

## MEDICAL REQUIREMENTS OF THE HOSPITAL PHARMACY.\*

BY W. J. STAINSBY,<sup>1</sup> M.D.

Before presenting my opinions concerning the *medical* requirements of a hospital pharmacy, it is important that we have a clear understanding of the function of hospitals. It is generally recognized that a hospital has *four* primary purposes:

1. The diagnosis of disease.
2. The treatment of the patient.
3. The teaching of doctors, nurses and medical students.
4. Research.

As regards the diagnosis of disease, the clinician and the diagnostic laboratories are alone concerned, but as regards the other three functions of the hospital, the pharmacy often plays an important rôle. It is my plan to discuss the relationship of the pharmacy to these three important purposes of the hospital.

As regards the first of these, namely, the treatment of the patient, the pharmacy has a distinctly important rôle to play. Therapeutic results depend in large measure upon the pharmacy's dispensing exactly what is ordered. The physician is concerned principally with the question of purity and potency of the drug or biological preparation he is administering. Many pharmacists assume that the information concerning purity and potency as provided by the manufacturer is correct. Experience has shown us that such information cannot always be relied upon either because of lack of care in the manufacturing process or from deterioration following the manufacture of the preparation. The hospital pharmacist should therefore, in the interest of patients, have the necessary training to test the purity and potency of the various drugs he dispenses. If he is able to make these tests, he may at the same time save his institution a considerable amount of money as he will be able to purchase his drugs from smaller, less well-advertised firms often at an appreciable reduction in price. As soon as pharmaceutical firms realize that a hospital pharmacy makes a practice of testing preparations, they will be careful not to send inferior products to it. Furthermore, it is not necessary to test all samples of any drug procured by the pharmacy, an occasional check-up being sufficient for practical purposes.

In order that the well-trained and experienced pharmacist may carry out the necessary tests for strength and purity of drugs, it is important that the hospital pharmacy have a laboratory equipped for the purpose. Such a laboratory need not be elaborate nor have much expensive equipment. The small original cost for establishing it will be more than compensated for by the savings that will result. There is usually little difficulty in obtaining such a laboratory if the pharmacist can demonstrate he is capable of using it to the advantage of the hospital.

As regards the second of the primary functions of the hospital that affects the pharmacy, namely, the teaching of doctors, nurses and medical students, the pharmacy likewise plays an important rôle. This is particularly true when the

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<sup>1</sup> New York Hospital and the Department of Medicine, Cornell University Medical College, Cornell Medical Center.

institution is connected with a medical college but is of importance even when it isn't so connected. When the medical student receives his instruction in pharmacy, pharmacology and the principles of therapeutics during his pre-clinical training, he is given a scientific and critical presentation of these subjects. All too frequently, therapeutic ideals thus instilled are later shattered by the irrational therapeutic measures prescribed by a certain number of the physicians on the hospital staff. In this regard it must be realized that in some of the larger hospitals several hundred doctors are members of the staff. In such large groups, a considerable number of physicians will always be found who lack a critical attitude toward the conglomeration of proprietary medications that are being continually thrust upon them by samples, circular letters and other forms of advertising. The various pathological processes that afflict mankind together with their treatment constitute an enormous field for any one man to master. To retain this mastery and to appreciate and utilize new additions to our medical knowledge makes it necessary for the physician to spend a considerable amount of time and effort in reading and studying. Not all physicians have the necessary time or interest to keep up with this work. As a result of this, they are often confused as to what new drugs have been established as having new and definite therapeutic action. Often they are misled by glowing accounts of proprietary medications. In order, therefore, to protect the reputation and finances of the hospitals, it has been necessary in many instances to place restrictions on the use of proprietary medications in these hospitals. These restrictions are usually carried out through a committee conveniently called "the formulary committee" which is composed of representatives of the various clinical departments, the pharmacy, and the department of pharmacology if the hospital is connected with a medical college. The medical representatives are selected because they have developed a critical attitude toward therapeutic procedures. Such "formulary committees" have supervisory powers as regards what drugs shall or shall not be issued from the pharmacy, subject to approval by the hospital administration.

In the New York Hospital, the Formulary Committee functions under the following rules which have been approved by the governing bodies of the institution:

I. Simple official (Pharmacopœial) substances and any in Useful Drugs will be admitted (when requested) unless they have become superfluous.

II. No article will be admitted (except for controlled research) before its therapeutic value has been established.

III. No article of secret composition will be admitted.

IV. No article which is sold under a proprietary name will be admitted under such a name if a substance of identical composition can be obtained under a non-proprietary name.

V. No mixture of two or more active substances will be admitted unless evidence is submitted that the mixture presents therapeutic advantages over the simple substance.

VI. No proprietary article will be accepted before it has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in "New and Non-official Remedies."

VII. It is the policy of the Committee to discourage the intravenous and intramuscular injections of substances which should be administered orally.

