a modern hospital formulary will quickly show the large number of therapeutic agents available to the physician. They also indicate that the ordering, dispensing and accounting of these drugs must consume an inordinate amount of time on the part of nursing service and pharmacy personnel. Therefore, it has become necessary to streamline the paperwork involved through the adoption of semi-automated processes and technics. Having previously discussed the method whereby a physician orders a drug for a patient, this section will deal with the forms of accounting.

One method adopted by the hospital to identify patients is the principle of the charge plate. Here, by use of a plastic or metal card prepared on the patient's admission to the hospital or clinic, much nursing time is conserved. As a matter of fact, all newly-printed hospital forms usually reserve a 1 × 3 inch space in the upper right or left hand corner of the form for the information on the identification plate. Accordingly, all charge stations are equipped for using this time saving device which yields an important by-product—legibility of identity.

Many drug order forms may have such information as name of drug, dosage form and route of administration preprinted on it, thereby again conserving time by requiring only a minimal effort to select the drug, the desired form and route of administration.

Items with an extremely heavy demand have specific cards with all the information preprinted. All that is necessary is the patient's identity which is quickly supplied through the use of the charge plate.

Drug order forms may be prepared on duplicate or triplicate snap out forms which provide a copy for the pharmacy, accounting department and a control copy for the pavilion.

Some hospitals have developed a procedure whereby the hospital pharmacy receives a copy of the nurse's drug administration record or the physician's drug order sheet. Pharmacists then prepare periodic

PHARMACY
207

ADDRESSOGRAPH AREA
PATIENT'S NAME John Doe
NUMBER 12-12-12
AREA & FLOOR B-26

ORIGINAL TO BE SENT TO PHARMACY

IN PATIENT — ONE
☒ PRIVATE
☐ SEMI-PRIVATE
☐ WARD PRIVATE
☐ WARD

OUT PATIENT — ONE
☐ CLINIC
☐ EMERGENCY WARD
☐ PRIVATE AMBULATORY

DATE 1-15-65
REQUESTED BY Dr. Brown

NO SERVICE PERFORMED
WITHOUT PROPERLY FILLED OUT CHARGE REQUISITION

ORIGINAL

REQUEST FOR (PRINT)	COST	UNITS	CHARGE
2 amps. Drug A	.10	2	.50
1 vial Drug B	1.00	1	1.65
TOTAL	TOTAL COST 1.10	TOTAL UNITS 3	TOTAL CHARGE 2.15

FORM 124 CHARGE REQUISITION
PETER BENT BRIGHAM HOSPITAL

Fig. 39. Pharmacy charge floor stock requisition form.

charges to the patient's account and re-stock the pavilions with the items consumed.

One example of a simple snap-out form utilizing the principles of the charge plate system is shown in Figure 39. This form is prepared in duplicate on the ward by the charge nurse or other responsible individual. The original is then forwarded to the pharmacy and the duplicate retained on the ward as a control copy. In addition to dispensing the requested medication, the pharmacist is also required to complete the form by inserting the cost price, the selling price and the number of units dispensed. This information is deemed to be necessary for internal auditing purposes.

A second example of a snap-out form that may utilize the principle of the charge plate is that shown in Figure 40. This form differs from that shown in Figure 40 in that the original portion entitled *Requisition for Medication* is forwarded to the pharmacy and contains on its face complete information relative to the administration of the drug by the nursing service. The second copy is utilized in the billing procedure whereas the third copy is used in the accounting department for internal audit purposes.

THE ENVELOPE SYSTEM

One hospital developed a system whereby an envelope was used to dispense containers of drugs to the nursing station and at the same time was also used as a charge ticket.[9] Under this system the pharmacist fills prelabeled envelopes with the specific drugs and places a predetermined quantity on the nursing unit. When the drug is administered to the patient, the nurse places the patient's name and room number

NEW ENGLAND CENTER HOSPITAL

Requisition for

MEDICATION

Mary Doe

12-12-50

IN PATIENT USE X- HOME USE ONLY ☐

Room 25 Dr. Roe

IF OFFICE ACCT. DR.'S NAME)

ORDERED BY DR.: Dr. Roe

ORDER MADE OUT BY: JK

FILLED BY: WH

	DRUG	DOSE	How Often	Route of Admin.	Quant. Issued	COST	CHARGE
1.	Drug A	10 mg.	daily	I.M.	1 amp	1.00	1.65
2.	Drug B	15 mg.	t.i.d.	oral	20 tab.	.30	.50
3.							
					TOTAL	1.30	2.15

REQUISITION NO.: 12345

Form 1/63

SEND THIS COMPLETE SET TO B.D. PHARMACY

Fig. 40. Combination Requisition for Medication, Charge Slip and Internal Audit developed by the New England Center Hospital.

JEFFERSON MEDICAL COLLEGE HOSPITAL

Philadelphia, Pa.

CHARGE - CREDIT VOUCHER

Name

Room or Ward

Admission Number

Sex

Doctor

Company or Insurance with Address (Optional)

Date _____

Explanation of Charge / Credits	T	DEBIT (CHARGES)	CREDIT
		$	

Signature of Person Preparing Voucher

Below this line for Main Office use only.

CODE

1 - Service
2 - Laboratory
3 - Drugs
4 - Operating Rm.
5 - Anesthesia
6 - X Ray
7 - Physical Therapy
8 - EKG
9 - Blood or Plasma
10 - Med. Surg. Sup
11 - 3 Telephone
11 - 4 Guest Trays
11 - 5 Formula & Bracelet
11 - 6 BMR
11 - 7 Oxygen
11 - 8 Nursery
11 - 9 Tube Lab Svc
11 - 10 Shock Treat
11 - 11 Hearing & Speech Center
11 - 12 Guest
BC Blue Cross
BD Bad Debt
BR Board Refunds
DC Discount Credits
TB Transfer of Balance
PP Part Pay

A D P S W

Circle Appropriate Letters

Form 14

Fig. 41. The multi-purpose Charge-Credit Voucher developed at the Jefferson Medical College Hospital.

on the envelope and places it in her "out" basket. This is later picked up by the messenger service and is delivered to the pharmacy where it is priced and forwarded to the accounting office.

ALLOWANCE OR CREDIT PROCEDURES ON UNUSED CHARGE DRUGS

Much has been written and spoken of the desirability and the moral and legal obligation to extend credit for unused medications consonant with necessary legal and fiscal controls.

Where a credit is to be issued, two things must be done; criteria for issuing credit on pharmaceuticals must be established, and second a proper credit form must be developed.

Many state pharmacy laws prohibit accepting pharmaceuticals for credit return unless the container is an unopened original package. To this should be added the caution that such containers should not have been out of the pharmacist's control for an unreasonable period of time. Most hospital pharmacists accept for credit most unopened ampuls, vials, tubes, and sealed containers of capsules and tablets which are returned from the pavilions. In order to avoid too great a loss to the patient when his therapy is suddenly changed, most hospitals restrict the amount of drug dispensed. A common number of tablets or capsules dispensed to a hospitalized patient is 20.

In some hospitals, a multi-purpose Charge-Credit Slip is utilized for extending credit to the patient's account for returned medications (Fig. 41). On the other hand, some institutions prefer to separate the functions of the two procedures and utilize two separate slips. One specif-

PRINT SERVICE AREA NAME AND CODE NUMBER

ADDRESSOGRAPH AREA
PETER BENT BRIGHAM HOSPITAL
PRINT PATIENT'S FULL NAME & ADMITTING NO.

IN PATIENT (✓ ONE)
☐ PRIVATE
☐ SEMI-PRIVATE
☐ WARD PRIVATE
☐ WARD

OUT PATIENT (✓ ONE)
☐ CLINIC
☐ EMERGENCY WARD
☐ PRIVATE AMBULATORY

STREET
CITY STATE
DATE

No Credit Allowed Without Writing Procedure and Code Number

CREDIT PATIENT FOR FOLLOWING PROCEDURES:	CODES	UNIT	CREDIT
DISCHARGE DATE			
		TOTAL UNIT	TOTAL CREDIT

VALID ONLY IF AUTHORIZED AND SIGNED BY:
☐ CONTROLLER
☐ ASS'T CONTROLLER
☐ OFFICE MANAGER

CREDIT

FORM [illegible]

Fig. 42. The separate or specific type of credit voucher.

PETER BENT BRIGHAM HOSPITAL

PHARMACY REQUISITION FOR FLOOR STOCK

AREA ..... CODE ..... DATA .....

Drugs listed below are to be considered floor stock and supplied Monday—Wednesday—Friday. All other drugs must be ordered as charge drugs.

MEDICINE CLOSET

Amt.	AMPULS	Price
	Adrenalin 1 ml 1:1000	
	Aminophylline 10 ml 250 mg	
	Atropine Sulfate 20 ml 0.4 mg ml	
	Digitoxin 1 ml 0.2 mg	
	Digoxin 2 ml 0.25 mg/ml	
	Lidocaine HCl 50 ml 1%	
	Lidocaine HCl 50 ml 2%	
	Lidocaine HCl 1% with Epinephrine 1:1000 50 ml	
	Phenolsulfonphthalein (P.S.P.) 1 ml 6 mg/ml	
	Saline for Injection 30 ml	
	Scopolamine H. Br 1 ml 0.65 mg	
	Sodium Dehydrocholate (Decholin) 5 ml 1 gm/5 ml	
	Sulfobromophthaelin Sod. (B.S.P.) 3 ml 50 mg/ml	
	Water for Injection 30 ml	

Amt.	CAPSULES & TABLETS	Price
	Acetylsalicylic Acid (Aspirin) 0.3 gm	
	Acetylsalicylic Acid Buffered	
	Acetylsalicylic Acid Compound	
	Ammonium Chloride E.C. 0.5 gm	
	Amobarbital Sodium 0.2 gm	
	Atropine Sulfate T.T. 0.65 mg	
	Bisacodyl (Dulcolax) 5 mg	
	Bishydroxycoumarin (Dicoumarol) 25 mg	
	Cascara Sagrada Ext. 0.3 gm	
	Chloral Hydrate 0.5 gm	
	Digitalis 0.1 gm	
	Digitoxin 0.1 mg	
	Digoxin 0.25 mg	
	Ferrous Gluconate 300 mg	
	Ferrous Sulfate 0.3 gm	
	Nitroglycerin H.T. 0.3 mg	
	Nitroglycerin H.T. 0.6 mg	
	Pentobarbital 50 mg	
	Phenobarbital 15 mg	
	Placebos	
	Polyvitamins	
	Potassium Chloride E.C. 1 gm	
	Propoxyphene HCl (Darvon) 32 mg	
	Propoxyphene HCl Darvon Compound–65 mg	
	Quinidine HCl 0.2 gm	
	Secobarbital 50 mg	
	Sodium Bicarbonate 0.6 gm	

Amt.	SOLUTIONS—INTERNAL		Price
	Ammonium Chloride Syr.	8 oz	
	Belladonna Tr.	2 oz	
	Benzoin Comp. Tr.	4 oz	
	Cascara Fldext Aromatic	4 oz	
	Castor Oil	8 oz	
	Chloral Hydrate 1 gm/5 ml	8 oz	
	Glyceryl Guaiacolate-(Robitussin)	4 oz	
	Kaolin-Pectin Mixture	8 oz	
	Opium Tr. Camphorated	4 oz	
	Peppermint Spirit	2 oz	
	Potassium Chloride Elixir	8 oz	
	Potassium Iodide Sat. Sol.	2 oz	
	Potassium Triple Ion Elixir	8 oz	
	Terpin Hydrate Elixir	4 oz	
	Terpin Hydrate & Codeine Elixir	8 oz	
	Vanilla Flavor	4 oz	

Amt.	POWDERS		Price
	Dextrose (D-Glucose)	100 gm Units	
	Sodium Bicarbonate	16 oz	
	Talcum—Individual Units*		
	Thymol Iodide (Aristol)*	2 oz	
	*Store in Utility Room		

Amt.	MISCELLANEOUS	Price
	Amyl Nitrite	
	Aromatic Ammonia	

REFRIGERATOR

Amt.	SUPPOSITORIES		Price
	Acetylsalicylic Acid	0.6 gm	
	Aminophylline	500 mg	
	Bisacodyl (Dulcolax)	10 mg	

Amt.	LIQUID		Price
	Hydrogen Peroxide 3 Vol.	16 oz	
	Magnesia. Milk of	32 oz	
	Petrolatum. Liquid	32 oz	

Fig. 43. *(Continued on opposite page)*

Fig. 56. B-D Nursing Cart with door. (Courtesy of Becton, Dickinson and Co., Rutherford, New Jersey.)

