

Primary care providers' prescribing practices of opioid controlled substances

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ABSTRACT

Objective: Prescription opioid abuse poses a significant public health concern. House Bill 1 (HB1) was enacted in 2012 to address prescription drug abuse in Kentucky. The authors investigated the impact of HB1 on primary care providers' (PCPs) prescribing practices of Schedule II controlled substances.

Design: Retrospective evaluation of PCPs' prescribing practices in an adult out-patient setting.

Methods: A review of the prescribing practices for Schedule II controlled substances written by 149 PCPs. The number of prescriptions for Schedule II controlled substances written by 149 PCPs was compared to the top 10 PCP prescribers. Attention was focused on providers who wrote for oxycontin and/or opana and prescriptions with >90 pills dispensed.

Results: The top 10 PCP prescribers accounted for 38.4 percent of the Schedule II controlled substances and 47.8 percent of the Schedule II controlled substances with >90 pills dispensed. Of the 60 PCPs who prescribed opana and/or oxycontin, the average number of prescriptions was 14.7 compared to 51.0 for the top 10 PCP prescribers. The average percentage of Schedule II controlled substance prescriptions compared to the total number of prescriptions was 27.9 percent for the top 10 PCP prescribers and 7.05 percent of all PCPs. The average percentage of office visits with Schedule II controlled substance prescriptions compared to total office visits was 24.8 percent for the top 10 PCP prescribers versus 7.7 percent for all PCPs.

Conclusions: Further scrutiny is warranted to more closely analyze provider opioid prescribing habits and ensure that the providers at our Institution are prescribing Schedule II controlled substances in compliance with HB1.

INTRODUCTION

Sixty percent of the approximately 38,000 deaths from a drug overdose in the United States in 2010 were attributed to prescription drugs.¹ The number of deaths related to prescription opioids in the United States increased from 4,263 in 1999 to nearly 17,000 deaths in 2011.² There has been a 5-fold increase in prescriptions for pain medications without an increase in the painful conditions that warrant them.^{1,3} Physician prescribing practices for potentially lethal pain medications pose a significant dilemma.¹ The

majority of individuals who abuse prescription pain medications obtain them at no charge from a friend or relative.^{4,5} The second and third most common means of attaining these drugs is by being prescribed them by more than one doctor and by buying from a friend or relative, respectively. In 2014, the Drug Enforcement Administration reclassified hydrocodone combination drugs such as Vicodin as a Schedule II controlled substance under the Controlled Substances Act, with a high potential for abuse.⁶⁻⁸ In addition, patients are only able to obtain these drugs for up to 90 days without receiving a new prescription.

House Bill 1 (HB1), also known as “the pill mill bill,”⁹ was enacted in 2012 to address the prescription drug abuse dilemma in Kentucky. This bill had two primary goals, specifically, (1) to establish mandatory prescribing, dispensing, and reporting standards and (2) to develop a mandate to licensing boards to establish regulations pertaining to prescribing and dispensing of controlled substances. It required practitioners (eg, physicians, optometrists, and dentists) to utilize Kentucky All Schedule Prescription Electronic Reporting (KASPER) and to link KASPER data with the prescription drug monitoring programs (PDMPs) of ordering states. It focused on Schedule II controlled substances, including morphine, demerol, fentanyl, dilaudid, codeine, oxycodone, hydrocodone, and methadone.

Several new requirements for prescribers and dispensers were inherent in HB1. A practitioner or pharmacist authorized to prescribe or dispense controlled substances was required to register with the Cabinet to use KASPER and maintain this registration continuously during their term of licensure. Prior to the initial prescribing or dispensing of a Schedule II controlled substance to a patient, a practitioner was required to obtain a complete history and physical, query KASPER every 3 months on the patient’s personal data, educate patients about the specific drug, develop a written treatment plan, and discuss and obtain written informed consent. Long-term prescribing greater than 90 days demanded random urine drug screen and pill counts as well as consideration of referral to a specialist.

