

Independent Evaluation of the Impact and Effectiveness of the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER)

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I. Introduction

The abuse and diversion of controlled prescription drugs is a significant and persistent problem in the United States. Current data from the Substance Abuse and Mental Health Services Administration (SAMHSA) 2007 National Survey on Drug Use and Health reveals that approximately 6.9 million individuals aged 12 or older are nonmedical users of controlled prescription drugs (opioid pain relievers, tranquilizers, sedatives, or stimulants)¹. While the number of non-medical users has remained relatively stable over the past 5 years, the number of treatment admissions and deaths from overdose of controlled prescription drugs has increased significantly.

To begin to address prescription drug abuse in the Commonwealth, on July 15, 1998 the Kentucky Legislature mandated the establishment of an electronic system for monitoring controlled substances (CS) through passage of Kentucky Revised Statute (KRS) 218A.202. The Kentucky All Schedule Prescription Electronic Reporting Program (KASPER) was thus designed. The rules for reporting and access were defined in Kentucky Administrative Regulations (902 KAR 55:110) promulgated on December 16, 1998. Data collection from dispensers of CS was initiated on January 1, 1999. The original version of KASPER required dispensers of CS in Kentucky to report dispensing of Schedule II, III, IV and V CS every 16 days.

Significant enhancement of KASPER occurred in 2004 with creation of eKASPER. As described in a comprehensive report on Kentucky's prescription monitoring program prepared by the Cabinet for Health and Family Services (CHFS) in 2006, the vision for eKASPER was "to create a system to allow authorized users to request a report through the Internet 24 hours per day, 7 days per week, and to receive the report in real time (within 15 minutes of request) while continuing to allow them to request reports through the mail or by fax."² The eKASPER system was launched on March 16, 2005 and has been recognized at the state and federal levels as a model program. Additionally, as a result of regulatory amendments to 902 KAR 55:110, dispensers of CS are now required to report dispensing records to KASPER every 7 days.

Although satisfaction surveys of KASPER users, including pharmacists, prescribers and law enforcement officials, were conducted in 2004 and 2006, an independent evaluation of the impact and effectiveness of KASPER has not been conducted.

¹ Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings see <http://www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9ResultsP.pdf>; last accessed September 30, 2010.

² A Comprehensive Report on Kentucky's Prescription Monitoring Program; see <http://chfs.ky.gov/nr/rdonlyres/7057e43d-e1fd-4552-a902-2793f9b226fc/0/kaspersummaryreportversion2.pdf>; last accessed September 30, 2010.

II. Scope of Work

The KASPER Evaluation Team was engaged by CHFS, Office of the Inspector General, to conduct an independent evaluation of the impact and effectiveness of KASPER on reducing CS prescription drug abuse and diversion in Kentucky and to assess whether KASPER is causing a “chilling effect” that limits patient access to CS for appropriate medical care. For the purposes of this analysis, a chilling effect is defined as the reluctance to prescribe or dispense controlled substances for fear of legal retribution.

To accomplish this, the following evaluation components were outlined in the scope of work to be conducted by the Team:

- 1) Review current status of Prescription Drug Monitoring Programs (PDMPs) in the U.S.
- 2) Interview key stakeholders of the KASPER program, including professional licensure boards and law enforcement officials
- 3) Survey KASPER system users to obtain opinions and perceptions of KASPER and identify results based upon KASPER use
- 4) Analyze KASPER usage including the impact of KASPER on healthcare and law enforcement
- 5) Analyze national and other available datasets to further assess the impact of KASPER on abuse and diversion

A comprehensive review of the current status of PMPs in the U.S. was presented as a separate document³. The current report documents the findings of the remaining evaluation components.

III. Stakeholder Interviews

Key stakeholders for the KASPER program include health professional licensing boards, healthcare practitioners (both prescribers and pharmacists), and law enforcement officials. In order to adequately frame the inquiry, and to provide insight for the survey development phase of the project, the research team conducted focused interviews with stakeholders.

Four separate interviews were conducted: The Kentucky Board of Pharmacy (KBP); the Kentucky Board of Nursing (KBN); Kentucky Law Enforcement (LE) Officials; and the Kentucky Board of Medical Licensure (KBML).

³ Status of Prescription Monitoring Programs in the United States, KASPER Program Evaluation Team, Institute for Pharmaceutical Outcomes and Policy, College of Pharmacy, University of Kentucky, June 2010.

A professional licensure board as found in medicine, pharmacy and nursing was not available for the law enforcement stakeholder group; therefore, individuals representing the Kentucky chapter of the National Association of Drug Diversion Investigators (NADDI) were interviewed to collect the perspective of this group.

A series of eleven questions was developed to gather opinions and ideas from the stakeholders regarding KASPER and whether the program is meeting the goal of addressing prescription drug abuse and diversion within Kentucky. The questions posed at each interview are listed below.

- 1) What is your overall impression of the KASPER program?
- 2) How has the Board specifically used KASPER as an investigative tool?
- 3) What feedback has the Board received from consumers relative to the KASPER program?
- 4) What feedback has the Board received from licensees relative to the KASPER program?
- 5) What training is available for licensees relative to the KASPER program?
- 6) "Who" should be responsible for ensuring appropriate use of controlled substances?
- 7) Do you think pharmacies have altered their inventories because of KASPER?
- 8) Do you think pharmacists have altered their dispensing of CS because of KASPER?
- 9) Do you think prescribers have altered their CS prescribing because of KASPER? In other words, do you think KASPER has had a 'chilling effect'?
- 10) What are the advantages/disadvantages of using a tool like KASPER for decision-making at the point of care?
- 11) Do you have any anecdotes about the KASPER program you would like to share?

A unanimous theme emerging from the interviews was that all stakeholders believe KASPER is an extremely valuable program.

- *"Best program in the country" (LE interview)*
- *"A wonderful program and very useful" (KBML interview)*

- *“Very helpful with providing information and data” (KBN interview)*

Although supportive of the KASPER program, opinions from the KBP were slightly mitigated by a concern for potential programmatic costs borne by pharmacists in the state (i.e., transmittal fees for submitting KASPER information), barriers to ‘real-time’ KASPER reports due to lack of Internet availability in some pharmacies, and the necessity of collecting patient Social Security numbers for KASPER data transmittal.

With respect to training about the KASPER system, the interviews indicate that the KBML and Kentucky Medical Association (KMA) actively pursue training the state’s physicians via newsletter articles, website information and training programs in collaboration with KASPER staff. Although training is available for pharmacists, nurses and law enforcement officials, these groups did not appear to promote KASPER training within their professions to the same degree as medicine. All of the professions commented that the KASPER staff members are very willing to assist with training whenever a request is made.

All stakeholder interviews suggested that CS prescribing within Kentucky has been altered due to KASPER. The prevailing sentiment is that prescribers are more cognizant of their CS prescription writing. Advanced Registered Nurse Practitioners (ARNPs) view KASPER as a tool to document their compliance with appropriate CS prescribing behavior, and physicians believe that KASPER helps younger physicians become more knowledgeable about, and compliant with, CS prescribing guidelines. Members of the KBML noted that while KASPER may have initially stymied some physicians’ CS prescribing, continuing education efforts from KMA and KASPER personnel have assuaged this concern. Board of Pharmacy personnel believe that CS prescribing has increased over the last decade in part due to the added confidence and reassurance that KASPER reports provide for prescribers.

When asked for suggestions to make the KASPER program better, all stakeholders voiced the opinion that the data provided by the KASPER report needs to be more timely. Although most agree that this has improved over the years, reports that are generated in ‘real-time’ are highly desired. Another suggestion that was nearly unanimous was that the system needs to be more forgiving in terms of expiration dates for passwords. Currently passwords must be changed monthly and several stakeholders noted that this requirement generates confusion, wasted-time, and possibly deters use of KASPER by some prescribers. Other suggestions that were made by multiple stakeholder groups were to require federal Institutions within the state (i.e., the Veterans Administration (VA) facilities and federally funded clinics) to use KASPER, provide stakeholders with access to similar databanks in contiguous states (Ohio, Indiana, Illinois, Tennessee, Virginia, and West Virginia), and ensure more accurate data entry. Both the LE and KBML stakeholders noted frustration caused by data entry errors that result in inaccurate or incomplete information in KASPER reports.

Summaries from each stakeholder interview are presented below.

A. Kentucky Board of Pharmacy Interview

The first stakeholder meeting was conducted on July 8th 2009 with the Kentucky Board of Pharmacy (KBP) during a regularly scheduled board meeting. In addition to four KASPER Evaluation Team members there were 25 people in attendance, including the full Board (six members plus the Executive Director) and two KBP inspectors.

Overall, there was consensus that the concept of KASPER and its general purpose (i.e., to decrease CS abuse and diversion) were worthy; however, the group noted several areas where improvements could be made to enhance the efficiency of the program and diminish the burden that it places on pharmacists. Already busy pharmacists and/or technicians are required to collect additional specific information from patients that isn't necessary for the typical prescription transaction, including the patient's Social Security number. Collection of Social Security numbers is uncomfortable for many pharmacists or technicians (and patients) due to potential security concerns. This extra information must then be submitted to KASPER as an independent transaction, and in some cases re-submission is necessary. The transmission engenders time as well as monetary costs which are not reimbursed by the state; these costs are not borne by any of the other KASPER stakeholders.

When asked about KASPER as an investigative tool, the KBP investigators noted that they had seldom used KASPER for investigating pharmacies/pharmacists.

With regard to KASPER use at the point of care, the group agreed that being able to run a KASPER report on a patient prior to dispensing a medication enables pharmacists to have more confidence when dispensing CS. It was also agreed that there has been no perceived change in the CS inventories within pharmacies since the implementation of KASPER. In fact, the group noted that the number of CS prescriptions dispensed, and thus CS inventory, has actually increased. Contrarily, when asked whether prescribers had changed their prescribing practices, the group remarked that prescribers have altered their CS prescribing practices since the implementation of KASPER. The perception was that prescribers are now more cautious about prescribing controlled substances, and as such are more apt to request a KASPER report on a patient prior to prescribing. One person noted that the actual number of CS prescriptions has increased, which suggests that, as a result of KASPER, physicians are more able to prescribe medications confidently to patients with a legitimate need.

On the topic of training, the KBP noted that the only training pharmacists obtained about KASPER was via KASPER staff presentations at various pharmacy association meetings. Such training is recognized by the KBP as being eligible for use to meet annual mandatory continuing education requirements.

Overall, the consensus of the KBP was that having a prescription drug monitoring program is an important step toward decreasing abuse and diversion of controlled substances; however, the process of data transmission needs to be simplified as it is cumbersome and imposes both time and financial costs. The KBP believes that generally the dispensing practices and CS inventories within pharmacies have not changed. Additionally, they contend that physicians are more cautious about prescribing since the inception of KASPER, and may be more avid users of KASPER than pharmacists.

B. Kentucky Board of Nursing Interview

The Kentucky Board of Nursing (KBN) stakeholder meeting was held in Maysville, Kentucky on August 28th 2009 during the KBN annual retreat. There were 32 people in attendance, including 16 Board members and four members of the KASPER Evaluation Team.

With regard to the overall impression of KASPER, the consensus was that KASPER is very helpful in providing important information about a patient's CS history. This information enhances the confidence of ARNPs when prescribing CS medications for patients as it provides a mechanism for distinguishing patients who have a genuine need for CSs from individuals who are merely 'doctor shopping' (seeing multiple providers and pharmacies with the intent of obtaining controlled substances for misuse and/or diversion.) Some commented that information in the database can occasionally be out-of-date; some believed it could be as much as a month behind real-time, thus potentially missing individuals who are doctor shopping. They noted that in order to minimize this the system must be improved to provide more up-to-date information.

The KBN found KASPER to be a useful tool for investigations of nurses with suspected CS abuse problems, or in situations where there is a question of an ARNP's prescribing practices. Given the relatively recent privilege of CS prescriptive authority for ARNPs, the KBN has used KASPER to confirm that ARNPs are compliant with the laws governing their CS prescribing practices. Their findings indicate that ARNPs use KASPER to screen new patients requiring a CS, or to periodically assess patients taking pain or anxiety medications. It was noted that although it is not standard to request a report in these situations, ARNPs are encouraged to do so. The overall sentiment was that ARNPs tend to be cautious and run KASPER reports prior to prescribing a CS as this is a new authority and they are concerned about possibly having this privilege taken away.

Many of those in attendance believed that some physicians may have decreased their CS prescribing as a result of KASPER. Some voiced concern when this occurs in hospice or long-term care settings. They also stated that because VA facilities are not required to submit prescription information to KASPER, some physicians may be

hesitant to prescribe CS medications to VA patients since a CS prescription history is not available.

With regard to training on the use of KASPER, the vast majority expressed that they were not aware of any program that provides formal training on the use of KASPER. In addition, they added that what they did know of KASPER was limited to what was heard at meetings and information found on the Internet. One individual commented that they would like to have more education on KASPER and have access to materials outlining the purpose and use of KASPER.

Overall, representatives of the KBN view KASPER as a very useful tool in clinical practice; however, there are some areas that must be addressed in order to improve efficiency of the program. When asked for suggestions on how to improve KASPER, there was a consensus that the timeliness of data contained in KASPER should be enhanced, that interstate exchange of information should be pursued (particularly with neighboring states), and that federal institutions, for example VA facilities and methadone clinics, should be required to transmit prescription information to KASPER.

C. Law Enforcement Officials Interview

As previously mentioned, a body analogous to a health profession licensure board was not available for interviewing within the law enforcement community. Thus, individuals representing the Kentucky chapter of the National Association of Drug Diversion Investigators (NADDI) were interviewed to gauge the law enforcement perspective of KASPER. The meeting was conducted with one member of the KASPER Evaluation Team on November 3, 2009 in Frankfort, KY.

Attendees stated that the KASPER program is a very important and useful tool for investigations and that it is the pre-eminent prescription drug monitoring program in the nation. While training about KASPER is provided 'at times' during Kentucky Law Enforcement Council in-service sessions, it wasn't clear that all who could benefit from such training would actually attend these sessions.

The attendees believed that KASPER has diminished the time required to complete an investigation in that law enforcement officials no longer have to contact all pharmacies within a town to piece together information when a complaint is filed. With KASPER, all of the information is available in one report; law enforcement officials are able to streamline the process of information gathering.

The attendees voiced their belief that some pharmacists and physicians have altered their behavior due to KASPER, with pharmacists appearing more comfortable having KASPER to back up their dispensing decisions and some physicians being uneasy about having their CS prescribing tracked.

Data entry errors and the lack of real-time reporting were noted as flaws within the current program. The attendees also noted that added information on the report indicating the payor for the prescription (e.g., cash from patient, private insurer, Medicaid, etc.) would be useful in the law enforcement arena when KASPER reports are utilized in investigations.

D. Kentucky Board of Medical Licensure Interview

The stakeholder meeting with the Kentucky Board of Medical Licensure (KBML) occurred following a regular meeting of the Board on December 17th, 2009 in Louisville, Kentucky. There were six KBML members in attendance, along with four KASPER Evaluation Team members.

Attendees at the KBML stakeholder meeting resoundingly reported that KASPER has proven to be an extremely useful program in the clinical setting. They remarked that it was very effective in reducing the incidence of drug abuse and diversion. The group agreed that KASPER has given physicians the ability to make more informed decisions regarding CS prescribing for patients and that a direct result of this is that physicians can more comfortably and confidently prescribe controlled substances to patients truly in need of these medications. Furthermore, by not prescribing to problem patients, physicians avoid investigation by the state licensing board. In short, they stated that *“it helps doctors find a balance and do what’s right.”* It was noted, however, that former patients of physicians who have lost their license for inappropriate CS prescribing activity can be unfairly refused needed controlled medicines simply because of their prior association with that particular physician. As a result, patients unable to acquire CS prescriptions may turn to the streets to obtain these drugs. Therefore a delicate balance must be met.

The KBML also reported that KASPER is a useful tool for investigation of licensees. Prior to the implementation of KASPER, the KBML utilized all four investigators from the agency to perform an investigation of one physician. Data collection took weeks and was cumbersome and time consuming. Due to this limitation, only two to three cases could be investigated per year, even though a much larger number of complaints had been lodged. The workload for data collection was greatly reduced after KASPER implementation, thus the KBML is now able to conduct 30-40 prescribing investigations per year, a ten-fold increase from a decade ago.

With regard to prescribing practices and whether they have changed since KASPER implementation, the group unanimously agreed that physicians have indeed altered their prescribing of controlled substances as a direct result of KASPER. According to the Board, this has both positive and negative implications for patient care. First, it was noted that being able to obtain KASPER reports fosters better prescribing practices among physicians. Drug seeking patients are now less apt to trick a physician into prescribing unnecessary controlled medicines. Also, since there is more awareness of

KASPER and the potential for investigation, more physicians are referring patients to Pain Management Centers where practitioners are better equipped to deal with pain management issues. The group's opinion was that this is likely to have a positive impact on patient care. On the down side, the group believed that as a result of KASPER some physicians have stopped prescribing controlled substances altogether as they do not want to deal with them in their practices and want to avoid any chance of being investigated by the KBML.

With regard to the "chilling effect" (defined as reluctance to prescribe or dispense controlled substances for fear of legal retribution), the group consensus was that such an impact did indeed exist due to the initial misunderstanding of KASPER and its purpose. They believe that the chilling effect is decreasing as a result of extensive education initiatives conducted by the KBML including newsletter articles, information posted on the KBML website, continuing medical education programming, and better documentation by physicians.

The KBML reported that they have been actively involved in providing KASPER training materials to physicians on how to register, how to use the database, and the value KASPER adds to clinical practice. Specifically, they reported that physicians receive a one-hour presentation, with 30 minutes devoted to the KASPER program and its use and 30 minutes focused on good prescribing practices and ways to minimize the chance of being investigated by the Board. Physicians also receive continuing medical education on prescription abuse programs. In addition, the Kentucky Osteopathic Medical Association conducts continuing medical education once yearly on KASPER and its use in preventing abuse and diversion in Kentucky. The group stated that KASPER usage by physicians has increased and continues to increase steadily as a result of these education programs.

Overall, the KBML views the KASPER program as an effective means of approaching the problem of CS prescription medication abuse and diversion in Kentucky. They provided the following suggestions on how the current system could be improved. First, require federal institutions such as VA facilities and methadone clinics to transmit prescription information to KASPER. Second, the length of time for renewing passwords should be increased from 30 days. Having to renew passwords every 30 days has been viewed as problematic, particularly for emergency medicine physicians who use a delegate to run KASPER reports. They view this as a time consuming barrier that may cause physicians in this setting to avoid requesting a KASPER report. Third, physicians, particularly those working in counties that border other states (for example, Tennessee and Indiana), have voiced that they would greatly benefit from interstate exchange of prescription information. Finally, the KASPER program should shift toward real-time transmission of prescription information. Data would be more up-to-date and this would greatly decrease the likelihood of physicians prescribing to patients who may be doctor shopping.

IV. Survey of KASPER Users

A. Survey Methodology

To evaluate the impact and perceived effectiveness of KASPER, key user groups, including prescribers, pharmacists and law enforcement officials were surveyed. The survey methodology followed a slightly modified version of the method described by Dillman⁴.

The sample of prescribers was drawn from a list of all licensed prescribers in Kentucky registered with the DEA, including physicians, ARNPs and dentists maintained by the CHFS. The original list of 19,329 was narrowed to only those prescribers who had registered with KASPER for user accounts (4,734). From this subset, a sample of two thousand prescribers was randomly selected and mailed a survey packet containing a plain text survey form and a business reply envelope with return postage. One week following the mailing of the survey packet, a postcard was sent that thanked those who had returned the questionnaire and asked those who had not to please do so. Anyone who had not responded after the postcard wave was then sent a second copy of the questionnaire packet. This second mailing occurred two weeks after the first survey was sent.

The pharmacist sample consisted of 2,018 pharmacists, with 1,000 randomly selected from a list of all (6,600) actively licensed pharmacists in Kentucky provided by the KBP, excluding those registered with KASPER for user accounts, and to all pharmacists (1,018) who had registered with KASPER for user accounts (list provided by CHFS). Each pharmacist in the sample was mailed a survey packet as described above for the prescriber sample except that in addition to the plain text survey form and business reply envelope with return postage, the packet contained a postcard with a link and identification code to an online version of the survey. Pharmacists were given the option of returning the survey by mail or completing it online using the unique identification code assigned to them.

Law enforcement officials were surveyed via email. The CHFS provided a list of all law enforcement officials in Kentucky with an active KASPER account. The list consisted of all 1,119 officials with KASPER accounts. The initial email contained an explanation of the study, and a cover letter from the Cabinet for Health and Family Services requesting the officials complete the survey. The officials were contacted via email reminders two additional times at one-week intervals after the initial contact email. Law enforcement officials were not mailed hard copies of the questionnaire.

⁴Dillman DA. Mail and telephone surveys: the total design method. New York: John Wiley & Sons,1978.

The survey protocol was approved by both the CHFS Institutional Review Board (IRB) and the University of Kentucky IRB. Copies of the survey instruments are included in Appendices 1 – 3.

B. Survey Findings

1. Response Rates and KASPER Utilization

Five hundred fifty-seven (557) responses were received from prescribers for a response rate of approximately 28%. Of the 557 prescribers who responded to the survey, the vast majority (493 or 89%) were physicians. Responses were received from 28 (5%) ARNPs and 15 (3%) dentists. The professional credentials were not indicated on the survey for the remaining 3% of the respondents.

Because the surveys were sent to a sample of prescribers with active KASPER accounts, not surprisingly almost all (529 or 95%) of the respondents indicated they had utilized a KASPER report at some point in the past while only 16 (3%) had not. Of the 16 prescribers who do not use the KASPER program, seven (44%) indicated the primary reason why they do not is that setting up a KASPER account is cumbersome.

Five hundred twenty-seven (527) responses from pharmacists were received via mail and 48 pharmacists completed the survey online for a total of 575 pharmacist responses. The total response rate from pharmacists was 29%. Of the 527 pharmacists who responded to the survey, one-third (38%) practiced in an independent pharmacy, 136 (24%) practiced in chain pharmacy, 71 (12%) practiced in a supermarket pharmacy and 69 (12%) practiced in a hospital pharmacy.

Of the pharmacists responding, 444 (77%) had utilized a KASPER report at some point in the past while 103 (18%) had not. Thus, while an equal number (1,000 each) of registered users and non-users of KASPER were included in the survey sample, the majority of pharmacists who responded to the survey indicated they had utilized a KASPER report at some time during the past. The primary reason indicated by pharmacists for not utilizing KASPER reports was due to lack of Internet access at the practice site to request the reports.

Of the 1,119 LE officials contacted, 340 responded to the survey for a response rate of 30%. Almost all LE officials who responded (99%) indicated that they had utilized a KASPER report in the past; this was anticipated as surveys were sent to only those LE officials registered with KASPER. The few (2%) who did not use KASPER were no longer assigned to drug diversion cases, or believed KASPER reports were not necessary.

Overall response rate from all three groups was 29% and is similar to response rates reported for other surveys of health care providers. Complete summary tables of survey responses by group (prescribers, pharmacists and LE officials) are included in Appendices 4 - 6.

2. Reported Impact of KASPER Information on Prescribing, Dispensing and Investigations

Prescribers report they use KASPER information more frequently than do other users as summarized in Table 1. The results are statistically different for prescribers using the median number of KASPER reports as a measure.