Although each hospital introduces variations, the following is a step-by-step outline of the procedure entailed in a decentralized unit-dose system:

1. Upon admission to the hospital, the patient is entered into the system. Diagnosis, allergies and other pertinent data are entered on to the Patient Profile card.
2. Direct copies of medication orders are sent to the pharmacist.
3. The medications ordered are entered on to the Patient Profile card.
4. Pharmacist checks medication order for allergies, drug-interactions, drug-laboratory test effects and rationale of therapy.
5. Dosage scheduled is coordinated with the nursing station.
6. Pharmacy technician picks medication orders, placing drugs in bins of a transfer cart per dosage schedule (Fig. 54).
7. Medication cart is filled for particular dosage schedule delivery (Figs. 55 and 56).

8. Pharmacist checks cart prior to release.
9. The nurse administers the medication and makes appropriate entry on her medication record.
10. Upon return to the pharmacy, the cart is rechecked.
11. Throughout the entire sequence, the pharmacist is available for consultation by the doctors and nurses. In addition he is maintaining a surveillance for discontinued orders.

UNIT DOSES NOT ADMINISTERED

Accountability of dispensed medications is important to the hospital pharmacist working in a unit-dose distribution system. By learning about and following up on those medications not administered and returned in the patient bins of the drug cart or cassette, the pharmacist utilizes the unit-dose system to its utmost for the purpose of preventing medication errors.[29]

To help facilitate finding out why a drug was not given, many hospitals with unit-dose systems have devleoped communication forms for use by nurses to inform pharmacists. They are usually placed in the bin with the returned medication and sent to the pharmacy.[29] These forms contain the patient identification, drug identity and dose, reason for the drug not being given, a statement to the effect that the prescribing physician has been so notified and a new time for administration if such is warranted.

OTHER CONCEPTS IN DISPENSING

Of late, much has been written about placing a pharmacist on the nursing station to assume all responsibility concerning the ordering, stocking and preparation of drugs for administration as well as to be readily available for consultation by the clinical and nursing staffs. If funds and a sufficient number of pharmacists were available, all would agree that this would be a desirable step forward in ensuring drug safety through a marked reduction in medication errors.

This would be possible because the pharmacist is sufficiently trained and legally licensed to deal with all aspects of drug selection and handling with the exception of administering it to the patient. On the pavilion, the pharmacist may help the physician in the selection of the most therapeutically beneficial drug, assist the nurse by interpreting the physician's order as well as the preparation of each dose for administration, and the ordering, storage, charging and control of all drugs and related products on the nursing station.

Because the funds and personnel are not presently available, some pharmacists[12,13] have experimented with a centralized unit-dose system. Under this method, the department of pharmacy prepares a single dose of medication ready for administration to the patient and delivers

of the delivery, and the original is returned to the pharmacy where it will serve the following three purposes.

1. to re-stock the mobile unit
2. to determine rate of use or consumption
3. to serve as a charge document for the internal allocation of costs.

Although it would appear that this method primarily conserves nursing personnel time, it has a number of advantages which are beneficial to the pharmacy, particularly if the truck is manned by a pharmacist.

For example, the drugs and the nursing station drug cabinets will always be under the supervision of professional personnel. The pharmacist is brought out of the pharmacy and made available for on the spot consultations by clinical and nursing staffs, and through the routine checking of the medicine closet, deteriorated, out-dated and non-approved drugs and drug samples may be quickly removed.

PATIENT SERVERS CONCEPT

A decentralized system of unit dose distribution of patients' medications to each individual hospital room was incorporated into the construction of two new floors of a hospital. Essentially, locked medication drawers are located in "patient servers" which are specially designed supply closets built into the hall wall at the entrance to each

Fig. 44. View of pharmacy featuring unit dose dispensing. (Courtesy of Lionville Systems, Inc., Lionville, Pa.)

patient's room. The patient servers are designed to allow access to the medication drawer and the drawer containing the patient's chart from the hall or from within the patient's room. This allows the nurse access to the patient's medication and chart without leaving the room, while the pharmacy technician may gain access to the medication drawer without entering the room. The drawer containing the patient's chart may also be reached from the hall without entering the room.[28]

It has been stated that the use of "patient servers" can be costly for a pharmacy department and state that a medication cart system is more cost-effective from the standpoint of remodeling costs, and personnel time involved (primarily in exchange of medication drawers, and duplication of floor stock supplies).[28]

UNIT DOSE DISPENSING—GENERAL

Unit-dose medications have been defined[10] as—

"those medications which are ordered, packaged, handled, administered and charged in multiples of single dose units containing a predetermined amount of drug or supply sufficient for one regular dose, application or use."

The concept of unit-dose dispensing is not a new innovation to pharmacy and medicine. For many years, pharmaceutical manufacturers have prepared and sold prefilled, single-dose disposable syringes of medications and single-unit foil or cellophane wrapped capsules and tablets. Because the concept is broad, one might even consider the individual ampul or single-dose vial as the precursor to unit-dose dispensing.

Although unit-dose dispensing is a pharmacy responsibility, it cannot be instituted in the hospital without the cooperation of the nursing, administrative and medical staffs. Thus, it is recommended that a planning committee be created and charged with the responsibility of developing the approach to the utilization of a unit-dose system in the hospital. Despite the motivation of the committee membership, experience dictates that the hospital pharmacist should take the time to thoroughly educate them in the concepts of unit-dose dispensing. This may be accomplished via literature reprints, film strips and visitations to institutions that have implemented a unit-dose system. Throughout the educational and developmental period, liaison must be maintained with the medical, nursing and administrative staffs by the hospital pharmacist.

The following are some advantages attributed to a unit dose system:

(1) Patients receive improved pharmaceutical service 24 hours a day and are charged for only those doses which are administered to them.

(2) All doses of medication required at the nursing station are prepared by the pharmacy thus allowing the nurse more time for direct patient care.
(3) Allows the pharmacists to interpret or check a copy of the physician's original order thus reducing medication errors.
(4) Eliminates excessive duplication of orders and paper work at the nursing station and pharmacy.
(5) Eliminates credits.
(6) Transfers intravenous preparation and drug reconstitution procedures to the pharmacy.
(7) Promotes more efficient utilization of professional and non-professional personnel.
(8) Reduces revenue losses.
(9) Conserves space in nursing units by eliminating bulky floor stock.
(10) Eliminates pilferage and drug waste.
(11) Extends pharmacy coverage and control throughout the hospital from the time the physician writes the order to the time the patient receives the unit-dose.
(12) Communication of medication orders and delivery systems are improved.
(13) The pharmacists can get out of the pharmacy and onto the wards where they can perform their intended function as drug consultants and help provide the team effort that is needed for better patient care.

The method whereby drugs are obtained from the pharmacy to the nursing station for administration to the patient is by means of the doctor's order written on a Doctor's Order Sheet in the patient's medical record. It is from this source that the nurse prepares the medication for administration to the patient (See Chapter 12).

The student will understand the importance of the doctor's drug order and its relationship to the unit dose system (or any other drug distribution system) from the following excerpt from the ASHP Technical Assistance Bulletin of Hospital Drug Distribution and Control.[31]

ASHP TECHNICAL ASSISTANCE BULLETIN ON HOSPITAL DRUG DISTRIBUTION AND CONTROL (UNIT DOSE SECTION)

Medication distribution is the responsibility of the pharmacy. The pharmacist, with the assistance of the pharmacy and therapeutics committee and the department of nursing, must develop comprehensive policies and procedures that provide for the safe distribution of all medications and related supplies to inpatients and outpatients.

For reasons of safety and economy, the preferred method to distribute drugs in institutions is the *unit dose system*. Though the unit dose system may differ in form depending on the specific needs, resources, and characteristics of each institution, four elements are common to all: (1) medications are contained in, and administered from, single-unit or unit-dose packages; (2) medications are dispensed in ready-to-administer form, to the extent possible; (3) for most medications, not more than a 24-hour supply of doses is provided to or available at the

patient care area at any time, and (4) a patient medication profile is concurrently maintained in the pharmacy for each patient. Floor stocks of drugs are minimized and limited to drugs for emergency use and routinely used "safe" items such as mouthwash and antiseptic solutions.

(1) *Physician's Drug Order: Writing the Order.* Medications should be given (with certain specified exceptions) only on the *written* order of a qualified physician or other authorized prescriber. Allowable exceptions to this rule (i.e., telephoned or verbal orders) should be put in written form immediately and the prescriber should countersign the nurse's or pharmacist's signed record of these orders within 48 (preferably 24) hours. Only a pharmacist or registered nurse should accept such orders. Provision should be made to place physician's orders in the patient's chart, and a method for sending this information to the pharmacy should be developed.

Prescribers should specify the date and time medication orders are written.

Medication orders should be written legibly in ink and should include:

- Patient's name and location (unless clearly indicated on the order sheet).
- Name (generic) of medication.
- Dosage expressed in the metric system, except in instances where dosage must be expressed otherwise (i.e., units, etc.).
- Frequency of administration.
- Route of administration.
- Signature of the physician.
- Date and hour the order was written.

Any abbreviations used in medication orders should be agreed to and jointly adopted by the medical, nursing, pharmacy, and medical records staff of the institution.

Any questions arising from a medication order, including the interpretation of an illegible order, should be referred to the ordering physician by the pharmacist. It is desirable for the pharmacist to make (appropriate) entries in the patient's medical chart pertinent to the patient's drug therapy. Also, a duplicate record of the entry can be maintained in the pharmacy profile.

In computerized patient data systems, each prescriber should be assigned a unique identifier; this number should be included in all medication orders. Unauthorized personnel should not be able to gain assess to the system.

(2) *Physician's Drug Order: Medication Order Sheets.* The pharmacist (except in emergency situations) must receive the physician's original order or a direct copy of the order before the drug is dispensed. This permits the pharmacist to resolve questions or problems with drug order

before the drug is dispensed and administered. It also eliminates errors which may arise when drug orders are transcribed onto another form for use by the pharmacy. Several methods by which the pharmacy may receive physician's original orders or direct copies are:

1. Self-copying order forms. The physician's order form is designed to make a direct copy (carbon or NCR) which is sent to the pharmacy. This method provides the pharmacist with a duplicate copy of the order and does not require special equipment. There are two basic formats:
   a. Orders for medications included among treatment orders. Use of this form allows the physician to continue writing his orders on the chart as he has been accustomed in the past, leaving all other details to hospital personnel.
   b. Medication orders separated from other treatment orders on the order form. The separation of drug orders makes it easier for the pharmacist to review the order sheet.
2. Electromechanical. Copying machines or similar devices may be used to produce an exact copy of the physician's order. Provision should be made to transmit physicians' orders to the pharmacy in the event of mechanical failure.
3. Computerized. Computer systems, in which the physician enters orders into a computer which then stores and prints out the order in the pharmacy or elsewhere, are used in some institutions. Any such system should provide for the pharmacist's verification of any drug orders entered into the system by anyone other than an authorized prescriber.

(3) *Physician's Drug Order: Time Limits and Changes.* Medication orders should be reviewed automatically when the patient goes to the delivery room, operating room, or a different service. In addition, a method to protect patients from indefinite, open-ended drug orders must be provided. This may be accomplished through one or more of the following: (1) routine monitoring of patients' drug therapy by a pharmacist; (2) drug class-specific, automatic stop-order policies covering those drug orders not specifying a number of doses or duration of therapy; (3) automatic cancellation of all drug orders after a predetermined (by the pharmacy and therapeutics committee) time interval unless rewritten by the prescriber. Whatever the method used, it must proect the patient, as well as provide for a timely notification to the prescriber that the order will be stopped *before* such action takes place.

(4) *Physician's Drug Order: Receipt of Order and Drug Profiles.* A pharmacist must review and interpret every medication order, and resolve any problems or uncertainties with it, before the drug is entered into the dispensing system. This means that he must be satisfied that each questionable medication order is in fact, acceptable. This may occur through study of the patient's medical record, research of the professional literature or discussion with the prescriber or other medical, nursing, or pharmacy staff. Procedures to handle a drug order the pharmacist still believes is unacceptable (e.g., very high dose or a use

beyond that contained in the package insert) should be prepared (and reviewed by the hospital's legal counsel). In general, the physician must be able to support the use of the drug in these situations. It is generally advisable for the pharmacist to document actions (e.g., verbal notice to the physician that a less toxic drug was available and should be used) relative to a questionable medication order on the pharmacy's patient medication profile form or other pharmacy document (not in the medical record).

