NORTH CAROLINA DRUG RELATED DEATH REPORTS

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In 1992, the North Carolina Board of Pharmacy enacted a rule that required pharmacy managers to report drug related deaths that occur at their location to the Board. Since that time, 228 drug related deaths have been reported North Carolina. This is approximately the number of prescriptions filled in one day at your local pharmacy.

Approximately 75% of these reports came from the hospital setting, while only 14% occurred in the community setting. The remaining 11% occurred in other locations such as home health or nursing homes. Since the most critically ill of patients are in the hospital setting, these figures are understandable.

Of the 228 drug related deaths, 37 were associated with controlled substances. Controlled substances are those drugs earmarked by the DEA as potentially addictive substances. There is more accountability for these drugs than for other prescription substances. The vast majority of deaths, 191, were associated with non-controlled prescription drugs.

These figures make sense since controlled substances consist of approximately 10% of the prescription volume in the retail community setting and would constitute a greater percentage of prescription volume in the hospital setting. Most institutions prescription volume majority is associated with these non-controlled substances.

The majority of drug related deaths, approximately 84%, were related to the non-controlled prescription substances. These are drugs that are not considered to be addictive, but need to be taken under the guidance of a physician. This category includes familiar drugs such as Penicillin, Zocor and Celebrex.

The highest death rates were associated with blood modification products used to adjust a patient's blood thickness. These accounted for over 19% of all drug related deaths. This category includes such agents as Coumadin and Heparin.

This is followed by the controlled substances, which account for 16% of the drug related deaths. Only 10.5 % of all reported drug related deaths in North Carolina in the past 9 years were associated with schedule II controlled substances, which have the highest level of scrutiny imposed upon them by the DEA. This class is reserved for the most addictive drugs on the market, and includes compounds such as morphine and

oxycodone. About 60% of the deaths associated with controlled substances were due to patient related causes, such as overdose, suicide, or polypharmacy.

Another category of concern was the narrow therapeutic agents. These are drugs in which the level associated with therapeutic benefits is very close to the level associated with toxicity. This can result in negative effects if not closely monitored by health care associates. Narrow therapeutic agents accounted for 10% of the deaths.

Narrow Therapeutic Drugs in North Carolina:
Carbamazepine
Cyclosporine
Digoxin
Ethosuximide
Levothyroxine
Lithium
Phenytoin
Procainamide
Theophylline
Warfarin

Antibiotics accounted for 9% of deaths. These deaths were primarily due to allergic reactions by the patient. Other categories of concern included antiarrhythmics, antidepressants, and antihypertensives.

Upon receiving these reports, inspectors at the Board of Pharmacy investigate the cases to determine the cause of the death. It appears that of the 228 drug related deaths, 86 were due to a combination of adverse effects of the medications and already compromised patient health. In 21 cases, anaphylaxis or severe allergy was the cause of the deaths. These were common in the antibiotic and radio contrast media categories. Eight patient deaths were the result of fatal drug interactions.

Health professional error accounted for 20 of the drug related deaths. Two patients misinterpreted medication labels. In addition, there were 24 overdoses and suicides. Of the remaining 67 deaths, 11 causes were inconclusive, 20 were determined that the drug did not contribute to the cause of death, and others are still under investigation by the board.

The Board's rule on death reporting was a direct result of deaths that occurred in hospitals in two different cities over ten years ago. A description of the events in Charlotte can be found in *The Great White Lie* by Walt Bogdanich (Simon & Schuster), 1991. North Carolina is the only state that requires pharmacists to report such deaths.

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