

NORTH CAROLINA GOVERNOR'S CRIME COMMISSION

Prescription Drug Abuse and Diversion: The Hidden Crisis



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April 2011

Introduction

The Extent of the Problem

The manufacturing, trafficking, selling, possessing and using of illicit drugs has been on the political, criminal justice and health systems' agendas for over a century varying not only in intensity and importance but also by geographical region and the type of drug itself. Witness the "Reefer Madness" of the late 1930s, the war on drugs during the 1960s with the focus being primarily on heroin and LSD in the inner city and college campuses, the renewed efforts in the mid-1980s to crack down on crack cocaine and the latest wave to curtail methamphetamine production and use across rural America. Perhaps not completely forgotten but at least receiving less media attention, less public funding, less legal scrutiny and less political priority has been the misuse, abuse and illegal diversion of licit or prescription medications.

Many erroneous assumptions exist surrounding the misuse of prescription and licit drugs. For example, it is widely believed prescription drug abuse is only a middle class phenomenon in which the stereotypical middle aged housewife has an afternoon martini and a pain killer to relax and unwind after a hard day, or, because the drugs are legal and sold over the counter, they can't really be that harmful. National self-report survey data, hospital emergency room admissions and treatment records as well as data from poison control centers and even morbidity and mortality reports suggest otherwise.

While overall illegal drug use has declined or remained steady in recent years, the use and abuse of prescription and over the counter drugs has increased, especially in the teen and young adult population where prescription drugs are abused more than any other drug with the exception of marijuana. Of note, the number of teens abusing prescription and over the counter drugs is greater than the number abusing cocaine, heroin and methamphetamine combined (Office of National Drug Control Policy, 2008). Data from the National Survey on Drug Use and Health (2008) suggest that more than 2 million teens abuse prescription drugs each year. Prescription drugs, in fact, are the drug of choice for 12 and 13 year olds.

Forty percent of teens believe that it is safer to abuse prescription drugs versus illegal drugs while thirty percent report believing that prescription pain killers are not addictive (Partnership Attitude Tracking Study, 2006). Treatment center admission data suggest otherwise, with the number of persons admitted for the abuse of pain killer medication growing 300 percent from 1995 to 2005 (Treatment Episode Data Set, 2006). More recent admission data indicate an alarming rise in the number of prescription drug abusers, with increases occurring among both males and females, all racial/ethnic groups, all age groups and also across all socioeconomic status sets (Office of National Drug Control Policy, 2010).

National data on hospital emergency room visits document a dramatic escalation in the number of admissions for non-medical use of prescription and over-the-counter drugs. The number of admissions grew from 538,247 in 2004 to 971,914 in 2008; an increase of 81 percent, contrasted with a less than one percent increase in the number of visits involving illicit drugs such as cocaine, heroin, marijuana and methamphetamine (Office of National Drug Control Policy, 2010b).

Likewise, unintentional poisoning deaths from psychotherapeutic drugs, such as sedatives and anti-depressants, increased 84 percent between 1999 and 2004 (Centers for Disease Control and Prevention, 2007). During 2007 alone the number of deaths attributable to opioid analgesics, such as Oxycontin®, Vicodin® and methadone, nearly doubled those caused by cocaine and was five times greater than the number involving heroin (Centers for Disease Control and Prevention, 2010).

The deleterious effect of this abuse is only exacerbated by the fact that prescription drugs are widely available, fairly easy to obtain and relatively inexpensive in relation to most illegal drugs. Obtaining prescription drugs from dealers of illicit drugs or through Internet purchases are extremely rare with only six percent of people who use prescription drugs for non-medical purposes reporting these as their drug source (National Survey on Drug Use and Health, 2010). Seventy percent of people who abuse prescription pain killers and 64 percent of teens who abuse these drugs, report receiving them from family or friends often without their knowledge. Nearly half of the teens also report that the drugs were obtained at no cost (National Survey on Drug Use and Health, 2008). Additionally, the majority of teens agree that prescription drugs are "everywhere" with 60 percent taking them from their parents' medicine cabinets or through someone else's prescription. Nearly one in five students who were legally prescribed stimulants was asked by their peers to give away, sell or trade their medication (Wilens, Adler, Adams, Sgambati, Rotrosen, Sawtelle, Utzinger and Fusillo, 2008). These teens also state that there is less shame or stigma associated with using prescription pain killers, that it is alright because they are not illegal and that they are easier to obtain compared to illicit drugs (Partnership Attitude Tracking Study, 2006).

North Carolina specific data extracted from the National Survey on Drug Use and Health (2008) indicates that seven to eight percent of teen respondents in the age range of 12 to 17 reported that they used a pain killer for non-medical purposes in the past year. Responses from young adults, aged 18 to 25, were higher with 10-12 percent reporting non-medical usage while only two to three percent of adults aged 26 and older reported the same. Recent data from the Youth Risk Behavior Survey (2009) paint a grimmer picture with three percent of 6th graders reporting that they have used pain killers such as Oxycontin®, Percocet® or Demerol® without a physician's prescription. Fourteen percent of the responding ninth graders noted the same with usage gaining in frequency to nearly one in four high school seniors.

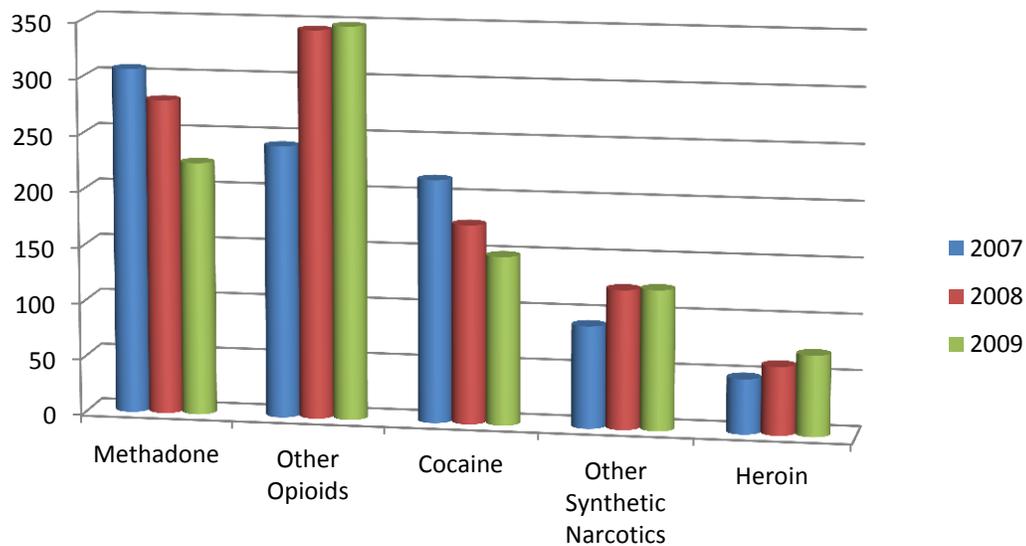
Data on accidental or unintentional poisoning episodes indicate that the Carolina Poison Center received 63,412 phone calls, or 700 calls per 100,000 residents, in 2007. During the same year there were 8,696 emergency department visits as a result of unintentional poisonings or 96 visits per capita. Hospital discharges numbered 3,445 or 38 per 100,000 citizens (Harmon, 2010). Unintentional poisoning charges by North Carolina hospitals exceeded 51 million in 2007. During the first six months of 2010, 61 percent of emergency department visits — specifically for unintentional poisonings — were attributable to drugs. Of this number the majority were for poisonings caused by either Benzodiazepines or other opioids (Petersen and Proescholdbell, 2010).