Once the order has been approved, it is entered into the *patient's medication profile.* A medication profile must be maintained in the pharmacy for all inpatients and those outpatients routinely receiving care at the institution. (Note: equivalent records also should be available at the patient care unit.) This essential item, which is continuously updated, may be a written copy or computer-maintained. It serves two purposes. First, it enables the pharmacist to become familiar with the patient's total drug regimen, enabling him to detect quickly potential interactions, unintended dosage changes, drug duplications and overlapping therapies, and drugs contraindicated because of patient allergies or other reasons. Second, it is required in unit dose systems in order for the individual medication doses to be scheduled, prepared, distributed, and administered on a timely basis. The profile information must be reviewed by the pharmacist *before* dispensing the patient's drug(s). (It also may be useful in retrospective review of drug use.)

Patient profile information should include:

- Patient's full name, date hospitalized, age, sex, weight, hospital I.D. number, and provisional diagnosis or reason for admission (the format for this informaiton will vary from one hospital to another)
- Laboratory test results.
- Other medical data relevant to the patient's drug therapy (e.g., information from drug history interviews).
- Sensitivities, allergies, and other significant contraindications.
- Drug products dispensed, dates of original order, strengths, dosage forms, quantities, dosage frequency or directions, and automatic stop dates.
- Intravenous therapy data (this information may be kept on a separate profile form but there should be a method for the pharmacist to review both concomitantly).
- Blood products administered.
- Pharmacist's or technician's initials.
- Number of doses or amounts dispensed.
- Items relevant or related to the patient's drug therapy (e.g., blood products) not provided by the pharmacy.

(5) *Physician's Drug Order Records.* Appropriate records of each medication order and its processing in the pharmacy must be maintained. Such records must be retained in accordance with applicable state laws and regulations. Any changes or clarifications in the order should be

written in the chart. The signature(s) or initials of the person(s) verifying the transcription of medication orders into the medication profile should be noted. A way should be provided to determine, for all doses dispensed, who prepared the dose, its date of dispensing, the source of the drug, and the person who checked it. Other information, such as the time of receipt of the order and management data (number of orders per patient day, and the like) should be kept as desired. Medication profiles also may be useful for retrospective drug use review studies.

(6) *Physician's Drug Order: Special Orders.* Special orders (i.e., "stat" and emergency orders, and those for nonformulary drugs, investigational drugs, restricted-use drugs or controlled substances) should be processed according to specific written procedures meeting all applicable regulations and requirements.

(7) *Physician's Drug Order: Other Considerations.* The pharmacy, nursing, and medical staffs, through the pharmacy and therapeutics committee, should develop a schedule of standard drug administration times. The nurse should notify the pharmacist whenever it is necessary to deviate from the standard medication schedule.

A mechanism to continually inform the pharmacy of patient admissions, discharges, and transfers should be established.

The unit-dose dispensing concept may be introduced into the hospital in either of two ways—the choice depending upon the individual hospital and its pharmacist. The first method is the **centralized unit-dose drug distribution system,** often abbreviated as CUDD, and the **decentralized unit-dose drug distribution system,** often abbreviated as DUDD. Some pharmacists have developed a plan whereby they use a combination of the two methods.

The initiation of a unit-dose dispensing system in the hospital is not an easy task and requires a great deal of planning both within the pharmacy and with the nursing service. The hospital pharmacist should enter into such a program a step at a time. He should commence by distributing as many injectables as possible in individual disposable syringes; he may commence the distribution of tablets and capsules in strip-packages; certain lotions, creams and ointments are already available on the drug market in single dose aluminum foil or plastic containers and thus lend themselves to the concept of unit-dose dispensing.

The adoption of a unit-dose dispensing system in the hospital can save personnel time both in the pharmacy and on the nursing service; provide contamination free positive identification of the medication up to the time of administration; eliminate labeling errors; permit far more accurate medication charges; and prevent the loss of partially used medications.

Personnel time can be saved in the pharmacy because under the unit-dose system it no longer becomes necessary for the pharmacy to re-

package and label the product in smaller dispensing units. Since this step is eliminated, so, too, is the cumbersome procedure for the preparation of adequate records for the purpose of recalling all available containers of a specific product should the occasion arise

Unit-dose dispensing of medications can be accomplished in many ways. One means is through the use of strip-packaging and vial and syringe filling equipment in the hospital. (See Chapter 20 Pre-Packaging in the Hospital.) Figure 45 shows a solid oral packaging machine for convenient economical, and reliable institutional use. Vials of 15, 30 and 60 ml may be filled by the use of a programmable dispensing pump (Fig. 47) along with a manual bench capper as shown in Figure 48. An example of one product in a 30-ml vial with the cap properly applied is shown in Figure 49. Injectable drugs may also be prepared for the unit dose system within the hospital. Disposable glass syringes in 0.5, 1, 2.5, and 10-ml sizes are commercially available and can be filled in the hospital using a syringe filling stand and transfer needle. Once filled, the syringes are placed in a plastic tray and labeled. Before commencing such a program, the student should become familiar with

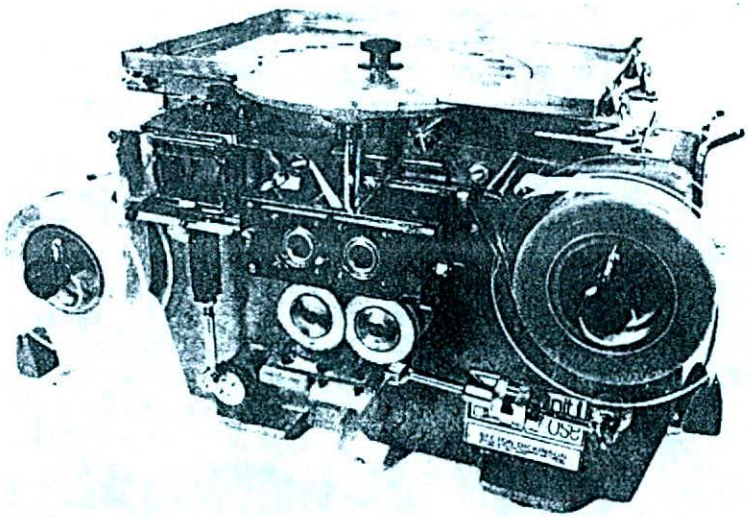

Fig. 45. Una-Strip Packer, Model SA Oral Solid Packaging Machine. (Courtesy of Becton, Dickinson and Co., Rutherford, New Jersey.)

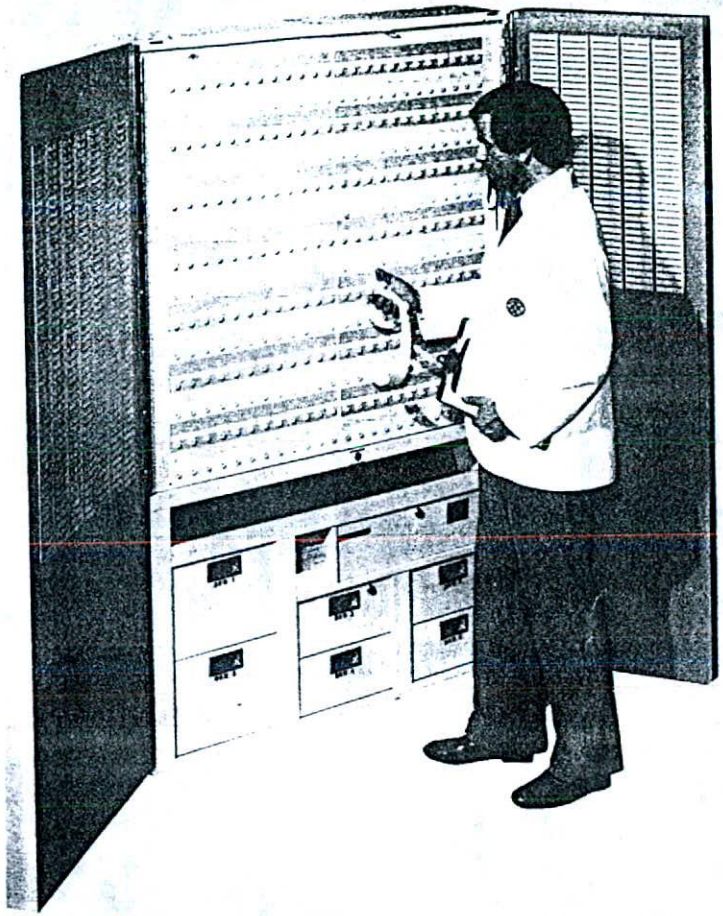

Fig. 46. The DocuMed® Pharmacy Night Cabinet. (Courtesy of Lionville Systems Inc., Lionville, Pa.)

the American Society of Hospital Pharmacists' *Guidelines for Single Unit Packages of Drugs.* See Chapter 20, page 421.

A second method may be to purchase the packaging service from an outside contractor or by the joint purchase and sharing of equipment with a neighboring hospital.

The third method is to purchase all drugs in unit dose packages. For example, Philips Roxane Laboratories distribute unit of use galenicals, magmas and suspensions whereas Wyeth Laboratories, via the "Wyeth System," makes available a combination of single packaged and labeled tablets and capsules and pre-filled, single unit disposable sterile car-

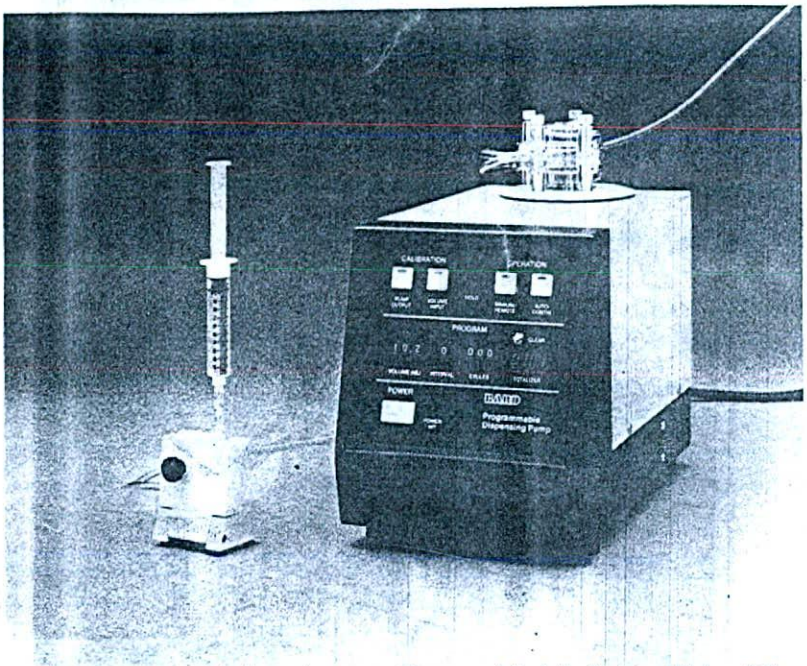

Fig. 47. Programmable dispensing pump. (Courtesy of Bard MedSystems, Divison C.R. Bard Inc., Murray Hill, N.J.)

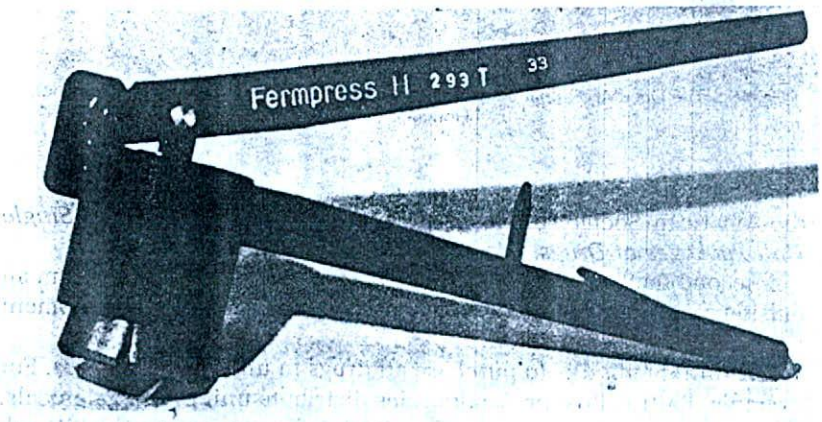

Fig. 48. Fermpress hand capper. Applies unit dose three-piece aluminum closures to 15-, 30- and 60-ml glass vials. (Courtesy Becton, Dickinson and Co., Rutherford, New Jersey.)

