The members of the local committees recognize many faults with the operation of the present program and are discussing ways to correct them. They believe that an allotment covering twelve months instead of the monthly allotment would give them a better opportunity to meet the required expenditures. Some members think that the pharmacist's compounding fee should be subject to reduction as is the service fee for the practitioner in case the allotment is not sufficient to pay all the bills in full. The present plan of paying the pharmacist in full and reducing the physician's service charge is not conducive to complete coöperation between the pharmacist and the physician. More exact methods of pricing prescriptions, especially as to cost, are necessary. More efficient methods of handling the thousands of invoices must be devised. Finally each member of the healing arts professions must see to it that his own conduct in participating in the system is above reproach. Certain bad practices, wilful or unwilful, by a few, and these are not necessarily all pharmacists, should stop at once if the operation of the program is to remain in the hands of present constituted agencies.

THE HOSPITAL PHARMACIST AND THE DIABETIC.*

BY MITCHELL STOKLOSA.[1]

Eighteen years ago, insulin was isolated by Banting and Best who succeeded in preparing an extract which, when injected into depancreatized dogs, was able to keep them alive. This epoch-making discovery by the eminent Toronto workers proved conclusively that diabetes mellitus is "a disturbance of metabolism caused by a deficiency in insulin secretion from the pancreas." As a result of these successful research endeavors, insulin was made available to the world; indeed, it came to the rescue of the diabetic. Four years ago, medical science took another step forward in the treatment of diabetes when Dr. Hagedorn of Copenhagen made known to the medical world the isolation of a new preparation called protamine insulin.

Research workers in manufacturing pharmacy, being accorded the privilege of coöperating with the University of Toronto, have contributed to the cause by their development of a process for the manufacture of insulin on a large scale; further, pharmaceutical research has coöperated in carrying on successful investigations which have resulted in the preparation of a purer, a more nearly uniform and a more nearly stable hormone; and finally, fruitful research in Pharmacy has made insulin commercially available through the pharmacist.

Because the diabetic depends upon the pharmacist for his supply of insulin, it seems inevitable that he will also turn to him for all other special requisites. Obviously then, the rôle of the pharmacist in relation to the diabetic patient is one of aid and service. Possessing a comprehensive knowledge of this prevalent disease and a thorough understanding of the many perplexing problems which confront those who are afflicted with it, the pharmacist can do his part in helping the dia-

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betic to live a happier and a more normal life, not only by supplying him with special medications, but also by offering to him valuable advice and helpful explanations concerning various diabetic requisites.

A hospital pharmacist in an institution where a relatively large proportion of the medical work falls within the field of diabetes must unquestionably focus some attention on that phase of his work which bears a relation to diabetes. A few statistics from the pharmacy at the New England Deaconess Hospital, where the Diabetic Clinic under the direction of Dr. E. P. Joslin occupies a prominent position among other medical groups, will serve to substantiate the fact that a hospital pharmacist, too, must render service to those who are suffering from diabetes and are in need of special medications and supplies.

During the past few years, an average of six hundred gallons of Benedict's Qualitative Solution have been manufactured annually in the hospital pharmacy to meet the requirements of the chemical laboratories, of the hospital wards and of the diabetic store which is located in the main lobby of the hospital and which is operated as an integral part of the pharmacy department. Thousands of vials of insulin, both the regular and the protamine, have been dispensed to diabetic wards and to patients at the time of their discharge from the hospital. Hundreds of insulin syringes and thousands of insulin needles have been dispensed to hospital floors and to patients through the diabetic store.

Perhaps a few glimpses into the daily routine which is followed by the hospital pharmacist will serve as a sketchy outline of his general duties. Every morning, drug baskets which are sent to the drug room from various wards are filled with floor-stock pharmaceuticals. Requisitions for special medications are also filled during the morning. The balance of the working day is devoted to the manufacture of stock solutions, reagents and stains, sterile solutions and ampoules, and to the filling of special orders from the diabetic store.

Insofar as the hospital pharmacy relates to the diabetic, it is quite evident that the pharmacist must meet the needs of the patient during his hospitalization and at the time of his discharge from the hospital. Consequently, his specialized duties fall into two classes: *first*, the preparation and dispensing of medications to diabetic wards; and *second*, the preparation and dispensing of special medicines and supplies to the diabetic store where they are placed at the disposal of the patient when he leaves the hospital.