There are no national benchmarks to monitor physicians’ prescribing practices of opioid controlled substances. The present study identified the top 10 PCPs at our Institution who prescribed the greatest quantities of Schedule II controlled substances and compared their prescribing practices to those of the total 149 PCPs. We discuss the effect of HB1 in educating physicians, enhancing physician prescribing practices, and improving documentation with the ultimate goal of curtailing the rampant abuse of Schedule II controlled substances. We also offer numerous suggestions for reducing the reliance on opioid medications and techniques for prescribing opioids.

METHODS

We retrospectively reviewed the PCPs’ prescribing practices of Schedule II controlled substances at

our Institution to determine the impact of HB1 in Kentucky. This study consisted of 149 PCPs at 26 adult PCP practices between January 1, 2015 and December 31, 2015. The PCPs included those who treated patients in the adult outpatient setting and wrote three or more orders for Schedule II controlled substances. The Schedule II controlled substance stimulants (methylphenidate and amphetamine) were excluded from the data.

We compared the number of Schedule II controlled substance prescriptions written by all 149 PCPs to those who were the top 10 PCP prescribers. Particular attention was devoted to providers who specifically wrote for oxycontin and/or opana and prescriptions with greater than 90 dispensed. In addition, we compared the CPT codes for back pain (724.2, 724.3, 724.4, and 724.5) and degenerative disc disease (422.4, 722.51, 722.52, and 722.6) between the top 10 PCP prescribers and all 149 PCP providers of Schedule II controlled substances.

RESULTS

The Schedule II controlled substance prescriptions written by PCPs at our Institution are displayed in Table 1. The average number of Schedule II controlled substance prescriptions written was substantially higher for the top 10 PCP prescribers compared to all 149 PCPs. The top 10 PCP prescribers accounted for 38.4 percent of the total number of prescriptions for Schedule II controlled substances (Figure 1).

The top 10 PCP prescribers represented 47.8 percent of the total Schedule II controlled substance prescriptions written with dispense quantities in excess of 90. Sixty (40.3 percent) of the total 149 PCPs prescribed the Schedule II controlled substances opana and/or oxycontin. The average number of prescriptions written for opana and/or oxycontin was 51.0 for the top 10 PCP prescribers compared to 14.7 (representing the 60 PCPs who prescribe these drugs) and 5.9 (all 149 PCPs).

The average percentage of Schedule II controlled substance prescriptions written compared to the total number of prescriptions as well as the average percentage of office visits with Schedule II controlled substance prescriptions written compared to total office visits were considerably higher for the top 10 PCP prescribers versus all 149 PCPs (Table 1).

The average number of patients per provider with CPT codes for back pain and degenerative disc

Table 1. Schedule II controlled substance prescriptions written by PCPs at our Institution (January 1, 2015 to December 31, 2015)

	All PCP prescribers (n = 149)	Top PCP prescribers (n = 10)
Average number of Schedule II controlled substance prescriptions written	286.3	1636.3
Average number of Schedule II controlled substance prescriptions written with dispense quantities in excess of 90	142.9 (n = 130)	973.9
Average number of prescriptions written specifically for opana and/or oxycontin	5.9 (n = 149) 14.7 (n = 60)	51.0
Average percentage of Schedule II controlled substance prescriptions written compared to total number of prescriptions	7.05 percent	27.9 percent
Average percentage of office visits with Schedule II controlled substance prescriptions written compared to total office visits	7.7 percent	24.8 percent

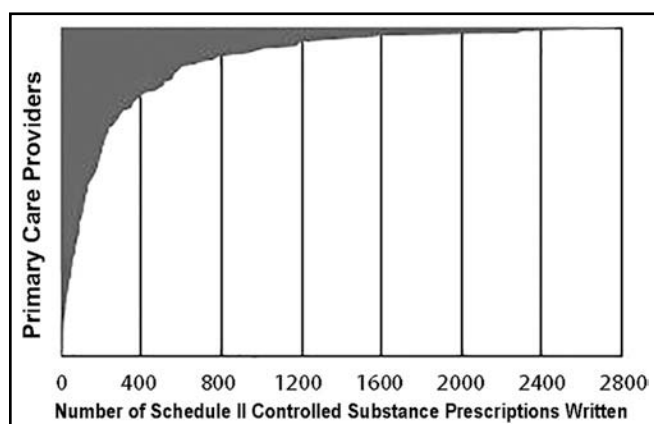


Figure 1. Number of Schedule II controlled substance prescriptions written by PCPs at our Institution (January 1, 2015 to December 31, 2015).