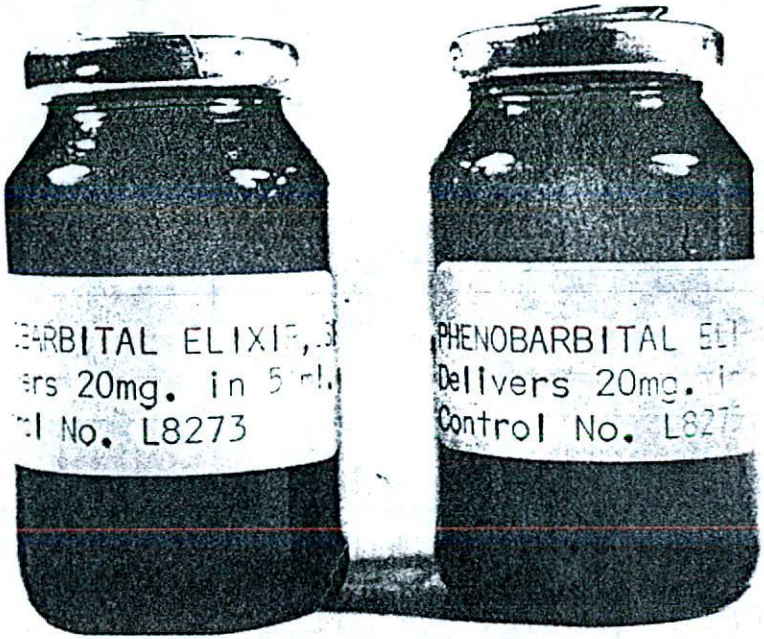

Fig. 49. An example of a 30-ml vial with closure properly applied and labeled. (Courtesy of Becton, Dickinson and Co., Rutherford, New Jersey.)

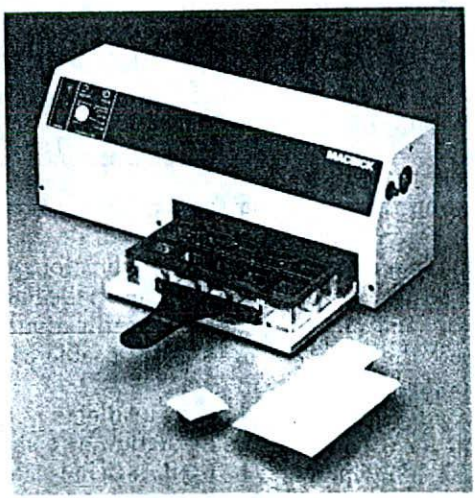

Fig. 50. Unit dose heat sealer. (Courtesy of Bard MedSystems, Division of C.R. Bard Inc., Murray Hill, N.J.)

Fig. 51. A full range of unit dose packaging equipment. (Courtesy of Lionville Systems Inc., Lionville, Pa.)

tridge-needle units (Tubex®)[a] and a specially designed medication dispensing cabinet. Other manufacturers produce solid orals in unit dose packages and produce injectables in ready-to-use plastic syringes.

It should be noted at this point that the Wyeth medication dispensing cabinet differs completely from the dispensing machine type of unit which is a component of the Brewer System. Where the Brewer unit required various "control plates" to cause it to operate, the Wyeth unit requires none. Where the Brewer unit could imprint labels and drug charge information, the Wyeth unit does not. These differences are stated here merely for the purpose of impressing upon the student that one is not similar to the other in either design or concept. Each performs a special type of function or service.

One interesting feature of the Wyeth system is its adaptability to utilize three different packagings of oral unit doses—a soft-pack strip pack consisting of a roll of single dose medications which can be dispensed from a re-usable reel-type of dispenser, the Redipak® strip pack, the same cellophane roll of single dose medications described above except that here the outer casing is a disposable cardboard box, and finally, the commonly used strip pack.

The medication dispensing cabinet is available in two styles; a large stationary unit for use at the nursing station or a smaller mobile unit (see Figs. 53, 54, 55) which may be used as a complete medication cart.

[a]Tubex® Wyeth Laboratories.

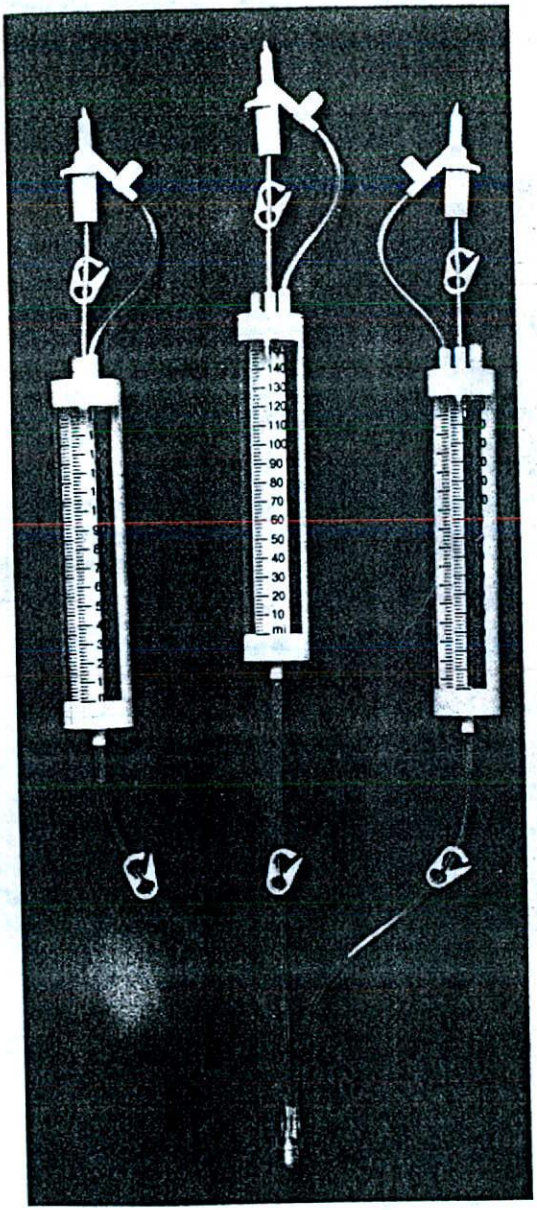

Fig. 52. The Multi-Meter System, a precision metered-chamber fluid transfer system designed for the preparation of TPN and other specialty IV fluids. (Courtesy of Burron Medical Inc., Bethlehem, Pa.)

Fig. 53. Mobile medication cart. (Courtesy Lionville Systems Inc., Lionville, Pa.)

By introducing a full-line single unit package of drugs, the hospital pharmacist has the advantage of what has been described as a "pre-system" phase-in from which accrue the following:[11]

(i) "acquaint nurses with the various new containers from which they will be administering medication;
(ii) assist in planning for and stocking of various inventory levels;
(iii) provide the many benefits of single unit packaging itself even though a unit dose system is not operational."

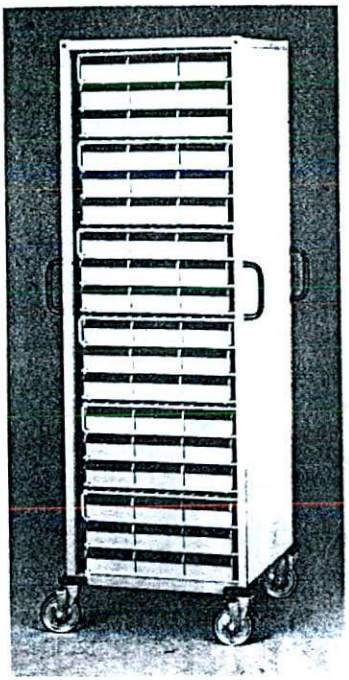

Fig. 54. The vertical transfer system cart. (Courtesy of Bard MedSystem, Division of C.R. Bard Inc., Murray Hill, N.J.)

UNIT DOSE DISPENSING PROCEDURE

The characteristic features of centralized unit-dose dispensing are that all in-patient drugs are dispensed in unit-doses and all the drugs are stored in a central area pharmacy and dispensed at the time the dose is due to be given to the patient. To operate the system effectively, electronic data processing equipment is not required, however delivery systems such as medication carts and dumbwaiters are needed to get the unit-doses to the patients; also suction tube systems (called pneumatic tubes) or other means are required to send a copy of the physician's original medication order to the pharmacy for direct interpretation and filling.

The *decentralized* unit-dose system, unlike the centralized system, operates through small satellite pharmacies located on each floor of the hospital. The main pharmacy in this system becomes a procurement, storage, manufacturing and packaging center serving all the satellites. The delivery system is accomplished by the use of medication carts. This type of system can be used for a hospital with separate buildings or old delivery systems.

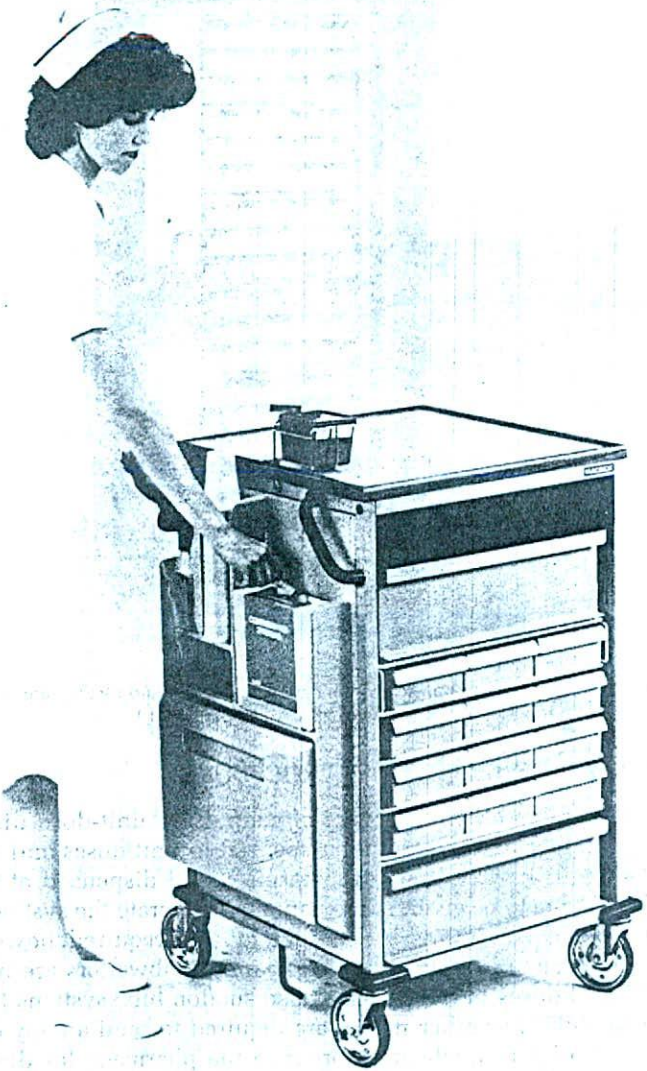

Fig. 55. Nursing cart for use in unit dose dispensing systems. (Courtsey of Bard Med-Systems, Division C.R. Bard, Inc., Murray Hill, N.J.)

UTILITY ROOM

Amt.	SOLUTIONS—EXTERNAL		Price
	Alcoholic Sponge Lotion	32 oz	
	Alkaline Aromatic Solution (Mouth Wash)	32 oz	
	Amphyl–2%	Gal	
	Back Rub Lotion	Ind	
	Benzalkonium Chloride 1:750	gal	
	Benzalkonium Chloride 1:1000	gal	
	Benzalkonium Chloride 1:20.000	gal	
	Benzalkonium Chloride Tr.	16 oz	
	Benzoin Tr.	4 oz	
	Calamine Lotion	8 oz	
	Chlorinated Soda—5%	32 oz	
	Collodion Flexible	4 oz	
	Creo-Napol 1:50	Gal	
	Denatured Alcohol for Lamps	8 oz	
	Deodorizing Spray	16 oz	
	Ether—Not For Anesthesia	8 oz	
	Ether—Alcohol Mixture	8 oz	
	Glycerin	8 oz	
	Hand Lotion	8 oz	
	Hexachlorophene Deterg.	32 oz	
	Hexachlorophene Liquid Soap	32 oz	
	Iodine Aqueous—2%	8 oz	
	Iodine Tr.—2%	8 oz	
	Instrument Sterilizing Solution	32 oz	
	Isopropyl Alcohol—50%	32 oz	
	Magnesium Sulfate—Glycerin Solution	16 oz	
	P.C.G. Solution	8 oz	
	Thermometer Germicide Solution	32 oz	

Amt.	OINTMENTS & CREAMS		Price
	A & D Ointment	1 oz	
	Lanolin	1 oz	
	Lanolin—Stearin Cream	4 oz	
	Petrolatum	1 oz	
	Surgical Lubricant—Single use unit		
	Zinc Oxide Ointment	1 oz	

Amt.	REAGENTS		Price
	Acetone	8 oz	
	Acetic Acid—50%	4 oz	
	Benzidine Reagent	4 oz	
	Schiller's Solution	8 oz	
	Sulfuric Acid—50%	2 oz	
	Sulfuric Acid—0.5%	2 oz	
	Toluene	8 oz	
	Topfer's Reagent	4 oz	
	Wright's Stain	8 oz	

THIS SPACE FOR PHARMACY OFFICE USE ONLY

Filled by .....