During 2007 there were 901 deaths attributable to accidental or unintentional poisonings in North Carolina. Seventy-seven percent (694) of these deaths were due to narcotics and prescription drugs.

North Carolina's death rate from unintentional poisonings exceeds the national rate and unintentional poisonings are the second leading cause of injuries among North Carolina's citizens (Harmon, 2010). Over the last decade deaths from unintentional poisonings grew from 279 in 1999, to 1,036 in 2009. This represents an increase of 271 percent which, in comparison to the ten percent decline in the number of homicides during the same period (N=536 in 1999 and N=482 in 2009), demonstrates the magnitude and severity of unintentional poisoning deaths (N.C. Department of Justice, 1999; 2009).

As Figure 1 depicts, methadone was the most prevalent drug implicated among unintentional death cases (34%) in 2007, with other opioids accounting for 27 percent. Cocaine was mentioned in 24 percent of the cases with heroin deaths being lowest at only five percent of the total reported unintentional poisoning deaths. Two years later, other opioids surpassed methadone; however these prescription drugs were still far more prevalent than cocaine and heroin when analyzing the cause of death in unintentional poisoning cases (N.C. State Center for Health Statistics, 2010).

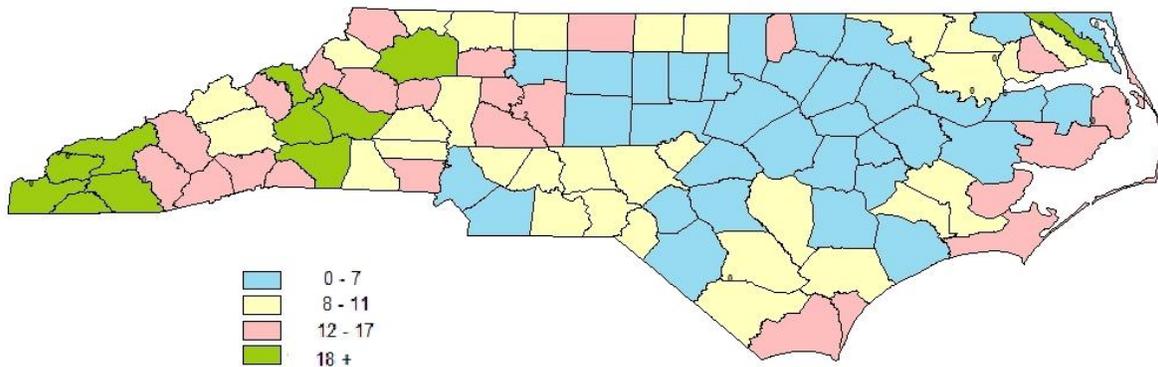
Figure 1: Implicated Drugs in Unintentional Poisoning Deaths: 2007-2009



Demographic data indicate that some groups are at a greater risk of dying from unintentional poisonings than others, with males being 1.8 times more likely to die than women, and whites having higher mortality rates than members of other racial groups. The death rate for whites was 11.8 contrasted with an overall death rate of 9.9 across the state. During 2007, unintentional poisoning deaths were the highest, for persons between 35 and 44 with a rate of 19.4 and 20.1 for those between 45 and 54 (Harmon, 2010).

Substantial geographic variance can be found across the state with higher mortality rates being found in the western part of North Carolina. Pooling data for 2005 to 2007, Harmon (2010) found 16 counties, with stable or reliable rates, that had significantly higher rates of unintentional poisonings compared to the state average of 10.1 per 100,000 residents. The death rate for these counties was 17.2, with Wilkes County having the highest rate in the state (27.0). Figure 2 reveals similar findings using more recent 2008 unintentional poisoning death rate data.

Figure 2 : 2008 Unintentional Poisoning Death Rates (per 100,000)



Historical threat assessment statistics indicate that the diversion of pharmaceuticals for illegal purposes was identified as a growing problem at the turn of the century, with prescription drug thefts increasing 111 percent from 1995 to 2000 (National Drug Intelligence Center, 2003). The International Narcotics Control Board predicted in 2006 that on a worldwide basis prescription drug abuse would soon surpass illegal drug abuse with narcotic and psychotropic medications becoming the drug of choice, and that such would subsequently lead to an increase in prescription drug trafficking, diversion and the production of counterfeit substances (Kuehn, 2007). Analysts further predicted an increase in the thefts of, and the illegal diversion and distribution of, Oxycontin®.

Inciardi, Surratt, Kurtz and Burke (2006) studied drug diversion police case files in Cincinnati, Ohio, over an 11-year period and found that hospitals were the most frequent source of reported diversion cases followed by pharmacies. These researchers further reported that opioids and benzodiazepines were the most commonly diverted drugs, with nurses, nursing assistants and medical assistants being involved in nearly 75 percent of the cases.

More recent data from the Diversion and Environmental Crimes Unit of the North Carolina State Bureau of Investigation validates this prediction. Since 2004, this agency's diverted drug caseload swelled from 40 to 208 in 2009; an increase of an astounding 420 percent. A concurrent or simultaneous increase in the number of statewide diversion arrests also occurred as charges grew from 2,139 in 1998 to 11,465 in 2009 (436%). The top drugs being diverted in North Carolina include hydrocodone, which has been the most prevalent substance since 2005, oxycodone, alprazolam, methadone and phentermine. In addition, Ambien® diversion has become more common in the last two years (Bowman, 2010).

