Prescription drug misuse is a growing problem that is resulting in increased morbidity and mortality throughout the United States. The North Carolina Controlled Substances Reporting System has proven to be an effective tool that allows health care providers to make more informed decisions when they prescribe or dispense controlled substances.

North Carolina, like the rest of the nation, has been experiencing significant problems related to the misuse and abuse of prescription controlled substances. These problems include what the Centers for Disease Control and Prevention (CDC) has termed an “epidemic” of deaths due to unintentional poisoning. In many states, unintentional poisoning deaths—the vast majority of which are caused by prescription controlled substances—have surpassed motor vehicle deaths as the state’s leading cause of accidental death [1]. Although North Carolina has not reached this milestone, the state has experienced a 308% increase in unintentional poisoning deaths over the past 12 years; there were 1,140 such deaths in the state in 2011 [2]. Following a pattern seen in many mid-Atlantic and Northeastern states, such deaths first occurred in rural and mountainous areas of North Carolina but then gradually spread throughout the state (see Figure 1). Correspondingly, the number of unintentional deaths with a mention of a specific controlled substance as a contributing factor increased from approximately 240 deaths in 1999 (personal communication, Kay Sanford, MPH) to 888 deaths in 2011 (unpublished data)—a 270% increase.

According to the 2010 National Household Survey of Drug Use and Health (NSDUH), nonmedical use of pain relievers and prescription psychotherapeutic drugs has remained relatively constant since 2002 [3]. This would seem to imply that at least some of the observed deaths are due to licit rather than illicit drug use, meaning that persons with legal prescriptions for controlled substances are unintentionally dying from their use. Some of these deaths may be the result of ignoring instructions and overusing the medication; some may be the result of seeking relief from pain and/or anxiety through improper medication use; and many of these cases involve the concomitant use of alcohol or additional drugs of which prescribers were unaware.

Unintentional deaths appear to be only the tip of the iceberg. According to North Carolina’s statewide syndromic surveillance system—the North Carolina Disease Event Tracking and Epidemiologic Detection Tool (NC DETECT)—benzodiazepine medications, followed by opioid analgesics, make up the largest percentage of drugs mentioned in emergency department admissions due to overdoses [4]. Four of the top 10 drugs mentioned in these emergency admissions are controlled substances [4]. According to CDC medical epidemiologist Leonard J. Paulozzi, the public health impact of this epidemic is such that, for each overdose death, there are at least 9 hospital admissions for substance abuse treatment, 35 emergency department admissions, 161 persons diagnosed with a substance use disorder, and 461 persons who are using a controlled substance nonmedically [5].

In response to this rising problem, the state implemented the North Carolina Controlled Substances Reporting System (NCCSRS) in 2007. This database is operated by the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) of the North Carolina Department of Health and Human Services (DHHS). North Carolina law requires that all outpatient prescriptions for controlled substances be entered into this database within 7 days of being dispensed by a pharmacy. Persons who are authorized by federal law to prescribe a controlled substance can request 24-hour online access to the system, which allows them to see what other prescriptions a patient has received and thus make a more informed decision about the medication, dosage, and quantity to be prescribed. Dispensers can query the system to determine the safety and appropriateness of a prescription, and they can contact the prescribing practitioner to obtain confirmation, clarification, and/or consultation when questions arise. Prescribers and practitioners who are authorized to use the database can communicate with each other and document
the results of their queries in a patient’s medical record. Both can gain secure online access by sending a notarized application to the Drug Control Unit of DMHDDSAS.

The NCCSRS was established primarily as a clinical tool for practitioners. As of March 2013, approximately 13,000 prescribers (representing about 30% of all prescribers in the state) and about 2,500 dispensers (representing about 25% of all dispensers in the state) were registered to use the online system. Most states operate similar systems, although they may differ in their purpose, location, and rules for access. Some of these prescription drug monitoring programs were originally started for use by law enforcement or narcotics control professionals and only recently opened up their data to prescribers. Other systems are located within the state’s board of pharmacy, and still others use a public health approach.

North Carolina’s approach is unique in that its program is located within the state’s substance abuse authority. According to the North Carolina Controlled Substances Reporting System Act [6], the intent of the law is to improve the State’s ability to identify controlled substance abusers or misusers and refer them for treatment, and to identify and stop diversion of prescription drugs in an efficient and cost-effective manner that will not impede the appropriate medical utilization of licit controlled substances.

DHHS may disclose information from NCCSRS not only to prescribers and dispensers, but also to licensing boards with jurisdiction over health care professionals pursuant to an ongoing investigation of a specific individual licensed by that board. In addition, DHHS may provide information to the Diversion and Environmental Crimes Unit of the North Carolina State Bureau of Investigation (SBI) pursuant to a bona fide investigation, to the North Carolina Division of Medical Assistance for the purpose of administering the North Carolina State Plan of Medical Assistance, and to the primary monitoring authorities of other states. Medical examiners may access the NCCSRS to assist in determining an individual’s cause of death. Finally, DHHS reports unusual patterns of prescribing to the Attorney General of North Carolina, who reviews these cases and may order a criminal
investigation by the SBI. DMHDDSAS has convened a multidisciplinary advisory committee to make recommendations regarding implementation of the program and to help establish criteria for what constitutes an unusual pattern of prescribing. Substantial changes to the NCCSRS are possible in the future, as legislation regarding this system is currently being considered by the North Carolina General Assembly.