Diabetic wards are supplied not only with routine floor-stock pharmaceuticals which include various solutions, tablets, ointments and ampoules, but also with the following items: Benedict's Qualitative Solution which is used on the floors in testing urine for sugar; ten per cent solution of ferric chloride which is used in testing the urine for diacetic acid; supplies of insulin; saccharin tablets; uncoated rhubarb tablets; lanolin; and other diabetic requisites. Included in the list of supplies for diabetic wards is the insulin reaction box which contains the following: ampoules of dextrose, ampoules of caffeine with sodium benzoate, ampoules of adrenalin, intravenous and hypodermic needles, a two-cc. and a twenty-cc. syringe, medicated alcohol and tincture of iodine. Chemically pure, anhydrous dextrose is packaged in lots of 50 and 100 Gm.; these weighed amounts of dextrose are sent to the floors where they are used for glucose tolerance tests.

Worthy of consideration are the medications and supplies which the hospital pharmacist dispenses to the diabetic foot room or the so-called "Beauty Parlor for Diabetic Feet." An examination of a drug basket which is sent to the pharmacy for replenishment will reveal the need for some of the following special requisites: Dakin's Solution, Compound Tincture of Benzoin, Tincture of Metaphen, Solution of Hexylresorcinol S.T. 37, lanolin, rubber cement, lamb's wool, paper slippers, woolen socks, ointment "2230" and foot powder "1923."

Relatively large quantities of Dakin's Solution are dispensed daily to the foot room. This solution is freshly prepared every four or five days from a twelve per cent solution of chlorinated soda which is buffered with saturated solution of boric acid. It is assayed, tested for alkalinity and is dispensed in amber-colored bottles. Dakin's Solution is used for irrigations and postoperative dressings on diabetic patients. Other chlorogenetic compounds, such as dichloramine and azochloramid, which is prepared as a 1:3300 solution in normal saline, have found a specific use in the diabetic foot room. Rubber cement, which is filled into collapsible tubes in the pharmacy, is used in conjunction with Dakin's dressings; it is put under sterile boric strips which are placed around wounds to prevent irritation; this procedure causes the boric strips to remain in place. The large amounts of lanolin dispensed by the pharmacist to this ward are used to keep the skin of diabetics' feet soft and free from scales and dryness. Lamb's wool and woolen socks are among the special supplies which are requisitioned from the hospital pharmacy by the foot-room nurse. Lamb's wool, because of its very soft texture, finds several uses in the diabetic foot-room; it may be used around soft corns to prevent any pressure upon the corn and so cause its disappearance; or, it may be used for overlapping toes, and for protecting dressings and toe nails. Woolen socks are used on diabetic amputation cases, the sock being placed on the good foot in order to prevent lesions; since the patient has a tendency to rub his good foot, this protection prevents the formation of any lesion which could possibly result from rubbing an unprotected foot.

A number of medications which are used to promote healing are dispensed to the diabetic foot room. These include such preparations as thioglycerol, allantoin and cod liver oil ointment. Zinc peroxide in suspension and in ointment form has also found a use in the foot room. Because not all lots of zinc peroxide are effective, the following simple test has been suggested for determining whether a given lot is active: "Shake a few Gm. of the powder in a test-tube filled with water and allow it to stand. The effective zinc peroxide forms a suspension which precipitates rapidly, leaving the supernatant liquid clear, and forms visible bubbles of oxygen in the precipitate within two or three hours." The manufacturers of zinc peroxide advise heating the powder to 140° C. for four hours before it is used; the process presumably activates the chemical. Twenty-gram lots of this powder are heated in the pharmacy at the suggested temperature; the powder is then sent to the floors where a suspension of it is made with sterile distilled water when needed. The formula for the ointment which has been used is as follows:

Zinc Peroxide	20.0
Liquid Petrolatum	20.0
Balsam of Peru	5.0
Petrolatum	30.0

Since epidermophytosis or athlete's foot is particularly objectionable in diabetics, special medications are prepared in the pharmacy for its treatment. For mild cases, a ten per cent solution of mercurochrome has been dispensed for use in the foot room; for more severe cases, a special ointment and foot powder have been extensively used. The formulas for these two preparations are as follows:

Ointment "2230."		Foot Powder "1923."	
Salicylic Acid	2.0	Salicylic Acid	2.0
Precipitated Sulfur	2.0	Benzoic Acid	2.0
Petrolatum	30.0	Talc	100.0

Other medications finding a specific use in the diabetic foot room include Compound Tincture of Benzoin which is used for dressings on wounds having a drainage and Tincture of Metaphen which is used preoperatively.