According to data provided by the United States Drug Enforcement Agency (2011), at least 2,846 cases of prescription drug theft and loss reportedly occurred in North Carolina between 2000 and 2010. Despite tight security and other regulatory controlling and maintenance safeguards this still equates to nearly 285 cases a year, with the majority of these cases involving incidents at pharmacies (60.6%). Of the 1,725 pharmacy incidents, 26 percent were a result of employee pilferage, 20 percent were attributed to night time break-ins and armed robberies, and nearly seven percent involved incidents in which the drugs were lost in transit. Customer theft accounted for a small three percent of these reported incidents.

Similar incidents at hospitals and clinics accounted for 19 percent of the total 2,846 cases followed by losses and thefts from distributors (11.1%) and practitioners (6.3%). Irrespective of incident location the most commonly stolen, lost and diverted drugs were oxycodone which were involved in nearly half of the incidents (44.8%) followed by hydrocodone (33%), alprazolam (14.2%) and morphine (11.7%). In terms of the types of drugs being diverted, records from both state and federal law enforcement officials are nearly identical, with most cases involving the same drugs with the exception being that state officials are investigating more cases involving Hydrocodone while more federal cases involve oxycodone.

Governmental Initiatives to Curb the Problem

System or administrative data from the state's Controlled Substances Reporting System (CSRS), which was created by general statute (N.C.G.S. 90-113.70) in 2005, document the voluminous number of prescriptions and drugs which are being processed and are available across the state. Data for the first six months of 2010 reveal that 459,214 people received prescriptions for Schedule II drugs for a total of 146,627,299 doses or 15.3 per person in North Carolina. Combining prescriptions for Schedule III and IV drugs produces over two million people (N=2,488,186) with 375,628,876 doses or 39 doses for each person in the state. More than 27 percent of the population received at least one script or prescription during this period. The CSRS now includes information on more than 53,500,000 prescriptions with over 7,400 dispensers and practitioners being registered to use and query the system. Currently there are, on average 2,200 queries a day with more than one million occurring since reporting began in July 2007 (Bronson, 2010).

Recent national efforts to eradicate, or at least minimize, prescription drug abuse and diversion have been led by the Office of National Drug Control Policy (2010c), and have included increasing grant funding for drug prevention initiatives by \$203 million and increasing treatment funding by \$137 million. Other efforts include developing and expanding prescription drug monitoring systems, such as the state's CSRS, and providing technical assistance to the states on issues such as doctor shopping, pill mills and phony Internet pharmacies. The agency also sponsored and convened a prescription drug abuse summit in the State of Oregon, which brought together members of the law enforcement, medical, public health and pharmaceutical communities for the purpose of discussing the problem, developing solutions, and improving communication and collaboration across the states. Recommendations were offered for increasing public awareness through media campaigns, providing enhanced training for

healthcare workers and educating local residents on proper disposal techniques for expired medications.

An innovative use of prescription monitoring programs, which as of 2007 were operational in 26 states, involves members of the California Bureau of Narcotic Enforcement and the Nevada Board of Pharmacy. These agencies have partnered together to develop baseline standards for information exchange and data sharing between their two prescription monitoring systems. The PMIX, or Prescription Monitoring Information Exchange, initiative may serve as a national model for information sharing between not only two divergent state systems but also between professionals from the disparate public health and law enforcement fields (National Information Exchange Model, 2010).

Law enforcement and medical professionals from other states have taken a proactive role in addressing this issue with drug drop-off programs in Maine, data sharing initiatives in Kentucky, an evaluative study aimed at discovering the links between drug misuse, abuse and diversion in West Virginia and in Ohio officials have established a prescription drug abuse task force.

Communication and collaboration have already occurred in North Carolina with the development of the Controlled Substance Reporting System in 2005 and original data entry and reporting in 2007. Members of the State Bureau of Investigation's Diversion and Environmental Crimes Unit have access to this system for investigative purposes on bona fide cases. This unit has also partnered with SafeKidsNC and the federal Drug Enforcement Agency on pill drop-off or take-back programs as well as offered diversion training to local law enforcement officers and staff from other regulatory agencies.

Last year, North Carolina implemented a narcotic drug lock-in program which requires certain groups of Medicaid recipients, who have filled more than six prescriptions for either opioids or benzodiazepines X within a two-month period, have received prescriptions for these from more than three prescribers within a two-month period, or have been referred by a provider, to be limited or locked in to a single pharmacy and a single prescriber. Early assessments on 950 patients, who were locked in on October 2010, indicate that this legislation is effective for reducing Medicaid claims, as well as visits to hospitals, clinics and emergency rooms with cost savings being estimated at \$ 4,620 per person, equating to a projected savings of \$9 million statewide upon full implementation. The program also prevents doctor shopping. (Weeks, 2010; State of North Carolina Office of the Governor, 2011).

The Pitt County Sheriff's Office has taken the lead locally by sponsoring community take-back programs, with the inaugural event occurring in 2009. More than 30,000 dosage units were safely returned and properly disposed of at the event. The following year, 13 similar take-back events were held and brought in over 165,000 dosage units. The agency has also established a permanent prescription drug drop-off box, held educational or training sessions and collaborated with home health care and hospice companies to educate staff on the environmental hazards associated with flushing old medications down the toilet. Awareness training has also been conducted to focus on the increased potential for accidental poisonings among the elderly who may have hoards of expired medications in their homes and take the wrong drug as a result of confusion or dementia (Larson, 2011).

In addition to these programs and initiatives numerous other agencies in North Carolina have been proactively involved with addressing the issue of prescription drug abuse and diversion including the Division of Public Health's Injury and Violence Prevention Branch with its ongoing research and the Carolina Poison Center which advises the public on hazards associated with the misuse of medications. Staff from the Medical Examiner's Office, Institute of Medicine, the Governor's Institute on Alcohol and Substance Abuse and numerous branches of the Department of Health and Human Services have all been involved with the issue of prescription drug misuse, abuse and illegal diversion.

This report presents findings from a statewide survey of law enforcement administrators and officers from both police departments and sheriffs' offices. The purpose of the study was to document the nature and extent of prescription drug abuse and diversion across North Carolina, with an emphasis on identifying trends, patterns and emerging issues surrounding the types of prescription drugs which are being diverted and abused. Information was also compiled in order to illuminate distribution sources as well as to compare and contrast the flow of illicit and licit drugs in order to determine if any crossover exists. Study findings also include respondent perceptions on the severity of this issue and on the extent to which diversion and abuse of prescription medications are defined as critical or urgent priorities for law enforcement.