Table 1. Number of KASPER Reports Utilized in a Calendar Month (30 Days)

	Pharmacist	Prescriber	Law Enforcement
Mean (SD) number of KASPER reports	2.7 (±6.7)	19.7(±57.8)*	3.8(±7.5)
Median (Range) number of KASPER reports	1 (0-75)	6 (0-730)*	2 (0-90)

*Statistical difference (p -value<0.001) using the Kruskal-Wallis equality of populations rank test

a. Impact on Individual Prescribing and Dispensing Decisions

When asked how the information provided in requested KASPER reports impacted the decision to prescribe or not prescribe a CS, 43% of prescribers indicated that the information confirmed a decision to prescribe a CS medication, while 46% of prescribers indicated that it altered the decision to prescribe a CS medication. Only 4% of prescribers who utilized KASPER reports indicated that the reports had no impact on their prescribing decisions. It is important to note that ‘altered’ could have been interpreted in a variety of ways by the survey respondents. For example, a prescriber may have interpreted altered to include not prescribing a medication that he or she was intending to prescribe, prescribing a medication in a different quantity or for a different length of time than originally intended, or prescribing a different medication than was originally intended.

In contrast, when pharmacists who utilize KASPER reports were asked about the impact of the reports on dispensing decisions, 29% indicated that the KASPER reports confirmed a decision to dispense a CS medication compared to 34% who indicated that it altered their decision to dispense a controlled substance. Of the pharmacists who reported using KASPER information for dispensing decisions, 14% indicated that the reports had no impact on their dispensing decisions. Again, as described above for prescribers, pharmacists may also have ‘interpreted’ the word ‘altered’ in a variety of ways.

Taken together, only 18% of respondents indicated that data from KASPER reports had no impact on their prescribing/dispensing decisions. Thus, these data suggest that information contained in KASPER reports is useful in making prescribing and dispensing decisions. Prescribers and pharmacists should be encouraged to register with KASPER and request reports to assist them in decision making at the point of care. Ensuring pharmacists have access to the internet to request reports is an important topic for future discussion.

b. Impact on Overall Prescribing and Dispensing Patterns over the Past Year

To assess the impact of the KASPER program on overall CS prescribing and dispensing patterns, prescribers and pharmacists were asked to think about their general prescribing and dispensing patterns over the past year. One-half (50%) of prescribers indicated that their CS prescribing had not changed while 35% indicated that their CS prescribing had decreased and 13% indicated that their CS prescribing had increased. The most common reasons cited for decreased prescribing include implementation of KASPER (35%), media coverage of prescription drug abuse and diversion (16%), increased law enforcement activity related to prescription drug abuse and diversion (11%), fear of law enforcement investigation (8%), and fear of licensing board investigation (10%). For those who reported an increase in CS prescribing over the past year most (41%) cited that they feel more confident in making CS prescribing decisions while 25% cited the implementation of KASPER as the cause for their increased prescribing. Of those prescribers who reported a change in CS prescribing patterns over the past year, 119 (36%) reported a positive impact on their ability to manage their patients' conditions, while only 23 (4%) reported a negative impact on their ability to manage their patients' conditions. Fifty-seven (10%) indicated that although their CS prescribing patterns had changed, the change had not impacted their ability to manage their patients' conditions.

Two-thirds (67%) of pharmacists indicated that their CS medication dispensing has not changed, while 13% indicated a decrease in dispensing and 15% indicated an increase in dispensing. For those who reported a decrease in dispensing, the most common reasons cited include implementation of KASPER (36%), increased law enforcement activity (15%) and media coverage of prescription drug abuse and diversion (8%). Few cited fear of law enforcement investigation (4%) and fear of licensing board investigation (6%). For those who reported an increase in dispensing, 23% cited they feel more confident in making CS dispensing decisions while 13% specifically cited implementation of KASPER as the reason behind their increased dispensing. Of those pharmacists who reported a change in CS dispensing patterns over the past year, 81 (15%) reported a positive impact on their ability to manage their patients' conditions, while only 12 (2%) reported a negative impact on their ability to manage their patients'

conditions. Eighty-one (15%) indicated that although their CS dispensing patterns had changed, the change had not impacted their ability to manage their patients' conditions.

Law enforcement officials were divided in their opinion relative to whether implementation of KASPER had caused prescribers to alter their prescribing of CS medications with 45% indicating yes and 46% indicating no. In contrast, law enforcement officials' opinion on whether KASPER had caused pharmacists to alter the stocking and dispensing of CS medications was more clear with almost 70% indicating no and only 16% indicating yes.

Taken together, these data suggest that while some prescribers and pharmacists report having altered their prescribing and dispensing of CS since the inception of KASPER, overall KASPER does not appear to be having a 'chilling effect' nor has it negatively impacted their ability to manage their patients' conditions; in fact, KASPER may have had a positive impact by increasing provider confidence in making treatment decisions.

c. Impact on Investigations

When assessing the impact of KASPER on law enforcement officials' investigations, two-thirds (67%) indicated the information in the KASPER report confirmed their decision to proceed with an investigation. Less frequently, law enforcement officials indicated that KASPER report information caused them to close or dismiss pursuit of an investigation (14%) or did not impact their decision to proceed with an investigation (13%).

3. Impact of KASPER on Monitoring of Prescribing Behaviors

Prescribers were asked if as a result of KASPER, they believed their CS prescribing behaviors were being monitored more closely and were further asked to explain their answers. Open ended responses were independently reviewed by three research team members for identification and grouping into themes. Over half (58%) of prescribers indicated they believe their prescribing behaviors are monitored more closely while 22% do not believe their prescribing is being monitored more closely. Themes that emerged as reasons behind prescribers' opinions on monitoring are presented in Table 2.

Table 2. Prescribers’ Opinions on Monitoring of Controlled Substance Prescribing Behavior

Reasons Why Prescribers Believe CS Prescribing is Being Monitored More Closely (n =156)		
Data is readily available, easy to access and use, including law enforcement and governmental agencies	38	39.0%
CS prescribing is always monitored and should be monitored, that is the intent of the KASPER	12	12.0%
KASPER allows for better monitoring in general - of patients, prescribers and dispensers	43	44.0%
No reason listed	93	60.0%
Reasons Why Prescribers Believe CS Prescribing is NOT Being Monitored More Closely (n =58)		
CS prescribing is always monitored, even without KASPER	12	20.0%
Never thought about it, don’t really know, but am unconcerned, that is not the purpose of the KASPER program	37	63.0%
I don’t prescribe many controlled substances	8	14.0%

4. Helpfulness of KASPER Information Shared between Prescribers and Pharmacists

Prescribers were asked whether they had ever been contacted by a pharmacist regarding the content of a patient’s KASPER report, and if so, was the information provided helpful in making prescribing decisions. Over half (54%) of prescribers reported being contacted by a pharmacist and of those, virtually all (99%) indicated that the information provided was helpful in making prescribing decisions.

When pharmacists were asked whether they had ever been contacted by another health care professional regarding the content of a patient’s KASPER report, two-thirds (68%) reported they had and virtually all (97%) indicated that the information was helpful in making dispensing decisions.

Taken together, these data suggest that sharing of information is helpful in making treatment decisions and that health care professionals should continue to communicate regarding the CS prescription history of patients in their care.

5. Effectiveness of KASPER as a Tool to Reduce Drug Abuse and Diversion

To assess the perceived effectiveness of KASPER as a tool to reduce drug abuse and diversion, all three user groups were asked to rate the effectiveness of KASPER in this regard using the following scale: *not effective at all, somewhat ineffective, somewhat effective, very effective* or *I have no experience*. Of those that have experience with KASPER, the vast majority (>90%) believe KASPER is effective in preventing drug abuse and diversion. Differences in perceptions of the effectiveness of KASPER on

preventing drug abuse and diversion were found between the pharmacists and prescribers. That is, prescribers were significantly more likely than pharmacists to think that KASPER is effective as a tool to prevent drug abuse and diversion. Law enforcement opinion was not significantly different from pharmacists.

Respondents from more rural areas were consistently less likely to believe that KASPER prevents drug abuse and diversion. This is demonstrated in the rural/semi-rural/urban sub-group analysis where respondents from rural counties were less likely to say that KASPER is effective (Table 3). The analysis by geographical regions found respondents from the Appalachian region also were less likely to find KASPER effective in preventing drug abuse and diversion compared with central rural areas. In contrast, participants from the urban areas were consistently the most likely to indicate that KASPER is effective in preventing drug abuse and diversion.

Those respondents reporting the shortest wait time for KASPER reports found KASPER to be the most effective. That is, if a respondent reported waiting 0-5 minutes for a report, they also found the KASPER report effective. If the respondent reported having to wait 16-30 minutes, this too was found to be comparably effective. However, having to wait more than 30 minutes for a report was associated with a perception of ineffectiveness. Table 3 provides a summary of significant results, while the full data table of all subgroup analyses can be found in Appendix 7.

Table 3. Impressions of KASPER’s Effectiveness on Preventing Drug Abuse and Diversion

Group	Effective^a	Not Effective^b
Pharmacists	457 (92.9%)	35 (7.1%)
Prescribers	504 (95.8%)	22 (4.2%)
Law enforcement	309 (93.1%)	23 (6.9%)
All users combined		
Rural categories ^c		
Urban (RUC 1-3)	644 (96.1%)	26 (3.9%)
Semi-rural (RUC 4- 6)	228 (92.3%)	19 (7.7%)
Rural (RUC 7-9)	304 (91.8%)	27 (8.2%)
Geographic regions		
Appalachia ^d	224 (91.8%)	20 (8.2%)
Rural/Non-Appalachian	259 (94.5%)	15 (5.5%)
Metropolitan	317 (95.2%)	16 (4.8%)
Other (Central, rural KY)	376 (94.7%)	21 (5.3%)
How long to wait for report		
0-5 minutes	541 (95.1%)	28 (4.9%)
6-15 minutes	291 (93.6%)	20 (6.4%)
16-30 minutes	118 (96.7%)	4 (3.3%)
More than 30 minutes	84 (91.3%)	8 (8.7%)

^aDefined as ‘Somewhat effective’ and ‘Very effective’ together

^bDefined as ‘Somewhat ineffective’ and ‘Not effective at all’ together

^cRural areas are defined by Rural Urban Continuum (RUC) codes from the USDA where RCC 1-3 is Urban, 4-6 is Semi-rural 7-9 is Rural.

^dCounties designated as being Appalachian by geographical location not economic as the ARC have defined.

Taken together, these data suggest that the opinions of KASPER users on the effectiveness of KASPER as a tool to prevent drug abuse and diversion varies based on geographic locale, with those in urban areas more likely to perceive KASPER as effective. This may be due, in part, to the reported differences in the rates of drug abuse and diversion in rural or Appalachia area compared to other areas in Kentucky⁵.

6. Effectiveness of KASPER as a Tool to Reduce Doctor Shopping

To assess the perceived effectiveness of KASPER as a tool to reduce doctor shopping, all three user groups were asked to rate the effectiveness of KASPER in this regard using the scale: *not effective at all, somewhat ineffective, somewhat effective, very effective or I have no experience*.

⁵ National Opinion Research Center (NORC) at the University of Chicago. An Analysis of Mental Health and Substance Abuse Disparities and Access to Treatment Services in the Appalachian Region. *Final Report*, August 2008.

Of those that have experience with KASPER, the vast majority of (>90%) believe KASPER is effective in preventing doctor shopping.

The prescribers found KASPER to be significantly more effective in preventing doctor shopping when compared with pharmacists. Law enforcement opinion is not significantly different from pharmacists. Table 4 provides a summary of significant results, while the full data table of all subgroup analyses can be found in Appendix 8.

Table 4. Impressions of KASPER’s Effectiveness on Preventing Doctor Shopping

Group	Effective ^a	Not Effective ^b
Pharmacist	435 (90.6%)	45 (9.4%)
Prescriber	484 (95.8%)	21 (4.2%)
Law enforcement	297 (90.6%)	31 (9.4%)
All users combined		
Rural categories ^c		
Urban (RUC 1-3)	599 (93.0%)	45 (7.0%)
Semi-rural (RUC 4-6)	228 (93.4%)	16 (6.6%)
Rural (RUC 7-9)	28 (91.4%)	298 (28.6%)
Geographic regions		
Appalachia ^d	222 (92.1%)	19 (7.9%)
Rural/Non-Appalachian	246 (93.5%)	17 (6.5%)
Metropolitan	293 (91.3%)	28 (8.7%)
Other	364 (93.6%)	25 (6.4%)
How long to wait for report		
0-5 minutes	529 (94.1%)	33 (5.9%)
6-15 minutes	283 (94.0%)	18 (6.0%)
16-30 minutes	116 (95.1%)	6 (4.9%)
More than 30 minutes	72 (84.7%)	13 (15.3%)

^aDefined as ‘Somewhat effective’ and ‘Very effective’ together

^bDefined as ‘Somewhat ineffective’ and ‘Not effective at all’ together

^cRural areas are defined by Rural Urban Continuum (RUC) codes from the USDA where RCC 1-3 is Urban, 4-6 is Semi-rural 7-9 is Rural.

^dCounties designated as being Appalachian by geographical location and not by economics as the ARC have.

To further assess if geographic locale, AHEC area designation, urban vs. rural designation, or wait time can predict users’ perception of the effectiveness of KASPER, logistic regression was performed and results are presented in Appendix 9. In summary, the analysis found that a reported wait time of greater than 30 minutes was the only variable statistically significant in predicting users’ opinions of KASPER ineffectiveness in preventing drug abuse and diversion and preventing doctor shopping.

In other words, those users having to wait more than 30 minutes for a report are more likely to believe KASPER is ineffective.

7. Transmission of Data from Pharmacies to KASPER Program

To begin to assess the feasibility of real-time data transmission from pharmacies to the KASPER program at the point-of-sale, data were collected from pharmacists relative to the difficulty with which data are transmitted weekly and what, if anything, could be done to simplify the data transmission process. Open responses were reviewed as described in section 3 above and the following themes emerged. The majority of pharmacists (60%) indicate that data transmission currently is easy or not difficult at all, 30% do not know as they are not directly involved in the transmission process, while only 7% indicate that data transmission is difficult, time consuming or cumbersome. When asked how the data transmission process could be simplified, most (41%) indicated they were not sure how the process could be simplified as it was already simple or were unsure because they were not involved directly in the data transmission process (23%). Interestingly, almost one-fourth (23%) of pharmacists suggested daily or automatic, real-time data transmission as a mechanism to simplify the data transmission process.

Additionally, when pharmacists specifically were asked if they would be willing to transmit data on a daily basis one-third (36.2%) indicated willingness, while 4.1% were not willing to do so and 35.1% were not sure.

Although not specifically asked about data transmission, when law enforcement officials were asked what could be done to improve the KASPER program, 24% suggested real-time transmission of data as an approach. A second approach suggested by many LE officials (26%) as a way to enhance KASPER was related to interstate sharing of data with the surrounding states or perhaps nationally.

Taken together, these data suggest that improving the efficiency and timeliness of data transmission from dispensers to the KASPER program as well as ensuring the timeliness with which a KASPER report is delivered upon request, may enhance KASPER effectiveness.

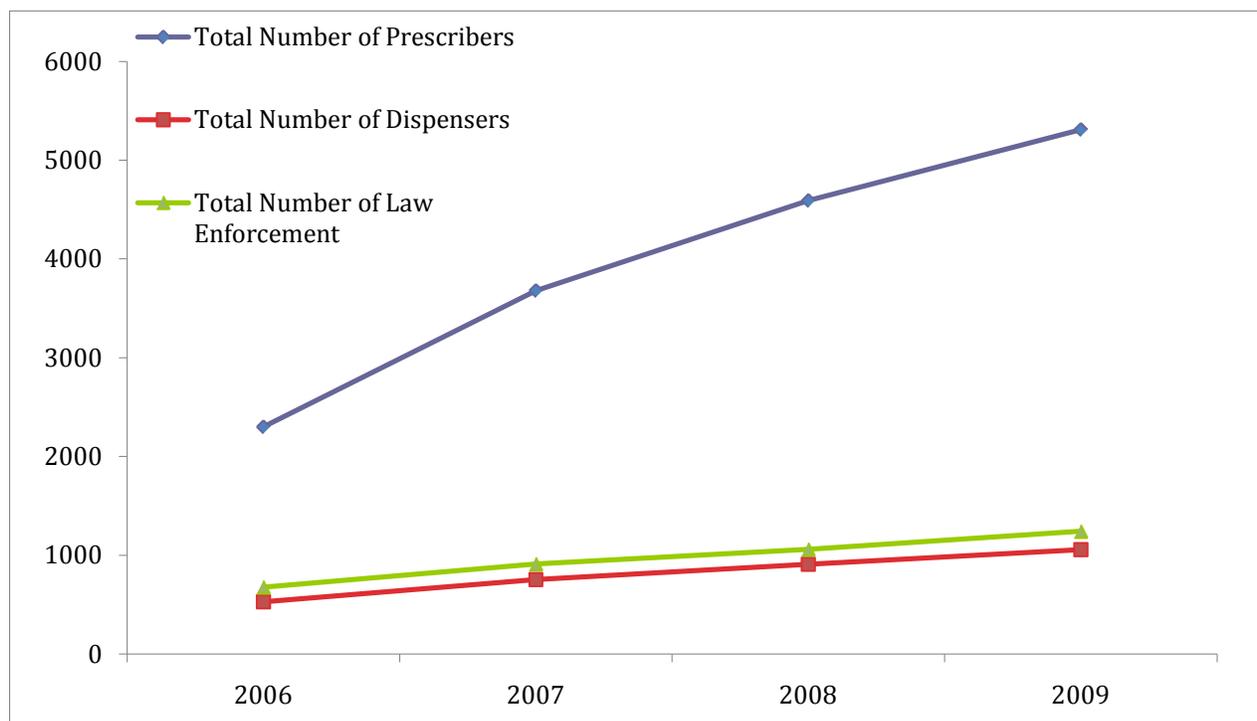
V. Analysis of KASPER Use

Multiple approaches were taken to analyze KASPER usage and the impact on abuse and diversion and to assess if KASPER is having a chilling effect. Trends in KASPER use over time, the pattern of KASPER use and CS prescriptions dispensed in Kentucky, and analysis of the CS prescribing population in Kentucky relative to a variety of factors including use of KASPER, number of CS dispensed and number of KASPER requests made were evaluated.

A. Trends in Use of KASPER Over Time

To assess trends in the number of prescribers, pharmacists and law enforcement officials utilizing KASPER, data were received from the CHFS on the number of registered KASPER users by group for the years 2006-2009. The number of KASPER users in each group has increased significantly each year as depicted in Figure 1. In 2009, prescribers represent the vast majority of users with KASPER accounts with 5311 registered users, law enforcement officials represent the second largest group with 1242 registered users and dispensers or pharmacists represent the smallest group with 1057 registered users. Although more individuals are registering with KASPER each year, the number of registered users is only a small fraction of those who are eligible for an account and who could potentially utilize KASPER information at point of care for treatment decisions. For example, in 2009 only 16% of licensed pharmacists were registered with KASPER dispenser accounts, while only about one-fourth (27.5%) of DEA-licensed prescribers were registered with KASPER accounts.

Figure 1. Total Number of Prescribers, Pharmacists and Law Enforcement Registered with KASPER Accounts



Additionally, data on the number of registered delegates, those with authority to request reports on behalf of the practitioner, for each of the user groups were assessed and are presented in Figures 2 – 4. As a group, law enforcement officials use delegates more often than prescribers and pharmacists. Since 2006, the use of delegates to request KASPER reports has increased across all three users groups.