At present, more than 100 million prescription records are in the system, with approximately 18 million new prescriptions being added each year. More than 4 million queries have been made of the system since its inception—on average, 2,900 queries are made each day. In any 6-month period, 26% of the population of North Carolina receives a prescription for a controlled substance, which together amounts to more than 400 million doses (unpublished data).

DMHDDSAS recently asked the Injury Prevention Research Center at the University of North Carolina (UNC) at Chapel Hill to conduct an evaluation of the NCCSRS, results of which were released in January 2013. The first part of the evaluation was a survey of prescribers and dispensers. Those who used the system were asked what they like and do not like about the system, why and how they use it, and how they thought the NCCSRS could be improved. Those who were not using the system were asked to explain why not. The second part of the evaluation then analyzed the impact of the NCCSRS to determine whether the legislative intent, as previously cited, was being met.

Those prescribers who were using the NCCSRS were asked how it affected their clinical practice. Prescribers reported that they were more often able to identify persons with drug seeking behaviors (91% of prescribers) and to identify drug abusers (85% of prescribers). Ninety-two percent of prescribers reported higher confidence in denying patient prescriptions, and 66% reported higher confidence in prescribing a controlled substance. Sixty-two percent of users reported no change in asking patients to leave their practice, and 72% reported no change in their accepting more complex patients into their practice. Eighty-two percent of users of the NCCSRS reported they had no concerns with the system [7].

Many of the prescribers who reported using the NCCSRS were selective about when they used the system, citing reasons such as when a patient’s behavior suggested a possible problem (82%), when a patient requested early refills (80%), when a patient asked for a specific drug (77%), or when seeing a new patient (48%). The majority of all prescribers (both registered and not registered) reported that they had been contacted by a pharmacist or another practitioner with information from the NCCSRS, and 97% of these individuals found the information to be useful or helpful. Prescribers who were not using the NCCSRS said they did not know about the system (27%), would never use the system (23%), or were too busy to use the system (10%) [7].

Pharmacists (dispensers) reported that they used the system primarily when dispensing prescriptions for new patients or for patients whose history suggested the need for a query. While pharmacies are required to enter reports into the system, pharmacists’ use of the system is voluntary. When the survey was administered in 2012, the percentage of pharmacists who had signed up to use the NCCSRS was much lower than the percentage of prescribers who had signed up. This may be partly because major pharmacy chains did not permit their pharmacists to use the system until 2 years ago, and they have not promoted its use. At the time of the survey, the largest North Carolina pharmacy chain was still blocking access for their pharmacists. (This pharmacy chain began granting access on January 1, 2013.)

Of those pharmacists who were using the NCCSRS, most said the system was easy to use and reported no problems with it; 84% of the pharmacists who had registered to use the system said that they used information from the NCCSRS when calling a prescriber to discuss the prescription, and 82% said that the physician was very likely to change the prescription in these cases.

The second part of the evaluation examined whether the NCCSRS was achieving its legislative intent; these findings were very positive. Over the past 3 years, there has been a steady increase in the number of providers who have registered for and are using the NCCSRS, even though the percentage of prescribers who are using the system remains low. The NCCSRS does not seem to have decreased legitimate prescribing, but it may have helped to reduce the number of persons meeting the strictest definitions of drug-seeking behavior [8]. In addition, the NCCSRS may help providers to distinguish between patients who are at high risk for overdose death and those who are not; it may therefore help to reduce the average number of prescriptions filled by high-risk patients. Finally, consistent use of the NCCSRS by providers is strongly associated with the likelihood that their high-risk patients will receive treatment for opioid dependence [8].

Figure 2 demonstrates that between January 2008 and December 2012 there was a decline in the number of persons meeting a strict definition of drug-seeking behavior—that is, receiving a Schedule II, III, or IV prescription from 10 or more prescribers and going to 10 or more pharmacies within a 6-month period. It also shows a slight decrease in the number of patients going to 15 prescribers and 15 pharmacies. Data for the 6-month intervals from January 2008 through the first half of 2012 are from a report of the NCCSRS evaluation [8], and data for the second half of 2012 are unpublished data obtained in March 2013 as part of a regular metrics report.

The evaluation completed by the UNC Injury Prevention Research Center contained a number of recommendations for improving the NCCSRS. These recommendations were based on the feedback received during the survey, review of best practices around the United States, and a review of the limited available research on the efficacy of prescription
drug monitoring programs. Some of these recommendations would necessitate changes in the law, but others are already being contemplated. Specific recommendations include allowing a prescriber to delegate a query to a nurse or other staff member; requiring that medications dispensed from a physician’s office or a dentist’s office be entered into the system; allowing the system to send alerts to prescribers regarding patients who may be at risk of drug misuse or abuse; being able to link the NCCSRS to similar databases in other states to get a more complete picture of prescription drug use, especially in border communities; requiring that data be entered into the system more frequently, such as every 24 hours; and increasing outreach efforts to increase usage of the system.

Misuse and abuse of prescription controlled substances and diversion of controlled substances have been problems for decades. Powerful and effective but potentially dangerous new drugs have helped to contribute to the growth of this multidimensional, complex, and interrelated set of problems. The NCCSRS is an effective tool that can assist clinicians with appropriate prescribing and can help them to identify problems that may be developing. It can provide valuable information that confirms or alters what a practitioner knows about a patient; however, it should never be the sole basis for making a treatment decision. Overdose deaths may involve both licit as well as illicit drug use, so there is clearly a need for education for the public and for the medical community to counteract the disturbing trends that are unfolding.

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Acknowledgment
Potential conflicts of interest. W.D.B. has no relevant conflicts of interest.

References