Methods

Survey Instrument

A 19-item survey questionnaire was developed in an effort to collect information on the number of prescription drug abuse and diversion cases over the past year, as well as on short-term trends within the respondents' respective jurisdictions. Questions were also included to identify the basic case attributes of this phenomenon such as the age of offenders, type of drugs, drug sources and perceptions of the severity of the problem. The questionnaire also included items to ascertain the divergence or convergence of illegal drugs and prescription medicines in the underground market as well. Respondents were also provided with the opportunity to offer policy and programmatic recommendations for addressing the issue of illegal prescription drug abuse and diversion.

Survey Sample

Two separate stratified survey samples were drawn, one for police departments and another for sheriffs' offices. The number of agencies selected to receive a survey was derived by dividing the total number of agencies into proportionate groups based upon the average or mean population of their respective jurisdictions and the standard deviation. A sample size calculator was used to determine the required number of surveys at the 95th confidence intervals. Agencies were randomly selected from each group with the total sample obtained being proportionate to the entire group's statewide population coverage.

For example, the mean or average population coverage for local law enforcement agencies is 13,628 with a standard deviation of 50,645. Group I consisted of the smallest agencies with jurisdictions ranging from a low of 88 citizens to the sample mean (13,648). Group II contained agencies with

populations from the sample mean to one standard deviation above (64,274). Group III contained larger agencies from 64,274 to two standard deviations above the mean (114,919). The largest group contained police agencies who patrol the state's largest cities as defined as being two or more standard deviations above the mean or average city population (114,920 residents or greater).

In order to ensure study reliability, the required sample size from a total number of 349 police agencies was determined to be 183 randomly selected agencies. The number of agencies within the smallest group represented 83.6 percent of the total number of police departments in the state, thus 83.6 percent of the required 183 sampled agencies were randomly drawn from this group (N=153). This process was completed for each group with the number of selected agencies corresponding to the group's respective percentage of the total. Group II agencies represented 12.4 percent of the total police departments, thus 23 departments were randomly selected from these strata (183 x 12.4%). Groups III and IV each represented two percent so four departments were included from each group.

The number of required sheriffs' offices to receive surveys was calculated to be 80 in order to ensure study reliability and generalizability. The average population coverage for the state's sheriffs' offices is 41,850 with a standard deviation of 32,609 residents. Again, the offices were divided into four strata with Group I containing those offices which provided protection to the state's smallest counties ranging in population from a statewide low of 4,290 to the sample average of 41,850. This group represented 62 percent of the state's sheriffs' offices so consequently 62 percent of the required 80 surveys were mailed to offices within this group (N=50). Group II included offices with average population jurisdictions between 41,851 and 74,460 and represented 21 percent of the total number of offices, thus 21 percent, or 16, of the required 80 agencies were randomly selected to receive surveys. Group III included 13 percent of the total agencies with jurisdictions ranging from 74,461 to 107,070 citizens while the remaining group contained four percent, of the state's sheriffs' offices, which provide protection to counties with more than 107,070. Ten agencies from Group III and four agencies from the last group were randomly selected to complete the required 80 agencies to be administered a survey.

Thirty-four hospitals across North Carolina have police agencies that conduct active investigations concerning criminal activities that occur on hospital property. All of these agencies, because they house pharmaceutical supplies and deal directly with prescription medicines, were selected and mailed a survey.

Results

A total of 91 surveys were completed and returned for a sample-wide return rate of approximately 31 percent (30.6%). Within the three agency subgroups representatives from 57 law enforcement agencies (31.1%), 31 sheriff's offices (38.8%) and three hospitals (8.8%) responded.

Documenting the Nature and Extent of Prescription Drug Abuse and Diversion

The survey respondents were asked about the level of prescription drug abuse within their respective jurisdictions and the extent to which it has changed over the last five years and more specifically the past year. Nearly 75 percent stated that they have noticed a significant increase in prescription drug

abuse since 2006, with another 15 percent noting a slight increase. Only 11 respondents (12.1%) stated that prescription drug abuse had not changed or had slightly declined during the past five years. Short-term trends indicate an increase in this behavior over the past year, but fewer respondents described it as severe or as significant (45.1%) when contrasted with the past five years. Thirty (33%) respondents noted a slight increase with the remaining 20 (22%) suggesting that prescription drug abuse has remained the same or declined in their areas during the last year.

In an effort to obtain more reliable information on the extent of prescription drug abuse and diversion respondents were asked to provide data on the number of investigations which were conducted by their respective organizations during 2010. Eighty-eight (96.7%) respondents were able to provide this information. These data reflect cases involving only prescription drugs and do not include cases in which prescription drugs and illegal drugs were both being investigated or discovered. Across these 88 different law enforcement agencies, a cumulative total of 4,499 cases were investigated, ranging from a low of zero to a sample high of 556. This equates to an average of 51 prescription drug abuse and diversion cases per agency.¹

Translating these numbers into rates per 100,000 citizens provides for more accuracy and standardization when drawing comparisons across jurisdictions, over distinct time periods or with other types of reported crime. The prescription drug case investigation rate among the responding law enforcement agencies ranged from 14 per 100,000, excluding those agencies with no reported cases, to a high of 4,829 per capita. The sample mean was 356 cases per 100,000 residents.²

Comparing this rate to the reported crime rate for various offenses puts the issue of prescription drug diversion into context and provides further support for the assertion that this is a serious issue among North Carolina's population. In 2010, the latest year for which crime statistics were available, the state's murder rate was 5.1 per 100,000, followed by 21.5 forcible rapes, 105 robberies and 242.7 reported aggravated assaults per capita. The motor vehicle theft rate and reported arson rate were 192.5 and 20.6 respectively. Only reported burglaries (1,125.7 per capita) and reported larceny-thefts (2,263.2 per 100,000) had higher rates compared to prescription drug case investigations (North Carolina Department of Justice, 2010).³

Survey questions were included which asked participants to elucidate on how the number of prescription drug investigations in 2010 compared to the previous year and on the ratio of prescription drug investigations to total drug investigations, both legal and illegal. Respondents were also asked to rank the severity of their community's prescription drug abuse and diversion problem in relation to other types of criminal behavior and community issues such as illegal drug use, firearm violations and

¹ Extremely low and/or high numbers can have a tendency to distort or artificially increase/decrease the sample mean. Another measure to consider is the sample median which represents a midpoint. For this study the median number of cases was 24.