Figure 2. Number of Prescribers and Delegates with KASPER Accounts 2006 - 2009

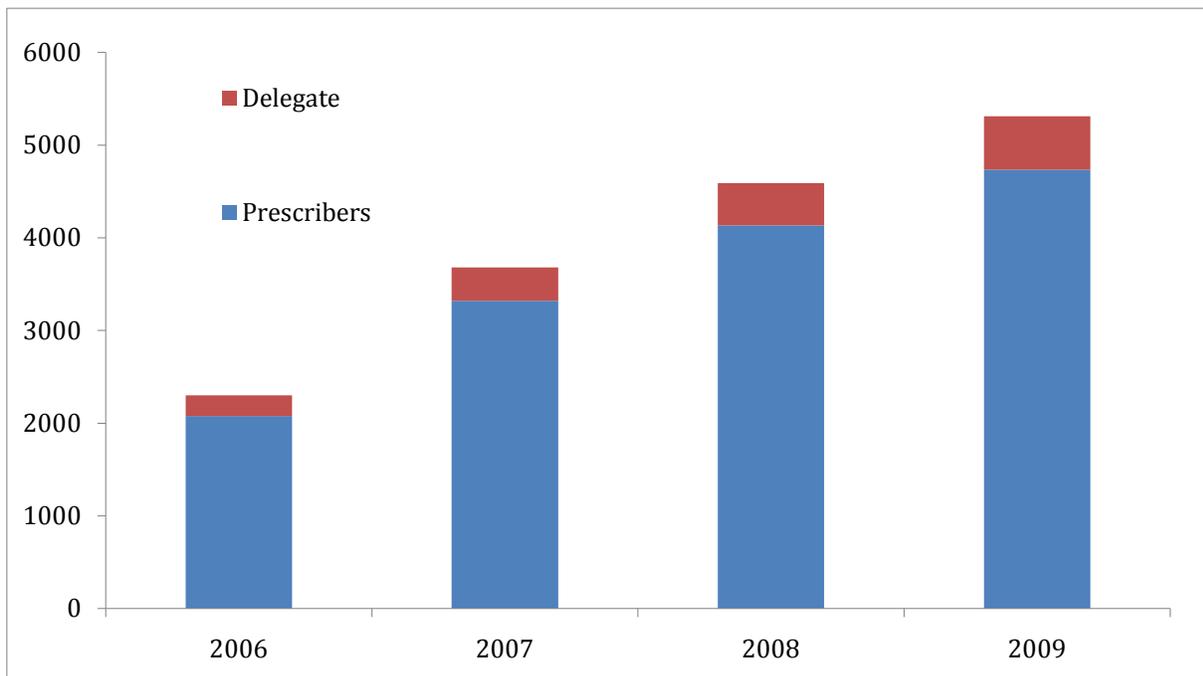


Figure 3. Number of Pharmacists and Delegates with KASPER Accounts 2006-2009

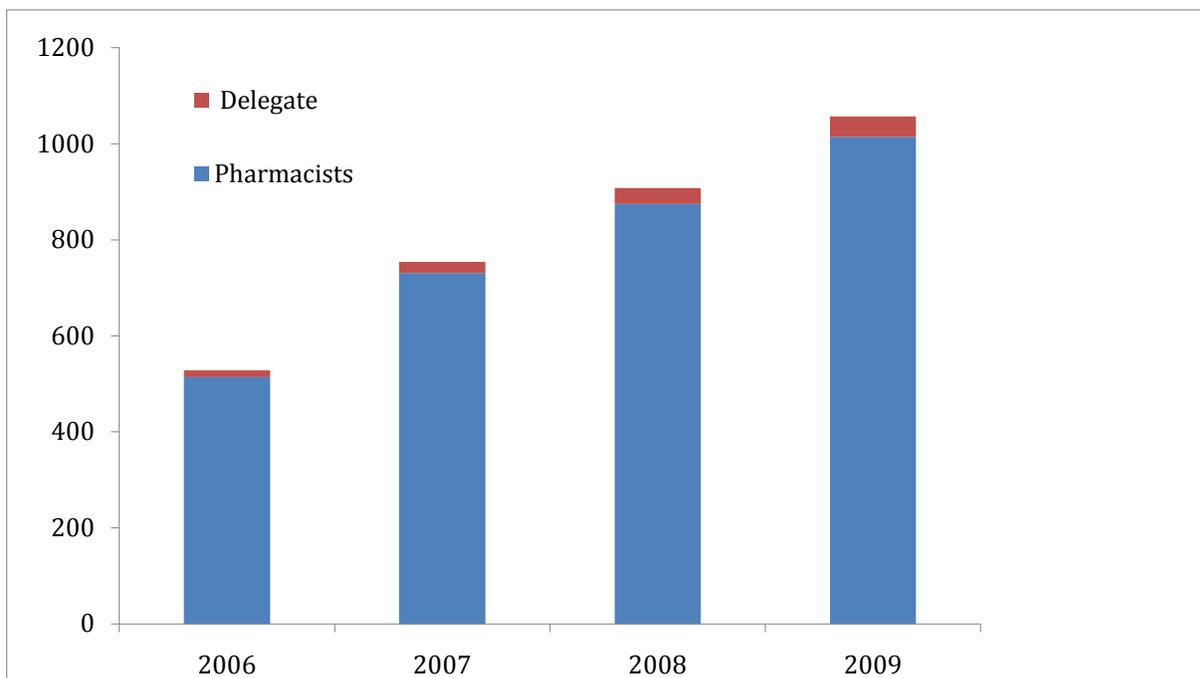
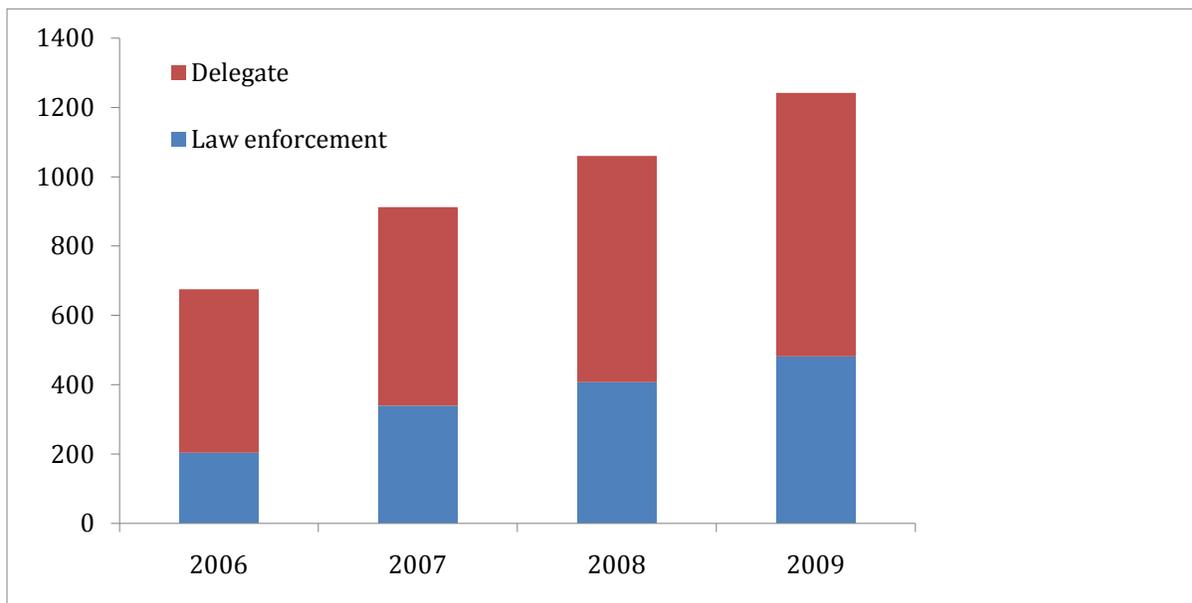
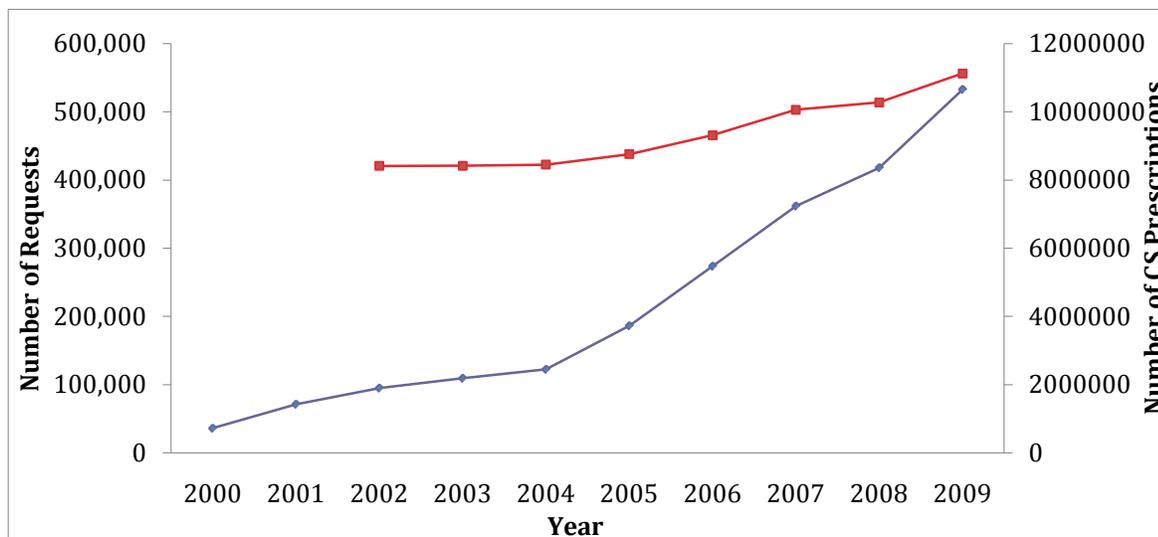


Figure 4. Number of Law Enforcement Officials and Delegates with KASPER Accounts 2006-2009



Data on the total number of KASPER report requests for 2000-2009 and the total number of CS prescriptions written were also obtained from CHFS. The total number of KASPER report requests has increased significantly since the inception of the KASPER program. In 2009, a total of 532,527 requests were made, up from a low of 36,172 in 2000, the first year of the KASPER program (Figure 5). The number of CS prescriptions dispensed in Kentucky has also increased significantly from 8,414,939 in 2002 to 11,124,085 in 2009 (Figure 5).

Figure 5. Total Number of KASPER Requests 2000-2009 and Total Number of Controlled Substance Prescriptions Dispensed 2002-2009

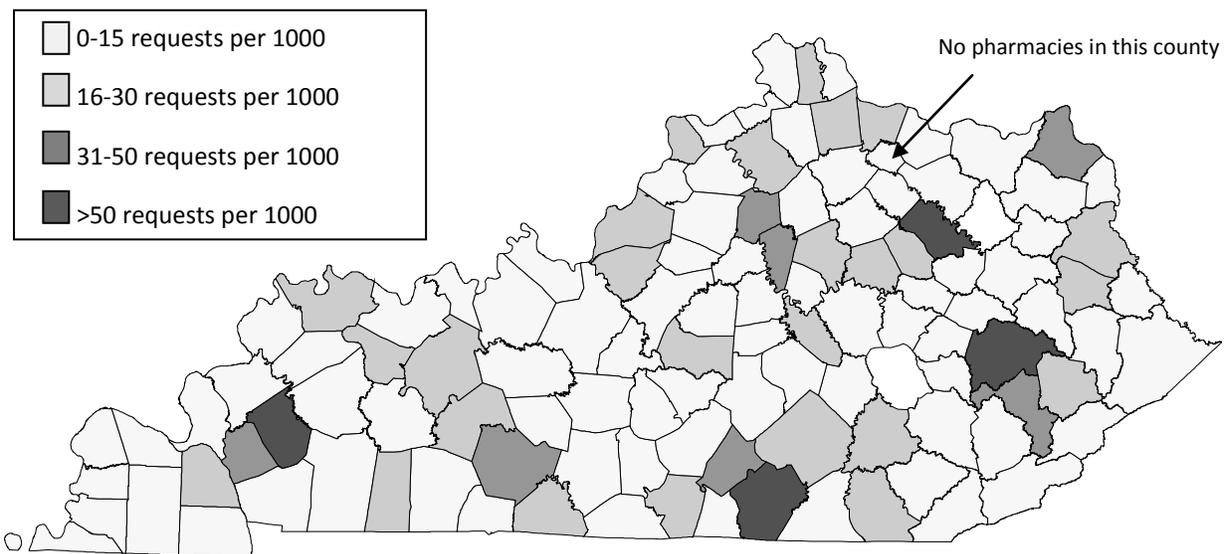


Thus, there is a positive correlation between the number of CS prescriptions dispensed in KY and the number of KASPER reports requested. It is important to note that during this time period, the population of Kentucky has remained relatively constant⁶. If a substantial chilling effect were being observed secondary to KASPER implementation, one would expect a leveling off in the number of CS prescriptions dispensed in Kentucky.

B. Pattern of KASPER Use and Controlled Substance Prescriptions Dispensed in Kentucky

The KASPER data were analyzed to quantify the number of KASPER requests per county and the number of CS prescriptions that were dispensed by county for years 2005 and 2009. Number of requests per 1000 CS prescriptions dispensed was mapped by county. Results are presented in Figures 6 and 7. As previously reported, the total number of KASPER requests increased significantly from 2005 to 2009, with the heaviest rate of overall usage of KASPER occurring in the Eastern and Southeastern counties where the rate of drug abuse and diversion is reportedly the highest⁷. It is important to note that our analysis is from aggregate data and cannot be used to make explicit conclusions relative to the relationship between CS prescribed in a county and KASPER requests for specific prescriptions – patients may visit a doctor in one county and have the prescription filled in a different county and vice versa.

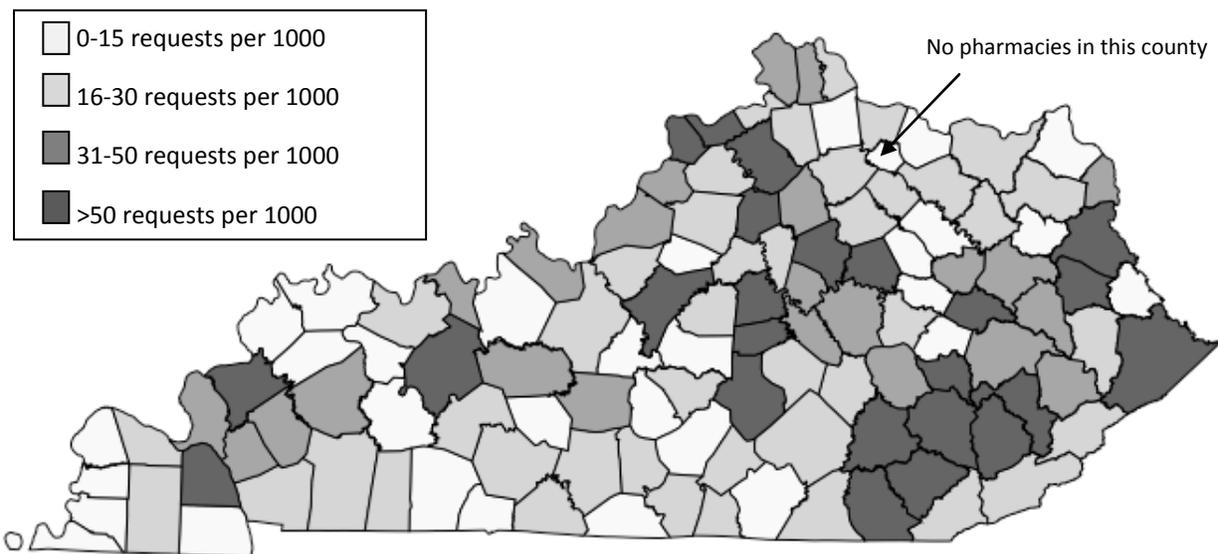
Figure 6. Distribution of KASPER Requests per 1000 Controlled Substance Prescriptions Dispensed by County in 2005



⁶U.S. Census Bureau, State and County Quickfacts, <http://quickfacts.census.gov/qfd/states/21000.html>; last accessed September 30, 2010.

⁷National Opinion Research Center (NORC) at the University of Chicago. An Analysis of Mental Health and Substance Abuse Disparities and Access to Treatment Services in the Appalachian Region. *Final Report*, August 2008.

Figure 7. Distribution of KASPER Requests per 1000 Controlled Substance Prescriptions Dispensed by County in 2009



C. Characterization of the Controlled Substance Prescriber Population in Kentucky

To characterize the CS prescriber population in Kentucky, prescribing data were obtained from KASPER containing information on the provider practice (address, zip code), whether the prescriber was registered with KASPER, and the number of CS prescriptions that were dispensed under the prescriber's name in the years 2005 to 2009. These data were merged with county code using a zip code to county file, then merged with a file that contains county social and economic data. The county file contains information on the county from the Census 2000 and other sources. The county file includes: a) rural code, rural description, percent workers commuting for work and county population [from the USDA], b) education attainment c) designated Area Health Education Centers (AHEC) for each county and d) Appalachian /rural/ metropolitan areas as defined by geography (definitions given in Appendix 10). The data were analyzed to identify differences between Kentucky-licensed prescribers that are and those that are NOT registered KASPER account holders. Licensed prescribers who did not have a CS dispensed in their name, and prescribers for which information in the prescribing database were incomplete, were excluded from the analysis. Table 5 provides a summary of the results.

Table 5. Characteristics of the Prescriber Population from the KASPER Database 2009 (n=13467)

Characteristic	Registered KASPER Account Holder	
	No	Yes
Number of prescribers	8620 (64%)	4847 (36%)
Geography		
Urban	6556 (68.1%)	3065 (31.9%)
Semi-rural	979 (56.2%)	762 (43.8%)
Rural	1085 (51.5%)	1020 (48.5%)
Appalachian vs. other regions		
Appalachian counties	939 (53.0%)	834 (47.0%)
Western KY counties	1358 (61.1%)	866 (38.9%)
Metropolitan counties	3787 (71.6%)	1504 (28.4%)
Other counties	2536 (60.7%)	1643 (39.3%)

From the analysis of the CS prescriber population in KY, the majority (64%) of CS prescribers do not have KASPER accounts. When further assessed based on location of practice, data show that less than one-third (32%) of CS prescribers practicing in urban areas have registered KASPER accounts while almost one-half (49%) of CS prescribers in rural areas have KASPER accounts. Additionally, when assessed based on Appalachian county designation, more prescribers practicing in Appalachian counties (47%) hold KASPER accounts compared to those in Western Kentucky counties (39%), metropolitan (28%) or other counties (39%). Thus, these data may suggest that in Appalachian areas where reported drug abuse rates are relatively higher, more prescribers are registered as KASPER users and may be using KASPER as a tool to prevent doctor shopping.

To assess trends in CS prescribing over time in prescribers with KASPER accounts compared to those without KASPER accounts, data from prescribing files received from CHFS for 2005 – 2009 as described above were analyzed. Complete data tables showing the mean, median and range of CS prescriptions issued per year by prescribers who have registered KASPER accounts and by those who are not registered with KASPER are presented in Tables 6 and 7, respectively. The mean number of CS dispensed by registered KASPER account holders increased from 1450 in 2005 to 1665 in 2009. The average number of KASPER requests by registered KASPER account holders increased from 33 in 2005 to 91 in 2009.

Table 6. Number of Controlled Substance Prescriptions Dispensed and KASPER Requests by Registered KASPER Account Holders by Year

	Mean (SD)	Median (range)
Prescriptions per year		
2005 (n=4270)	1450 (\pm 2151)	684 (1-26072)
2006 (n=4545)	1471 (\pm 2274)	660 (1-29699)
2007 (n=4696)	1549 (\pm 2411)	656 (1-30609)
2008 (n=4787)	1535 (\pm 2392)	630 (1-34640)
2009 (n=4845)	1665 (\pm 2652)	680 (1-41191)
KASPER requests per year		
2005 (n=4270)	33 (\pm 340)	2 (0-16267)
2006 (n=4545)	52 (\pm 468)	2 (0-23986)
2007 (n=4696)	64 (\pm 447)	2 (0-20741)
2008 (n=4787)	72 (\pm 552)	2 (0-31072)
2009 (n=4845)	91 (\pm 670)	2 (0-37060)

Table 7. Number of Controlled Substance Prescriptions Dispensed by Non-KASPER Account Holders by Year

	Mean (SD)	Median (range)
Prescriptions per year		
2005 (n=7023)	211 (\pm 483)	45 (1-10241)
2006 (n=7278)	216 (\pm 501)	44 (1-9698)
2007 (n=7763)	231 (\pm 569)	45 (1-11798)
2008 (n=8191)	232 (\pm 603)	47 (1-12736)
2009 (n=8616)	250 (\pm 703)	51 (1-19741)

The vast majority of CS prescriptions, on average, are written by prescribers who have registered KASPER accounts as depicted in Figure 8. It is interesting to note that the distribution of prescribers is skewed, with a few prescribers responsible for prescribing large numbers of CS (Figure 9). In fact, virtually all growth in CS prescriptions between 2005 and 2009 occurs in the top 10% of CS prescribers. One possible explanation, although not specifically assessed in this evaluation, is that a shift in CS prescribing from individual practitioners to specialty provider groups such as pain treatment centers may be occurring. This possible explanation is consistent with the impression from the KBML stakeholder interview that such a shift in CS prescribing may be occurring as a result of KASPER. Further evaluation of this observation is needed.

Figure 8. Average Number of Controlled Substance Prescriptions Dispensed by Year Written by KASPER Account Holders versus Non-Account Holders

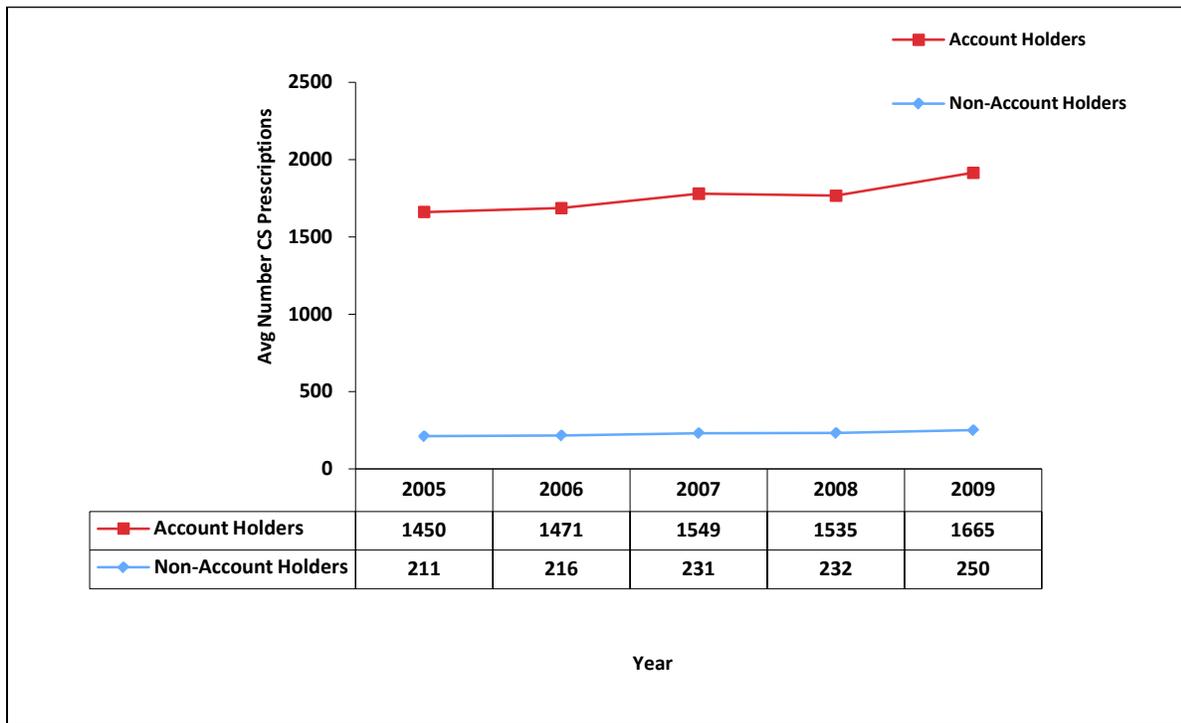
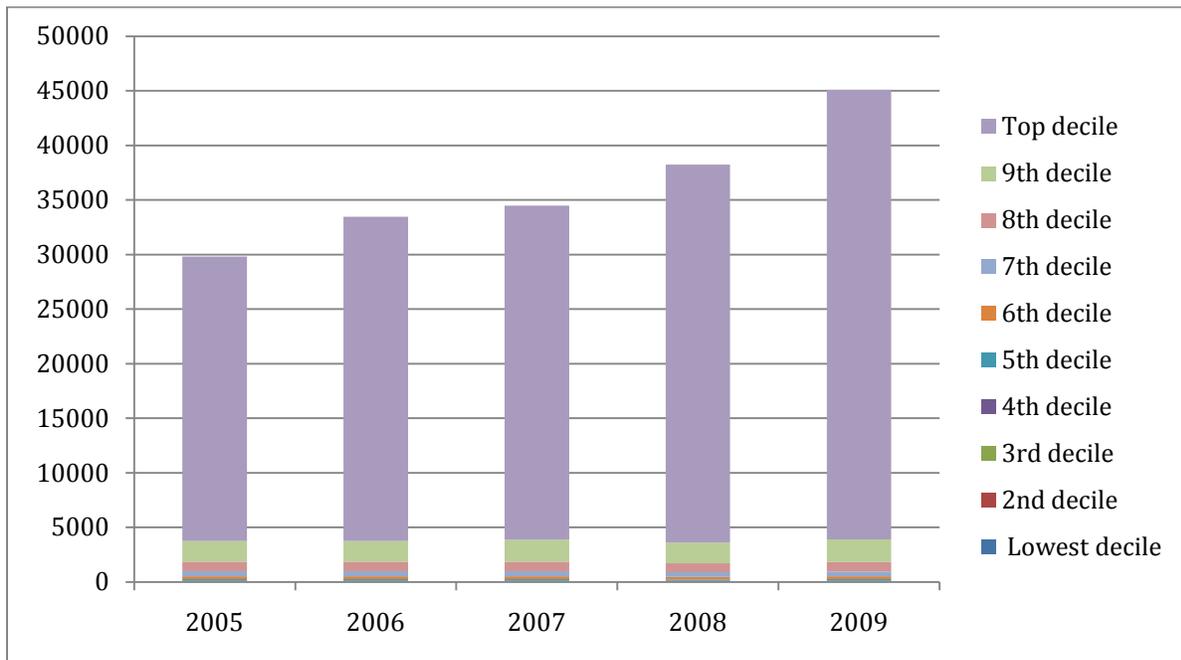


Figure 9. Number of Controlled Substance Prescriptions Dispensed by Decile and Year



VI. Analysis of National and Other Relevant Datasets to Further Assess Impact of KASPER

Two national datasets were used to further assess the impact of KASPER on the chilling effect and on abuse and diversion of CS medications. First, the Automation of Reports and Consolidated Orders System (ARCOS) dataset was used to assess the distribution of CS medications in Kentucky and the surrounding states. Second, admissions to treatment facilities for substance abuse in Kentucky and the surrounding states were identified using the Treatment Episode Data Set (TEDS) from the Substance Abuse and Mental Health Services Administration (SAMHSA), an agency of the U.S. Department of Health and Human Services.

A. Automation of Reports and Consolidated Orders System

At the federal level, the Controlled Substances Act of 1970 (21 U.S.C§ 827) created the requirement for manufacturers and distributors to report their CS transactions to the Attorney General. The Automation of Reports and Consolidated Orders System (ARCOS) is an automated, comprehensive drug reporting system that monitors the flow of Drug Enforcement Administration (DEA) CS from their point of manufacture through commercial distribution channels to point-of-sale or distribution at the dispensing/retail level including hospitals, retail pharmacies, practitioners, mid-level practitioners, and teaching institutions⁸. Included in the list of CS transactions tracked by ARCOS are the following: All Schedule I and II materials (manufacturers and distributors); Schedule III narcotics and gamma-hydroxybutyric acid (GHB) materials (manufacturers and distributors); and selected Schedule III and IV psychotropic drugs (manufacturers only). ARCOS accumulates these transactions, collates and then summarizes them into reports which can be used to identify patterns and trends in CS distribution over time.