Checked by: .....

Price Total for sheet ... $.....

Previous Total $.....

Current Total $.....

Form 16-Drug

Fig. 43 *(Continued).* Pharmacy requisition for non-charge floor stock supplies.

ically for the charge and the other for extending credit. See Figure 42 for this type of form.

DISPENSING AND DISTRIBUTION OF NON-CHARGE FLOOR STOCK DRUGS

This category of drugs and related products being predetermined and stable is amenable to a variety of unique methods whereby the drugs are conveyed from the pharmacy to the nursing station.

Basic to all the distribution systems is the preparation of a printed list which indicates the name and strength of the product, the size of the unit, and its location on the nursing station. Figure 43 represents one such form which encompasses non-charge floor stock drugs as well as various lotions, germicides, mouthwashes and sterilizing solutions.

DRUG BASKET METHOD

One method formerly used by hospitals for stocking non-charge floor stock drugs and related products on the nursing station is the "drug basket method." Under this system, the night nurse checks the medicine closet, utility room and drug refrigerator inventory of supplies against a master list provided by the pharmacy through the nursing service. The nurse places a check mark on the number required for each drug on the requisition for floor stock supplies (Fig. 43). Where there is an empty container, she places it in the drug basket. Once the procedure is completed, the drug basket containing the empty containers and requisition for floor stock supplies, is then sent to the pharmacy.

Immediately upon opening in the morning the pharmacy staff commences to fill each container and dispense the requested ampuls and vials as ordered. Once the basket is complete, it is delivered to the floor via a messenger service or, in the newer institutions, via a dumb-waiter or basket ejector delivery system.

MOBILE DISPENSING UNIT

A mobile dispensing system, previously described, for the hospital pharmacy[8] utilizes a specially constructed stainless steel truck measuring 60 inches high, 48 inches wide and 25½ inches deep. The main body of the truck is mounted on six 8-inch balloon tires, the center wheels being stationary while the remaining four are swivel-type. The main compartment is provided with two locking sliding doors, a handle for steering and pushing, a heavy duty steel and rubber protective bumper and a 2-inch rim on the top to permit carrying empty containers being returned to the pharmacy.

The interior of the unit consists of four shelves which allow for the transport of all size containers.

Under this system, two mobile units are put into operation in order to permit one unit to be in use while the other is being serviced. The frequency of delivery and the hours during which the mobile unit will visit the pavilion can be selected in cooperation with the Nursing Service.

By using this system, it will not be necessary for the night nurse to check the pharmacy inventory or have empty containers transported to the pharmacy. Instead, the pharmacist or the pharmacy aide manning the mobile unit will inventory the pavilion drug cabinets and check off the items and quantity of supplies left. The carbon copy of the *Requisition for Floor Stock Supplies* is left on the pavilion as a record

it to the pavilion a few minutes before it is to be administered by the nurse.

Both of these studies indicated that nursing time could be saved, that the incidence of error was in all probability reduced and that the system gained "nurse acceptance" in a relatively short time.

Researchers at the University of Arkansas Medical Center worked on an extremely interesting study whereby they developed a centralized unit-dose system for general hospital use.[14,17]

As described, the methodology requires that a copy of the physician's order be forwarded to an IBM Keypunch operator who interprets the order via a code system onto the cards which are then processed through a sorter, reproducer and card-type converter.

Another of these sophisticated electronic data systems permits the physician to write his order and insert the written sheet into a machine, which then transmits a view of the order on to a videoscope in the pharmacy. Here it is checked for accuracy by the pharmacist and if correct, he may activate the dispensing portion of the machine by pressing a button which automatically activates a computer and an entire series of events takes place. The drug is dispensed, the nurse is alerted to administer the medication, a charge is entered upon the patient's account and upon the administration of the drug by the nurse, another press of a button enters the fact upon the patient's hospital record. The computer can also notify the doctor if the drug is not in inventory, is not prescribed according to the dose or route of administration recommended in the hospital formulary and will alert the nurse if she has failed to administer the drug within a predetermined period of time.

It should be clear that the use of electronic data processing equipment in conjunction with the dispensing of unit-dose medications can provide a broad spectrum of useful statistical data governing drugs and their use. Obviously then, such equipment must already be in use in the hospital in order to make the undertaking of a comprehensive automated dispensing program a feasible venture.

One method which does not make use of mechanical or electronic dispensing devices for the distribution of patient-charge drugs is employed at the Massachusetts General Hospital in Boston and is entitled MOSAICS—an abbreviation for **Medication Order Supply and Individual Charge System.**[18] This system places all of the drugs in current use at the hospital in the nurses' drug cabinet.

The Mosaic system is stated to reflect a simple but basic change, namely, that in the past the patient was admitted first and the drug was then requisitioned. Under the Mosaics plan, the drug is already on the floor awaiting the patient. The modus operandi is relatively simple in that a pharmacist visits the patient floor on a regular schedule, re-stocks the unit and makes a charge to the patient or patients consuming the drugs. The information necessary for the charging procedure comes

from the Doctor's Order Sheet, Nursing Kardex or Medication Charting Sheets.

The architects of the Mosaic system have demonstrated that by placing the pharmacist on the patient pavilion, it was possible for him to serve as a drug advisor and consultant to the medical and nursing staffs. In addition, he was in a better position to perform the pharmaceutical functions of checking upon the storage, administration, expiration data, contamination and degradation of drugs and biologicals.

SELF-MEDICATION PROGRAMS

The large number of effective therapeutic agents which are now available has created a serious problem in the proper treatment of patients. Because of the specificity of pharmacological response of many of these drugs, it is often necessary to employ several in order to obtain the desired clinical reponse. Frequently, this has led to confusion, improper administration of the drug on the part of the patient and poor therapeutic results.

In an informal survey conducted by the Nursing Service and the Department of Pharmacy of a metropolitan teaching hospital, it was learned that approximately 50% of the ambulatory patients receiving medications were not aware of the reasons for taking the drugs and that nearly 40% exhibited errors in the way they were taking their medications. Upon closer scrutiny of this figure, it was clearly demonstrated that an extremely high percentage of the errors were made when the signa of the prescription indicated "As directed" and the patient received more than one prescription.

Since the above observations were being similarly made in other hospitals throughout the country, many physicians, pharmacists and nurses have become interested in the development of a program for the education of patients relative to the *what, why* and *when* of the drugs which have been prescribed for their use.

One way whereby such a program may be initiated is to place patients, who are capable of cooperating, on a self-medication program while they are in the hospital. After the initial stage of alarm caused by proposing such a radical departure from standard hospital procedure has given way to sound reasoning, many will agree that this concept is really no different from that of progressive patient care or that of the ill patient at home who, of necessity, must resort to self adminstration of prescribed medications.

There are many advantages that would accrue from a satisfactorily developed program, the most important being the education of the patient whereby medication would be taken as intended by the physician when the patient was discharged from the hospital and secondly,

while an inpatient, much nursing time could be conserved and devoted to other forms of patient care.

In response to a question as to whether or not physicians may order a medication to be left at the patient's bedside to be taken at the patient's discretion, Kenneth B. Babcock, M.D., former Director of the **Joint Commission on Accreditation of Hospitals** replied[19]—

"The answer is an emphatic 'No.' No medication should ever be left at the patient's bedside to be taken at his or her discretion. Every dose of any medication should be administered by a qualified person and recorded on the chart. This is important not only from the standpoint of the welfare of the patient, but also from a legal aspect."

Based on this opinion, the hospital pharmacist is advised to proceed with caution in the recommendation of such a program for use in the hospital. However, if such a program is, for one reason or another approved for use in a particular hospital, the hospital pharmacist should make every effort to assist in the design of a procedure that would ensure maximal safety for the patient yet protect the hospital and its staff from medicolegal implication.

Since Dr. Babcock's 1964 statement, there have been a number of hospitals and hospital pharmacists who have experimented with self-medication programs.[20,21,22] Some of the projects have been conducted at a physical rehabilitation hospital,[23,24] in an extended care facility,[25] on a geriatric ward of a large New York City hospital and on a cardiology unit of a medical center.[26]

Some hospitals permit self-administration of medicine after the first 24-hours of hospitalization. This is achieved only if the medication is properly labeled and dispensed by the hospital pharmacy. Schedule II, III, and IV as well as investigational use drugs should not be allowed to be self-administered. The self-medication order requires the written order to specific as to the medication, dose and frequency of administration. The nursing staff should record the patient's reported frequency, route of administration and dose of self-administered medication.

Barker and associates[32] studied the effect of an automated bedside dispensing machine (McLaughlin Dispensing System) on medication errors. The "system" consisted of a bedside locked medication cabinet that was electronically programmed to allow the nurse access to doses due at a particular time. The control system was the decentralized unit dose system. This limited study revealed that the error rate was significantly lower for the automated dispensing system than for the system using unit-doses dispensed from a satellite pharmacy. The authors suggest that automated dispensing systems may be useful in reducing errors in administration and time and dose omissions.

A review of the literature reveals that most investigators conducting these studies believe them to be successful. Thus Joint Commission on Accreditation of Hospitals standards allow for self-medication programs.

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Dispensing to Ambulatory Patients

"Ambulatory" refers to patients not occupying beds in hospitals or other inpatient settings, and to care given in physicians' offices, clinics, health centers, and other places where ambulatory patients usually go for health care. Today hospitals break down their ambulatory patient load into three categories—emergency, referral or tertiary care and primary care. The term **emergency care** is self explanatory and **tertiary care** means care beyond that of primary care. Stated simply, primary health care is what most people use most of the time for most of their health problems. Primary care is **majority** care. It describes a range of services adequate for meeting the great majority of daily personal health needs. This majority includes the need for preventive health maintenance and for the evaluation and management on a continuing basis of general discomfort, early complaints, symptoms, problems, and chronic intractable aspects of disease.

Most primary care is used by patients who are ambulatory, and most, but not all, ambulatory care is primary care. Primary care does not include service that is intensive, or very specialized, or both. These characteristics describe other levels of comprehensive health care.

In an organizational sense, primary health care describes a locus which should serve the patient as an entry point into a comprehensive health care system. Once entry is made—and initial care needed at the time of entry given—the primary care locus or program should be responsible for assuring continuity of all the care the patient may subsequently need.

The growth of ambulatory care clinics may be attributed to the following:

(a) The need of the hospital to supplement its in-patient teaching program.
(b) The demand by the community, lay as well as professional, for comprehensive diagnostic and treatment centers.
(c) The new philosophy of hospitals—to take a more active role in the community health programs.

(d) The need of the hospital and physician to exercise greater control over patients receiving investigational use drugs.

(e) The lack of a sufficient number of physicians in some areas, thereby causing the population to travel to the medical center for comprehensive care.

(f) The fact that the emergency service of a hospital is always available, whereas a physician, in some rural areas, may not always be available.

Because of this volume and the prospect of growing larger within the next 20 years, many community pharmacists have been quick to cite the economic hardship this trend may create in the community. Although this is an important factor to be considered, it would appear that the crux of the problem is the lack of understanding by the community practitioner of the purpose and scope of a complete or comprehensive ambulatory service.

With the aim of alleviating this situation, the American Pharmaceutical Association and the American Society of Hospital Pharmacists established a Commission to study out-patient hospital pharmacy service and related hospital-community-pharmacy problems.

REPORT OF THE COMMISISON ON PHARMACEUTICAL SERVICES TO AMBULANT PATIENTS BY HOSPITALS AND RELATED FACILITIES

The two groups recognized that the goal of such a commission would not be realized without the cooperative effort of the medical and hospital associations. Thus an invitation to participate was extended to the American Medical Association and to the American Hospital Association.

The Commission, on October 22, 1964, modified its original name of Commission on Out-Patient Dispensing to read, **Commission on Pharmaceutical Services to Ambulant Patients by Hospitals and Related Facilities.**

One of the objectives adopted by the Commission was—"To obtain accurate data and reliable information regarding pharmaceutical services to out-patients by hospitals and other facilities."

Upon the completion of its studies, the Commission published a report entitled *The Challenge to Pharmacy in Times of Change*. This scholarly publication should be read by every student and practitioner of pharmacy.