² The median case rate was 210 per 100,000. Caution should be exercised when examining the rates for agencies with very small populations as only a few number of cases can artificially exaggerate the calculated rate.

³ Of note, this rate is based solely on the number of cases which are reported to and investigated by law enforcement personnel. Consequently the true number or rate would be higher if all cases of diversion were reported and investigated.

gangs. Seventy percent of the survey participants declared that the number of case investigations had either significantly increased (23.3%) or slightly increased (46.7%) from 2009 to 2010. The remaining thirty percent reported either no change (20%) or a slight drop (10%) over the two year period. Four individuals reported that prescription drug abuse cases were minimal or almost non-existent when considering them as a percentage of the total number of all drug case investigations, while another four reported that prescription drug cases constituted all of their total drug case investigations. The remaining respondents reported that on average 34 percent of their total drug case investigations involved prescription medications.

As Table 1 depicts the average severity ranking for prescription drugs, on a scale of one to six with one being the most serious problem to six being the least serious, ranks third behind illegal drugs and domestic violence. Survey participants rated violent crime, gangs and firearm violations as being a lesser problem or one that was not as serious as prescription drugs in their jurisdictions and among their community residents.

Table 1: Severity Rank Scores for Criminal Activity *(1= Most Serious, 6= Least Serious)*

Severity Rank	Activity	Mean Score
1	Illegal Drugs	1.74
2	Domestic violence	2.72
3	Prescription drugs	3.03
4	Violent crime	3.98
5	Firearm violations	4.29
6	Gangs	4.74

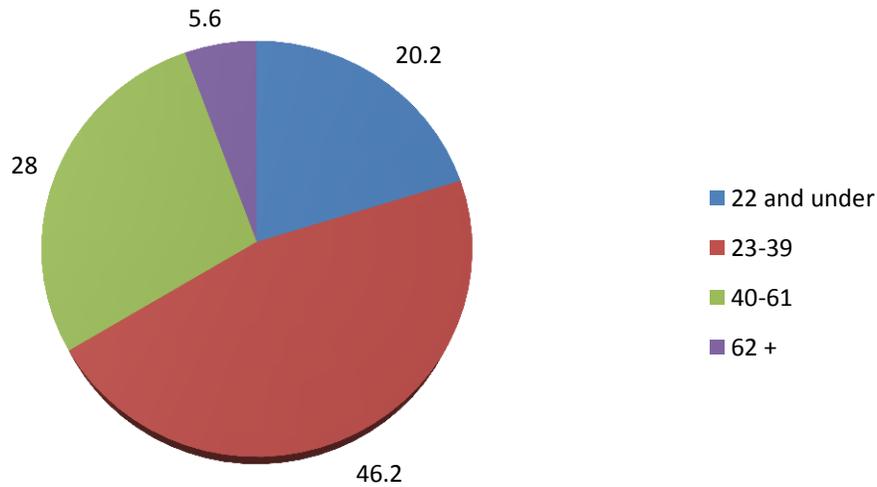
A question was also included to illuminate the urgency or priority level that law enforcement agencies are assigning to the prescription drug diversion issue. Respondents were asked to rank this urgency or priority on a scale of one (no urgency or priority) to ten (most urgent or high priority) with the rankings ranging the full scale from one (4.6% of the participants) to ten (12.6%). The average priority or urgency score for the entire sample was 6.1 with 48 (55.1%) or more than half of the respondents assigning this issue an urgency or priority score of six or higher.

Types of Prescription Drugs, Drug Sources and Diversion Offender Attributes

Demographic information was available for 4,215 of the 4,499 case investigations which were reported by the 91 survey participants. Of this number 851 cases (20.2%) involved juvenile and youthful offenders who were 22 years of age or under. Just over 46 percent (N=1,945) of the reported cases

involved perpetrators in the age range of 23 to 39 while 28 percent (N=1,182) involved individuals who were in the age range of 40 to 61. The remaining 237 cases (5.6%) involved senior citizens over the age of 61 (Refer to Figure3).

Figure 3: Percent of Drug Diversion Cases by Offender Age



As Figure 4 reveals the most common offense type reported was possession with intent to sell and deliver (30.3%), with 1,170 cases of the 3,865 cases for which data were available. Nearly one-quarter (24.1%) of the cases involved simple possession of prescription drugs, while 14 percent of the investigations involved the trafficking or importing of large quantities of medications. More than 13 percent of the cases involved investigations where prescription drugs were reported as stolen through acts of larceny-theft. The remaining case investigations involved other offenses such as prescription fraud and forgery with 422 (11%) cases and 63 (1.6%) cases of reported doctor shopping. Less common investigations where prescription drugs were associated with the case included armed robbery and Medicaid or insurance fraud.

Figure 4: Prescription Drug Diversion by Offense Type

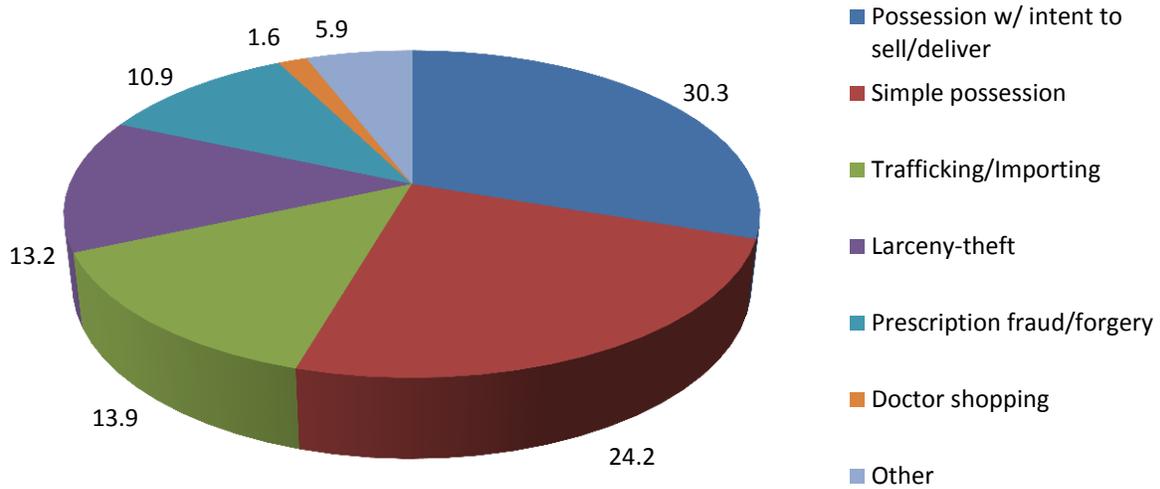


Table 2: Frequency of Drugs Encountered/Reported and Percent Reporting

Drug Type/Name	Number	Percent of Sample Reporting
Oxycodone	54	59.3 %
Hydrocodone	50	54.9 %
Xanax®	46	50.5 %
Percocet®	41	45.1 %
Oxycontin®	36	39.6 %
Methadone	25	27.5 %
Valium®	16	17.6 %
Vicodin®	13	14.3 %
Morphine	12	13.2 %
Lorcet®/Lortab®	11	12.1 %
Alprazolam	11	12.1 %

