

TABLE 1.—MEDICATION ERROR RATES
REPORTED IN VARIOUS STUDIES—
Continued

Study	Definition of Medication Error Used	Medication Error Rate
Review of 101,022 medication orders at 2 pediatric hospitals by Folli et al. (Ref. A-1).	"Errant medication order" considered to be an order that was not in accordance with standard pediatric references, current published literature, or dosing guidelines approved by the hospital's pharmacy and therapeutics committees.	Medication order error rate was between 4.9 and 4.5 errors per 1,000 orders.
Review of 289,411 medication orders written during a 1-year period by Lesar (Ref. A-4).	Not defined.	Prescribing errors were detected at a rate of 3.13 errors per 1,000 orders.
Survey of 26,462 patients in 7 countries; 24 were considered to have died as a result of a drug or group of drugs, by Porter and Jick (Ref. A-11).	"Suspected adverse reactions" defined as any undesired or unintended effect of a drug.	0.02% fatality rate (6 deaths were considered preventable).

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Review of 30,195 randomly selected hospital records by Leape et al. (Ref. A-2).	"Adverse event" defined as an unintended injury caused by medical management and resulted in measurable disability. The reviewers considered an adverse event to be due to "negligence" if they felt there was a deviation from accepted norms of treatment and after they considered other factors (such as potential consequences, frequency of risk, degree of emergency, and complexity of the case). The authors defined "negligence" as failure to meet the standard of care reasonably expected of an average physician qualified to take care of the patient in question.	Of the adverse events due to drug treatment, 18% resulted from negligence, although the authors also explain that negligence occurs not merely when there is error, but when the degree of error exceeds an accepted norm.

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Study	Definition of Medication Error Used	Medication Error Rate
Study of 18,262 medication and intravenous fluid orders given in a 3-month period at a children's hospital by West et al. (Ref. A-12).	Not defined.	Medication order error rate ranged between 2.6 to 8.5 per 1,000 orders. Verbal medication orders had the lowest error rate, followed by computer-entered orders (6.3 per 1,000) and handwritten orders.
Study of 4,031 adult admissions of 11 medical and surgical units in 2 hospitals by Bates, Cullen et al. (Ref. A-13).	"Adverse drug event" defined as an injury resulting from medical intervention related to a drug.	28% of adverse drug events are preventable, and there were 7.3 preventable adverse drug events per every 100 admissions.
Review of 10,070 medication orders to identify medication errors by Bates, Boyle et al. (Ref. A-9).	"Medication error" defined as errors in the process of ordering or delivering medication, regardless of whether an injury occurred or the potential for injury was present.	5.3%.