disease was 570 for the top 10 PCP prescribers of Schedule II controlled substances (total of 5,696 patients) compared to 133 for all 149 PCP prescribers of Schedule II controlled substances (total of 19,815 patients).

DISCUSSION

Prescription drug abuse is a dilemma both nationally¹⁰⁻¹⁶ and in Kentucky.^{9,17-20} Prescription rates for hydrocodone and oxycodone in Kentucky increased by 27 and 49 percent, respectively, from 2003 to 2010.¹⁹ According to the National Survey on Drug Use and Health in 2008-2009, Kentucky had a higher rate of illicit use of opioid analgesics than the United States for all age groups.¹⁹ The highest use was among 18-25-year old's, with 15.4 percent reporting use compared to 11.9 percent nationally.¹⁹

This was attributed to prescription practices leading to increased drug availability and diversion. The nonmedical use of prescribed controlled substances, in particular opioid analgesics, represents a significant public health concern.^{10,11} According to the Drug Abuse Warning Network between 1997 and 2001, the use of opioid analgesics substantially increased: morphine by 48.8 percent, fentanyl by 151.2 percent, and oxycodone by 347.9 percent.^{11,21}

Since the inception of its PDMP in 1999 to monitor the abuse of addictive drugs, Kentucky's ranking among states with the highest nonmedical use of prescriptions pain medications dropped from second to thirty-first place.²² KASPER is considered the "gold standard" for state PDMPs due to three aspects: (1) legislation that mandates physician and pharmacy compliance; (2) ongoing innovations; and (3) continued cooperation among key stakeholders.²²

The present work highlighting PCPs' prescribing practices of opioid controlled substances and suggestions for reducing the reliance on opioids represents a timely contribution in the setting of the opioid crisis. In 2012, the American Society of Interventional Pain Physicians provided guidance for the use of opioids for the treatment of chronic noncancer pain with the intention of improving the treatment of chronic noncancer pain and decreasing the incidence of abuse and drug diversion.^{23,24} In March 2016, the Centers for Disease Control issued 12 guidelines to PCPs for prescribing opioids for chronic pain.²⁵ The guidelines were organized into three areas of practice: (1) when to start or continue opioids for chronic pain; (2) how to select which drug, at what dose, for how long, and when

Table 2. Positive impact of HB1 in Kentucky

Improved documentation
More thorough patient care
More screening and education of patients
Increased partnering of providers with pain management specialists
Providers more selective when accepting patients

to discontinue its use; and (3) how to assess the risk of opioids and how to mitigate their potential for harm. The goal was to modify physicians' prescribing practices of opioid medications.

Numerous positive attributes have been observed following the application of HB1 in clinical practice (Table 2). In the 1 year following the implementation of HB1, there was a noticeable decrease in controlled substance dispensing, with an 8.5 percent decrease among all controlled substances statewide (Figure 2). In addition, a striking increase in the number of KASPER reports requested was observed statewide (Figure 3). This represents the extensive use of the electronic reporting system to closely monitor physicians' prescribing practices and a patient's history of controlled substance

prescriptions. "Doctor shopping" refers to patients who receive multiple prescriptions from four or more different prescribers that are filled at four or more different pharmacies within a 3-month period.¹⁷ HB1 significantly affected "doctor shopping" behavior as there was a greater than 50 percent decrease in the number of patients who met this criterion after the HB1 implementation.¹⁷ The use of KASPER limited a patient's ability to make excessive emergency room visits for nonemergency issues, request early refills, and request replacements for lost medications regularly.¹⁸ Of note, between 2011 and 2013, Kentucky's heroin overdose deaths increased from 3 to 40 percent, the heroin overdose emergency medical services calls increased 700 percent, and heroin trafficking arrests increased 1,300 percent.²⁶