Changing CS distribution patterns coupled with changing CS prescription dispensing patterns may be associated with increased PDMP activity in states. For example, ARCOS data from 1998 – 2006 were used to assess distribution of methadone (Figure 10), oxycodone (Figure 11), hydrocodone (Figure 12) and codeine (Figure 13) in Kentucky and surrounding states. Data after 2006 were not available in the ARCOS database.

Distribution of methadone, oxycodone and hydrocodone to Kentucky increased steadily from 1998 to 2006. Similar increases in distribution are observed for all surrounding states, suggesting that globally, the implementation of KASPER does not appear to have had a chilling effect. Methadone distribution is highest in Kentucky, followed by Tennessee, West Virginia and Indiana.

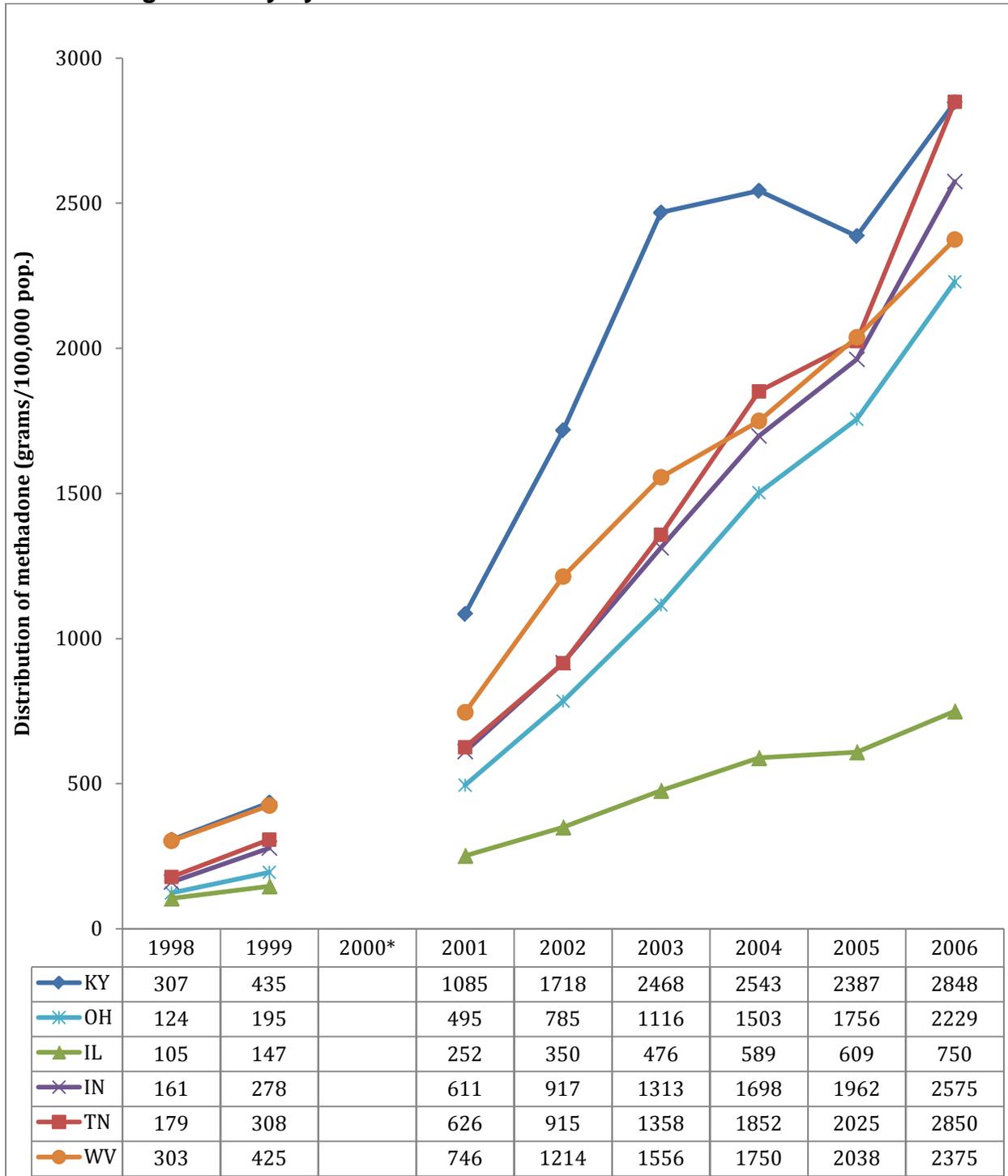
⁸ U.S. Department of Justice, http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/ last accessed September 30, 2010.

Distribution of oxycodone to Kentucky from 1998-2000 increased steadily and was second only to West Virginia. However from 2000 – 2006, oxycodone distribution in Kentucky levels off and by 2004, West Virginia, Ohio and Tennessee all receive more oxycodone through wholesale distribution channels than Kentucky. In contrast, the distribution of hydrocodone to Kentucky 1998 – 2004 was greater than in any of the other states assessed.

After 2004, the year eKASPER was implemented, distribution of hydrocodone to Tennessee increased at a faster rate than in other states and surpassed Kentucky. It is important to note that at this time, Tennessee did not have an active PDMP.

As to be expected from the diminished clinical use of codeine for analgesia, distribution of codeine decreased significantly from 2001- 2006 to all states reviewed with the exception of Tennessee where distribution of codeine has increased steadily. It is important to note that although changes in distribution are generally thought to be reflective of increased prescription dispensing, these data cannot be used to directly represent the quantity of these medications dispensed.

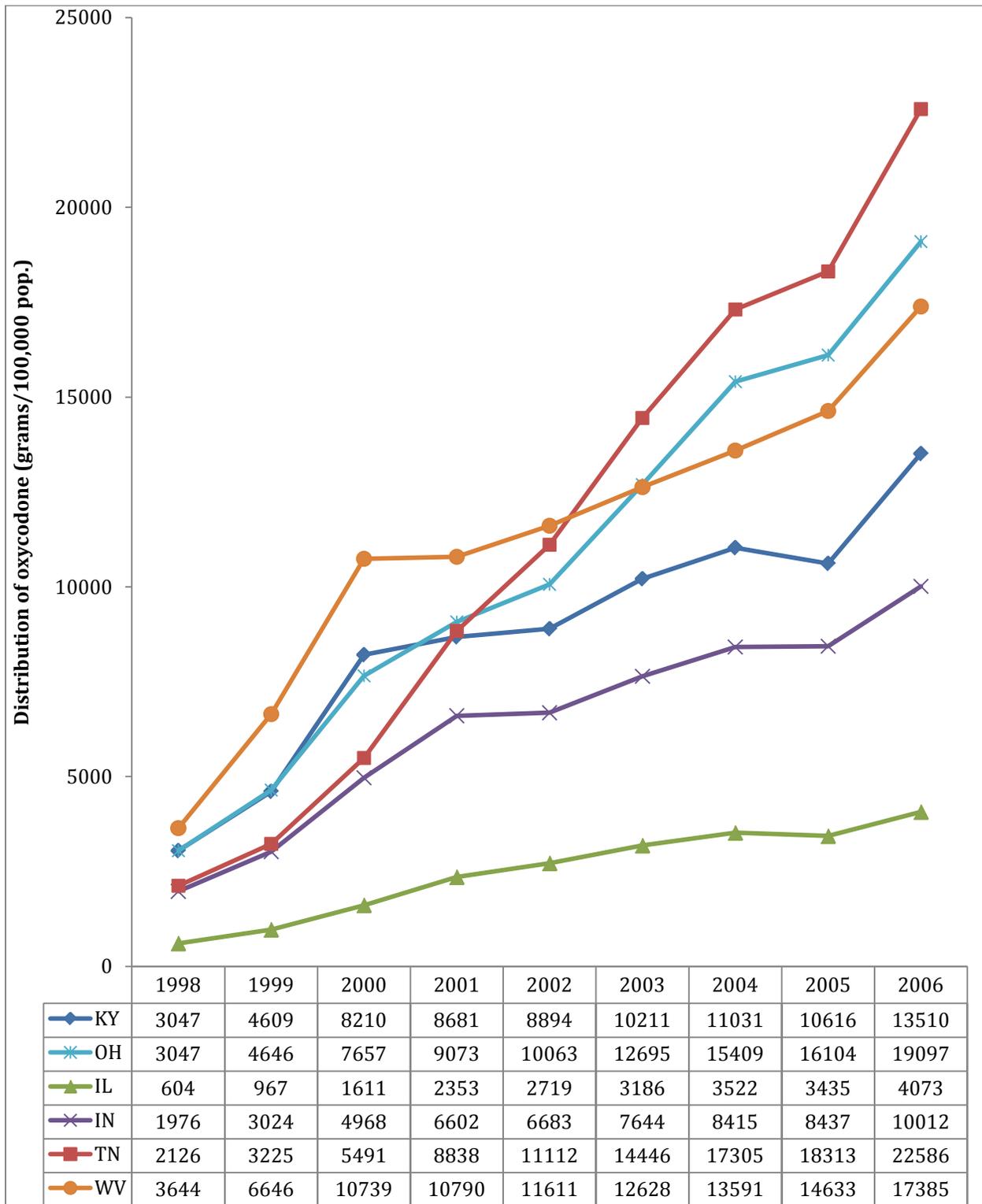
Figure 10. Methadone Distribution (grams/100,000 Population) in States Surrounding Kentucky by Year



2000 data only available for amphetamine, methylphenidate, hydrocodone and oxycodone

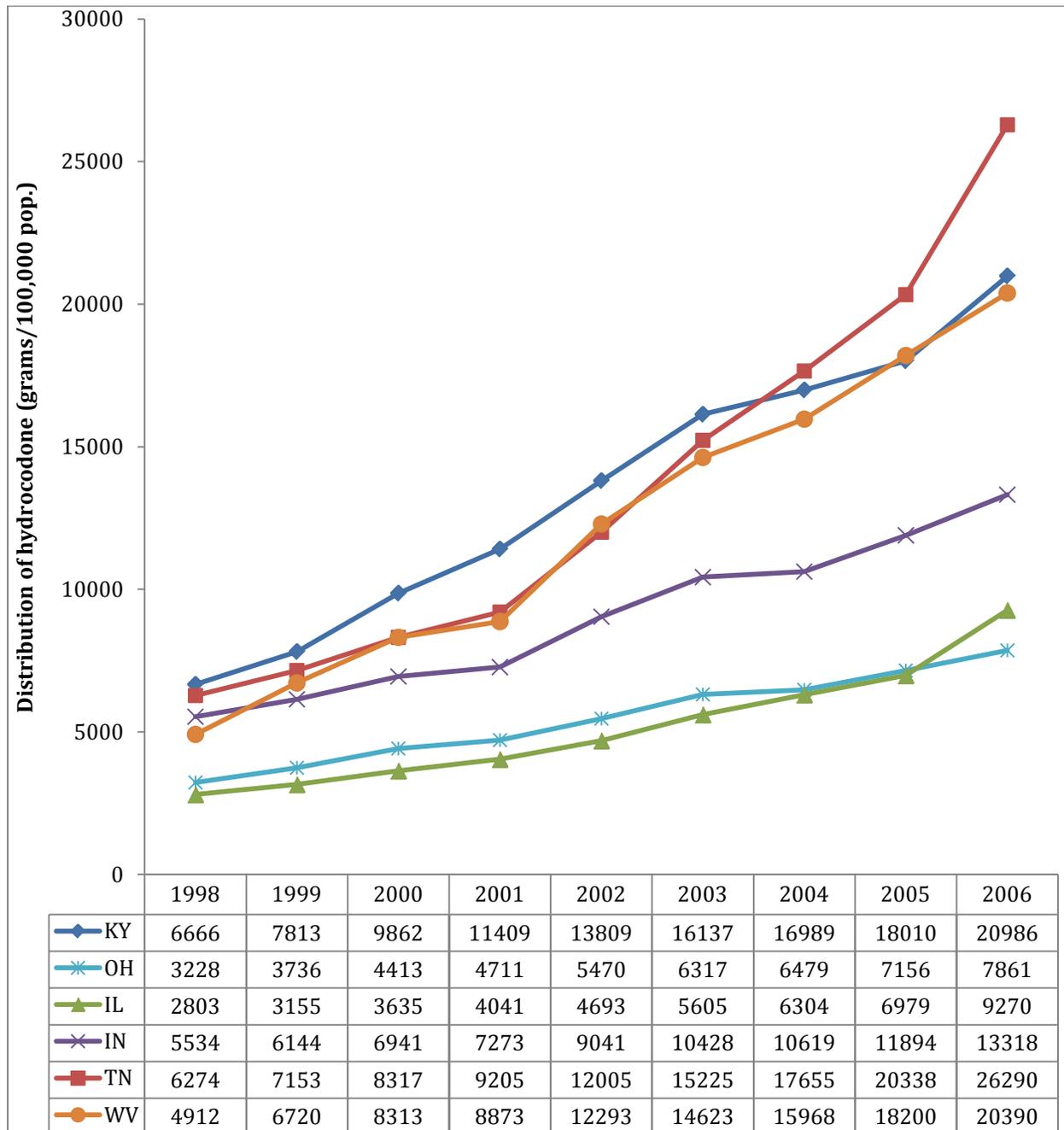
Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.dea.gov/diversion/arcos/retail_drug_summary/ (last accessed September 30, 2010)

Figure 11. Oxycodone Distribution (grams/100,000 Population) in States Surrounding Kentucky by Year



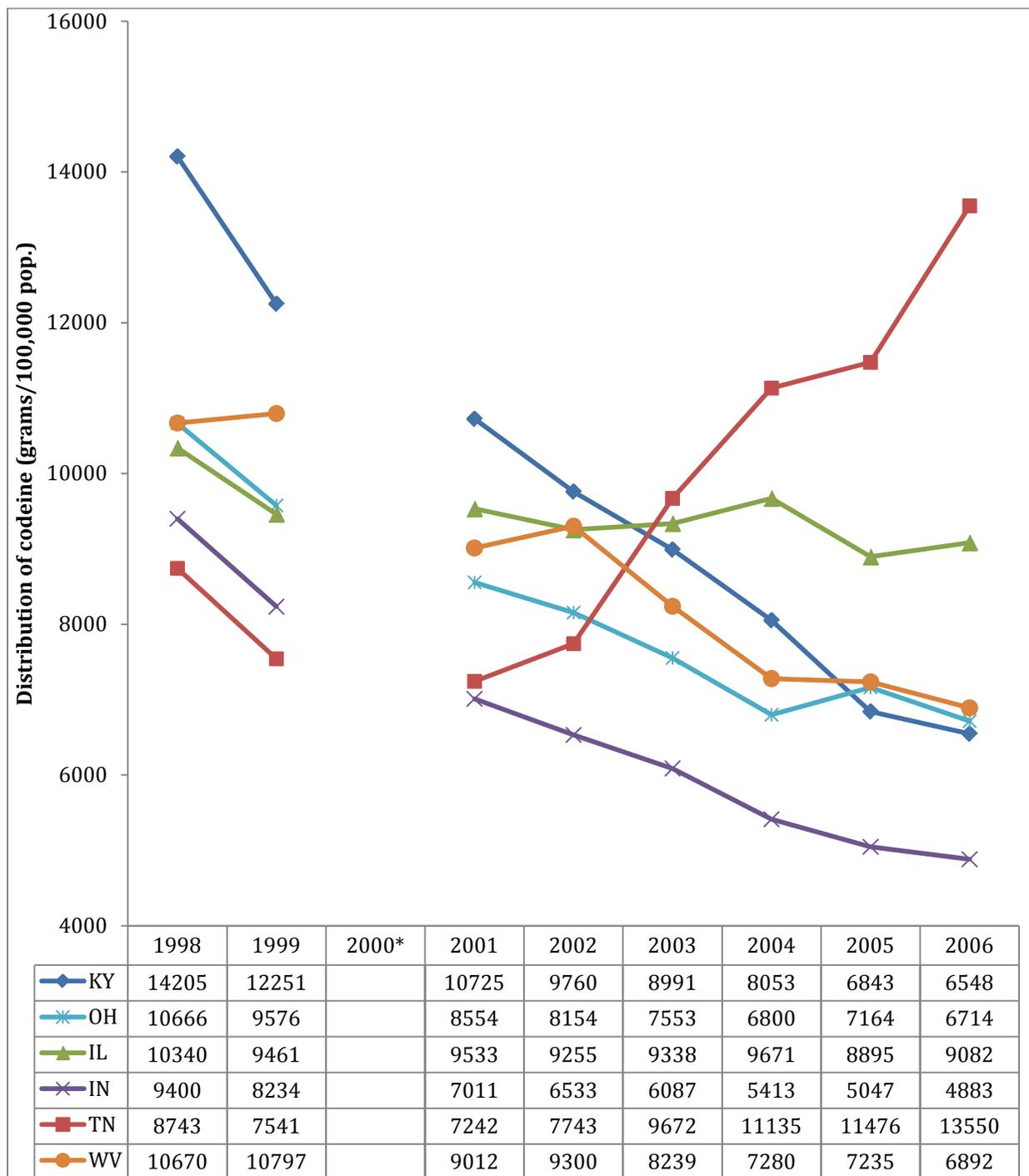
Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/ (last accessed September 30, 2010)

Figure 12. Hydrocodone Distribution (grams/100,000 Population) in States Surrounding Kentucky by Year



Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.dea.gov/diversion/usdoj.gov/arcos/retail_drug_summary/ (last accessed September 30, 2010)

Figure 13. Codeine Distribution (grams/100,000 Population) in States Surrounding Kentucky by Year

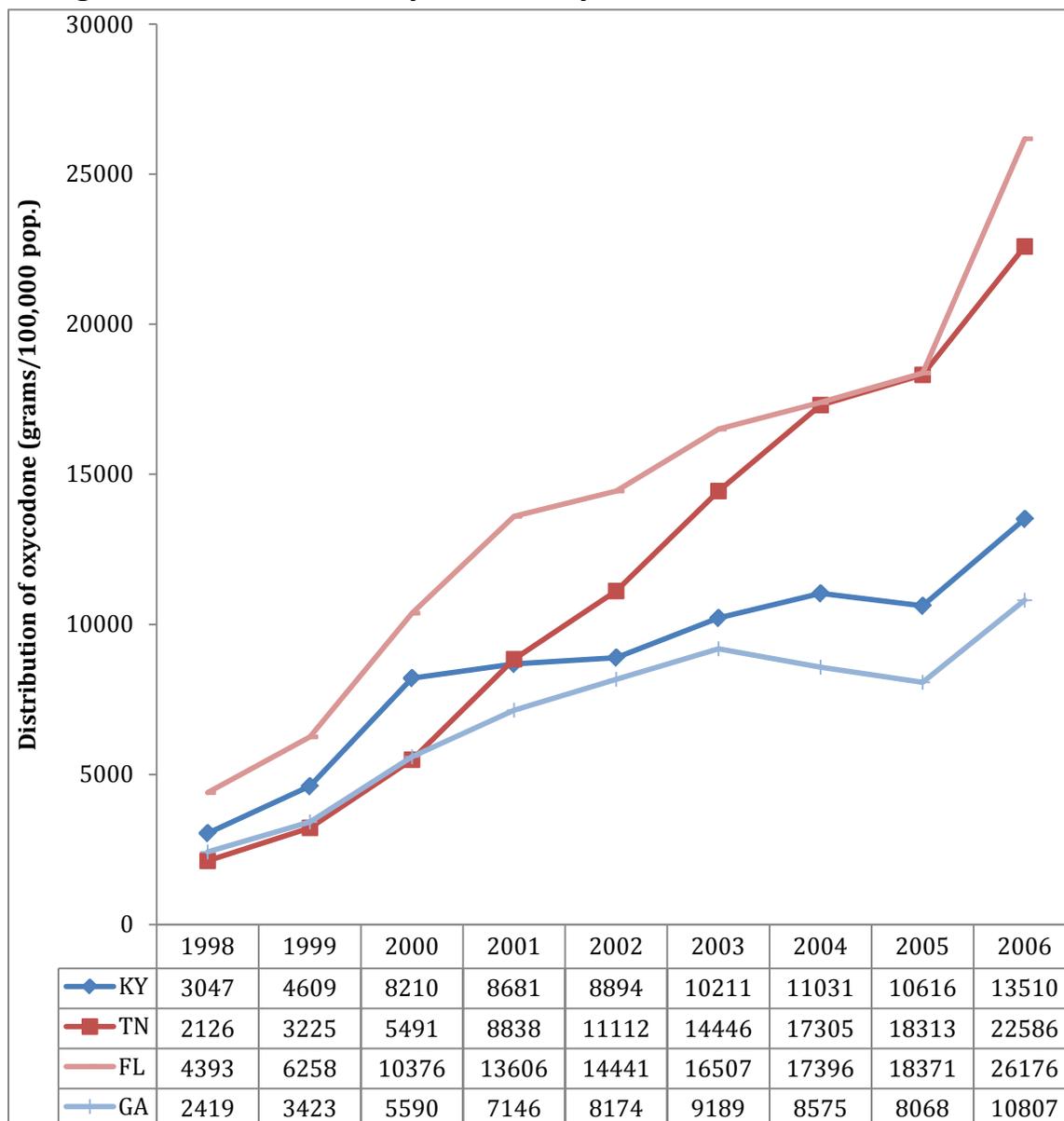


*2000 data only available for amphetamine, methylphenidate, hydrocodone and oxycodone

Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/ (last accessed September 30, 2010)

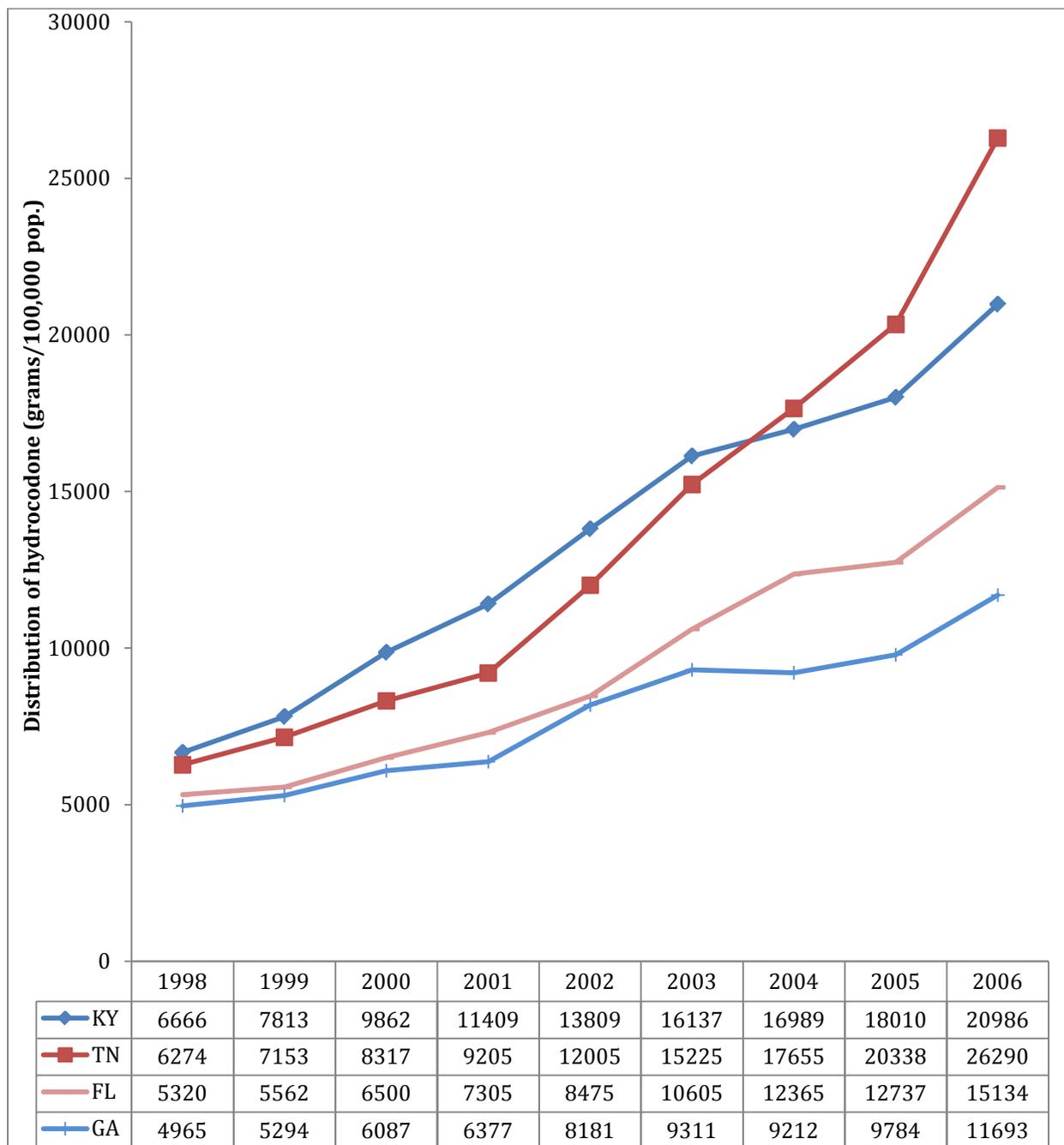
One negative impact of an active PDMP that has been noted is the movement of patients and prescriptions for CS medications to states where PDMPs are not active. Much attention has been focused recently on the I-75 Corridor from Kentucky to Florida which until 2010 did not have legislation for a PDMP. Thus, the distribution of oxycodone (Figure 14) and hydrocodone (Figure 15) and methadone to states along this corridor was assessed.

