

suspected in 101 reactions; phenobarbital and digitalis preparations in 21, and aspirin in 20.

In this study the overall incidence of adverse reactions was .49 percent of all hospitalized patients for the first year of the study, and .41 percent for the second year.

And, incidentally, it was during this Greater Philadelphia study that the first demonstration of a positive Coombs test in patients taking cephalothin sodium was detected.

The differences in incidence of adverse reactions between the Cluff study, the Schimmel report (in which 10 percent of hospitalized patients suffered adverse drug reactions) the Greater Philadelphia program, and others, may be related to techniques of data gathering and definition of what constitutes an "adverse drug reaction."

For example, the Philadelphia group and Koch-Weser at the Massachusetts General Hospital required that for admission to their protocol, a reaction must be "severe enough to be commented upon in the progress notes." And those familiar with the terse and often sparse progress notes written by the busy house officer might consider this to be a chancy qualification. Of course, this was not a determinant in the Cluff and Schimmel studies where the incidence figures of adverse reactions was much higher.

Finally, Cluff and Schimmel utilized a prospective method while other groups used a retrospective method. In other words, they set out to seek reactions on the wards while the others waited for them to occur and be reported.

The problems of adverse reactions to placebos or spontaneously occurring symptoms due to nondrug causes cannot be entirely discounted, especially when one is evaluating minor reactions to drugs.

However, I feel it is equally safe to assume that for every patient who becomes sufficiently ill with an adverse drug effect to trek to emergency room or physician's office, there are perhaps 10 who will not.

This is my own estimate.

Senator NELSON. In other words, are you saying that about one-tenth, one out of 10 cases of drug reactions are reported?

Dr. MOSER. No, not quite that. One out of 10 drug reactions are severe enough to bring them to clinical attention, to come to a doctor's office or to come to a clinic. And I think it is fair to say that with non-drug-induced illnesses it may be the same. But I think the point is that adverse drug reactions represent illnesses just like other diseases, and the same ground rules apply. Probably one out of 10 come to clinical attention, and that is a fair guess.

The reasons are plentiful: The reaction may be mild, one may fear loss of time from the job, et cetera (the same reasons that one doesn't go to see a doctor for a non-drug-related disease). At the present time there are many studies underway throughout the country to gather more meaningful data on this subject. And I will comment upon these later.

Let's approach the problem from still another aspect. What is known of the role played by drugs in predisposing the organism to attack by micro-organisms or degenerative disease? One example is the effect of long-term corticosteroids in predisposing the leukemia or lymphoma patient to systemic fungus infections.