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COVER: Striving for economic development, more and more developing nations are turning their tropical forests into sources of food and export revenues. Scientists hope to transform what had been an era of wasteful exploitation into sound management, and the long-term ecological payoff could benefit the entire planet. See p. 218. (World Bank photo: Alain Protz/CIRIC)

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LETTERS

The pharmacist's view

Having read the article "Mistakes That Can Kill" (SN: 8/23/80, p. 125) I was distressed that neither the author nor Dr. Wang mentioned the efforts pharmacists have made in years past to deal with the problem of medication errors.

Here at The Deaconess Hospital in Cincinnati we have both an intravenous additive program and a unit dose distribution system. One function of these programs is to reduce the incidence of medication errors. Our system has a number of built-in safety features. The pharmacy receives a direct carbon copy of the physician's order so that the pharmacist can make a first-hand interpretation. Orders are then transcribed onto a profile card so that a patient's entire drug therapy can be evaluated. All patient medications are sent to the floor labeled with their name and room number. This includes both new orders and their medication bin, which contains a 24-hour supply of ordered drugs. Filling of new orders is done either by a pharmacist or a pharmacy intern under the direct supervision of a pharmacist. Medication bins may be filled by a pharmacist, pharmacy intern, or technician, but all bins are checked by a pharmacist before they are sent to the nursing units. Our intravenous additive program operates in a similar fashion.

The preceding description greatly simplifies the actual system but it serves to demonstrate that the pharmacy profession recognizes this problem and has made an effort to come to grips with it.

*George R. Spears, R.Ph.
The Deaconess Hospital
Cincinnati, Ohio*

I have read with interest your article entitled "Mistakes That Can Kill." Unfortunately you did not interview a pharmacist. If you had, you would have found that the issues that were raised have already been addressed and resolved by progressive hospital pharmacies.

There are studies of medication error frequencies which are more recent than the Hopkins study quoted in the article. Philips Roxane commissioned a study in the early seventies. Other research has been done by the American Society of Hospital Pharmacists (ASHP). All of these studies examined how medication errors occurred, with what frequency they occurred, and what systems had lower incidences of error.

These studies have found that the concept of Unit Dose Distribution is a cost effective and efficient way to substantially reduce the frequency of medication errors. The Philips Roxane study examined all of the potential errors listed in your article. While no system is perfect, the Philips study found that the Unit Dose Drug Distribution system reduced the error rate from 25 percent, found on the "traditional" or ward stock system, to less than 3 percent!

Unit Dose Drug Distribution is probably the simplest form that can be devised to provide drugs to a patient. The drugs are provided in individual packets, containers or syringes, each containing a single dose of the drug. These containers are clearly labeled with the name, strength or concentration, lot number and expiration date of the drug.

This packaging is only one safeguard in the total system. While packaging alone would stop some errors, it was felt that other modifications of the medication delivery system would eliminate an even greater number of errors.

A copy of the physician's order is received in the pharmacy where a pharmacist fills the order. This eliminates the potential for a transcription error since the pharmacist is working from an exact duplicate of the order.

The method of filling an order is also modified. In the unit dose system a twenty-four-hour supply of medication, in unit dose containers, is placed in a drawer clearly labeled with the name of the patient. Individual patient drawers are then sent to the floor and placed in a specialized cart.

At this point in the delivery system the nurse checks the contents of each drawer against the doctor's orders. Any discrepancies are brought to the attention of the pharmacy. All of this occurs before any medication is administered.

Unit Dose Distribution is also extended to injectable drugs. Contrary to the opinion of Dr. Wang, it has long been recognized by the pharmacy profession that the look-alike nature of non-related ampuls or vials can pose a real problem in an emergency. As a result many hospital pharmacies use unit dose syringes.

These syringes are pre-filled with a given amount of the drug. The box in which the syringe is packed bears the name and strength of the drug in bold letters and is color coded for the drug, i.e. epinephrine 1 mg may be in a red box, atropine 1 mg in a green box, etc. This enables the nurse to quickly assess the medication needed.

If the color coded boxes are not available from one supplier, there are enough vendors of unit dose items that several suppliers can be used to arrive at a color code unique for a particular drug.

It must be pointed out at this time that the syringes are pre-filled and boxed by the manufacturer. This insures that sterility and other stability requirements are met and does not increase the workload of the hospital pharmacy. While this type of unit dose packaging is slightly more expensive, the cost is well worth it.

As for the other areas mentioned in your article, i.e. pharmaceutical standards for drug nomenclature, decimal point usage, medical abbreviations, drug labels and arrangement of ward stock items, these areas have all been addressed in the various pharmaceutical journals and much information can be gained from *Remington's Textbook of Pharmaceutical Sciences*. You will find, for example, that drugs given in doses of less than 1 mg use a zero to the left of the decimal point, e.g. Synthroid 0.1 mg, Synthroid 0.05 mg.

You will also find in *Remington's* that medical abbreviations have been standardized. "Q.O.D." is not an acceptable abbreviation for "every other day" and "Q.N." is not acceptable for "every night." These orders should be written "q. other day" and "H.S.," respectively. It is up to the pharmacy department to enforce these standards. Most departments do!

In the future I would suggest you consult with registered pharmacists when writing about any system that involves drug delivery. You will find that this is one of the areas of a pharmacist's training and expertise.

*Nicholas A. Coblio BS RPh
Unit Dose Coordinator
Highland Hospital of Rochester
Rochester, N.Y.*