Figure 14. Oxycodone Distribution (grams/100,000 Population) in the Florida-Georgia-Tennessee-Kentucky Corridor by Year



Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/ (last accessed September 30, 2010)

Figure 15. Hydrocodone Distribution (grams/100,000 Population) in the Florida-Georgia-Tennessee-Kentucky Corridor by Year



Source: US Department of Justice; Drug Enforcement Administration; Office of Diversion Control. Retail Drug Summary for Years 1998 to 2006 http://www.dea.gov/diversion/arcos/retail_drug_summary/ (last accessed September 30, 2010)

In 2006, the distribution of oxycodone to Florida was highest compared to other states in the Interstate-75 (I-75) corridor, while distribution of hydrocodone was highest in Tennessee. The distribution of oxycodone to Kentucky has increased at a much lower rate since 2004 than for Tennessee and Florida. It's important to note that during this time frame, neither Florida nor Tennessee had an active PDMP. Comparing trends in oxycodone distribution (Figure 14) to trends in hydrocodone distribution (Figure 15) suggest that a shift in CS prescriptions from oxycodone to hydrocodone may be occurring in Kentucky. Interestingly, these trends coincide with a time of intense media coverage of OxyContin abuse in Kentucky, and thus may be a result of prescriber reluctance to prescribe oxycodone as a result. This observation also mirrors data previously described by Reisman et al which suggest that distribution of oxycodone grew at a lower rate in PDMP states relative to states without PDMPs⁹.

To further assess the impact of KASPER on movement of patients and prescriptions along the I-75 corridor, data were obtained from KASPER giving the number of prescriptions issued in other states in the US, but dispensed in Kentucky. The data were used to compare the prescription origins outside Kentucky in 2005 (Figure 16) with 2009 (Figure 17) More prescribers from states surrounding Kentucky are issuing prescriptions for CS that are ultimately filled in Kentucky pharmacies in 2009 compared with 2005. One interpretation of this could be that as a result of KASPER's impact on curbing doctor shopping, more patients are crossing state lines to see physicians for CS prescriptions.

⁹ Reisman RM, Shenoy PJ, Atherly AJ, Flowers CR. Prescription opioid usage and abuse relationships: An evaluation of state prescription drug monitoring program efficacy. *Substance Abuse: Research and Treatment* 2009; 3:41-51.

Figure 16. Origin of Controlled Substance Prescriptions Dispensed in Kentucky as a Percent of All Outside Prescriptions Issued in 2005

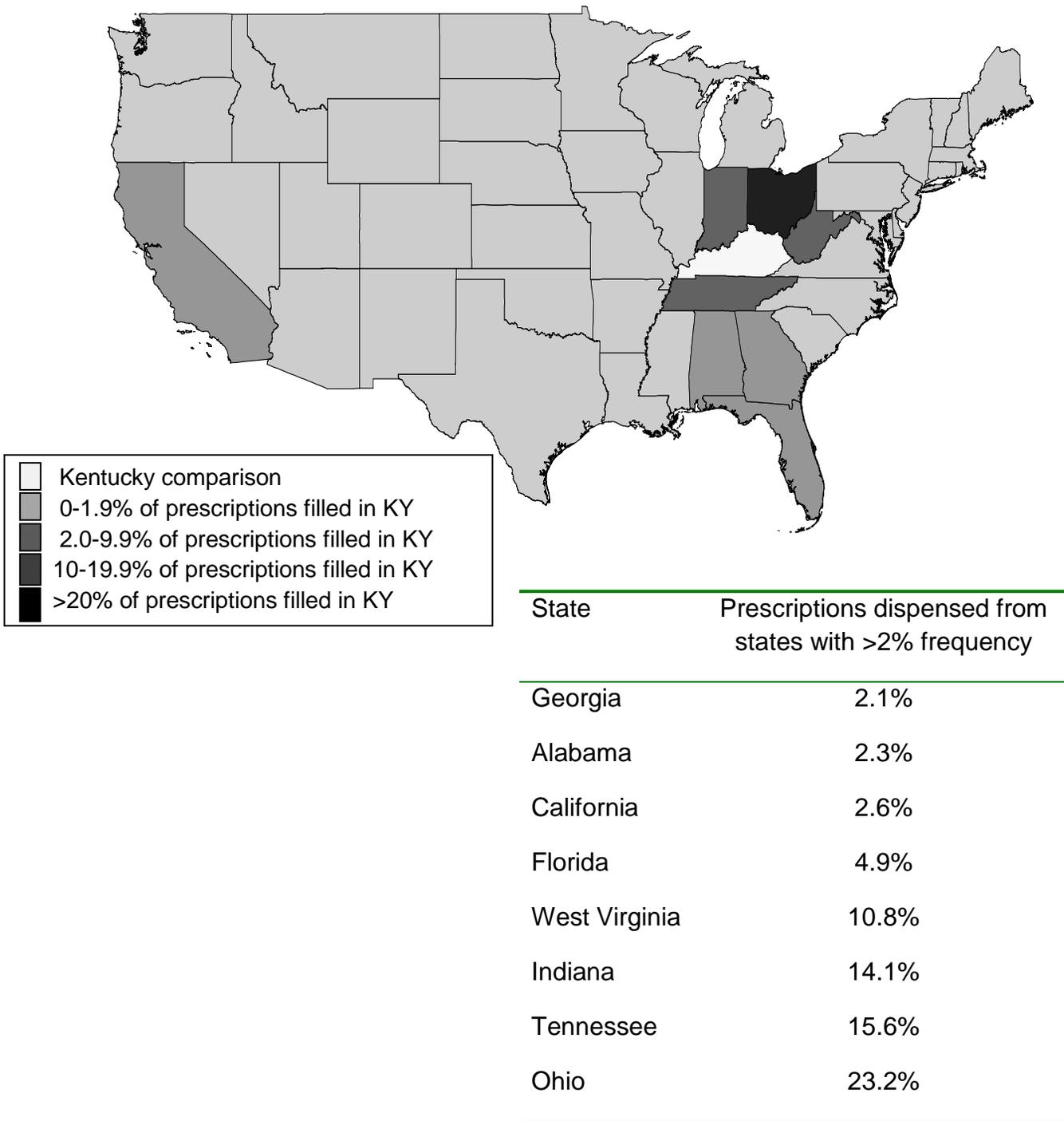
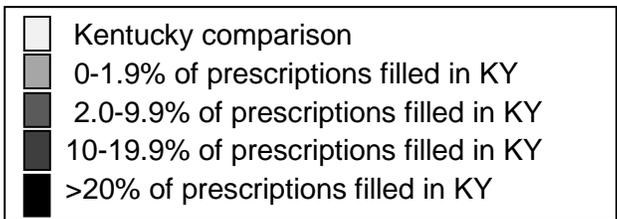
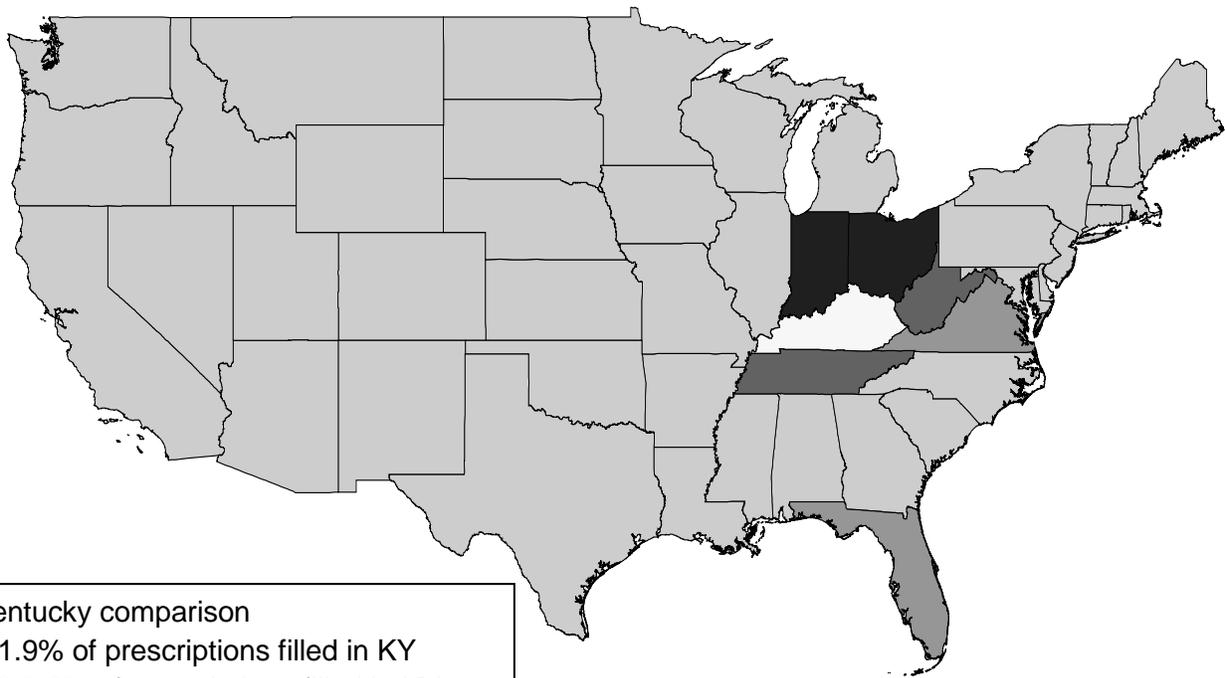


Figure 17. Origin of Controlled Substance Prescriptions Dispensed in Kentucky as a Percent of All Outside Prescriptions Issued in 2009

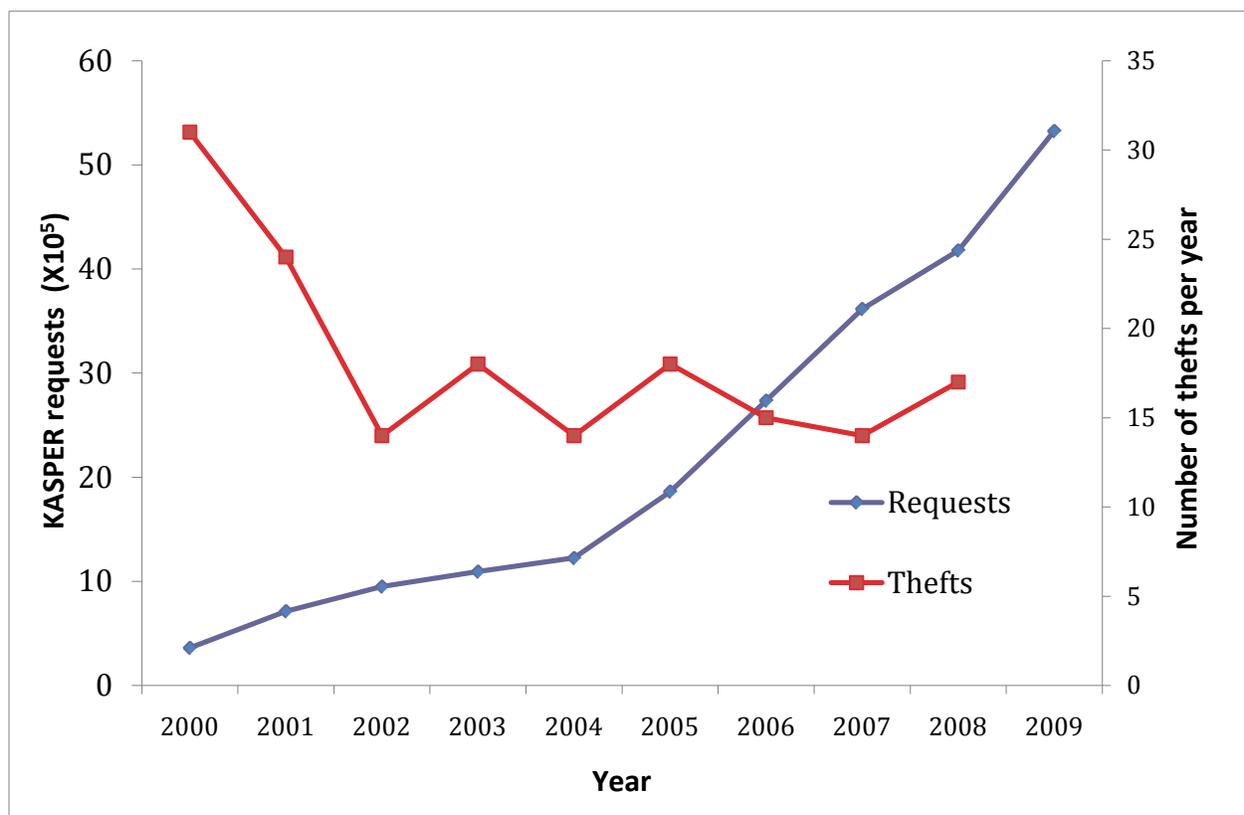


State	Prescriptions dispensed from states with >2% frequency
Virginia	2.2%
Florida	2.3%
West Virginia	12.7%
Tennessee	19.1%
Indiana	21.5%
Ohio	29.3%

US Department of Justice Drug Enforcement Administration – Losses as Reported on DEA Form 106 in Kentucky

If an active PDMP makes it more difficult for individuals with intent to abuse or divert CS medications to obtain them through legitimate prescriber channels, one could theorize that an increase in theft of CS medications might occur as a result. To assess this theory, a Freedom of Information request was filed to obtain aggregate data from the DEA to show the patterns of CS loss as reported on DEA Form 106 in Kentucky, Ohio, West Virginia, Tennessee and Indiana, 2000-2008. The data were not as informative as expected as it was difficult to determine the units of measure. Further investigation suggested that the units were 'tablets;' however, some of the medications on the resultant list are not ever dispensed as a tablet. For this reason, we have displayed the number of thefts of CS compared with the number of requests for KASPER reports by year (Figure 18). This information suggests that no obvious increase in CS loss as reported on DEA Form 106 has occurred as KASPER use has increased.

Figure 18. Association between the Number of KASPER Requests and the Number of Controlled Substance Thefts in Kentucky



B. Treatment Episode Data Set

The Treatment Episode Data Set (TEDS)¹⁰ is an administrative data system providing descriptive information about the national flow of admissions to substance abuse treatment providers/facilities. The dataset is available to the public for retrieval and analysis and is a continuation of the former Client Data System (CDS) that was originally developed by the Alcohol, Drug Abuse, and Mental Health Services Administration and includes facilities that are licensed or certified by the state substance abuse agency to provide substance abuse treatment (or are administratively tracked for other reasons), and that are required by the states to provide TEDS client-level data. While comprising a significant proportion of all admissions to substance abuse treatment facilities, TEDS does not include all such admissions. The scope of admissions included in TEDS is affected by differences in state reporting practices, varying definitions of treatment admissions, availability of public funds, and public funding constraints. In 1997, TEDS was estimated to include 83% of TEDS-eligible admissions and 67% of all known admissions¹⁰.

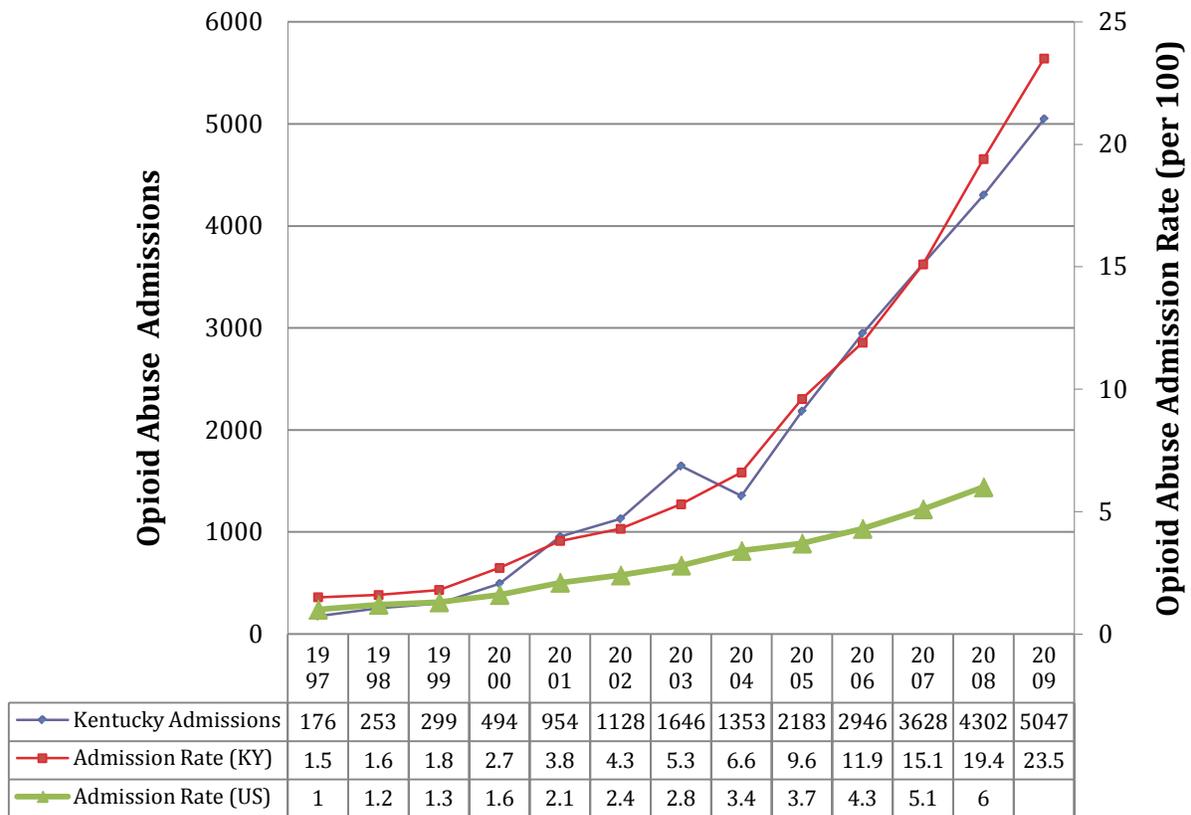
For this report, the Treatment Episode Data Set for Admissions, specifically indentifying those cases that were reported as admissions to a treatment center resulting from opiates/synthetics substances abuse, was utilized. One could hypothesize that if KASPER were having an impact on reducing CS abuse, more patients would seek treatment for substance abuse and thus admissions for substance abuse treatment would increase. Others have stated the opposite hypothesis and suggested that admission rates would decrease if PDMPs were effective¹¹. Thus, as part of our evaluation we analyzed the TEDS data from 1997 to 2007 specifically focusing on admissions for prescription opioids. Other variables that could contribute to increased rate of admissions include overall increase in the number of individuals with substance abuse, changes in the number of treatment beds and/or changes in reporting of substance abuse admissions from facilities to SAMSHA for inclusion in the TEDs database.

Figure 19 depicts the number and rate (per 100 admissions) of treatment admissions for opioid abuse (when the admission is reported as primary substance abuse) in Kentucky and the US from 1997 to 2007. Substance abuse admissions have increased steadily since 1997 and are higher each year in KY than the US in general. Interestingly, the rate of substance abuse treatment admissions in Kentucky has increased at a greater rate compared to the US population beginning in 2004, the year eKASPER was implemented.

¹⁰ Treatment Episodes Data Set, Substance Abuse and Mental Health Services Administration at <http://www.dasis.samhsa.gov/webt/NewMapv1.htm>; last accessed October 10, 2010.

¹¹ Reiseman et al, Prescription Opioid Usage and Abuse Relationships: An Evaluation of State Prescription Drug Monitoring Program Efficacy, Substance Abuse: Research 2009:3 41 – 51.

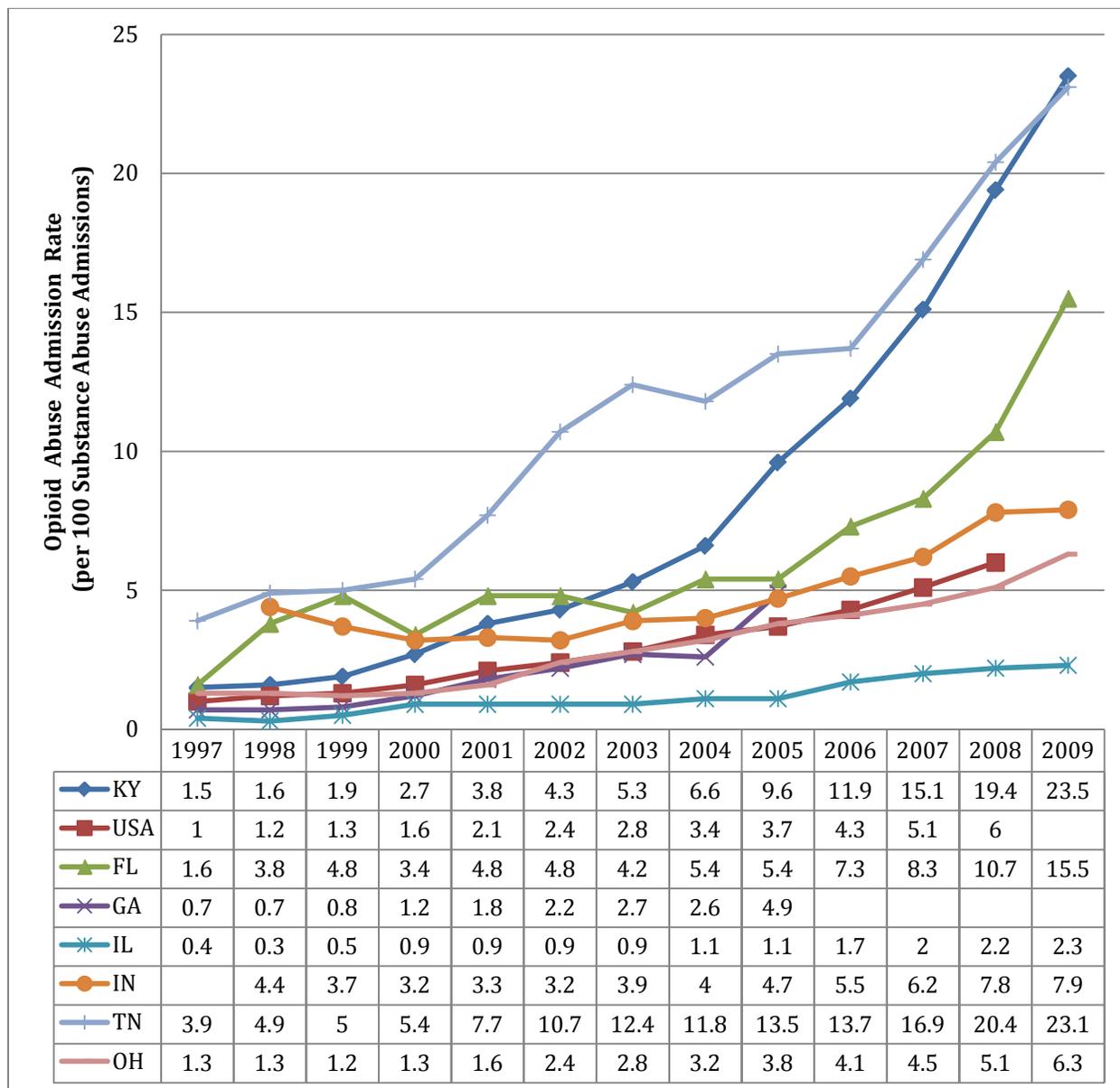
Figure 19. Admissions for Prescription Opioid Abuse and Rate of Opioid Admissions (per 100 Substance Abuse Admissions) by Year in Kentucky and the Nation



Source: Treatment Episodes Data Set, Substance Abuse and Mental Health Services Administration at <http://www.dasis.samhsa.gov/webt/NewMapv1.htm>; last accessed October 10, 2010.