Because of the depth of the study and the limited nature of this textbook, it is necessary to concentrate only on the following portion of the Commission's summary.[1]

2. **Hospital out-patient pharmaceutical service:** As a general rule, hospitals do not solicit private out-patient prescription patronage. The hospital out-patient department is in a very favorable position to attract private patients because of the convenience factor, but the location of the pharmacy in the hospital, a limited stock of health supplies, and the limitations of the formulary system, are often deterrents to maximum out-patient services. The hospital pharmacist is burdened with the care of hospital patients and has little time to develop a personal consumer loyalty with private patients. The community pharmacist, on the other hand, can develop a personal relationship through a high level of professional and individualized service that will permit him to compete favorably with the convenience advantage that a hospital or a medical center-based pharmacy service offers the patient. The patient has the same right to select his pharmacist as he does his physician or other health practitioner, and none of the parties involved should adopt procedures that circumvent this right.

Since the Commission Report, the profession has made great strides in recognizing the need to advance ambulatory pharmaceutical service to the level necessary to meet the need of the new healthcare delivery systems which are preponderantly ambulatory oriented. The ASHP in recognition of this need promulgated the following Statement[2] and Guidelines[3] for ambulatory care pharmaceutical services.

ASHP STATEMENT ON THE PROVISION OF PHARMACEUTICAL SERVICES IN AMBULATORY CARE SETTINGS[a]

The concern for increasing access to health care services and containing health care costs has led to increased demands for ambulatory patient care services in organized health care settings. Ambulatory care encompasses the provision of health care services and education to patients who are able to seek medical attention, yet do not require admission to an institution for health care needs. To meet these needs, organized settings for delivery of ambulatory health care are being created within institutional structures as well as in satellite clinics and noninstitutional ambulatory health care systems, including Group Medical Practices and Health Maintenance Organizations.

This expansion of health care into ambulatory settings has been accompanied by an evolution of patient-oriented pharmaceutical services that extend beyond traditional preparation and dispensing of medications. Many of the activities outlined in the American Society of Hospital Pharmacists' Statement on Clinical Functions in Institutional Pharmacy Practice[1] have been adapted to a variety of ambulatory care

[a]Developed by the ASHP Council on Clinical Pharmacy and Therapeutics. Approved by the ASHP Board of Directors on March 20, 1980, and by the ASHP House of Delegates on April 21, 1980.

settings. The scope of these activities may vary with practice site, but commonly include:

1. Obtaining and documenting patient medication histories.
2. Monitoring the safety and efficacy of drug therapy through the maintenance of medication profiles.
3. Providing drug information to prescribers and other health care practitioners.
4. Assisting prescribers in the proper selection and adjustment of drug therapy through application of pharmacokinetic and other principles.
5. Utilizing assessment skills in the management of acute and chronic diseases and providing appropriate referrals to other health care providers.
6. Detecting and reporting adverse drug reactions, interactions, and noncompliant patient behavior.
7. Educating and counseling patients and the general public in the proper use of medications.
8. Participating in drug-use reviews, patient care audits, and clinical drug investigations.
9. Participating in the education of health care providers.
10. Supervising the storage, preparation, dispensing, and administration of medications in the patient care area.
11. Developing systems for the delivery of pharmacy services in the institutional setting and the community.
12. Developing and utilizing systems for fiscal management and reimbursement.

Directors of pharmacy services in institutions and pharmacists in noninstitutional settings have the responsibility to develop and maintain comprehensive pharmaceutical services commensurate with the individual needs of each health care setting and to evaluate and document the health care benefits of such services. The American Society of Hospital Pharmacists recognizes and supports the development and implementation of comprehensive ambulatory pharmaceutical services in organized health care settings.

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ASHP GUIDELINES: MINIMUM STANDARD FOR AMBULATORY-CARE PHARMACEUTICAL SERVICES[a]

Services to ambulatory patients are an important part of many institutional pharmacy programs. The need for such services probably will increase substantially in the 1980s.

[a]Approved by the ASHP Board of Directors, November 19, 1981.

The Society has identified 12 activities in which institutional pharmacists will be involved in the ambulatory-care setting.[1] However, providing all these services in all institutions at all times is not feasible. At a minimum, ambulatory patients require certain critical pharmaceutical services. The essential elements of any ambulatory-care pharmaceutical service program are as follows:

1. The ambulatory-care pharmacy program must be directed by a qualified pharmacist.
2. The appropriateness of the choice of drug and its dosage, route of administration, and amount must be verified by the pharmacist. This will require the maintenance of medication profiles for patients routinely treated at the institution to prevent duplicate drug therapies and the use of contraindicated drugs.
3. All medications dispensed to patients will be completely and correctly labeled and packaged in accordance with all applicable regulations and accepted standards of practice.
4. Upon dispensing a new (to the patient) medication, the pharmacist will ensure that the patient or his representative receives and understands all information required for proper use of the drug.[2]
5. All drugs in ambulatory-care service areas will be properly controlled.[3]

The American Society of Hospital Pharmacists believes that patients in all ambulatory-care facilities should expect these five pharmaceutical services, without exception.

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Ambulatory-care pharmacy practice has reached the stage whereby its practitioners have become specialized in this branch of pharmaceutical services. As a result thereof, specialized postgraduate programs have evolved to train residents. The following is the ASHP Supplemental Standard and Learning Objectives for Residency Training in Ambulatory-Care Pharmacy Practice.[4]

ASHP SUPPLEMENTAL STANDARD AND LEARNING OBJECTIVES FOR RESIDENCY TRAINING IN AMBULATORY CARE PHARMACY PRACTICE

Preamble[a]

Definition. A specialized residency in ambulatory-care pharmacy practice is defined as a postgraduate program of organized education and training that meets the requirements set forth and approved by the American Society of Hospital Pharmacists. The ASHP Accreditation Standard for Specialized Residency Training,[1] together with this supplement, are the basic criteria used to evaluate ambulatory-care pharmacy residency training programs in institutions applying for accreditation by the American Society of Hospital Pharmacists.

A specialized residency in ambulatory-care pharmacy practice must be organized and conducted to develop expert skills and competency in this area of practice, differentiated in scope, depth, and proficiency from those expected of institutional pharmacy residents. Objectives of such training should include extensive experience in providing comprehensive clinical pharmacy services to ambulant patients, as well as the management of drug-distribution systems in ambulatory-care facilities.

Qualifications of the Training Site. The parent facility for an accredited residency in ambulatory-care pharmacy practice shall meet the requirements set forth in Standard I in the body of the ASHP Accreditation Standard for Specialized Pharmacy Residency Training.[1] Facilities may include, but are not limited to, institutional ambulatory-care settings, satellite clinics, and noninstitutional ambulatory health-care systems, including group medical practices and health-maintenance organizations.

Qualifications of the Pharmacy Service. The pharmacy service in which an accredited ambulatory-care practice residency is based must meet the requirements set forth in Standard II of the ASHP Accreditation Standard for Specialized Pharmacy Residency Training.[1] In addition, the pharmacy service must provide a comprehensive program of ambulatory-care services, far surpassing that required in the ASHP Minimum Standard for the Provision of Ambulatory-Care Pharmaceutical Services.[2] The following specific requirements are established for the ambulatory-care service program:

1. *Medical records.* All patient-related records must be accessible before, during, and after the provision of pharmaceutical services.
2. *Drug information resources.* Each facility shall maintain a centralized

body of pharmaceutical and medical literature, containing current primary, secondary, and tertiary literature sources.

3. *Scope of service.* The ASHP Statement on the Provision of Pharmaceutical Services in Ambulatory Care Settings[3] sets forth the fundamental scope of services that should be provided by such a program. Although provision of non-prescription drugs and health-related devices and appliances is included within the intent of this requirement, the sale of sundries and general merchandise is specifically excluded.
4. *Preceptors serving as independent proprietors.* In those instances in which the preceptor may also serve as sole proprietor of an independent (noninstitutional) ambulatory health-care setting, particular attention should be focused on section II-B of the Accreditation Standard for Specialized Pharmacy Residency Training.[1] Administative and business concerns of the preceptor in such a setting should not be allowed to detract from the objectives of the residency program.
5. *Review of quality.* There shall be an ongoing quality-assurance program to evaluate the pharmacy services being provided.

Qualification of the Preceptor. The preceptor of an accredited ambulatory-care pharmacy practice residency must meet the requirements set forth in Standard III of the ASHP Accreditation Standard for Specialized Pharmacy Residency Training.[1] The area of specialization of the preceptor shall be ambulatory-care pharmacy practice. Additionally, the preceptor shall demonstrate proficiency as a clinical pharmacist within this area of practice.

Qualifications of the Applicant. In addition to meeting the requirements set forth in Standard IV of the ASHP Accreditation Standard for Specialized Pharmacy Residency Training,[1] the applicant should have completed formal academic instruction in the following subject areas or their equivalents: pathophysiology, physical assessment, communication techniques, and drug-literature evaluation.

The following learning objectives shall be approved by the Commission on Credentialing following review annually by a committee appointed from the Special Interest Group on Ambulatory-Care Pharmacy Practice of the American Society of Hospital Pharmacists.

Learning Objectives and Areas of Emphasis

I. **Learning Objectives.** A resident who completes an accredited residency program in ambulatory-care pharmacy practice shall be able to:

A. Develop an appreciation for the organization and operation of an ambulatory-care pharmacy service, including physical accommodations, reference sources, computer applications, professional and supportive personnel, budgeting, relationships with other health-care departments, patient flow, assumed or designated responsibilities, and documentation of services.

B. Obtain and document, in the patient's medical record, medication histories, medication profiles, and other pertinent information that may directly affect the intended therapeutic plan.
C. Manage a patient's drug therapy by:
   1. Advising prescribers in designing a drug-therapy treatment plan,
   2. Using established therapeutic protocols, or
   3. Independently prescribing or adjusting drug therapy in instances where supportive legislation allows.
D. Monitor the safety and efficacy of drug therapy through the use of physical-assessment skills, interpretation of laboratory data, patient interview, and medical-record review.
E. Provide drug information to prescribers and other health-care practitioners.
F. Refer the patient, when necessary, to other appropriate health-care providers.
G. Supervise the storage, preparation, and dispensing of medications and the provision of surgical and ostomy supplies.
H. Participate in, or recommend alternative methods of, administering medications to ambulatory-care patients in either the medically supervised or home health-care setting.
I. Identify and initiate strategies to correct noncompliant patient behavior.
J. Establish functional systems for detecting, reporting, and managing adverse drug reactions, interactions, allergies, and other untoward drug-related effects.
K. Educate and counsel patients,[4] the general public, and health-care providers in the proper use of medications and drug-delivery systems.
L. Establish criteria for safe and effective drug use and coordinate drug-use reviews and patient-care audits.
M. Organize an ongoing educational program directed toward the professional advancement of all health-care staff members.
N. Develop and defend a proposal for obtaining reimbursement for patient-care activities.
O. Establish a quality-assurance program directed toward continuous assessment of the patient-care pharmaceutical services being provided.
P. Participate in the management of medical emergencies.

II. **Areas of Emphasis.** The resident's training program shall be directed toward solving specific clinical problems. It must occur in a multidisciplinary setting, in which each member of the health-care team has a defined patient-care responsibility. The program should also focus on drug-literature analysis and associated communication skills. It must be organized in a way that makes possible the attainment of the learning objectives. Exposure to a widely varied patient population is expected. To meet these criteria, experiences should be provided in, but not necessarily restricted to, many of the following areas:

A. Acute illnesses
   1. Upper-respiratory infections
   2. Headaches
   3. Diarrhea
   4. Otitis media

5. Skin allergies
6. Acne
7. Local fungal infections
8. Hay fever
9. Viral gastroenteritis
10. Streptococcal pharyngitis
11. Parasitic infections
12. Venereal disease
13. Urinary-tract infections

B. Chronic illnesses
1. Diabetes mellitus
2. Hypertension
3. Seizure disorders
4. Parkinsonism
5. Rheumatoid arthritis
6. Tuberculosis
7. Chronic obstructive pulmonary disease
8. Asthma
9. Angina pectoris
10. Congestive heart failure
11. Thrombosis
12. Neoplastic disease
13. Renal failure/transplantation
14. Peptic ulcer disease
15. Ulcerative colitis
16. Thyroid disorders
17. Gout
18. Anemias
19. Glaucoma
20. Intractable pain

C. Preventive care
1. Nutrition
2. Hygiene
3. Exercise programs
4. Alcohol-abuse rehabilitation program
5. Smoking-cessation program
6. Weight-reduction program
7. Stress-reduction program

D. Self care (nonprescription-medication use)

E. Emergency care
1. Cardiopulmonary resuscitation
2. Acute burn therapy
3. Shock
4. Trauma

F. Family planning
1. Contraception
2. Pregnancy testing
3. Teratogenicity
4. Maternogenicity

G. Devices
1. Nutrition-delivery systems
2. Drug-delivery systems
3. Prosthetic devices
4. Home health-care supplies

5. Ostomy supplies
6. Oxygen systems
7. Surgical appliances
8. Durable medical equipment

H. Communication skills
The resident shall have numerous assignments throughout the year aimed at developing written and verbal communication skills. The residency preceptor shall be specifically responsible for setting goals for the resident's growth and development in these areas, monitoring the resident's progress, and counseling the resident on a regular basis concerning communication abilities.