We identified several factors during the investigation of the prescribing practices of the top 10 PCP prescribers at our Institution that may account for their prescribing a greater quantity of Schedule II controlled substances compared to all 149 PCP prescribers. The average number of patients per provider with CPT codes for back pain and degenerative disc disease was 570 for the top 10 PCP Schedule II controlled substance prescribers compared to 133 for all 149 PCP Schedule II controlled substance prescribers. This finding indicates that the

Controlled Substance Dispensing – One Year Comparison

Drug	August 2011 through July 2012	August 2012 through July 2013	Change
Hydrocodone	239,037,354	214,349,392	-10.3%
Oxycodone	87,090,503	77,022,586	-11.6%
Oxymorphone	1,753,231	1,138,817	- 35.0%
Alprazolam	71,669,411	62,088,568	-13.4%
Methylphenidate	10,659,840	11,454,025	+ 7.5%
Amphetamine	13,795,147	15,065,833	+ 9.2%
All Controlled Substances	739,263,679	676,303,581	-8.5%

Figures shown in doses dispensed

Figure 2. One-year comparison of Schedule II controlled substances dispensed statewide prior to and following the implementation of HB1 in Kentucky (KASPER data provided by the Cabinet for Health and Family Services, Frankfort, KY).

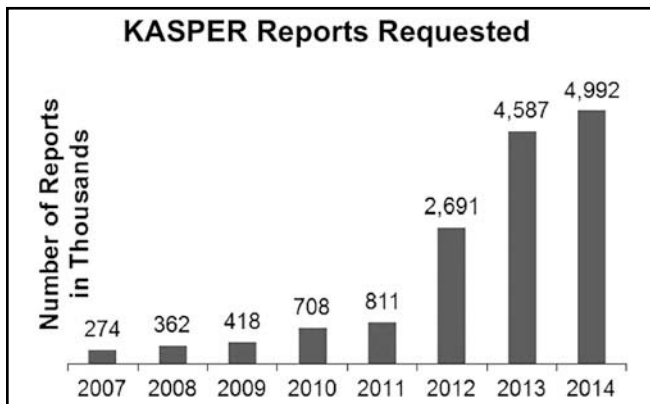


Figure 3. KASPER reports requested statewide (2007-2014; KASPER data provided by the Cabinet for Health and Family Services, Frankfort, KY).

top 10 PCP prescribers have a considerably higher number of patients with back pain and degenerative disc disease which may necessitate prescribing a greater amount of Schedule II controlled substances compared to all 149 PCP prescribers. Further studies will address additional causes for the differences in prescribing practices of PCPs.

The majority of pain management specialists prefer to focus on procedures such as epidural injections and would prefer not to assume the long-term prescribing of controlled substances which would inevitably increase the quantities prescribed by PCPs. In addition, it is not reasonable for pain management physicians to take over the responsibility of prescribing opioids to patients who should not have been started on opioids, individuals treated with unreasonable dosages, and patients with addiction issues, behavioral issues, and involved in diversion. Pain management practices are under tight scrutiny, and pain physicians are not offered special protection with regards to high-risk patients. Pain physicians strive to reduce the reliance on opioids by implementing several effective strategies (Table 3). Interestingly, we discovered that many PCPs no longer want to prescribe Substance II controlled substances due to the strict regulations inherent in HB1, thus, necessitating one PCP in a practice to prescribe a higher number of Schedule II controlled substances to patients of fellow colleagues. A host of valuable techniques for prescribing opioids are suggested (Table 4).