To compare substance abuse treatment admissions in Kentucky relative to surrounding states and those along the I-75 corridor, TEDS data were analyzed and the results are depicted in Figure 20. Kentucky and Tennessee show the highest rate of opioid admissions relative to the other states. Florida, which presently does not have an active PDMP, has admission rates that are lower than Kentucky and Tennessee, two states that do have PDMP programs. KASPER has been in effect since 1999, while Tennessee’s PDMP has only been active since 2007.

Figure 20. Admissions for Prescription Opioid Abuse by State and Year



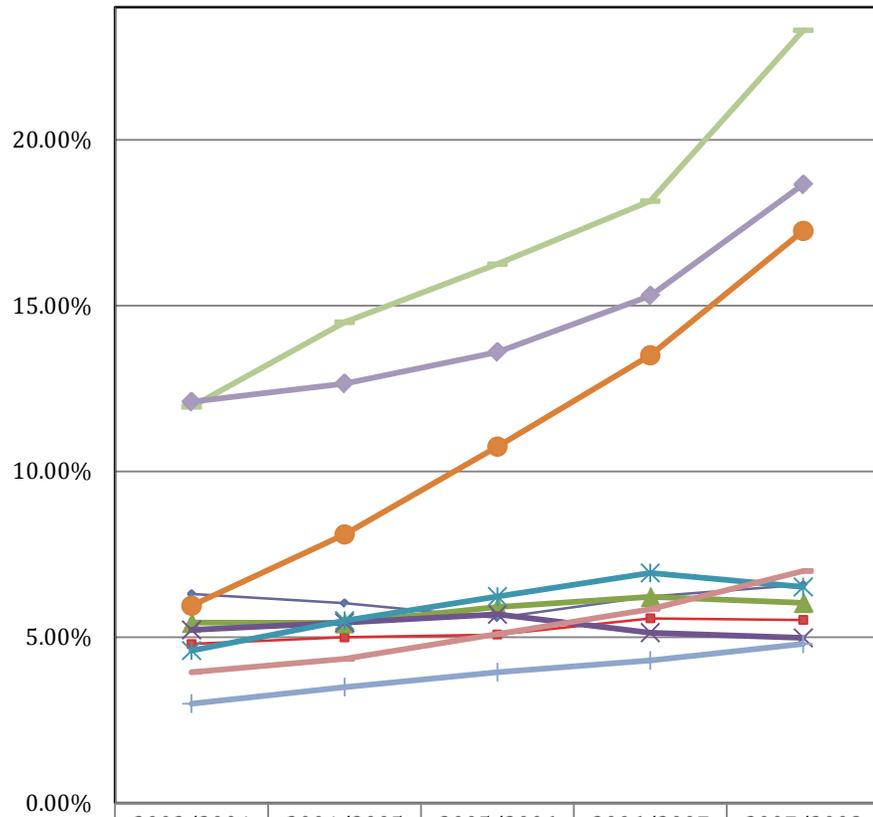
Source: Treatment Episodes Data Set, Substance Abuse and Mental Health Services Administration at <http://www.dasis.samhsa.gov/webt/NewMapv1.htm>; last accessed October 10, 2010.

It is important to note that each year only a fraction of those who report non-medical use of prescription opioids actually seek treatment. For example, in 2003 the National Survey on Drug Use and Health (NSDUH), conducted by SAMHSA’s Office of Applied Studies, documented 11,671,000 persons using prescription opioids for non-medical use while the total prescription opioid admissions in the US reported was 50,946¹².

¹²National Survey on Drug Use and Health, <http://oas.samhsa.gov/quick.cfm>; last accessed October 12, 2010.

To further explore the relationship between persons reporting use of prescription opioids (pain relievers) non-medically and treatment admission rates for prescription opioid abuse, summary data from the NSDUH¹³ and TEDS data were analyzed for the years 2003-2009. The results are presented in Figure 21. The number of individuals reporting non-medical use of prescription opioids (pain relievers) has remained relatively flat in Kentucky and contiguous states while the rate of admissions for opioid abuse in 3 states, Kentucky, West Virginia and Tennessee have risen significantly. One potential explanation, although not specifically assessed in this evaluation, is that as a result of KASPER, more individuals are identified with prescription opioid abuse problems and are referred to or seek treatment for opioid abuse.

Figure 21. Percent of Population Reporting Non-medical Use of Pain Relievers and Opiate Admission Abuse Rate (per 100 Substance Abuse Admissions) by State and Year



	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
◆ % Reporting Non-medical Use of Pain Relievers (KY)	6.31%	6.03%	5.59%	6.23%	6.58%
■ % Reporting Non-medical Use of Pain Relievers (OH)	4.80%	5.00%	5.08%	5.57%	5.52%
▲ % Reporting Non-medical Use of Pain Relievers (IN)	5.44%	5.43%	5.91%	6.22%	6.04%
✕ % Reporting Non-medical Use of Pain Relievers (WV)	5.22%	5.44%	5.69%	5.14%	4.98%
✱ % Reporting Non-medical Use of Pain Relievers (TN)	4.60%	5.50%	6.23%	6.94%	6.52%
● % Treatment Admissions for Other Opiates(KY)	5.95%	8.10%	10.75%	13.50%	17.25%
⊕ % Treatment Admissions for Other Opiates (OH)	3.00%	3.50%	3.95%	4.30%	4.80%
— % Treatment Admissions for Other Opiates (IN)	3.95%	4.35%	5.10%	5.85%	7.00%
— % Treatment Admissions for Other Opiates (WV)	11.95%	14.50%	16.25%	18.15%	23.30%
◆ % Treatment Admissions for Other Opiates (TN)	12.10%	12.65%	13.60%	15.30%	18.65%

¹³National Survey on Drug Use and Health, <http://oas.samhsa.gov/quick.cfm>; last accessed October 12, 2010.

C. Analysis of Relevant Kentucky Medicaid Data

During a project planning meeting with officials from the Cabinet for Health and Family Services, the interface between KASPER and the Kentucky Medicaid program was discussed. A Medicaid representative indicated that KASPER has enhanced the accuracy and efficiency in tracking potential fraud cases within Medicaid when controlled substances are involved. Prior to KASPER, Medicaid recipients could pay cash for 'extra' controlled substances that they were obtaining over-and-above what had been covered by Medicaid, and these cash-prescriptions would not show up on the patient's Medicaid record. With KASPER, Medicaid is able to identify such cases and lock the individual into a single pharmacy and provider so that the opportunity to circumvent the system is removed. Data on the number of 'lock-ins' pre and post KASPER were not examined as part of this evaluation.

The Medicaid program has received some complaints about prescribers being reluctant to prescribe controlled substances. Some Medicaid recipients when faced with a lock-in have commented "my doctor won't write for controlled substances so I have to doctor shop". The number of individuals who have voiced this opinion was unknown.

Survey of Medicaid Physicians and Patients

As a preliminary assessment of the impact that KASPER has on abuse, diversion and the chilling effect, four questions about KASPER were added to an annual Medicaid provider survey in 2009. The survey questions and summary of survey responses can be found in Appendix 11. When providers were asked how familiar they were with the KASPER program, over 60% were familiar or very familiar. When asked about the frequency with which providers requested KASPER reports, 50% of respondents indicated they occasionally or regularly requested a KASPER report when considering prescribing a CS. Similarly, over 50% of respondents indicated that KASPER reports occasionally or regularly impacted CS prescribing decisions. Similar to the prescriber survey specifically conducted as part of this evaluation, almost two-thirds (66%) of Medicaid providers reported no change in their CS prescribing patterns as a result of KASPER.

As a preliminary assessment of the impact that KASPER has on patient access to controlled substances, three questions about KASPER were added to an annual Medicaid survey of adult recipients. Responses from approximately 450 Medicaid recipients revealed that about 14% had a discussion with a health care professional about their KASPER report. Less than 10% believed a KASPER report had ever prevented them from getting a prescription for medication (8.1%) or prevented them from having a prescription filled at the pharmacy (8.5%). The survey questions and table of survey responses can be found in Appendix 12.

These data do not suggest that KASPER is having a significant chilling effect as one would expect to see a greater percentage of individuals expressing difficulty in accessing CS prescriptions through providers and pharmacies and a greater percentage of providers indicating a change in CS prescribing due to KASPER.

Controlled Substance Prescribing Trends

To identify if changes in CS prescribing for Medicaid recipients has changed over time as a result of KASPER, data were extracted from the Medicaid paid claims database for 4 commonly prescribed opioid analgesics – codeine, hydrocodone, oxycodone and fentanyl – for the years 2002 - 2009. Data were queried for pediatric and adult patients, with and without a diagnosis of cancer (used as a proxy for malignant and non-malignant pain) and normalized per 1000 members. Figures 22 – 25 provide the results.

Figure 22. Use of Select Opioid Analgesics in Pediatric Medicaid Recipients with No History of Cancer

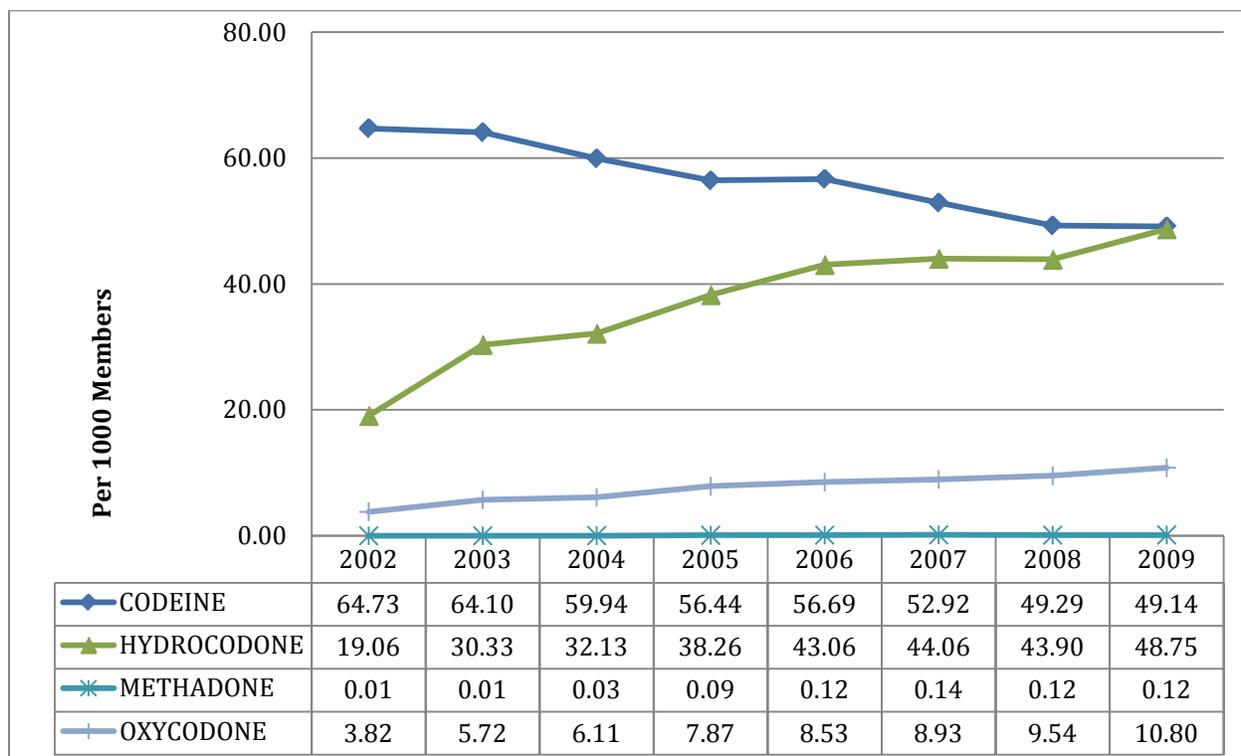


Figure 23. Use of Select Opioid Analgesics in Pediatric Medicaid Recipients with a History of Cancer

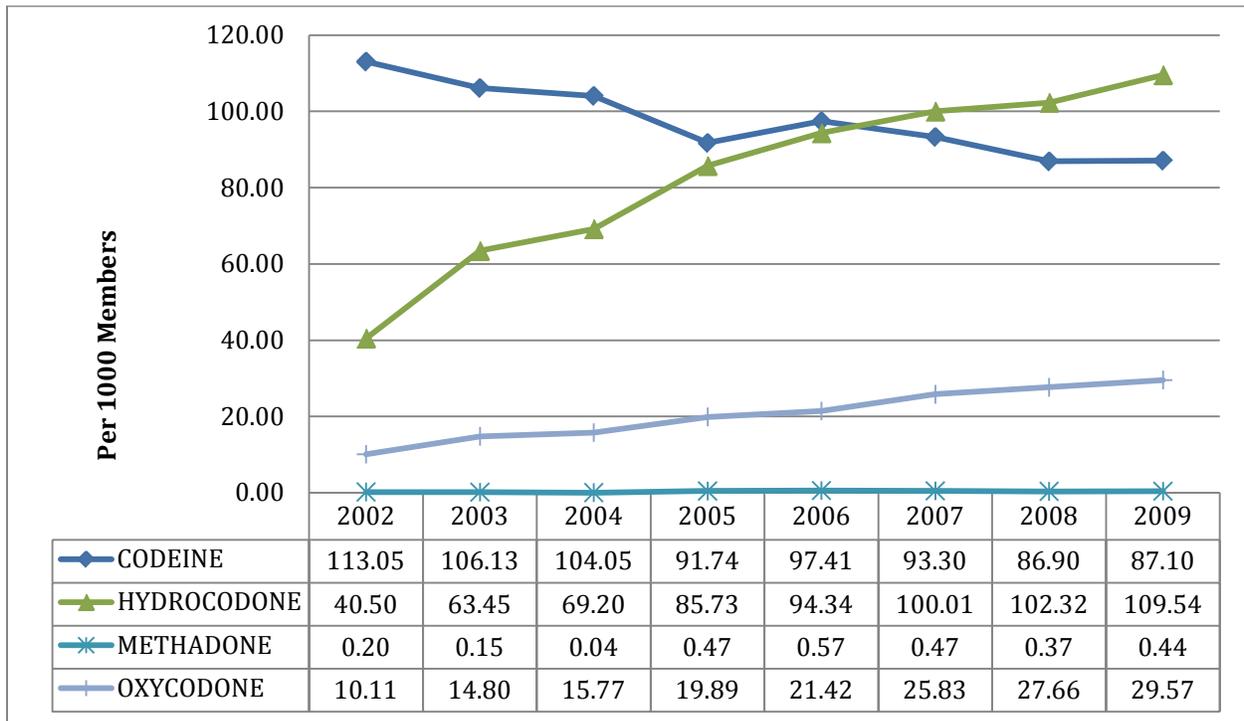


Figure 24. Use of Select Opioid Analgesics in Adult Medicaid Recipients with No History of Cancer

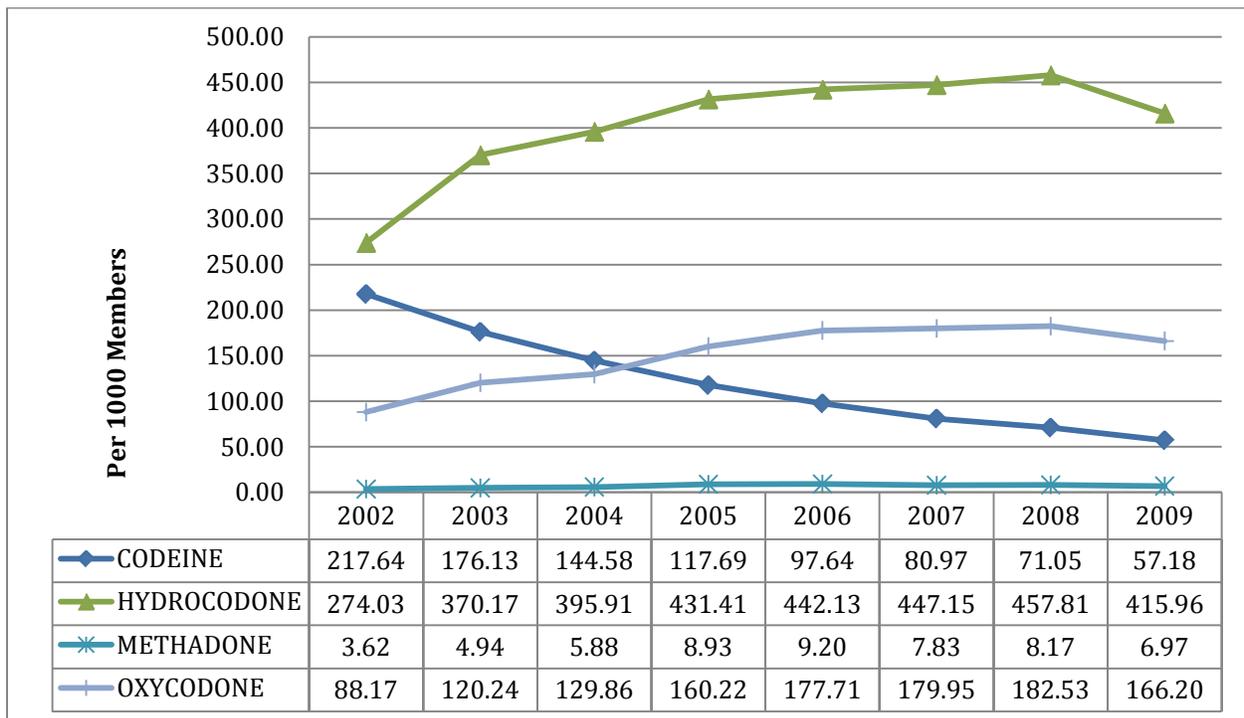
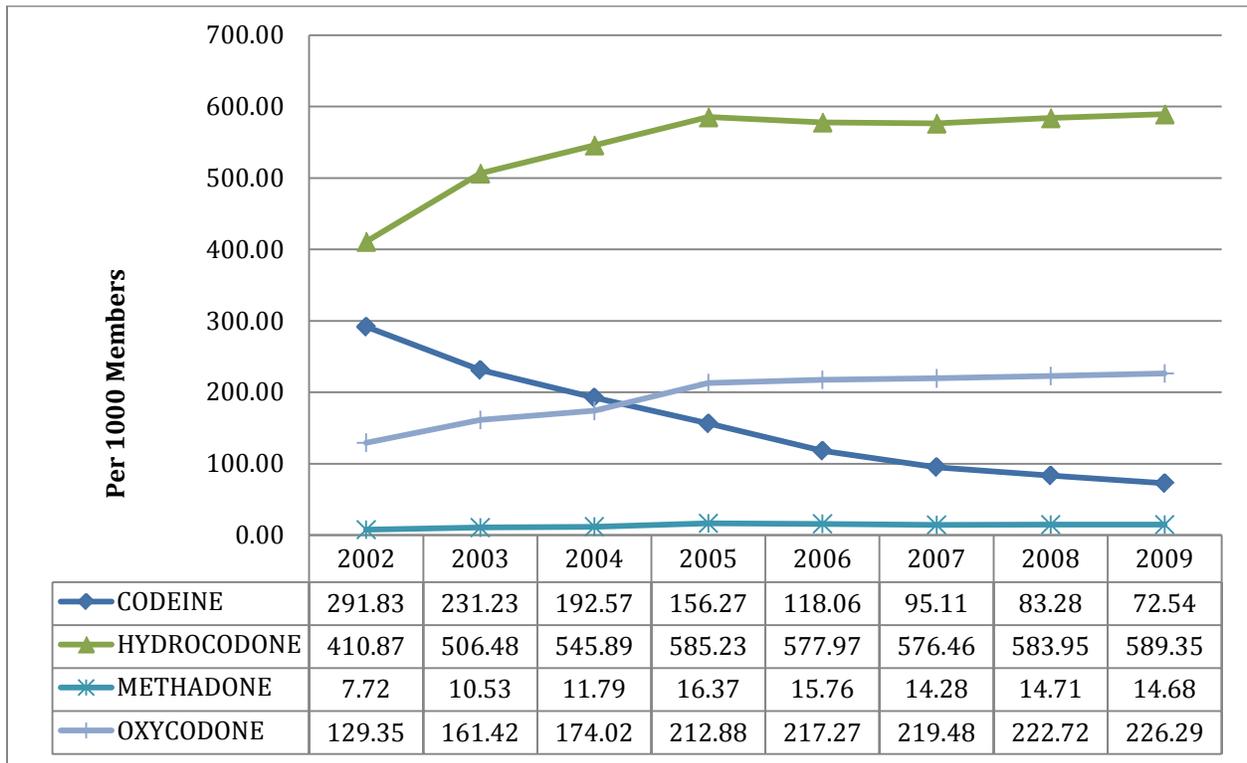


Figure 25. Use of Select Opioid Analgesics in Adult Medicaid Recipients with a History of Cancer



Several interesting trends are observed when reviewing these data. First, hydrocodone is the most commonly used opioid analgesic for both adults and children with chronic non-malignant and malignant pain. As expected with the diminishing clinical use of codeine, the use of codeine for pain in pediatric and adult Medicaid recipients is also decreasing over time. While the rate of use of oxycodone and hydrocodone has increased considerably over time, a substantial leveling off in the rate of use of both medications in the adult population has occurred since 2005 to 2009. One potential explanation for this observation is that KASPER is having an impact on doctor shopping, thus reducing the inappropriate prescribing of these medications to adult Medicaid patients.

VII. Summary and Conclusions

This independent evaluation of KASPER consisted of five main components - a review of the current status of Prescription Drug Monitoring Programs (PMDPs) in the U.S.¹²; interviews with key stakeholders of the KASPER program, including professional licensure boards and law enforcement officials; a survey of KASPER system users; and analysis of KASPER usage including the impact of KASPER on healthcare and law enforcement; and finally utilization of national and other relevant datasets, including ARCOS, TEDS, and Kentucky Medicaid, to assess the potential impact of KASPER on CS diversion and abuse.

