

In the 682 patients reviewed, 585 antibiotic orders were written. The most frequently used antibiotics are shown in Table 8. Penicillin is followed in order of overall usage by sulfonamides, chloramphenicol, tetracyclines, and neomycin.

TABLE 8.—USE OF ANTIBIOTICS

Type of hospital	Tetracyclines	Penicillins	Chloramphenicol	Sulfonamides	Neomycin-paromomycin sulfate
Chronic.....	6	78	20	22	0
Intermediate.....	13	41	13	14	8
Acute 1.....	11	24	1	3	1
Acute 2.....	3	27	6	8	1
Pediatric.....	7	56	4	25	1
Total.....	40	226	44	72	11

We have found a high percentage of incomplete prescriptions in all four adult hospitals. Instructions for route of administration were missing in 35% to 60% of all prescriptions. In contrast, at the pediatric hospital only 29 (5%) of the prescriptions failed to specify the route of administration.

Comparing the physician's order sheet and the nurses' files, we frequently found that the drug order as written by the physician was not charted by the nurse as having been given as specified. Whether the nurse had forgotten to chart the medication given or the patient had actually not received it, could not be determined in retrospect.

COMMENT

This study is a descriptive one and is not intended to lead to any definite conclusion. It documents certain characteristics of therapeutics practiced in five hospitals. The following findings merit emphasis since they help to define areas which require study in depth.

Our data confirm observations (10, 11, 15, 16) that the large quantities of drugs administered to patients are related to the length of hospitalization. Patients with chronic disease stay in the hospital longer than patients with acute disease and receive more drugs during hospitalization. Within any adult hospital, patients in the older age groups receive more drugs in almost all categories. These findings are not in themselves startling, but they serve to point out the need for careful evaluation of drug effects in older patients in general and in those with chronic disease in particular. More information is needed in such areas as drug interaction and drug effects in older patients. (13, 14)

Drug effects are not only related to age but also to sex. The fact that more drugs are ordered for women than for men may partially explain the observations that more adverse reactions are reported in women than in men. (15) Other studies have shown a direct relationship between frequency of drug reactions and the number of drugs used. (10, 16) The proportionately greater use of bronchodilators, expectorants, and cardiac stimulants in men is probably accounted for by a higher incidence of chronic pulmonary disease in this sex.

The use of antibiotics is exceeded only by analgesics and hypnotics in the study hospitals. Antibiotic orders were repeatedly changed in regard to both dose and specific drug. The same antibiotic was often ordered more than once for a given patient. Various antibiotic combinations were used. The leading antibiotic was penicillin in all hospitals. The usage frequency of other antibiotics showed marked variation in the different hospitals. Overall, sulfonamides were used more often and tetracyclines less often than chloramphenicol. The extraordinary frequency and variability of antibiotic drug practice points out the need and importance of further studies.

The following four drug categories stand out in terms of usage frequency in the pediatric hospital: (1) antibiotics; (2) decongestants-bronchodilators; (3) hypnotic-sedatives, and (4) anticholinergics. Seizure disorders and surgical procedures probably account for the frequent use of hypnotic-sedatives and anticholinergics. Antibiotics are the most frequently used drugs in the pediatric hospital.