Several interventions have been implemented at our Institution based on the findings in the current work with the primary objective of protecting PCPs and their patients. We have educated PCPs about

Table 3. Strategies implemented by pain physicians to reduce the reliance on opioids

Interventional techniques
Physical therapy
Home exercises
Complementary and alternative therapy
Utilization of nonnarcotic medications
Assistance from other professionals, including rehabilitation physicians, neurologists, spine surgeons, neurosurgeons, and psychiatrists

Table 4. Techniques for prescribing opioids

Avoid starting patients on long-term opioids, especially young patients who will likely develop tolerance leading to other issues
In general, start therapy and plan to stop it at a specific point rather than making an open-ended process
Resist escalating the opioid dosage beyond a predetermined ceiling
Use screening tools for risk assessment, KASPER, frequent evaluations, urine drug screens, and pill counts
Abbreviation: KASPER, Kentucky All Schedule Prescription Electronic Reporting.

the significance of HB1 and developed guidelines to apply HB1 into clinical practice. The data collected in this study was shared in a blinded manner with the PCPs to allow them to compare against their peers. In addition, focused attention was directed to the outliers, including auditing their medical charts and providing specific feedback in documentation. Our identified reports were also incorporated into electronic medical record templates. The findings gleaned through the present study permitted our Institution to develop guidelines for PCPs' prescribing practices of opioid controlled substances.

While the ultimate goal of the present work was to ensure PCPs' compliance of HB1, we also stressed the importance of oversight and education of PCPs. This education was focused primarily on determining the objectives of patient treatment with the aim of reducing the quantities of Schedule II controlled substances prescribed and selecting pain medications other than Schedule II controlled substances to treat arthritis and back pain. In addition, PCPs' awareness of HB1

encourages PCPs to evaluate patients in the office on a more frequent basis to discuss their Schedule II controlled substances and associated refills.

From a pharmacy perspective, Betses and Brennan²⁷ identified high-risk prescribers by comparing them against others in the same geographic region with the same listed specialty using data from submitted prescriptions for hydrocodone, oxycodone, alprazolam, methadone, and carisoprodol. They identified 42 outliers based on the volume of prescriptions for high-risk drugs and the proportion of the prescriber's prescriptions for such drugs. The authors attempted to interview the outliers and subsequently decided not to fill the controlled substance prescriptions for 36 outliers at their pharmacy. Our study closely mimics that of Betses and Brennan's by identifying the top prescribers of controlled substances in a geographical jurisdiction by specialty and then interviewing the outliers to determine the unique characteristics of their practice.

A community in North Carolina focused their prevention program on the education of PCPs in managing chronic pain and safe opioid prescribing.²⁸ Following an intervention of a tool kit (pain management guidelines, opioid risk assessment tools, sample patient-prescriber agreement [pain contract], and patient education materials) and face-to-face meetings with physicians, the overdose death rate due primarily to opioids dropped from 46.6 per 100,000 in 2009 to 29.0 per 100,000 in 2010. In 2008, 82 percent of overdose decedents received an opioid prescription from a community prescriber compared with 10 percent in 2010. The present study in Kentucky is similar to the community-based opioid prevention program in North Carolina. Both the North Carolina study and the present work emphasize the importance of educating PCPs in safely prescribing opioid medications by means of a tool kit (North Carolina) and through KASPER at our Institution. Similar to the North Carolina analysis, the present study also encourages face-to-face meetings with PCPs. We identified the PCPs with the highest Schedule II controlled substance prescribing practices in an effort to delve into their specific patient population and their particular need to prescribe these medications. The goal of both our study and that in North Carolina was to reduce the quantity of Schedule II controlled substances dispensed by PCPs.

In an effort to curtail the prescription opioid crisis, certain technologies have attempted to develop abuse deterrent formulations.²⁹⁻³¹ These new

extended-release opioids are designed to provide adequate pain control for patients while discouraging prescription opioid abuse. Approved strategies include physical barriers to crushing, chewing, or dissolving, combinations of opioid agonists/antagonists, and the addition of aversive ingredients to opioid tablets.²⁹

CONCLUSION

The solution to mitigating the abuse of prescription controlled substances consists of the triad of safe prescribing practices, state policies, and PDMPs.³² The number of Schedule II controlled substances decreased statewide, and the number of KASPER reports requested increased statewide following the implementation of HB1 in Kentucky in 2012. Future studies will focus on specialists' prescribing practices of Schedule II controlled substances, a patient's diagnosis leading to the prescription of a Schedule II controlled substance, the prevalence of polypharmacy, and physician and patient characteristics. Further analysis is warranted to continue monitoring prescribing practices at our Institution and in Kentucky to elucidate the impact of HB1.