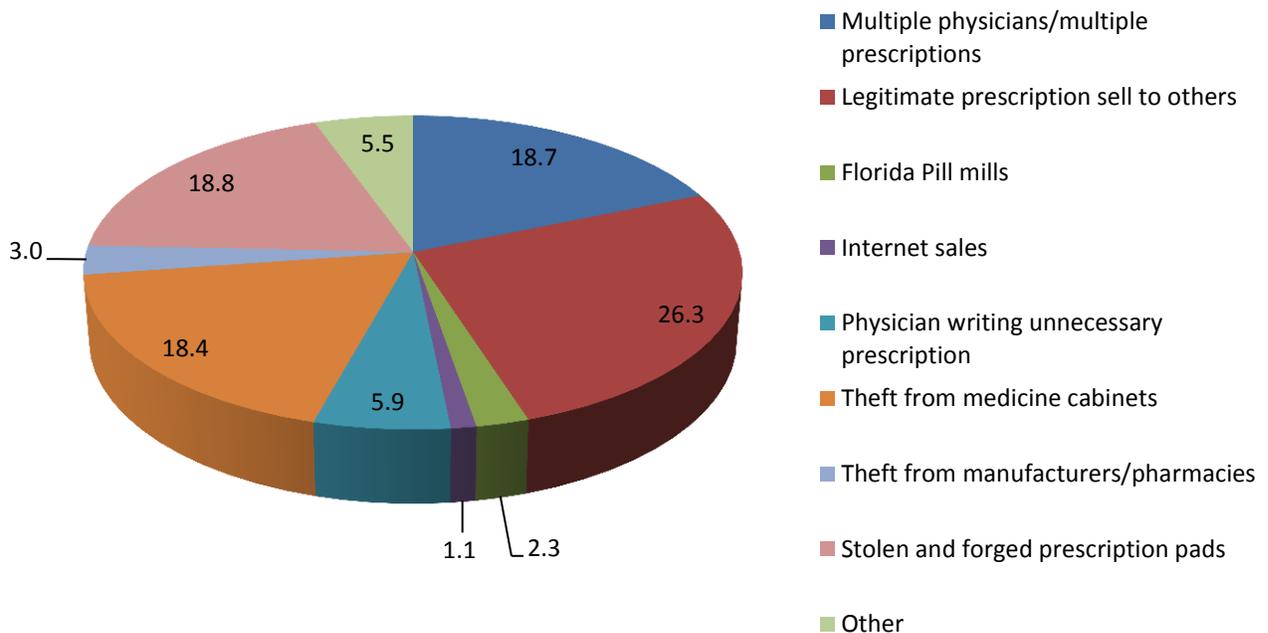
Note: Grouping these drugs together produces two major classification types - pain relievers or analgesics and anxiety reducers. The pain medications listed above are all Morphine derivatives and can be divided into two groups, hydrocodone and oxycodone. Lorcet®, Lortab® and Vicodin® are either derivatives or brand names for hydrocodone, while Oxycontin® and Percocet® are either derivatives or brand names for

oxycodone. Methadone is also an analgesic but its chemical structure differs from morphine. Drugs belonging to the benzodiazepine class include the anxiety reducers of Valium®, alprazolam and its brand name Xanax®.

As Table 2 depicts, oxycodone, hydrocodone, and Xanax® were the three most commonly reported drugs associated with the prescription drug case investigations carried out last year. Over one-half of the respondents encountered these substances during their work, with slightly less than one-half encountering Percocet®, and more than one-third reporting Oxycontin® as a commonly occurring drug. Slightly more than one-quarter reported methadone, with less than 20 percent reporting the other drugs listed as being common in their case investigations.

In an effort to document the sources from which prescription drugs are diverted respondents were provided with a list of common diversion sources or methods and were instructed to provide the percentage of their 2010 cases which fell into each source on the list. Despite the fact that only 57 (62.6%) respondents were able to completely provide this information the results are informative nonetheless. As Figure 5 documents, more than 25 percent of diverted drug cases involved persons with legitimate prescriptions illegally selling their medicine to others. The second most common source involved the use of stolen and forged prescription pads (18.8%), followed by individuals who knowingly receive multiple prescriptions from multiple physicians (18.7%), and thefts from home medicine cabinets (18.4%). Other infrequent methods or sources included thefts from medical offices (2.3%), thefts by medical personnel (2.4%), Internet sales (1.1%) and obtaining substances from illegal pill mills (2.3%).

Figure 4: Prescription Drug Diversion Source/Method



Several survey items were included in the questionnaire in order to ascertain the extent, if any, to which organized criminal groups, gangs or syndicates are involved in the selling or distributing of illicitly diverted prescription medications. More than half of the respondents (N=51, 58%) reported no involvement on the part of street gangs in their respective jurisdictions with 35 (39.8%) suggesting a slight or moderate level of involvement on the part of these gangs. Only two respondents noted a significant level of involvement (2.3%).

Responses indicate an even lower level of involvement on the part of motorcycle gangs with 71 (80.7%) individuals documenting that the motorcycle gangs in their areas do not get involved with prescription drug sales or distribution. Sixteen respondents (18.2%) suggested a slight level of involvement with only one participant (1.1%) noting a significant level of involvement on the part of motorcycle gangs. Responses were similar when discussing other gang or organized crime groups with the majority of the respondents noting no involvement (65.5%) or only a slight level (32.2%) of organized crime involvement.

Responses were different when discussing the level of involvement of individuals who sell and distribute the most commonly known illegal drugs such as marijuana, cocaine, and heroin. More than half of the participants (54.5%) suggested that dealers of illegal drugs also sell and distribute diverted prescription drugs, while another 34 percent reported a slight to moderate level of involvement on the part of these individuals. Ten respondents (11.4%) stated that these sellers did not get involved with prescription drugs in their respective communities.