VIII. The Pharmacist is instructed to supply in emergencies preparations not yet accepted by the Formulary Committee.

IX. The Pharmacist will stock or supply drugs requested on the private or semi-private services even though they have not been accepted by the Formulary Committee.

X. Heads of clinical departments are to be notified whenever any preparation is considered for elimination from the Formulary in order that they may submit their evidence for its retention.

XI. Drugs not accepted by the Formulary Committee may be supplied to the public pavilions if paid for by the department concerned.

XII. The Chief Pharmacist is instructed to issue drugs under rules governing the Formulary Committee subject to the approval of the Medical Board.

XIII. The Formulary Committee shall prepare and issue new editions of the Formulary whenever the Medical Board considers it necessary.

XIV. All actions of the Formulary Committee are subject to approval of the Medical Board.

The hospital pharmacist is always an active and important member of these "formulary committees." In order for him to function effectively on these committees it is important that he be familiar with the medical literature relating to drug therapeutics, that he have a working knowledge of pharmacology in addition to an extensive knowledge of pharmacy, that he have a critical attitude toward proprietary medications and that he be familiar with the actions of the Council on Pharmacy and Chemistry of the American Medical Association in regard to this type of medication.

As the hospital pharmacist plays an important rôle on hospital "formulary committees," it might be well to discuss briefly the problems that confront such committees and the procedures for solving them.

The chief problems of the "formulary committee" are:

1. Proprietary medications.
2. Unnecessarily complicated prescriptions.

In the first place, proprietary medications may be classified into one of three groups:

1. Drugs, the therapeutic value of which has never been established.
2. Drugs that are not essentially different in therapeutic action from simple official (U. S. P.) preparations.
3. Drugs that have a new and definite therapeutic value but have not as yet been in use a sufficient length of time to receive official sanction.

The first step in the deliberation of the "formulary committee" is to classify requested proprietary drugs under one of these three categories. If it should fall under Groups 1 or 2, that is, its therapeutic value has not been established or its action does not differ essentially from simple cheaper official preparations, it is the duty of the "formulary committee" in the interests of economy and rational therapeutics to prevent the use of such preparations in the hospital except for the purpose of controlled research.

As regards the third group of proprietary drugs, namely, those that have a new and definite therapeutic use, it is the duty of the committee to see that they are made available as soon as possible for clinical use. In order that mistakes will not be made in regard to this group of proprietary drugs, careful analyzing of scientific articles concerning the drug is necessary.

The second important duty of the Formulary Committee is in regard to complex formulas. During recent years, there has been a marked tendency toward simplification of formerly used formulas containing numerous active drugs. Nevertheless, there are still physicians who, lacking essential knowledge of pharmacology, present

unnecessarily complex prescriptions. Again in the interests of rational therapy, the formulary committee must eliminate such type of medication if the hospital is to maintain its reputation. The hospital pharmacy has an additional incentive to eliminate such forms of therapy as the work involved in preparing complex mixtures means an unnecessarily large pharmacy staff with resulting increases in expense to the hospital. With few exceptions, therefore, hospital formulas should contain one active drug only besides flavoring, solvents or necessary vehicles for the administration of the active therapeutic agent.

The third function of the hospital that involves the pharmacy concerns itself with research problems involving the use of drugs either in animal experimentation or clinical investigation. This problem resolves itself into two parts:

1. Investigation by the pharmacist.
2. Assistance to physicians engaged in research work.

As regards investigation by the pharmacist himself, I feel that the pharmacist to be successful should from time to time critically examine the various preparations he issues to the hospital for the purpose of determining whether they can be simplified or improved, or whether or not he can manufacture them cheaper or better than can be obtained commercially.

As regards assistance to physicians engaged in research problems, the pharmacist can be of considerable help. He should have the knowledge and interest to assist in the preparation of new drugs and in new and untried methods of administering those of already established therapeutic value. Too often the physician has to enlist the services of commercial pharmacists for this purpose at considerable expense and with often less satisfactory coöperation.

A word should be said here concerning what constitutes a research problem. Too many people consider that merely trying this and that in a haphazard way constitutes research. As far as establishing the therapeutic value of drugs is concerned, research is the carrying out of a study under controlled conditions and under a definite plan with a sufficient number of cases in order that definite information can be obtained as to the therapeutic value of the product.

A word should be said concerning my impression of the future of hospital pharmacies. Will the continued development and improvement of large pharmaceutical firms render it unnecessary or uneconomical for the hospital pharmacy to manufacture or compound medicinal preparations, so that in time the pharmacy will become little more than a storeroom and the pharmacists mere clerks? In my opinion, this will never happen. There are too many preparations that deteriorate on standing; there are too many preparations, such as solutions, that because of their bulk make it uneconomical for transportation from the factory to the pharmacy except in concentrated form; and finally, and most important, the educational demands of a high class hospital make it essential for such institutions to maintain an efficient pharmacy and competent hospital pharmacists.

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