The services of the hospital pharmacy, insofar as the diabetic patient is concerned, have extended even to the diabetic kitchen. The dietary department requisitions the following special items from the drug room: mineral oil which is used for the preparation of diabetic salad dressing, saccharin tablets, diabetic ginger ale, cracked cocoa and cocoa shells which are used for the preparation of diabetic beverages.

The diabetic store where the patient purchases his medications and supplies is, as was previously mentioned, an integral part of the hospital pharmacy. When the patient is ready to leave the hospital, the diabetic nurse sends the following list to the pharmacy store and checks on it those items which the patient needs to take home with him:

Supplies to Be Purchased by the Patient at Discharge.—Benedict's Solution, test-tubes, test-tube rack, test-tube brush, droppers, medicated alcohol 70%, absorbent cotton, insulin syringe insulin needles, regular insulin, protamine zinc insulin, enamel boiling-dish, "Hypo-pak" traveling kit, gram scale, saccharin tablets gr. 1/4, diabetic mayonnaise, uncoated rhubarb tablets, mineral oil, sterile gauze, S.T. 37, mercurochrome solution 10%, lanolin.

It is the duty of the hospital pharmacist to keep the diabetic store well supplied with all of these special requisites in order to meet the needs of the patients.

In the diabetic store, the pharmacist can further assist the patient by offering helpful explanations about the use and care of the various types of syringes and hypodermic needles, by offering advice concerning the proper type of alcohol to be used for the sterilization of needles, by demonstrating and explaining various types of diabetic scales which the patient can use for weighing his food, and by offering worthy suggestions concerning any special diabetic supplies.

The pharmacy store places at the patient's disposal an assortment of sugar-free candies such as: brittle, lollypops and gum drops; diabetic beverages; and a wide variety of diabetic foods including washed bran and various flours. It also offers to the patient a very handy "Hypo-pak" traveling kit in which he can carry an insulin syringe, needles, alcohol, a cotton swab and insulin; this kit is very compact and can be carried conveniently by the diabetic while he is away from home. Dr. Joslin's Diabetic Manual is the standard text which the patient is advised to read; copies of this book, which has enjoyed a wide circulation among diabetics, are supplied by the hospital pharmacy.

Noteworthy is the fact, that large quantities of diabetic mayonnaise have been manufactured in the pharmacy and dispensed in the diabetic store. The formula for this salad topping, a favorite with diabetics, is as follows:

Eggs	12 yolks
Lemons	4 (juice of)
Heavy Mineral Oil	120 ounces
Sodium Chloride	20 Gm.
Mustard, powdered	8 Gm.
Acetic Acid 4%	to taste

These few glimpses into a hospital pharmacy in an institution where diabetic treatment is outstanding will serve, it is hoped, as an indication of the duties of the pharmacist in relation to the diabetic patient. His duties are, beyond any question of doubt, duties of service; indeed, a specialized service; *primarily*, to diabetic wards and floors by supplying them with necessary pharmaceuticals; *secondly*, to the diabetic by making available to him various medicines and supplies; and *finally*, to staff physicians by offering to them assistance and ready coöperation when they call on him for information and suggestions concerning diabetic medications.

INCOMPATIBILITIES IN PRESCRIPTIONS. II. A SURVEY OF THE FREQUENCY OF OCCURRENCE OF VARIOUS TYPES OF INCOMPATIBILITIES.*[1]

BY WILLIAM J. HUSA[2] AND CHARLES H. BECKER.

Although numerous surveys have been made regarding various phases of prescription work such as the frequency of occurrence of various ingredients and the prices charged, very little systematic study has been made of the frequency of occurrence of various types of incompatibilities. The purposes of the present survey on incompatibilities were as follows: (*a*) to obtain data as to the types of incompatibilities which occur most frequently, (*b*) to ascertain which drugs or classes of drugs cause most frequent trouble in prescriptions, and (*c*) to furnish data to teachers of Pharmacy regarding the types of incompatibilities in prescriptions that should be emphasized in teaching.

METHODS USED IN PRESENT SURVEY.

The prescriptions chosen for study were those appearing in the Prescription Forum of the *American Druggist* during the years 1932 to 1938. The incompatibilities were classified into groups according to the classification used in "Husa-Pharmaceutical Dispensing" (1). In addition to this the ingredients causing the incompatibilities were classified into eleven groups. Each prescription was carefully studied and the data regarding the type of incompatibility and nature of incompatible ingredients were entered on suitable cards for tabulation.

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[1] This paper is based on part of a thesis presented to the Graduate Council of the University of Florida by Charles H. Becker, in partial fulfilment of the requirements for the degree of Master of Science in Pharmacy.

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