Extramural Experiences

When appropriate, rotations or visitations to other health-care settings should be scheduled to augment the resident's training. Extramural rotations may be conducted either as full-time training activities (e.g., a one-month block), or on a regularly scheduled part-time basis. Examples of such experiences might include providing nursing-home or long-term care facility consultations, or participation in regularly scheduled home health-care visits to patients requiring drug therapy or device monitoring. If extramural rotations are scheduled for the purpose of pursuing one or more of the fundamental learning objectives, there must be a pharmacist preceptor who has defined responsibilities for monitoring the progress and evaluating the accomplishments of the resident. A detailed set of objectives for extramural rotations must be prepared in advance. Extramural rotations must represent not more than 25% of the resident's experience. The qualifications of the extramural training site are subject to review and approval by the American Society of Hospital Pharmacists.

Research Projects

The residency training schedule shall make provision for the resident's participation in a self-directed or collaborative research project. The purpose of such activities is to teach the application of the scientific method. The resident should submit a final report of the project, which should be of publishable quality.

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LOCATION OF OUT-PATIENT DISPENSING AREA

There is no set rule as to the best area to locate an out-patient dispensing pharmacy. This is evidenced by the fact that in today's practice three equally suitable provisions are made for this area:

(a) A separate out-patient pharmacy is available.
(b) A combined in-patient and out-patient unit with service provided from the same "window."
(c) A combined in-patient and out-patient unit with service provided from separate "windows."

A separate out-patient pharmacy is usually established whenever the out-patient department and the pharmacy are geographically widely separated. Although this arrangement has the advantage of being a separate and distinct unit with a specialized function, it possesses the disadvantages of requiring a separate staff as well as consuming a great deal of time, on the part of other pharmacy department personnel, in transporting supplies and drugs to the area.

The above disadvantages are obviously eliminated whenever both in-patient and out-patient facilities are combined. An additional advantage to this arrangement is that the director of the pharmacy service is able to exert a greater degree of control and supervision.

TYPES OF PRESCRIPTIONS RECEIVED

Depending upon the location and kind of hospital, the prescriptions received in the out-patient department pharmacy will generally include those of private patients (where permitted by the state board of registration in pharmacy), indigent patients, non-indigent patients, employees, and patients being discharged from the hospital. It is a known fact that in any large metropolitan teaching hospital, the largest volume of prescriptions comes from the indigent or partially indigent group of patients. It is also established that every patient who visits the clinics does not have his prescription filled in the hospital. Indeed, hospitals with 500 or more beds fill approximately 1 prescription per 3 out-patient visits, whereas the 100 to 199-bed hospitals average about 1¼ prescriptions for each visit.[5]

Because many of these indigent patients are supported by some type of welfare program, their prescriptions require special identification, and the billing for such must be in accord with the requirements of the particular agency. In some states, a special pricing for the drugs dis-

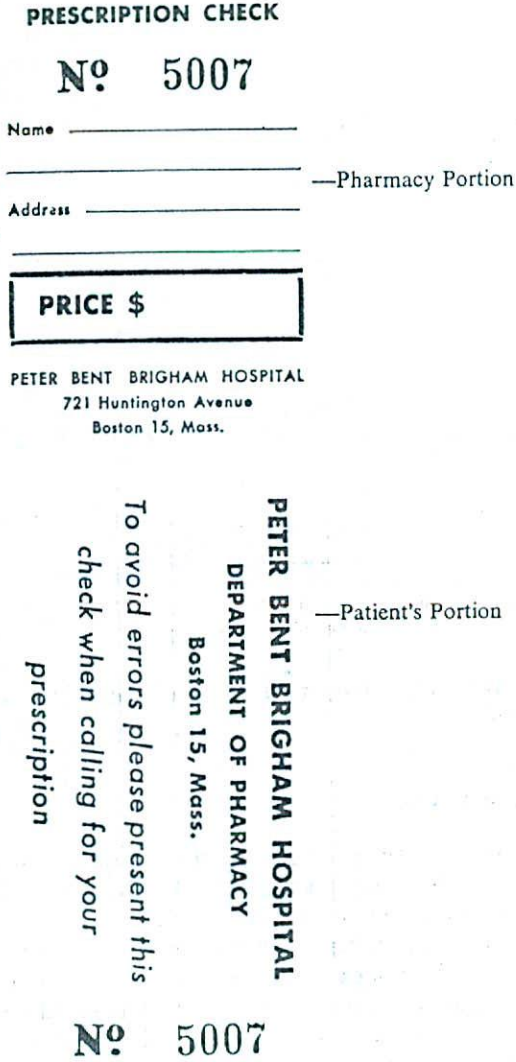

Fig. 57. Prescription Call Check used in the out-patient dispensing pharmacy as a means of matching the correct patient and prescription.

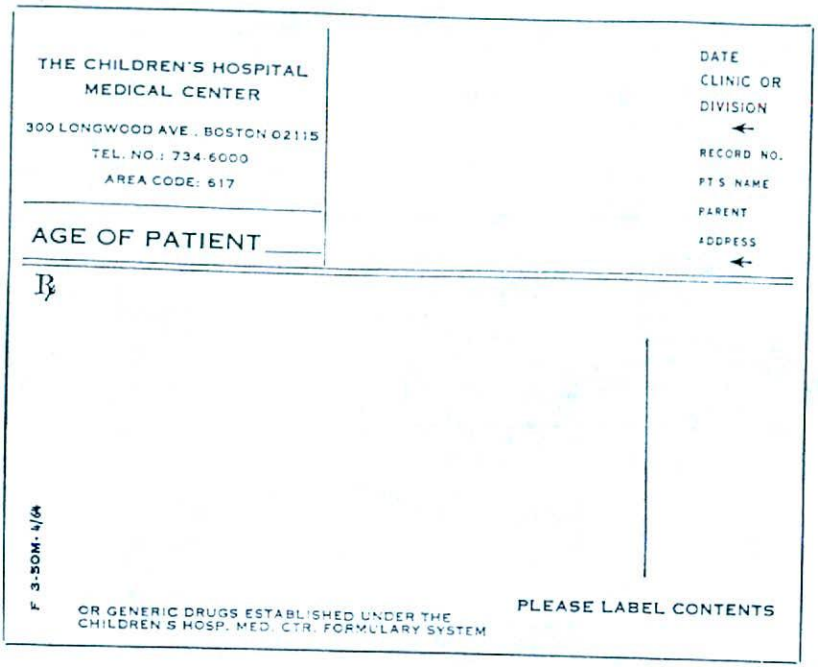

Fig. 58. A prescription blank developed by The Children's Hospital Medical Center in Boston. Note the emphasis on the patient's age.

pensed is in effect. See Chapter 19 for an example and discussion of one such system.

DISPENSING ROUTINE

The dispensing pattern involved in providing clinic patients as well as those patients being discharged with "take home drugs" is identical with that carried on by a community pharmacy.

In both instances, a prescription is written by the physician and the patient takes it to the pharmacy where it is compounded by a pharmacist. If there is to be a waiting period, the pharmacist will make use of a prescription call check which numerically identifies the patient, and the finished prescriptions (Fig. 57). Once in the hands of the pharmacist, the prescription and label are numbered by a numbering machine; the directions and other pertinent information are placed on the label; ancillary labels are affixed; the proper medication is then placed in the container; a check for accuracy is then conducted; and finally the prepared prescription is wrapped and dispensed.

For internal audit purposes, hospital prescriptions are separated into

out-patient and in-patient discharges and therefore may utilize two different colored blanks.

Figure 58 represents one type of hospital prescription. It is rather ingenious combination of prescription call check, prescription and label in a single form was that of the Philadelphia General Hospital now closed. This form (Fig. 59) has many advantages in that it combines

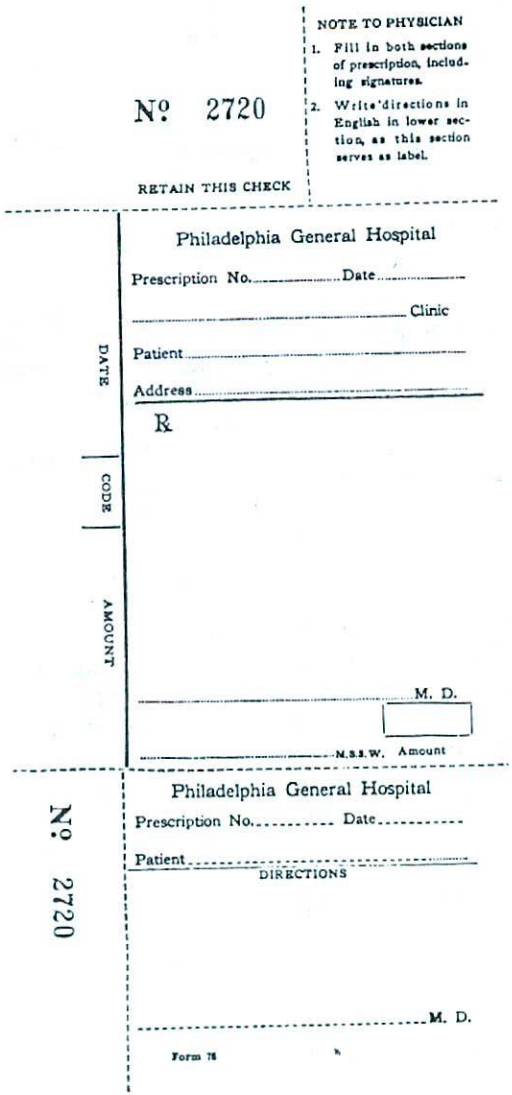

Fig. 59. A combination prescription call check, prescription and label, all in one form.

three forms into one; it saves the pharmacist's time in handing out a call check and typing a label; and finally, it is probably more economical. It would seem that its only disadvantages are that the prescription on file does not carry the directions for use and that the directions for use written by the physician on the label portion of the form, more often than not, will be illegible to the patient.

Many other types of prescription forms are in current use in the hospitals of the nation. Some consist of multiple pages attached to a pre-punched card ready for use in a computer system; others consist of a prescription blank the back of which is affixed with coded magnetic tape thereby rendering the prescription suitable for use in automatic billing and electronic data-retrieval systems.

PRESCRIPTIONS INVOLVING RESEARCH PROJECTS

The department of pharmacy in a teaching hospital is often called upon either to assist in or to conduct a special research program designed to ascertain the prescribing habits of the staff physicians, the correlation between diagnosis and drug prescribed, as well as cost studies which involve the cost of drugs to both hospital and patient.

Such studies usually involve designing a special prescription blank, an example of which is shown in Figure 60. This two part carbonized prescription form is designed to provide, in addition to the usual information obtained on a prescription, special data required for the particular study. The days of therapy and cost information are provided by the pharmacist compounding the prescription, and the information concerning the diagnosis is obtained by research personnel from the medical record.

The prescription number, patient number, date, age, sex, drug prescribed, quantity prescribed, directions for use, physician's code, days of therapy, cost data and diagnosis are then transferred to a punched tape. The tape is then processed and fed into a computer for a final analysis of the information thus gathered.

I.R.S. RULING ON OUT-PATIENT DISPENSING

Revenue received by a non-profit pharmacy for filling prescriptions for in-patients or out-patients is not considered "unrelated business taxable income" and is not subject to federal income tax, the Internal Revenus Service has ruled.