Insight into the value of the KASPER program was gleaned from stakeholder interviews. All groups, including the Kentucky Board of Pharmacy, Kentucky Board of Nursing, the Kentucky Board of Medical Licensure and law enforcement officials, believe KASPER is a valuable and effective program. Although some stakeholders believe a chilling effect initially may have occurred as a result of KASPER implementation, stakeholders believe the ultimate outcome has been increased confidence in prescribing CS medications and increased use of pain management specialists which will ultimately improve patient care.

Surveys of prescribers, pharmacists and law enforcement officials provided a wealth of information. Virtually all believe KASPER is an effective tool for reducing abuse and diversion as well as doctor shopping in Kentucky. KASPER use, in terms of both number of registered users and the number of requests made, has increased significantly over time; however, the main limitation with KASPER currently is with the relatively small percent of controlled substance prescribers and dispensers that are registered users. The timeliness of information contained in the KASPER reports was identified by all groups as an area for improvement. Thus, the Cabinet should explore the potential for real-time data transmission as a means to address this concern.

Survey responses from approximately 450 Medicaid recipients revealed that approximately 14% had a discussion with a health care professional about their KASPER report, while less than 10% believed a KASPER report had ever prevented them from getting a prescription for medication or prevented them from having a prescription dispensed at the pharmacy. Thus, these data do not support the suggestion that KASPER is having a chilling effect that limits patient access to controlled substances for legitimate medical needs

Analysis of Medicaid data on the use of 4 commonly prescribed opioid analgesics – codeine, hydrocodone, oxycodone and fentanyl reveal that the rate of use of oxycodone and hydrocodone in adult patients increased significantly between 2002 and 2005. However, a substantial leveling off in the rate of use of both medications in the adult population has occurred since 2005. Two competing explanations, although not

specifically assessed in this evaluation, can be given for this observed stabilization in the rate of growth in the use of these medications in the adult population. First, KASPER is having an impact on doctor shopping, thus reducing the inappropriate prescribing of these medications to adult Medicaid patients. Alternatively, the leveling off could represent evidence of a chilling effect, however, one might expect that the survey of Medicaid recipients would have revealed a higher number of recipients reporting difficulty in getting needed controlled substance medications if this were the case.

Analysis of KASPER use revealed that the number of registered users across all groups (prescriber, pharmacist, law enforcement) has increased significantly over time. In 2009, there were 5311 prescribers, 1057 pharmacists and 1242 law enforcement officials registered as users of the KASPER system. Although more individuals are registering with KASPER each year, the number of registered users is only a small fraction of those who are eligible for an account and who could potentially utilize KASPER information at point of care for treatment decisions. For example, in 2009 only 16% of licensed pharmacists were registered with KASPER dispenser accounts, while only about one-fourth (27.5%) of DEA-registered prescribers had KASPER accounts.

The total number of KASPER report requests has increased significantly since the inception of the KASPER program. In 2009, a total of 532,527 requests were made, up from a low of 36,172 in 2000, the first year of the KASPER program. The number of CS prescriptions dispensed in Kentucky has also increased significantly from 8,414,939 in 2002 to 11,124,085 in 2009, with the vast majority of controlled substance prescriptions written by prescribers registered as KASPER users. Further analysis of KASPER use data reveals that the vast majority of CS prescriptions in the state are issued by relatively few prescribers and the growth of CS prescription volume is occurring primarily in the upper decile of CS prescribers. Additional study of this observation is warranted as it may provide evidence to support Kentucky Board of Medical Licensure impressions that a shift of CS prescribing from individual practitioners to pain management specialists may be occurring.

Analysis of national datasets revealed that the distribution of controlled substances to Kentucky and its contiguous states continues to rise as does the rate of admission to substance abuse treatment facilities for opiate abuse. Interestingly, the number of individuals in Kentucky and contiguous states who report the non-medical use of opiate pain relievers is relatively stable. Thus, it appears that a greater percentage of individuals who report use of prescription opioids are seeking treatment relative to several years ago. One potential explanation, although not specifically assessed in this evaluation, is that as a result of KASPER, more individuals are identified with prescription opioid abuse problems and are referred to or seek treatment for opioid abuse.

Review of data from multiple sources does not suggest that KASPER is causing a chilling effect. Indeed, use of KASPER may increase confidence in making prescribing and dispensing decisions and confirm decisions to prescribe and dispense when patients have a legitimate medical need and are not ‘doctor shopping.’

In conclusion, this independent evaluation of the KASPER program finds that members of professional licensure boards are unanimous in their support of the KASPER program and, based on information collected from prescribers, pharmacists and law-enforcement officials, KASPER is perceived as an effective tool to reduce drug abuse and diversion. Taken together, data from multiple sources as outlined above does not appear to suggest that KASPER is producing a chilling effect. Those that use KASPER regularly find the information in reports valuable for making treatment-decisions. Thus, encouraging prescribers and pharmacists to register with KASPER and ensuring pharmacists have access to the Internet to request reports are important topics for future discussion to further expand the impact of KASPER. More frequent transmission of controlled substance prescription data to the KASPER program should also be explored as means of enhancing KASPER’s impact.

¹²Status of Prescription Monitoring Programs in the United States, KASPER Program Evaluation Team, Institute for Pharmaceutical Outcomes and Policy, College of Pharmacy, University of Kentucky, June 2010.

VIII. Appendices

Appendix 1: Prescriber Survey

2009 KASPER SURVEY

The Kentucky Cabinet for Health and Family Services has contracted with the University of Kentucky to conduct a survey of health care providers. The information will be used to evaluate the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER) and improve health care in Kentucky.

The survey is for the health care provider whose name is on the envelope. You may skip any question that you do not want to answer and may write comments next to any question or on a separate page. Your answers are anonymous and your name will not be used in any report.

Please return the survey using the postage paid envelope within the next two weeks. **If you prefer, you can submit your answers online using the enclosed note card with information regarding the online survey.**

If you have any questions about the survey please call the University of Kentucky survey team at 800-238-0356. If you have any questions about your rights as a volunteer in the research, contact the Office of Research Integrity at the University of Kentucky at 1-866-400-9428. Thank you for your assistance.

Section 1: Questions about the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER)

1. The KASPER program allows prescribers to request information about a patient's controlled substance prescription history. Since the inception of KASPER, have you or anyone in your office made any requests for information regarding a patient's controlled substance prescription history?

Yes → Please go to next question.

No → What is the primary reason you have not used KASPER? *Check all that apply:*

<input type="checkbox"/>	I do not have internet access to request KASPER reports at my practice site.
<input type="checkbox"/>	Setting up an account is cumbersome.
<input type="checkbox"/>	Information in the report is not current.
<input type="checkbox"/>	Paperwork is too time consuming.
<input type="checkbox"/>	KASPER report is not necessary.
<input type="checkbox"/>	The reports are not available instantaneously.
<input type="checkbox"/>	Other _____

(Please skip to section II, question 6)

2009 KASPER SURVEY

2. Who requests the KASPER reports at your office?

<input type="checkbox"/>	I request the report myself.
<input type="checkbox"/>	Another health care practitioner requests the report.
<input type="checkbox"/>	A staff member or delegate requests the report.
<input type="checkbox"/>	Other _____

3. Approximately how many KASPER reports have you utilized in the past (1) month?

Total number _____ → Of these reports, how many influenced your decisions about prescribing? _____ (# of cases)

4. In general, the information in the KASPER report:

<input type="checkbox"/>	Confirmed my decision to prescribe a controlled substance(s).
<input type="checkbox"/>	Altered my decision to prescribe a controlled substance(s).
<input type="checkbox"/>	Did not impact my decision to prescribe or not prescribe a controlled substance.

5. On average, how long does it currently take to receive a KASPER report after submitting a request: *Check one only:*

<input type="checkbox"/>				
0-5 minutes	6-15 minutes	16-30 minutes	More than 30 minutes	Don't know

Section II: Impact of Prescription Monitoring Programs such as KASPER on Practice

6. Thinking about your general prescribing patterns in the past year, which of the following best describes your controlled substance prescribing:

<input type="checkbox"/>	My controlled substance prescribing has not changed (<i>Please skip to question 7</i>)
<input type="checkbox"/>	My controlled substance prescribing has increased because: (<i>please check all that apply</i>): <input type="checkbox"/> I feel more confident in making controlled substance prescribing decisions <input type="checkbox"/> Implementation of KASPER <input type="checkbox"/> My patient population has changed <input type="checkbox"/> Other _____
<input type="checkbox"/>	My controlled substance prescribing has decreased because: (<i>please check all that apply</i>): <input type="checkbox"/> Media coverage of prescription drug abuse and diversion <input type="checkbox"/> Implementation of KASPER <input type="checkbox"/> Increased law enforcement activity related to prescription drug abuse and diversion <input type="checkbox"/> Fear of law enforcement investigation of my practice <input type="checkbox"/> Fear of licensing board investigation of my practice <input type="checkbox"/> My patient population has changed <input type="checkbox"/> Other _____

2

2009 KASPER SURVEY

6a. If your prescribing has changed, has it impacted your ability to manage your patients' conditions? *Check one only:*

<input type="checkbox"/>	Yes, there has been a <u>positive impact</u> on my ability to help my patients manage their conditions.
<input type="checkbox"/>	Yes, there has been a <u>negative impact</u> on my ability to help my patients manage their conditions.
<input type="checkbox"/>	No, there has been no impact on my ability to help my patients manage their conditions.

7. As a result of KASPER, do you believe that your controlled substance prescribing behaviors are being monitored more closely? *Check one only:*

Yes

No

Why? _____

8. Have you ever been contacted by a Pharmacist regarding the contents of a patients' KASPER report?

Yes → Please go to question #8a.

No → Please go to question #9.

8a. If yes, the information provided by the Pharmacist was:

<input type="checkbox"/>	Helpful in making prescribing decision(s).
<input type="checkbox"/>	Not helpful in making prescribing decision(s).

Section III: Guidelines for the Use of Controlled Substances in Pain Treatment

9. Are you aware of the Kentucky Board of Medical Licensure *Guidelines for the Use of Controlled Substances in Pain Treatment*? *Check one only:*

Yes → Please go to question #9a.

No → Please go to question #10

9a. If yes, do you use the *Guidelines for the Use of Controlled Substances in Pain Treatment* when making decisions about pain treatment for your patients?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Sometimes

2009 KASPER SURVEY

Section IV: Practice Information

10. In what city/county do you currently practice? _____
 (If you practice in more than one city/county, please report the one that you spend the majority of your time in.)

11. What best describes your specialty? *Check one only:*

<input type="checkbox"/>	Internal Medicine
<input type="checkbox"/>	Neurology
<input type="checkbox"/>	Emergency Medicine
<input type="checkbox"/>	Palliative/Hospice Care
<input type="checkbox"/>	Pediatrics
<input type="checkbox"/>	Family Practice
<input type="checkbox"/>	Orthopedics
<input type="checkbox"/>	Surgery
<input type="checkbox"/>	Psychiatry
<input type="checkbox"/>	Other _____

12. On average, across all practice sites, how many patients do you see a day?
 _____ (#of patients)

13. Total number of years in practice, including internship and residency: _____ (#of years)

14. What is your professional degree in and what year did you receive it? _____

<input type="checkbox"/>	MD
<input type="checkbox"/>	DMD
<input type="checkbox"/>	DO
<input type="checkbox"/>	ARNP

15. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to:

A.) Reduce drug abuse and diversion in Kentucky?	B.) Reduce doctor shopping in Kentucky?
<input type="checkbox"/> Not effective at all	<input type="checkbox"/> Not effective at all
<input type="checkbox"/> Somewhat ineffective	<input type="checkbox"/> Somewhat ineffective
<input type="checkbox"/> Somewhat effective	<input type="checkbox"/> Somewhat effective
<input type="checkbox"/> Very effective	<input type="checkbox"/> Very effective
<input type="checkbox"/> I have no experience	<input type="checkbox"/> I have no experience

THANK YOU FOR COMPLETING THIS SURVEY. PLEASE RETURN IT USING THE ENCLOSED ENVELOPE AS SOON AS POSSIBLE.

Appendix 2: Pharmacist Survey

2009 KASPER SURVEY

The Kentucky Cabinet for Health and Family Services has contracted with the University of Kentucky to conduct a survey of health care providers. The information will be used to evaluate the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER) and improve health care in Kentucky.

The survey is for the pharmacist whose name is on the envelope. You may skip any question that you do not want to answer and may write comments next to any question or on a separate page. Your answers are anonymous and your name will not be used in any report.

Please return the survey using the postage paid envelope within the next two weeks. **If you prefer, you can submit your answers online using the enclosed note card with information regarding the online survey.**

If you have any questions about the survey please call the University of Kentucky survey team at 800-238-0356. If you have any questions about your rights as a volunteer in the research, contact the Office of Research Integrity at the University of Kentucky at 1-866-400-9428. Thank you for your assistance.

Section 1: Questions about the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER)

1. The KASPER program allows pharmacists to request information about a patient's controlled substance prescription history. Since the inception of KASPER, have you or anyone in your pharmacy made any requests for information regarding a patient's controlled substance prescription history?

Yes → Please go to next question.

No → What is the primary reason you have not used KASPER? *Check all that apply:*

<input type="checkbox"/>	I do not have internet access to request KASPER reports at my practice site.
<input type="checkbox"/>	Setting up an account is cumbersome.
<input type="checkbox"/>	Information in the report is not current.
<input type="checkbox"/>	Paperwork is too time consuming.
<input type="checkbox"/>	KASPER report is not necessary.
<input type="checkbox"/>	The reports are not available instantaneously.
<input type="checkbox"/>	Other _____

(Please skip to section II, question 6)

2009 KASPER SURVEY

2. Who requests the KASPER reports at your pharmacy?

<input type="checkbox"/>	I request the report myself.
<input type="checkbox"/>	Another pharmacist requests the report.
<input type="checkbox"/>	A technician or intern requests the report.
<input type="checkbox"/>	Other _____

3. Approximately how many KASPER reports have you utilized in the past (1) month?

Total number _____ → Of these reports, how many influenced your decisions about dispensing? _____ (# of cases)

4. In general, the information in the KASPER report:

<input type="checkbox"/>	Confirmed my decision to dispense a controlled substance(s).
<input type="checkbox"/>	Altered my decision to dispense a controlled substance(s).
<input type="checkbox"/>	Did not impact my decision to dispense or not dispense a controlled substance.

5. On average, how long does it currently take to receive a KASPER report after submitting a request: *Check one only:*

<input type="checkbox"/>				
0-5 minutes	6-15 minutes	16-30 minutes	More than 30 minutes	Don't know

Section II: Impact of Prescription Monitoring Programs such as KASPER on Practice

6. Thinking about your general dispensing patterns in the past year, which of the following best describes your controlled substance dispensing:

<input type="checkbox"/>	My controlled substance dispensing has not changed <i>(Please skip to question 7)</i>
<input type="checkbox"/>	My controlled substance dispensing has increased because: <i>(please check all that apply):</i> <input type="checkbox"/> I feel more confident in making controlled substance dispensing decisions <input type="checkbox"/> Implementation of KASPER <input type="checkbox"/> My practice site has changed <input type="checkbox"/> Other _____
<input type="checkbox"/>	My controlled substance dispensing has decreased because: <i>(please check all that apply):</i> <input type="checkbox"/> Media coverage of prescription drug abuse and diversion <input type="checkbox"/> Implementation of KASPER <input type="checkbox"/> Increased law enforcement activity related to prescription drug abuse and diversion <input type="checkbox"/> Fear of law enforcement investigation of my practice <input type="checkbox"/> Fear of licensing board investigation of my practice <input type="checkbox"/> My practice site has changed <input type="checkbox"/> Other _____

2009 KASPER SURVEY

6a. If your dispensing has changed, has it impacted your ability to manage your patients' conditions? *Check one only:*

<input type="checkbox"/>	Yes, there has been a <u>positive impact</u> on my ability to help my patients manage their conditions.
<input type="checkbox"/>	Yes, there has been a <u>negative impact</u> on my ability to help my patients manage their conditions.
<input type="checkbox"/>	No, there has been no impact on my ability to help my patients manage their conditions.

7. As a result of KASPER, do you believe that your controlled substance prescribing/dispensing behaviors are being monitored more closely? *Check one only:*

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

Why? _____

8. Have you ever been contacted by another health care professional (HCP) regarding the contents of a patients' KASPER report?

Yes → Please go to question 8a.

No → Please go to question 9.

8a. If yes, the information provided by the HCP was:

<input type="checkbox"/>	Helpful in making prescribing decision(s).
<input type="checkbox"/>	Not helpful in making prescribing decision(s).

Section III: Practice Information

9. In what city/county do you currently practice? _____
 (If you practice in more than one city/county, please report the one that you spend the majority of your time in.)

10. What best describes your practice site?

<input type="checkbox"/>	Independent pharmacy
<input type="checkbox"/>	Chain pharmacy
<input type="checkbox"/>	Supermarket pharmacy
<input type="checkbox"/>	Hospital pharmacy
<input type="checkbox"/>	Other _____

2009 KASPER SURVEY

11. On average, how many controlled substance prescriptions do you dispense a day?
 _____(#of prescriptions)

12. In what year did you receive your professional degree? _____

13. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to:

A.) Reduce drug abuse and diversion in Kentucky?	B.) Reduce doctor shopping in Kentucky?
<input type="checkbox"/> Not effective at all	<input type="checkbox"/> Not effective at all
<input type="checkbox"/> Somewhat ineffective	<input type="checkbox"/> Somewhat ineffective
<input type="checkbox"/> Somewhat effective	<input type="checkbox"/> Somewhat effective
<input type="checkbox"/> Very effective	<input type="checkbox"/> Very effective
<input type="checkbox"/> I have no experience	<input type="checkbox"/> I have no experience

14. All dispensers of controlled substances are required to transmit data to KASPER every 7 days. How difficult is it for your practice to transmit the data?_____

15. How could KASPER simplify the process to transmit data?_____

16. Would you be willing to transmit the data on a daily basis?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Not Sure

What additional workload would be required?_____

**THANK YOU FOR COMPLETING THIS SURVEY. PLEASE RETURN IT USING THE
 ENCLOSED ENVELOPE AS SOON AS POSSIBLE.**

Appendix 3: Law Enforcement Officer Survey

1

Section I: Questions about the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER)

1. The KASPER program allows law enforcement officials to request information about a patient's controlled substance prescription history. Since the inception of KASPER, have you or anyone in your department/agency made any requests for information regarding a patient's controlled substance prescription history?

Yes



Please go to
next question

No



What is the primary reason you have not used KASPER? *Check all that apply:*

- I am not assigned to drug diversion cases
- I do not have internet access to request KASPER reports
- Setting up an account is cumbersome
- Information in the report is not current
- Paperwork is too time consuming
- KASPER report is not necessary
- The reports are not available instantaneously
- Other _____

(Please skip to section II, question 17)

2. Who requests the KASPER reports at your department/agency?

- I request the report myself
- Another law enforcement or regulatory official requests the report
- Other _____

3. Approximately how many KASPER reports have you utilized in the past (1) month?

Total number _____ → Of these reports, how many influenced your decisions about a case? _____ (# of cases)

4. In general, the information in the KASPER report:

- confirmed my decision to proceed with an investigation
- caused me to close or dismiss pursuit of an investigation
- did not impact my decision to proceed with an investigation

5. On average, how long does it currently take to receive a KASPER report after submitting a request: *Check one only:*

- 0-5 minutes 6-15 minutes 16-30 minutes More than 30 minutes Don't know

6. What is your overall impression of the KASPER program (check all that apply)?

- It is useful in the early stages of an investigation to see if it is worth pursuing a case
- It is useful for checking facts during the middle of investigations
- It is useful towards the end of an investigation to round out the case
- It is a useful tool for streamlining investigations
- I do not feel that it is particularly useful to my investigations

7. To what extent do you agree or disagree with the following statement:

KASPER reports are easy to understand?

- strongly disagree
- disagree
- agree
- strongly agree

8. Have you utilized reports from Prescription Monitoring Programs (PMPs) in other states in your investigations?

- Yes
- No

8a. If 'Yes', how do these reports compare to KASPER reports? (Check all that apply)

- Reports from other states PMPs are **easier** to understand
- Reports from other states PMPs are **harder** to understand
- The information in other states PMP reports is **more up-to-date** than KASPER reports
- The information in other states PMP reports is **more dated** than KASPER reports

9. In your experience, do you believe some pharmacists have altered their stocking and dispensing of controlled substances as a result of KASPER?

- Yes (explain): _____

- No

10. In your experience, do you believe some prescribers have altered their prescribing of controlled substances as a result of KASPER?

- Yes (explain): _____

- No

11. To what extent do you agree or disagree with the following statement:

I have received adequate training on how to use KASPER reports as a tool in an investigation.

- strongly disagree
- disagree
- agree
- strongly agree

12. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to:

A.) Reduce drug abuse and diversion in Kentucky?	B.) Reduce doctor shopping in Kentucky?
<input type="checkbox"/> Not effective at all	<input type="checkbox"/> Not effective at all
<input type="checkbox"/> Somewhat ineffective	<input type="checkbox"/> Somewhat ineffective
<input type="checkbox"/> Somewhat effective	<input type="checkbox"/> Somewhat effective
<input type="checkbox"/> Very effective	<input type="checkbox"/> Very effective
<input type="checkbox"/> I have no experience	<input type="checkbox"/> I have no experience

13. How would you improve the KASPER program?

Section II: Professional Information

14. In what city/county do you currently work? _____
 (If you have jurisdiction in more than one city/county, please report the one that you spend the majority of your time in.)