Collaboration, Prevention, Intervention and Enforcement Initiatives

The majority of agencies, represented by the survey participants, have taken part in prior prescription drug take-back or drop-off programs (69.2%) with nearly half stating that these were successful (46.7%). The remaining, just over half of respondents, felt neutral in terms of the effectiveness of these efforts. Only four respondents (6.6%) felt that these programs were unsuccessful. Respondents noted a comparable level of involvement and collaboration with local physicians and other medical personnel in trying to curb abuse and diversion with 67 (76.1%) of the agencies' officers reporting either a slight or significant level of cooperation and collaboration. Other law enforcement initiatives include participation in regional task forces, providing awareness training to high school teens and joining the National Association of Drug Diversion Investigators.

Geographical Commonalities and Differences

The following section presents comparative information on a city by county basis and by geographical region of the state in order to determine if any significant differences exist between and across these subgroups. Comparing the responses obtained from the city police departments with those of the county sheriffs' offices reveals that prescription drug abuse has increased significantly more among those individuals living outside of the city limits with 100 percent of the sheriffs' respondents noting an increase over the past five years compared to a lower — but still high — 80 percent of the police department respondents. Seventeen percent of the police participants noted that prescription drug abuse has remained constant during the last five years ($\chi^2 = (1, N=88) = 11.1, p=.01$). This finding was

consistent for short-term trends as well with a significantly higher percentage of sheriffs' respondents (90.3%) reporting slight and substantial increases in prescription drug abuse, over the past year, compared to 70 percent of the police respondents ($\chi^2 = (1, N=88)=8.3, p=.04$).

While the sheriffs' offices conducted, on average, a greater number of investigations involving prescription drugs than the police departments represented in the survey (M=67.4 versus M=40.7) this difference was not statistically significant ($t=1.62, df = 79.9, p = .11$). However, a comparison of the case investigation rates does reveal a significant difference with the case rate of the police departments, 447.3 per capita, being significantly larger than the sheriffs' rate of 200.1 per 100,000 ($t= -2.04, df=57.5, p = .05$).

Table 3 presents comparative information for police departments' (city) and sheriffs' offices' (county) severity rankings on the issue of prescription drugs as well as select other community problems or issues. As the table reveals, prescription drug abuse and diversion was reported to be a significantly more severe problem in the counties as compared to the city ranking as provided by the respondents from the police departments ($t= -2.82, df = 80.0, p = .01$). The two groups also differed significantly on the gang issue with police respondents ranking gangs as a more severe problem than their counterparts in the county ($t = 2.30, df = 84, p = .02$).

Table 3: Severity Rankings by Issue by Jurisdiction

Issue	Mean Rank	
	City	County
Illegal Drugs	1.8	1.5
Gangs	4.5	5.2 *
Violent Crime	3.8	4.2
Prescription Drugs	3.4	2.5 *
Domestic Violence	2.7	2.9
Firearm violations	4.1	4.6

1 = Most serious, 6 = Least serious

* $p \leq .05$

In a similar vein, the respondents from the county sheriffs' offices rated prescription drug diversion on a scale of 1, no urgency, to ten, extremely urgent, as significantly more urgent or as a higher priority as contrasted with the respondents from the city police departments (M = 7.1 versus M= 5.5; $t = 2.91, df = 83, p = .01$).

In terms of offense severity the data suggest that larger and more intensive operations are being carried out by the sheriffs' offices which averaged significantly more trafficking/importing cases with an average of 24.7 per agency compared to an average of 2.3 in the police departments ($t = 2.21$, $df = 19.2$, $p = .04$). The sheriffs' offices also average significantly more cases involving the theft of prescription drugs ($M = 27.1$) compared to an average of five per police agency ($t = 2.81$, $df = 15.6$, $p = .01$). The number of simple possession cases and possession with the intent to sell and distribute cases did not differ significantly among the cities and counties ($t = .23$, $df = 57$, $p = .82$; $t = .08$, $df = 52$, $p = .04$).

Two significant differences were found to exist when examining drug diversion sources with respondents from the police departments reporting that diversion by stolen and forged prescription pads constituted on the average slightly more than 25 percent of their investigations compared to an average of eight percent of the sheriffs' offices cases ($t = -3.66$, $df = 44.1$, $p = .00$). Conversely, cases involving persons with legitimate prescriptions diverting/selling their medications to others constituted a far and significantly greater percentage of the sheriffs' offices diversion cases ($M = 38.9\%$) compared to an average of 18.8 percent of the city cases ($t = 3.22$, $df = 53$, $p = .00$).

Regional comparisons between those respondents from the east, piedmont, and western portions of the state reveal no significant differences in terms of the extent to which prescription drug abuse has increased over the past five years ($X^2 = (1,6) = 5.82$, $p = .44$) or even the last year ($X^2 = (1,6) = 7.90$, $p = .25$). Agencies across the entire state are reporting sizeable increases in prescription drug abuse irrespective of location.

While agencies in the Piedmont region had, on average, a greater number of case investigations ($M = 62.5$) versus those in the east ($M = 42.7$) and the west ($M = 55.3$), these differences were not statistically significant ($F = (1,2) = .48$, $p = .62$). No significant differences existed in the case investigation rates, although the west rate was considerably higher ($M = 487.3$) than the eastern rate ($M = 347.8$) and the piedmont rate ($M = 258.9$) ($F = (1,2) = .55$, $p = .58$). Agencies in the Piedmont did report a significantly higher percentage of their total drug cases as involving prescription drugs ($M = 42.3\%$) compared to those agencies in the east which reported an average of 26.7 percent of their total drug cases as involving prescription drugs ($F = (1,2) = 3.80$, $p = .03$).

In terms of the offense severity ratings, agencies in the eastern portion of the state rated illegal drugs as being significantly more serious ($M = 1.5$) when compared to those agencies in the Piedmont region ($M = 2.3$) ($F = (1,2) = 5.87$, $p = .00$). Severity ratings for the gang issue also differed significantly between those agencies in the west ($M = 5.7$) and those in the east ($M = 4.5$) and Piedmont ($M = 4.4$) with gangs being perceived as a less severe problem in the western portion of the state ($F = (1,2) = 6.10$, $p = .00$). Significant differences also existed between the western agencies ($M = 2.4$) and the piedmont agencies ($M = 3.7$) on their perceptions of the severity of prescription drug abuse and diversion with this issue being rated as more severe in the western part of North Carolina ($F = (1,2) = 3.29$, $p = .04$). No regional differences were found to exist between the western agencies and the eastern agencies or between the eastern and Piedmont agencies on their perceptions of the severity of prescription drug abuse and diversion.