But, if a hospital pharmacy is open to the general public and prescriptions are filled for patients walking in from the street or if sales of non-prescription items are made under the same conditions, this revenue is subject to taxation. One of the rulings permits prescription sales without taxation by a hospital which fills occasional prescriptions

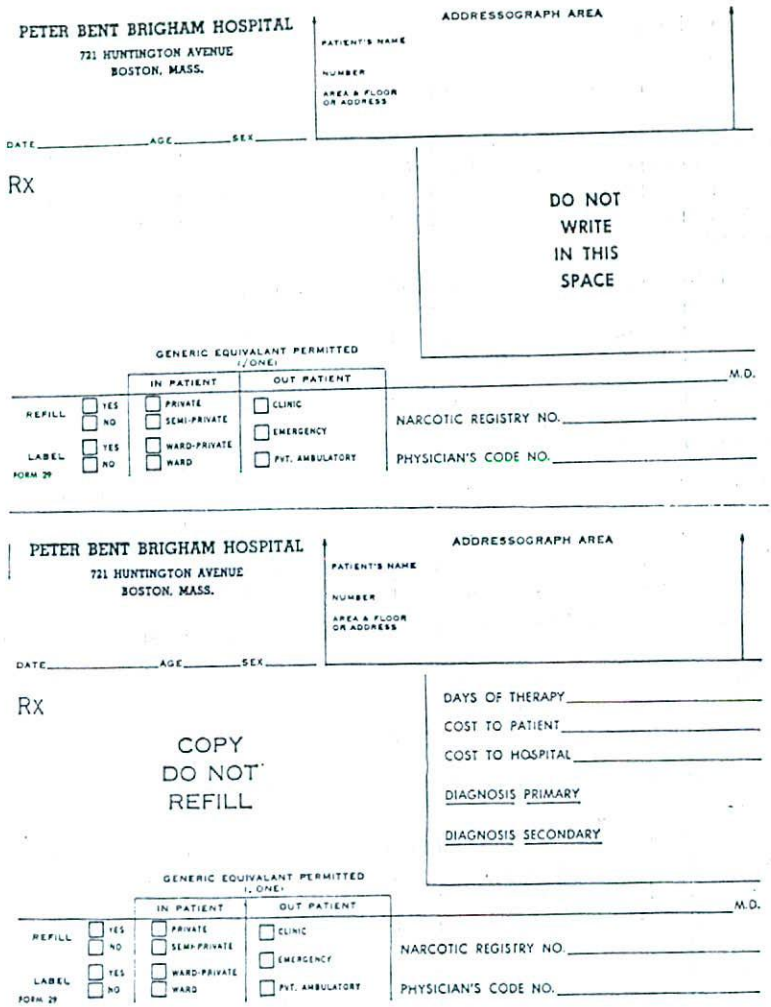

Fig. 60. Two-part prescription blank used in a prescription data survey.

written by staff physicians who practice in consultation rooms provided by the hospital. IRS has ruled that these were merely "casual" sales, made as a courtesy to staff physicians.

In ruling that out-patients may have prescriptions filled in hospital pharmacies without subjecting the income received by the institution to federal taxations, IRS also included refills for former patients or prescriptions originally written when the patients were received hospital treatment. It also extended the non-taxable income rule to treat-

ment received in home care and extended care facilities operated by or supervised by a hospital.[6]

Revenue Rule 68-374 provides as follows:

"Section 513 of the Code defines the term 'unrelated trade or business' as any trade or business the conduct of whch is not substantially related (aside from the need of such organization for income or funds or the use it makes of the profit derived) to the exercise or performance by such organization of its exempt functions.

To the extent relevant here, section 513 (a)(2) of the Code further states that the term 'unrelated trade or business' does not include any trade or business which is carried on by an organization described in section 501 (c)(3) primarily for the convenience of its patients."

Section 512 of the Code defines the term 'unrelated business taxable income' as the income computed in this section derived by organizations from any unrelated trade or business regularly carried on.

Section 1.513(c)(1) of the Income Tax Regulations states that "in determining whether trade or business from which a particular amount of gross income derives is 'regularly carried on' within the meaning of section 512, regard must be had to the frequency and continuity with which the activities productive of the income are conducted and the manner in which they are pursued."

Section 1.513-1(c)(2)(ii) of the regulations states that "in determining whether or not intermittently conducted activities are regularly carried on, the manner of conduct of the activities must be compared with the manner in which commercial activities are normally pursued by non-exempt organizations. In general, exempt organization businesses which are engaged in discontinuously or periodically will not be considered regularly carried on if they are conducted without the competitive and promotional efforts typical of commercial endeavors."

Section 1.513-1(c)(2)(ii) of the regulations further states that "where an organization sells certain types of goods or services to a particular class of persons in pursuance of its exempt functions 'primarily for the convenience' of such persons within the meaning of section 513(a)(2), casual sales in the course of such activity which do not qualify as related to the exempt function involved or as described in section 513(a)(2) will not be treated as regular. On the other hand, where the non-qualifying sales are not merely casual, but are systematically and consistently promoted and carried on by the organization they meet the section 512 requirement of regularity."

Dispensing to Emergency Patients

After receiving treatment in the Emergency Ward of a hospital, the patient may receive a prescription. If the prescription is presented to a hospital pharmacist, he follows the methodology described earlier in this chapter (see page 312).

Mar and associates[7] have developed a system which uses a special cabinet containing medication bins which store selected and limited quantities of medications packaged in single-unit containers. Addi-

tionally, intravenous solutions, irrigating solutions, eye tray medications, drugs for cardiopulmonary resuscitation and refrigerated drugs are kept in areas of ready access. The system provides for punched cards containing information of the drug. These cards are stored with the medication and are used for billing and re-ordering purposes. A 24-hour supply of medications that may be dispensed after pharmacy hours are packaged in prelabeled, zipper-locked plastic bags.

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15

Distributing Ancillary Supplies

A trend in hospital pharmacy is the assumption of responsibility for the purchase, stocking and distribution of the various ancillary medical, surgical and laboratory supplies. The range of inventory for this type of goods is extremely broad and may consist of costly surgical instruments, catheters, sutures, needles, syringes, sphygmomanometers, and laboratory ware.

Whether or not this is a desirable trend depends upon the individual pharmacist and the hospital administration. Certainly the assignment of this added special type of responsibility to the pharmacist is a clear indication of the administration's respect for his multiple talents. In addition, a few years of experience in handling these supplies will better qualify him to assume responsibility for the central sterile supply room or for the purchasing division if the occasion should ever arise.

Certainly, in the small hospital such an assignment is highly desirable for it may mean the difference between hiring a pharmacist or not hiring one on the basis of insufficient pharmaceutical duties.

QUALIFICATIONS OF THE PHARMACIST

There should be no doubt about the fact that the pharmacist is certainly capable of undertaking such a task for he, in all probability, will have had greater training than the lay person who might be assigned the task. In addition, he will have a greater understanding relative to the use to which these items are to be put to and therefore may be able to act in an advisory capacity relative to the selection of one item over another. Furthermore, because of his experience in the handling and accounting of pharmaceuticals, the hospital will be assured of proper control.

PURCHASING

Because of the nature of ancillary supplies, they are usually purchased from sources other than a pharmaceutical house or drug wholesaler. Therefore, the pharmacist must acquaint himself with the various agencies, distributors and general wholesaler. Due to the extremely keen

competition in this area, the pharmacist is cautioned to take the time to ascertain the integrity and reliability of the vendor, as well as his ability and desire to be cooperative and render special services when called upon in an emergency situation.

Since many distributors have the agency for the same product, it is wise to purchase as many items via the bid process with the right to bid being open to all, but the specifications and other service demands associated with the shipping, billing, etc. being set at a level that only the most reliable vendors can meet.

The purchasing of the supplies should not be mixed with the purchasing of pharmaceuticals and separate records and inventories should be maintained. Depending upon the scope of the ancillary supply inventory, some items may be extremely slow in turn-over; therefore unless a separate physical inventory is maintained and recorded, it is possible to warp the true operation of the drug portion of the pharmacy by reducing the number of times of turn-over of the true pharmacy inventory.

Pharmacists who take on the responsibility for the procurement, inventorying and distribution of ancillary supplies should give serious consideration to having the hospital join a successful group purchasing program. By so doing, the institution can derive many benefits which include lower prices due to volume purchasing; in some instances centralized storage and on-call delivery thus minimizing the utilization of hospital space; elimination of sales personnel thereby conserving the pharmacist's time; specifications and bids are centrally prepared thus resulting in uniform products in use throughout the service area and on-going monitoring of price fluctuations.

For those products that are not available from a group purchasing organization or a local wholesaler, the pharmacist should give consideration to the following when dealing with a purveyor:[1]

1. Manufacturers, upon request, must be able to provide data relating to analytical control, sterility testing, descriptions of test procedures for raw materials and finished product or any other information which would confirm the safety and quality of the product.
2. The company should not have a history of recurring product recalls.
3. Whenever applicable, packaging and labeling must conform to FDA requirements.
4. Delivery of items such as sutures and sterile fluids and catheters should be confined to a single lot number.
5. The expiration date should be sufficiently advanced to permit appropriate use and turn-over.
6. Vendor should accept and credit any unopened packages after the expiration date.
7. Supplier should ship all merchandise freight prepaid, provide inside delivery with a packing slip which indicates back ordered items and their anticipated delivery.

8. Vendor must warrant title to all products supplied by him; warrant them free from defects; fit for any rational use of the product; indemnify and hold harmless the purchaser against any and all legal actions (including attorney fees) arising from claims by third parties relating to the product.

Once the responsibility of handling these items is assigned to the pharmacist, it is suggested that the procedure for the purchase of drugs discussed in Chapter 9 be followed.

DISTRIBUTION

Ancillary supplies are of such a nature that the laboratories, pavilions and special service areas can predict their rate of use and consequently order them from the pharmacy on a weekly or bi-weekly basis.

The day on which these orders are placed inarbitrary, but it is recommended that a specific day be selected in addition to a time deadline. This is necessary if the suppliers are to be ready for pick-up and distribution by the hospital messenger service.

There are two methods whereby the pavilions, laboratories and special service areas may be informed as to exactly what is carried in inventory. They are via a pre-printed requistion form which lists all the supplies or by issuing a catalogue.

If the total number of items stocked is not too great, then a pre-printed requisition form is ideal and the most practical.

One the other hand, the best way to inform those who must requisition the supplies for their area is by means of a published catalogue should be cross-indexed to facilitate its use and should show the unit size of the package to be dispensed. This will save a great deal of time for the dispensing personnel as well as for the pricing clerk.

In hospitals where a catalogue has been published, a special requisition form must also be put into use. This form must, of necessity, be quite simple and yet capable of being used for any type of supply. A sample of such a form is shown in Figure 61.

When preparing this requisition, the department head usually prepares it in duplicate in order that he may retain a copy of the original order as a receiving slip to make sure that all supplies ordered have been received.

Because some items will at one time or another be out of inventory, it is advisable to use an OUT OF STOCK NOTICE to so inform the requisitioning department. A sample of this form is shown in Figure 62. This form is initiated in duplicate by the pharmacist filling the requisition. The original is retained in the pharmacy and the duplicate is sent to the requisitioning department. When the supplies are again in inventory, it is a simple matter to forward the item to the laboratory or ward without their issuing a new request.

PETER BENT BRIGHAM HOSPITAL

REQUISITION TO PHARMACY FOR WARD AND LABORATORY SUPPLIES ONLY

For use in Ward A Date 1/4/80

Requisitions for Ward and Laboratory Supplies must be in the Pharmacy by 10:30 A.M. daily. Supplies may be picked up any time between 3:30 P.M. and 5:00 P.M. There will be only one order daily. No requisitions will be filled on Sundays and holidays. Please watch your stock supplies, and see that you are well supplied.

WANTED		DESCRIPTION OF ITEM	✓	COST
Amount	Size			
1	100	Sugar Testing Tablets		
12	1"	Adhesive Tape		
12	---	Oral Thermometers		
1	2oz.	Benzidine Test Reagent		

Requested by Jane Doe, Head Nurse

Approved by Mary Doe, Supervisor Received by Helen Doe, Ward Clerk

Form 16A - Drugs

Fig. 61. A requisition to the pharmacy for ward and laboratory supplies. This form is prepared on the ward or in the laboratory and sent to the pharmacy. The pharmacist checks off each item dispensed, prices it, and forwards the completed requisiton form to the pharmacy accounting section.

Form 191

PETER BENT BRIGHAM HOSPITAL

PHARMACY

DATE 1-5-80

DEPT. Operating Room

NAME ON ORIGINAL REQ. Jane Doe

We are temporarily out of the following:

Quantity	ITEMS
1 doz.	Sutures # 123

☐ Charged ☑ Not charged

When these items are available, your order will be completed.

PLEASE DO NOT REORDER

Fig. 62. Out of Stock Notice.

APPLICATION OF ECONOMIC ORDER QUANTITY MODEL

If the pharmacist assumes the managerial responsibility for the dispensing of ancillary supplies, then he must utilize modern techniques to maintain control over the investment in inventory. One such method is the utilization of the economic order quantity model (see Chapter 9).

A number of economic order quantity models have been devised to assist one in the control of inventory locked dollars. Basically, these mathematical models determined the opimum inventory level by calculating the optimum order quantity and re-order points. In addition, such additional information as *procurement cost, average holding cost per unit, average investment per unit,* and *optimum turn-over rate,* should be considered.

A model for this purpose has been presented and described in Chapter 9 *Purchasing and Inventory Control.* The same model has application for the control of any type of inventory be it drugs or ancillary supplies.

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