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REFERENCES

1. Krans B: CDC: Prescription painkillers more lethal than cocaine and heroin. Healthline Web site, 2013. Available at <http://www.healthline.com/health-news/policy-fatal-painkiller-deaths-rising-070213#1>. Accessed October 7, 2016.

2. Jabbar G: Prescription drug deaths keep rising: CDC. *ABC News*. September 16, 2014. Available at <http://abcnews.go.com/blogs/health/2014/09/16/prescription-drug-deaths-keep-rising-cdc/>. Accessed October 7, 2016.
3. Sehgal N, Manchikanti L, Smith HS: Prescription opioid abuse in chronic pain: A review of opioid abuse predictors and strategies to curb opioid abuse. *Pain Physician*. 2012; 15: ES67-ES92.
4. Centers for Disease Control and Prevention: *Injury prevention & control: Prescription drug overdose*. 2015. Available at <http://www.cdc.gov/drugoverdose/data/prescribing.html>. Accessed October 7, 2016.
5. Setnik B, Roland CL, Goli V, et al.: Self-reports of prescription opioid abuse and diversion among recreational opioid users in a Canadian and a United States city. *J Opioid Manag*. 2015; 11: 463-473.
6. HealthDay: U.S. to tighten access to certain narcotic painkillers. 2014. Available at <https://consumer.healthday.com/general-health-information-16/drug-abuse-news-210/u-s-to-tighten-access-to-certain-narcotic-painkillers-691021.html>. Accessed October 7, 2016.
7. Leger DL: Narcotic pain pills to face tougher regulations. *USA Today*. August 21, 2014. Available at <http://www.usatoday.com/story/news/nation/2014/08/21/us-restricts-hydrocodone-pain-killers/14387867/>. Accessed October 7, 2016.
8. Radnofsky L, Walker J: DEA restricts narcotic pain drug prescriptions. *The Wall Street Journal*. August 22, 2014. <http://www.wsj.com/articles/dea-restricts-narcotic-pain-drug-prescriptions-1408647617>. Accessed October 7, 2016.
9. Huecker MR, Shoff HW: The law of unintended consequences: Illicit for licit narcotic substitution. *West J Emerg Med*. 2014; 15: 561-563.
10. Davis WR, Johnson BD: Prescription opioid use, misuse, and diversion among street drug users in New York City. *Drug Alcohol Depend*. 2008; 92: 267-276.
11. DuPont RL: Prescription drug abuse: an epidemic dilemma. *J Psychoactive Drugs*. 2010; 42: 127-132.
12. Havens JR, Oser CB, Leukefeld CG: Increasing prevalence of prescription opiate misuse over time among rural probationers. *J Opioid Manag*. 2007; 3: 107-111.
13. Jones CM, Mack KA, Paulozzi LJ: Pharmaceutical overdose deaths, United States, 2010. *JAMA*. 2013; 309: 657-659.
14. Manchikanti L, Helm S, Fellows B, et al.: Opioid epidemic in the United States. *Pain Physician*. 2012; 15: ES9-ES38.
15. Reifler LM, Droz D, Bailey JE, et al.: Do prescription monitoring programs impact state trends in opioid abuse/misuse? *Pain Med*. 2012; 13: 434-442.
16. Van Zee A: The promotion and marketing of oxycontin: Commercial triumph, public health tragedy. *Am J Public Health*. 2009; 99: 221-227.
17. Freeman PR, Goodin A, Troske S, et al.: Kentucky House Bill 1 impact evaluation. Frankfort, KY: Kentucky Cabinet for Health and Family Services (CHFS), 2015. Available at <http://www.chfs.ky.gov/NR/rdonlyres/SD6EBE65-D16A-448E-80FF-30BED11EBDEA/0/KentuckyHB1ImpactStudyReport03262015.pdf>. Accessed October 7, 2016.