15. What best describes your professional role?

- city/county law enforcement
- state law enforcement
- regulatory agency
- other _____

16. On average, how many cases do you encounter dealing with prescription drug abuse and diversion annually? _____ (#of cases)

Appendix 4: Summary Table of Prescriber Survey Responses

1. The KASPER program allows prescribers to request information about a patient's CS prescription history. Since the inception of KASPER, have you or anyone in your office made any requests for information regarding a patient's CS prescription history?		
Yes	529	96.18%
No	16	2.91%
Missing	5	0.91%

What is the primary reason you have not used KASPER?		
I do not have internet access to request KASPER reports.	1	5.00%
Setting up an account is cumbersome.	7	35.00%
Information in the report is not current.	1	5.00%
Paperwork is too time consuming.	2	10.00%
KASPER report is not necessary	0	0.00%
The reports are not available instantaneously.	2	10.00%
Other	7	35.00%

2. Who requests the KASPER reports at your office?		
I request the report myself	220	40.00%
Another health care practitioner requests the report	18	3.27%
A staff member or delegate requests the report	216	39.27%
Other	77	14.00%
Missing	19	3.45%

3. Approximately how many KASPER reports have you utilized in the past (1) month?	Median	(Range)
Total number	6	(0 - 730)
Of these reports, how many influenced your decisions about prescribing?	4	(0 - 500)

4. In general, the information in the KASPER report:		
Confirmed my decision to prescribe a controlled substance(s)	234	42.55%
Altered my decision to prescribe a controlled substance(s)	254	46.18%
Did not impact my decision to prescribe or not prescribe a controlled substance	22	4.00%
Missing	40	7.27%

5. On average, how long does it currently take to receive KASPER report after submitting a request:		
0-5 minutes	207	37.64%
6-15 minutes	162	29.45%

16-30 minutes	57	10.36%
More than 30 minutes	40	7.27%
Don't know	53	9.64%
Missing	31	5.64%

6. Thinking about your general prescribing patterns in the past year, which of the following best describes your CS prescribing:		
My CS prescribing has not changed	272	49.45%

6b. My CS prescribing has increased because:	70	12.73%
I feel more confident in making CS prescribing decisions	41	41.00%
Implementation of KASPER	25	25.00%
My patient population has changed	19	19.00%
Other	14	15.00%

6c. My CS prescribing had decreased because:	190	34.55%
Media coverage of prescription drug abuse and diversion	54	16.00%
Implementation of KASPER	118	35.00%
Increased law enforcement activity related to prescription drug abuse and diversion	38	11.00%
Fear of law enforcement investigation of my practice	26	8.00%
Fear of licensing board investigation of my practice	33	10.00%
My patient population has changed	28	8.00%
Other	38	11.00%

6a. If your prescribing has changed, has it impacted your ability to manage your patients' conditions?		
Yes, there has been a positive impact on my ability to help my patients manage their conditions	119	36.18%
Yes, there has been a negative impact on my ability to help my patients manage their conditions	23	4.18%
No, there has been no impact on my ability to help my patients manage their conditions	57	10.36%
Missing	271	49.27%

7. As a result of KASPER, do you believe that your CS prescribing behaviors are being monitored more closely?		
Yes	320	58.18%
No	196	35.64%
Missing	34	6.18%

8. Have you ever been contacted by a Pharmacist regarding the contents of a patients' KASPER report?		
Yes	294	53.45%

No	244	44.36%
Missing	12	2.18%

8a. If yes, the information provided by the Pharmacist was:		
Helpful in making prescribing decision(s)	289	99.00%
Not helpful in making prescribing decision(s)	3	1.00%

9. Are you aware of the Kentucky Board of Medical Licensure <i>Guidelines for the Use of Controlled Substances in Pain Treatment</i>?		
Yes	406	73.82%
No	123	22.36%
Missing	21	3.82%

9a. If yes, do you use the <i>Guidelines for the Use of Controlled Substances in Pain Treatment</i> when making decisions about pain treatment for your patients?		
Yes	236	62.77%
No	29	7.71%
Sometimes	111	29.52%

10. In what county do you currently practice?		
--	--	--

11. What best describes your specialty?		
Internal Medicine	105	19.09%
Neurology	9	1.64%
Emergency Medicine	13	2.36%
Palliative/Hospice Care	2	0.36%
Pediatrics	13	2.36%
Family Practice	264	48.00%
Orthopedics	14	2.55%
Surgery	8	1.45%
Psychiatry	39	7.09%
Other	73	13.27%
Missing	10	1.82%

12. On average, across all practice sites, how many patients do you see a day?	
Number of patients	Mean #pts = 30±15.7

13. Total number of years in practice, including internship and residency.	
Number of years	Mean yrs. =

22.7±11.8

14. What is your professional degree in?		
MD	464	84.36%
DMD	15	2.73%
DO	29	5.29%
ARNP	28	5.09%
Missing	14	2.55%

15a. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to reduce drug abuse and diversion in Kentucky?		
Not effective at all	4	1.45%
Somewhat ineffective	18	3.27%
Somewhat effective	226	41.09%
Very effective	297	54.00%
I have no experience	8	1.45%
Missing	16	2.91%

15b. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to reduce doctor shopping in Kentucky?		
Not effective at all	5	0.91%
Somewhat ineffective	16	2.91%
Somewhat effective	187	34.00%
Very effective	297	54.00%
I have no experience	19	3.45%
Missing	26	4.73%

Appendix 5: Summary Table of Pharmacist Survey Responses

1. The KASPER program allows pharmacists to request information about a patient's CS prescription history. Since the inception of KASPER, have you or anyone in your pharmacy made any requests for information regarding a patient's CS prescription history?		
Yes	444	80.30%
No	103	18.63%
Missing	6	1.10%

What is the primary reason you have not used KASPER?		
I do not have internet access to request KASPER reports.	31	26.00%
Setting up an account is cumbersome.	14	12.00%
Information in the report is not current.	5	4.00%
Paperwork is too time consuming.	5	4.00%
KASPER report is not necessary	10	8.00%
The reports are not available instantaneously.	5	4.00%
Other	50	42.00%
TOTAL	120	

2. Who requests the KASPER reports at your pharmacy?		
I request the report myself		
Another pharmacist requests the report		
A technician or intern requests the report		
Other		

3. Approximately how many KASPER reports have you utilized I the past (1) month?		
	Median	(Range)
Total number	1	(0 - 75)
Of these reports, how many influenced your decisions about dispensing?	1	(0 - 30)

4. In general, the information in the KASPER report:		
Confirmed my decision to dispense a controlled substance(s)	162	29.29%
Altered my decision to dispense a controlled substance(s)	185	33.45%
Did not impact my decision to dispense or not dispense a controlled substance	75	13.56%
Missing	131	23.70%

5. On average, how long does it currently take to receive KASPER report after submitting a request:		
0-5 minutes	184	33.27%
6-15 minutes	92	16.64%
16-30 minutes	46	8.32%
More than 30 minutes	34	6.15%

Don't know	105	18.99%
Missing	92	16.64%

6. Thinking about your general dispensing patterns in the past year, which of the following best describes your CS dispensing:		
My CS dispensing has not changed	368	66.55%

6b. My CS dispensing has increased because:	84	15.19%
I feel more confident in making CS dispensing decisions	22	23.40%
Implementation of KASPER	12	12.80%
My practice site has changed	24	25.50%
Other	36	38.30%

6c. My CS dispensing had decreased because:	69	12.48%
Media coverage of prescription drug abuse and diversion	8	7.80%
Implementation of KASPER	37	36.30%
Increased law enforcement activity related to prescription drug abuse and diversion	15	14.70%
Fear of law enforcement investigation of my practice	4	3.90%
Fear of licensing board investigation of my practice	6	5.90%
My practice site has changed	14	13.70%
Other	18	17.60%

6a. If your dispensing has changed, has it impacted your ability to manage your patients' conditions?		
Yes, there has been a positive impact on my ability to help my patients manage their conditions	81	14.65%
Yes, there has been a negative impact on my ability to help my patients manage their conditions	12	2.17%
No, there has been no impact on my ability to help my patients manage their conditions	81	14.65%
Missing	379	68.54%

7. As a result of KASPER, do you believe that your CS dispensing behaviors are being monitored more closely?		
Yes	273	49.37%
No	229	41.41%
Missing	51	9.22%

8. Have you ever been contacted by another health care professional (HCP) regarding the contents of a patients' KASPER report?		
Yes	377	68.17%
No	145	26.22%
Missing	31	5.61%

8a. If yes, the information provided by the HCP was:		
Helpful in making dispensing decision(s)	351	96.69%
Not helpful in making dispensing decision(s)	12	3.31%

9. In what county do you currently practice?		
---	--	--

10. What best describes your specialty?		
Independent pharmacy	208	37.61%
Chain pharmacy	136	24.59%
Supermarket pharmacy	71	12.84%
Hospital pharmacy	69	12.48%
Other	44	7.96%
Missing	25	4.52%

11. On average, how many CS prescriptions do you dispense a day?		
---	--	--

13a. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to reduce drug abuse and diversion in Kentucky?		
Not effective at all	12	2.17%
Somewhat ineffective	23	4.16%
Somewhat effective	321	58.05%
Very effective	136	24.59%
I have no experience	29	5.24%
Missing	32	5.79%

13b. Effectiveness is often defined as producing a desired result. To what extent do you feel KASPER is an effective tool to reduce doctor shopping in Kentucky?		
Not effective at all	18	3.25%
Somewhat ineffective	27	4.88%
Somewhat effective	290	52.44%
Very effective	145	26.22%
I have no experience	36	6.51%
Missing	37	6.69%

16. Would you be willing to transmit data on a daily basis?		
Yes	200	36.17%
No	78	14.10%
Not sure	194	35.08%
Missing	81	14.65%

Appendix 6: Summary Table of Law Enforcement Officials Survey Responses

1. The KASPER program allows law enforcement officials to request information about a patient's CS prescription history. Since the inception of KASPER, have you or anyone in your department/agency made any requests for information regarding a patient's CS prescription history?		
Yes	335	98.53%
No	5	1.47%

What is the <u>primary</u> reason you have not used KASPER?		
I am not assigned to drug diversion?	2	40.00%
I do not have internet access to request KASPER reports.	0	
Setting up an account is cumbersome.	0	
Information in the report is not current.	0	
Paperwork is too time consuming.	1	10.00%
KASPER report is not necessary	2	40.00%
The reports are not available instantaneously.	0	
Other	0	

2. Who requests the KASPER reports at your department/agency?		
I request the report myself		
Another law enforcement or regulatory official requests the report		
Other		

3. Approximately how many KASPER reports have you utilized in the past (1) month?	Median	(Range)
Total number	2	(0 - 90)
Of these reports, how many influenced your decisions about a case?	2	(0 - 100)

4. In general, the information in the KASPER report:		
Confirmed my decision to proceed with an investigation	227	66.76%
Caused me to close or dismiss pursuit of an investigation	47	13.82%
Did not impact my decision to proceed with an investigation	43	12.65%
Missing	23	6.76%

5. On average, how long does it currently take to receive a KASPER report after submitting a request:		
0-5 minutes	196	57.65%
6-15 minutes	62	18.24%
16-30 minutes	27	7.94%
More than 30 minutes	24	7.06%

Don't know	21	6.18%
Missing	10	2.94%

6. What is your overall impression of the KASPER program?		
It is useful in the early stages of an investigation to see if it is worth pursuing a case	307	44.17%
It is useful for checking facts during the middle of investigations	219	31.51%
It is useful towards the end of an investigation to round out the case	166	22.44%
It is a useful tool for streamlining investigations	3	0.43%
I do not believe that it is particularly useful to my investigations		

7. To what extent do you agree or disagree with the following statement? KASPER reports are easy to understand.		
Strongly Disagree	20	5.88%
Disagree	9	2.65%
Agree	169	49.70%
Strongly agree	132	38.80%
Missing	10	2.99%

8. Have you utilized reports from Prescription Monitoring Programs (PMPs) in other states in your investigation?		
Yes	58	17.06%
No	280	82.35%
Missing	2	0.59%

8a. If 'Yes', how do these reports compare to KASPER reports?		
Reports from other states' PMPs are easier to understand	10	18.00%
Reports from other states' PMPs are harder to understand	19	34.00%
The information in other states' PMP reports is more up-to-date than KASPER reports	6	11.00%
The information in other states' PMP reports is less up-to-date than KASPER reports	21	38.00%

9. In your experience, do you believe some pharmacists have altered their stocking and dispensing of controlled substances as a result of KASPER?		
Yes	54	15.88%
No	236	69.41%
Missing	50	14.70%

10. In your experience, do you believe some prescribers have altered their prescribing of controlled substances as a		
---	--	--

result of KASPER?		
Yes	152	44.71%
No	156	45.88%
Missing		9.41%

11. To what extent do you agree with the following statement? I have received adequate training on how to use KASPER reports as a tool in an investigation.		
Strongly Disagree	17	5.00%
Disagree	59	17.35%
Agree	199	58.53%
Strongly Agree	61	17.94%
Missing	4	1.18%

12a. Effectiveness is often defined as producing a desired result. To what extent do you believe KASPER is an effective tool to reduce drug abuse and diversion in Kentucky?		
Not effective at all	13	3.82%
Somewhat ineffective	10	2.94%
Somewhat effective	176	51.76%
Very effective	133	39.12%
I have no experience	5	1.47%
Missing	3	0.88%

12b. Effectiveness is often defined as producing a desired result. To what extent do you believe KASPER is an effective tool to reduce doctor shopping in Kentucky?		
Not effective at all	16	4.71%
Somewhat ineffective	15	4.41%
Somewhat effective	144	42.35%
Very effective	153	45.00%
I have no experience	8	2.35%
Missing	4	1.18%

14. In what city/county do you currently work?		
---	--	--

15. Which of the following best describes your professional role?		
City/county law enforcement	154	45.29%
State law enforcement	93	27.35%
Regulatory agency	22	6.47%
Other	66	19.41%
Missing	5	1.47%

Appendix 7: Impressions of KASPER's Effect on Preventing Drug Abuse and Diversion

	Effective ^a	Not Effective ^b	OR (95% CI)	OR (90% CI)
Group				
Pharmacist	457 (92.9%)	35 (7.1%)	Referent	Referent
Prescriber	504 (95.8%)	22 (4.2%)	1.75 (1.01-3.03)	1.75 (1.10-2.77)
Law enforcement	309 (93.1%)	23 (6.9%)	1.02 (0.59-1.77)	1.02 (0.65-1.62)
All Users Combined				
Rural categories^c				
Urban (RUC 1-3)	644 (96.1%)	26 (3.9%)	Referent	Referent
Semi-rural (RUC 4- 6)	228 (92.3%)	19 (7.7%)	0.48 (0.26-0.89)	0.48 (0.29-0.81)
Rural (RUC 7-9)	304 (91.8%)	27 (8.2%)	0.45 (0.26-0.79)	0.45 (0.28-0.72)
AHEC areas				
Purchase West*	88 (92.6%)	7 (7.4%)	Referent	Referent
	108 (99.08%)	1 (0.9%)	8.59 (1.03-71.15)	8.59 (1.45-50.65)
Northwest*	196 (96.5%)	7 (3.4%)	2.22 (0.75-6.54)	2.22 (0.90-5.50)
South central	180 (94.2%)	11 (5.8%)	1.30 (0.48-3.47)	1.30 (0.57-3.47)
North	286 (94.4%)	17 (5.6%)	1.33 (0.54-3.33)	1.33 (0.54-2.96)
Northeast	99 (90.0%)	11 (10.0%)	0.71 (0.26-1.93)	0.71 (0.31-1.64)
Southeast	91 (93.8%)	6 (6.2%)	1.21 (0.39-3.73)	1.21 (0.47-3.11)
Southern	128 (91.4%)	12 (18.6%)	0.85 (0.32-2.24)	0.85 (0.37-1.92)
Geographic regions				
Appalachia ^{e*}	224 (91.8%)	20 (8.2%)	0.62 (0.33-1.18)	0.62 (0.33-1.07)
Rural/NonAppalachian	259 (94.5%)	15 (5.5%)	0.96 (0.49-1.19)	0.96 (0.54-1.70)
Metropolitan	317 (95.2%)	16 (4.8%)	1.10 (0.57-2.16)	1.10 (0.63-1.94)
Other	376 (94.7%)	21 (5.3%)	Referent	Referent
Impact				
Impact ^d	559 (94.1%)	35 (5.9%)	0.92 (0.37-2.24)	0.92 (0.44-1.94)
No impact	104 (94.6%)	6 (5.4%)		
How long to wait for report				
0-5 minutes	541 (95.1%)	28 (4.9%)	Referent	Referent
6-15 minutes	291 (93.6%)	20 (6.4%)	0.75 (0.42-1.36)	0.75 (0.45-1.23)
16-30 minutes	118 (96.7%)	4 (3.3%)	1.52 (0.52-4.43)	1.52 (0.62-3.73)
More than 30 minutes	84 (91.3%)	8 (8.7%)	0.54 (0.23-1.23)	0.54 (0.27-1.08)

^aDefined as 'Somewhat effective' and 'Very effective' together

^bDefined as 'Somewhat ineffective' and 'Not effective at all' together

^cRural areas are defined by Rural Urban Continuum (RUC) codes from the USDA where RUC 1-3 is Urban, 4-6 is Semi-rural 7-9 is Rural.

^dImpact (yes) is defined as 'Confirmed my decision to dispense/prescribe/investigate a controlled substance/case' and 'Altered my decision to dispense/prescribe/investigate a control substance/case'.

^eCounties designated as being Appalachian by geographical location not economic as the ARC have defined.

Appendix 8. Impressions of KASPER's Effect on Preventing Doctor Shopping

	Effective ^a	Not effective ^b	OR (95% CI)	OR (90%)
Group				
Pharmacist	435 (90.6%)	45 (9.4%)	2.38 (1.40-4.07)	2.38 (1.40-4.07)
Prescriber	484 (95.8%)	21 (4.2%)		
Group				
Pharmacist	435 (90.6%)	45 (9.4%)	Referent	Referent
Prescriber	484 (95.8%)	21 (4.2%)	2.38 (1.40-4.07)	2.38 (1.52-3.73)
Law enforcement	297 (90.6%)	31 (9.4%)	0.99 (0.61-1.60)	0.99 (0.66-1.48)
Rural categories ^c				
Urban (RUC 1-3)	599 (93.0%)	45 (7.0%)	Referent	Referent
Semi-rural (RUC 4-6)	228 (93.4%)	16 (6.6%)	1.07 (0.59-1.93)	1.07 (0.65-1.75)
Rural (RUC 7-9)	28 (91.4%)	298 (28.6%)	0.80 (0.48-1.30)	0.80 (0.53-1.21)
AHEC areas				
Purchase	86 (92.5%)	7 (7.5%)	Referent	Referent
West	94 (95.0%)	5 (5.0%)	1.53 (0.47-5.00)	1.53 (0.57-4.13)
Northwest	177 (90.8%)	18 (9.2%)	0.80 (0.32-1.99)	0.80 (0.37-1.72)
South central	170 (90.0%)	19 (10.0%)	0.73 (0.29-1.79)	0.73 (0.34-1.56)
North	281 (94.6%)	16 (5.4%)	1.43 (0.57-3.59)	1.43 (0.66-3.09)
Northeast	101 (92.7%)	8 (7.3%)	1.02 (0.35-2.94)	1.02 (0.42-2.49)
Southeast	89 (94.7%)	5 (5.3%)	1.44 (0.44-4.74)	1.44 (0.53-3.92)
Southern	127 (92.0%)	11 (8.0%)	0.94 (0.35-2.52)	0.94 (0.41-2.15)
Geographic regions				
Appalachia	222 (92.1%)	19 (7.9%)	0.80 (0.43-1.49)	0.80 (0.48-1.34)
Rural/Non-Appalachian	246 (93.5%)	17 (6.5%)	0.99 (0.52-1.87)	0.99 (0.58-1.69)
Metropolitan	293 (91.3%)	28 (8.7%)	0.72 (0.41-1.25)	0.72 (0.45-1.15)
Other	364 (93.6%)	25 (6.4%)	Referent	Referent
Impact			1.09 (0.53-2.21)	1.09 (0.60-1.97)
Impact ^d	532 (91.2%)	51 (8.8%)		
No impact	96 (90.6%)	10 (9.4%)		
How long to wait for report				
0-5 minutes	529 (94.1%)	33 (5.9%)	Referent	Referent
6-15 minutes	283 (94.0%)	18 (6.0%)	0.98 (0.54-1.77)	0.98 (0.60-1.61)
16-30 minutes	116 (95.1%)	6 (4.9%)	1.20 (0.49-2.94)	1.20 (0.57-2.55)
More than 30 minutes	72 (84.7%)	13 (15.3%)	0.34 (0.17-0.68)	0.34 (0.19-0.61)

^aDefined as 'Somewhat effective' and 'Very effective' together

^bDefined as 'Somewhat ineffective' and 'Not effective at all' together

^cRural areas are defined by Rural continuum codes (RCC) from the USDA where RCC 1-3 is Urban, 4-6 is Semi-rural 7-9 is Rural.

^dImpact (yes) is defined as 'Confirmed my decision to dispense/prescribe/investigate a controlled substance/case' and 'Altered my decision to dispense/prescribe/investigate a control substance/case'.

*Counties designated as being Appalachian by geographical location and not by economics as the ARC have.

Appendix 9: Logistic Regression to Identify Predictors of Effectiveness

Logistic regression to identify predictors of effectiveness in preventing drug abuse and abuse and diversion with an $\alpha=0.10$

- A. Regressing effectiveness against rural code, how long it takes to get a report, impact to their practice and group they belonged to; **no** variables were statistically significant in predicting effectiveness.
- B. Regressing effectiveness against geographic region, how long it takes to get a report, impact to their practice and group they belonged to; only taking more than 30 minutes to obtain a report was statistically significant in predicting ineffectiveness in preventing drug abuse and diversion (OR=0.41 (90% CI 0.17-0.99)).
- C. Regressing effectiveness against AHEC regions, how long it takes to get a report, impact to their practice and group they belonged to; only taking more than 30 minutes to obtain a report was statistically significant in predicting ineffectiveness in preventing drug abuse and diversion (OR=0.32 (90% CI 0.13-0.79)).

Logistic regression to identify predictors of effectiveness in preventing doctor shopping with an $\alpha=0.10$

- A. Regressing effectiveness against rural code, how long it takes to get a report, impact to their practice and group they belonged to; **no** variables were statistically significant in predicting effectiveness.
- B. Regressing effectiveness against geographic region, how long it takes to get a report, impact to their practice and group they belonged to; **no** variables were statistically significant in predicting effectiveness.
- C. Regressing effectiveness against AHEC regions, how long it takes to get a report, impact to their practice and group they belonged to; only taking more than 30 minutes to obtain a report was statistically significant in predicting ineffectiveness in preventing doctor shopping (OR=0.33 (90% CI 0.19-0.99)).

Appendix 10. Allocation to Appalachian or Non-Appalachian Regions

Kentucky Appalachian counties	Kentucky comparator rural counties	Kentucky comparator metropolitan counties
Bath, Bell, Boyd, Breathitt, Carter, Clay, Clinton, Elliott, Estill, Fleming, Floyd, Greenup, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, McCreary, Magoffin, Martin, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rowan, Rockcastle, Russell, Wayne, Whitley, and Wolfe	Allen, Ballard, Butler, Caldwell, Calloway, Carlisle, Carroll, Christian, Crittenden, Daviess, Fulton, Graves, Grayson, Hancock, Harrison, Henderson, Hickman, Hopkins, Livingston, Logan, Lyon, Marshall, McCracken, McLean, Muhlenberg, Ohio, Owen, Scott, Simpson, Todd, Trigg, Union, Webster, and Warren	Boone, Bracken, Campbell, Gallatin, Grant, Henry, Jefferson, Kenton, Meade, Nelson, Oldham, Pendleton, Shelby, Spencer, Trimble,

Appendix 11. Summary of Responses from 2009 and 2010 Medicaid Provider Surveys

Question 11: How familiar are you with the KASPER (Kentucky All Schedule Prescription Electronic Reporting) program?

	2009
Never heard of it	63 10.66%
Somewhat familiar	164 27.75%
Familiar	155 26.23%
Very familiar	209 35.36%
Total	591

Question 12: How often do you request a KASPER report when considering prescribing a controlled substance?

	2009
Never	171 29.64%
Rarely	117 20.28%
Occasionally	193 33.45%
Regularly	96 16.64%
Total	577

Question 13: How often does the information contained in the KASPER reports impact your controlled substance prescribing decisions?

	2009
Never	118 21.85%
Rarely	61 11.30%
Occasionally	183 33.89%
Regularly	178 32.96%
Total	540

Question 14: How has your controlled substance prescribing changed since the availability of KASPER?

	2009
I prescribe <i>more</i> controlled substances since KASPER	5 0.93%
I prescribe <i>fewer</i> controlled substances since KASPER	176 32.84%
No Change	355 66.23%
Total	536

Question 5.1: Kentucky All Schedule Prescription Electronic Reporting (KASPER) is a controlled substance prescription monitoring program. Have you ever discussed a patient's KASPER report with them?

	2010
Yes	333 40.56%
No	446 54.32%
Not Sure	42 5.12%
Total	821

Question 5.2: Have the results of a KASPER report ever prevented you from writing a prescription for medication?

	2010
Yes	544 66.26%
No	227 27.65%
Not Sure	50 6.09%
Total	821

Appendix 12. Summary of Responses from 2010 Medicaid Recipient Survey

Question 11a: The Kentucky All Schedule Prescription Electronic Reporting is a controlled substance prescription monitoring program (KASPER). Has a doctor or other health provider ever discussed your KASPER report with you?

	2010
Yes	63 13.67%
No	315 68.33%
Not Sure	83 18.00%
Total	461

Question 11b: Have the results of a KASPER report ever prevented you from getting a prescription for medication?

	2010
Yes	37 8.11%
No	293 64.25%
Not Sure	126 27.63%
Total	456

Question 11c: Have the results of a KASPER report ever prevented you from getting a prescription filled at the pharmacy?

	2010
Yes	39 8.53%
No	304 66.52%
Not Sure	114 24.95%
Total	457