No further regional differences were noted on the issues of domestic violence, violent crime and firearm violations. These issues receive equal weight across the state with no significant or substantial differences existing concerning the extent to which the eastern, western and piedmont respondents rated them as severe or less severe.

Law enforcement agencies located in the Piedmont part of the state had, on average, more simple possession cases (M=23.5) than those in the east (M=10.6) and west (M=14.0). Agencies in the western (M=28.8) and Piedmont (M=27.1) sections of the state reported more cases of possession with intent to sell and deliver while the eastern agencies had substantially higher numbers of trafficking/importing cases (M=25.7) compared to the average number of cases in the western (M=6.9) and Piedmont part of the state (M=5.7). The average number of cases involving the theft of prescription drugs was higher in the west (M=22.7). Despite these differences none approached statistical significance.

Two significant differences were noted for prescription drug sources with the regions differing on the average percentage of diversion cases attributable to home burglaries. Agencies in the west reported significantly more cases of prescription drug theft through home break-ins (M=8.8%) versus those in the Piedmont (M=1.6%) ($F = (1, 2) = 3.38, p = .04$). "Inside jobs" or thefts by medical personnel were significantly more common in the Piedmont portion of the state (M= 5.5%) compared to less than one percent in the east ($F = (1, 2) = 3.30, p = .05$). The three regions of the state did not differ significantly in terms of the remaining drug sources such as stolen and forged prescription pads, Internet sales, pill mills or other types of theft.

Discussion and Policy Implications

Administrative and system data as well as the results of this study indicate that prescription drug abuse and diversion is a prominent and preeminent issue facing North Carolina's medical and law enforcement organizations and personnel. Ninety percent of the law enforcement respondents reported an increase in abuse and diversion over the past five years, with the typical agency investigating 51 prescription drug cases per year or 356 per year on a per capita basis. This case investigation rate exceeds the reported crime rates for all of the violent Part I Uniform Crime Report categories.

Respondents' perceptions on the prescription drug abuse and diversion topic indicate the magnitude of this issue, with one in three drug investigation cases centering on prescription medications alone. The typical law enforcement respondent rated prescription drug diversion as being more serious in their respective communities than violent crime, firearm violations and gangs. More than one-half of the survey participants rated prescription drug diversion as a high priority in their communities as indicated by an urgency score of six or greater.

The types of diverted prescription drugs being seen in North Carolina are similar to those being diverted nationally, with 98.9 percent of the survey participants reporting either oxycodone or Oxycontin® as being commonly diverted in their communities. While slightly less than half of the diversion offenders were in the age range of 23 to 39, the percentage of youthful offenders and older offenders combined closely parallels the participation of 23 to 39 year olds, thus suggesting that prescription drug diversion is not the exclusive province of any particular age group. The majority of the respondents noted that

those who sell illegal drugs are also purveyors of illegally obtained or diverted prescription drugs, while comparable percentages reported either none or little involvement on the part of street or motorcycle gangs.

Simple possession and possession with the intent to sell and deliver are typical with far fewer trafficking and large scale theft cases being reported by the local law enforcement agencies as these cases are normally referred to, and investigated by, state and federal law enforcement agencies. Typically, local cases involve individuals with legitimate prescriptions selling them illegally, persons obtaining drugs through stolen and forged scripts, by obtaining multiple prescriptions from multiple physicians and thefts from home medicine cabinets. Unlike the Inciardi, et. al study (2006), few local diversion cases were reported in which medical personnel were implicated as offenders or accessories.

Numerous regional differences appear to exist across the state, prescription drug abuse and diversion being more problematic among those persons residing in the county — or outside of the city limits. Respondents from the county sheriffs' offices also rated this issue as significantly more serious than their counterparts from the city police departments. Sheriffs' offices also report significantly more trafficking and theft cases as well as a significant number of diversion cases involving persons selling their legally obtained prescription drugs to others. Survey participants from the western part of the state did rate prescription drug diversion as being a significantly more urgent issue as well as reporting a significantly greater percentage of stolen drugs through home burglaries. Greater case investigation rates and more possession with intent to sell and deliver cases were noted in the west but these did not differ significantly from those reported in other parts of the state.

As a final part of the questionnaire survey participants were asked to provide comments and recommendations on how to reduce prescription drug abuse and diversion. These comments and suggestions clustered into three distinct areas: communication/collaboration, education, and prosecution.

Numerous respondents called for increased cooperation and communication between law enforcement personnel, physicians' offices and local pharmacies, including providing local law enforcement with increased access to the state's controlled substances reporting system. Suggestions also included replacing paper prescriptions with electronic or automated systems, linking all pharmacies on a national reporting system, discontinuing the practice of allowing patients to call in refills and requiring photo identification to pick up medications.

Increased education and training was a common theme with many respondents requesting that medical personnel be trained to identify doctor shoppers. Educational programs in the schools targeting prescription drug abuse specifically and enhanced training for law enforcement officers, as well as the general public, were also recommended.

Stiffer penalties for possessing and selling prescription medications were commonly mentioned also, as was stronger enforcement of diversion laws, with particular attention on increasing penalties for diversion by medical personnel. Increasing doctor accountability, legislative review and study of the

issue and stricter and increased prosecution of violators in general were also suggested as possible solutions.

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The author graciously acknowledges the following people for their invaluable insight and expertise and for sharing their existing data and publications:

Scott K. Proescholdbell, Head, Injury Epidemiology and Surveillance Unit, Injury and Violence Prevention Branch, Chronic Disease and Injury Section, N.C. Division of Public Health

William D. Bronson, Program Manager, N.C. Department of Health and Human Services, Drug Control Unit

James Bowman, Special Agent in Charge, Diversion and Environmental Crimes Unit, N.C. State Bureau of Investigation, North Carolina Department of Justice

Sid Evans, Statistician, State Center for Health Statistics, N.C. Department of Health and Human Services

Patrick Tamer, Statistician, Administrative Office of the Courts

David Guest, Public Safety Team Loss Prevention Supervisor, Forsyth Medical Center

Kyle J. Wright, Chief, Targeting and Analysis Unit, United States Drug Enforcement Agency.

Melissia Larson, Grants Administrator and Project Director, Prescription Fraud and Diversion Grant, Pitt County Sheriff's Office.