18. Hopkins D: Kentucky all schedule prescription electronic reporting. Frankfort, KY: Kentucky Cabinet for Health and Family Services (CHFS), 2010. <http://chfs.ky.gov/NR/rdonlyres/3AFE0A2D-141E-4DE1-8244-2E171262127B/0/KASPER Presentation PrescriptionDiversionandPainManagement Workshop.pdf>. Accessed October 7, 2016.
19. Kentucky State Epidemiological Outcomes Workgroup: Prescription drug trends in Kentucky short report. Louisville, KY: REACH Evaluation, 2011. Available at <http://chfs.ky.gov/NR/rdonlyres/87074ESC-69F5-426D-A3E2-5BA341F7252A/0/PrescriptionDrugTrendsInKentuckyShortReport.pdf>. Accessed October 7, 2016.
20. Shields LB, Hunsaker JC, Corey TS, et al.: Methadone toxicity fatalities: A review of medical examiner cases in a large metropolitan area. *J Forensic Sci*. 2007; 52: 1389-1395.
21. Novak S, Nemeth WC, Lawson KA: Trends in medical use and abuse of sustained-release opioid analgesics: A revisit. *Pain Med*. 2004; 5: 59-65.
22. Substance Abuse and Mental Health Services Administration: Kentucky meets the gold standard for prescription drug monitoring programs. 2013. Available at www.samhsa.gov/capt/tools-learning-resources/kentucky-meets-gold-standard-prescription-drug-monitoring-programs. Accessed October 7, 2016.
23. Manchikanti L, Abdi S, Atluri S, et al.: American Society of Interventional Pain Physicians (ASIPP) guidelines for responsible opioid prescribing in chronic non-cancer pain: Part 2—Guidance. *Pain Physician*. 2012; 15: S67-S116.
24. Manchikanti L, Abdi S, Atluri S, et al.: American Society of Interventional Pain Physicians (ASIPP) guidelines for responsible opioid prescribing in chronic non-cancer pain: Part I—Evidence assessment. *Pain Physician*. 2012; 15: S1-65.
25. Sederer L: Better than a war on drugs. *US News*. March 21, 2016. Available at <http://www.usnews.com/opinion/blogs/policy-dose/articles/2016-03-21/cdc-opioid-guidelines-are-a-step-for-ward-to-end-painkiller-abuse>. Accessed October 7, 2016.
26. Katz B: Heroin addiction rapidly increasing, killing in Louisville. *Wbas11*. November 6, 2014. Available at <http://www.wbas11.com/story/news/health/2014/11/06/heroin-addiction-rapidly-increasing-killing-in-louisville/18631329/>. Accessed October 7, 2016.
27. Betses M, Brennan T: Abusive prescribing of controlled substances—A pharmacy view. *N Engl J Med*. 2013; 369: 989-991.
28. Albert S, Brason FW, Sanford CK, et al.: Project Lazarus: Community-based overdose prevention in rural North Carolina. *Pain Med*. 2011; 12(suppl 2): S77-S85.
29. Alexander L, Mannion RO, Weingarten B, et al.: Development and impact of prescription opioid abuse deterrent formulation technologies. *Drug Alcohol Depend*. 2014; 138: 1-6.
30. Cassidy TA, DasMahapatra P, Black RA, et al.: Changes in prevalence of prescription opioid abuse after introduction of an abuse-deterrent opioid formulation. *Pain Med*. 2014; 15: 440-451.
31. Michna E, Kirson NY, Shei A, et al.: Use of prescription opioids with abuse-deterrent technology to address opioid abuse. *Curr Med Res Opin*. 2014; 30: 1589-1598.
32. Centers for Disease Control and Prevention: Understanding the epidemic: When the prescription becomes the problem. 2015. Available at <http://www.cdc.gov/drugoverdose/epidemic/index.html>. Accessed October 7, 2016.