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Nurse Practitioner Knowledge of Urine Drug Testing

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Final DNP Project Report

Nurse Practitioner Knowledge of Urine Drug Testing

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Dedication

This project is dedicated to my children, Cameron, Cassandra, and Carissa. The time I spent on this project meant nights and weekends missed with them. I hope that they know anything is possible.

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I would like to take a moment and thank the member of my committee and the Kentucky Coalition of Nurse Practitioner and Nurse Midwives for allowing me to complete my project. They were a tremendous help and allowed me to complete a project that has meaning to myself and other nurse practitioners.

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Introduction/DNP Capstone Overview

Prescription drug abuse has become an epidemic problem in many states, including Kentucky. In 2012, the state of Kentucky sought to decrease the number of deaths in the state related to overdoses of prescription medications. As a result, urine drug screening was mandated by the Kentucky Board of Medical Licensure and recommended by the Kentucky Board of Nursing to assess and monitor for appropriate use of prescription medications (http://odcp.ky.gov). These requirements were implemented as a portion of House Bill 1: The Pill Mill Bill. Although House Bill 1 was originally intended to address medications for the treatment of pain, each professional board adapted the law to include many of the drugs of abuse for Kentucky. House Bill 1 has been successful in decreasing the number of prescriptions of pain and anxiolytic medications; for example, the Office of Drug Control Policy reports that since the enactment of this legislation, prescriptions of medications containing hydrocodone and oxycodone have decreased by 11.8%, oxymorphone has decreased by 44.5%, and alprazolam has decreased by 14.5% (http://odcp.ky.gov/, 2013).

The prescribing practices of nurse practitioners who prescribe controlled substances can be informed and guided by Urine Drug Screening (Gourlay, Heit, & Caplan, 2012). A variety of methods and screening sensitivity is available and not all of those are appropriate in all practice sites. Each provider should review their practice type and choose the method of urine testing that allow them to best monitor those prescribed medications (Hammett-Staber, Pesce, & Cannon, 2002; Perrone, De Roos, Jayaraman, & Hollander, 2001).

Knowledge and comfort levels related to urine drug screening and interpretation have been studied in family physicians and internal medicine resident (Reisfield, Webb, Bertholf, Sloan, & Wilson, 2011). Those studies indicate that internal medicine residents and family physicians have a knowledge gap related to urine drug screening. Interpretation of drug screening and accurate use of those screens can be problematic (Pesce, West, City, & Strickland, 2012). Providers use urine drug testing to assist and monitor potential drugs of abuse and often use those results to make clinical decisions about medication management (Pesce et al., 2012). If the provider does not

have a solid understanding of the results and interpretation, they can potentially err in prescribing medications in inadequate or excessive dose ranges for illnesses such as chronic pain (Larson & Richards, 2009). Providers are expected to manage patients who have substance abuse and dependence, but may not have received adequate training in the assessment and management of substance use disorders, including the use of urine drug screening (Rasyidi, Wilkins, & Danovitch, 2012).

This DNP Capstone seeks to the review the literature surrounding provider knowledge of urine drug testing, evaluate the use of psychiatric mental health nurse practitioners as treating professionals, and to investigate the knowledge of current nurse practitioners related to urine drug testing.

Manuscript 1

Prescribing Provider Knowledge of Urine Drug Testing: What Do They Know?

Introduction

In the last 20-30 years, the availability of prescription medications for the treatment of chronic or acute pain, anxiety, attention deficit disorders, and problems with sleep has increased. Along with this increase in prescription medications, researchers have seen the rates of misuse increase (Trust for America's Health, 2013). The Substance Abuse and Mental Health Services Administration [SAMHSA] estimated in 2011 that there are over 6 million Americans abusing or misusing prescription medications (SAMHSA, 2011). Prescription drug abuse and misuse is a costly problem in both primary and acute care. In emergency departments, the numbers of unintentional overdoses, drug poisoning deaths, and children treated for poisoning has increased since 1999 (Trust for America's Health, 2013). The percentage of increase varies by resource.

Strategies to decrease prescription drug abuse have included health policy and law changes, provider education, increased access to treatment and referral, and communication among states to prevent doctor shopping (Gourlay, Heit, & Caplan, 2012; Hammett-Staber, Pesce, & Cannon, 2002; Kentucky Cabinet for Health and Family Services, 2013). Provider education after graduation can be variable and may range from 3-12 hours related to substance abuse (Trust for America's Health, 2013). Health policy and law may include prescription drug monitoring programs, physical examination requirements of providers, requiring photo identification to fill prescription medications, and "doctor shopping" statutes (SAMHSA, 2013). Providers attempt to reduce prescription drug abuse with a variety of methods, such as pill counting and random urine drug testing (Gourlay et al., 2012). The focus of this review will be to evaluate the literature available on provider knowledge of urine drug testing and interpretation.

Background

Urine drug testing is a critically important tool in the treatment of disease and the assessment and management of prescription drug abuse (Nafziger & Bertino, 2009). Urine drug testing, along with appropriate assessment and a review of drug use history can add valuable information to the clinical picture. Random testing of adolescents in drug treatment programs has been shown to improve program compliance (Vakili, Currie, & El-Guebaly, 2009). Providers in chronic pain treatment programs utilize urine drug testing to investigate compliance and possible abuse (Larson & Richards, 2009). Drug testing has also been indicated to deter potential abuse of medications, as indicated in a 2002 review of the Department of the Navy drug testing programs (Borack, 2002).

Two models of urine drug testing currently exist. The first model is considered a forensic model, and was initiated through the criminal justice system. In the forensic model, the urine drug testing is used to ensure compliance with prescribed medications. The compliance could be mandated by the criminal justice system or by workplace settings (Pesce & West, 2011). The second model of drug testing is considered a therapeutic model. In the therapeutic model, the prescribing provider uses urine drug testing to guide decision making on optimal treatment, based upon the levels of substances in the patient's body. Using the therapeutic model, the patient's urine can be used to assess metabolites of many medication classes (Jaffee, Trucco, Teter, Levy, & Weis, 2008). Those tests can then be used to assist with clinical decision making as well as determining patient compliance with the prescription regimen.

Although skin, hair, nails, sweat, and saliva are used for laboratory drug testing, urine remains the most common because of collection ease (Moeller, Lee, & Kissack, 2008). Urine drug testing is becoming increasingly more complex with greater specificity and sensitivity. Patients with addictions and polypharmacy frequently do not provide accurate or complete

reports of all medications used during the frame of reference for the drug testing, resulting in a need for the provider to use more sophisticated testing to determine drug status (Vaswani, 2003). Urine drug testing can provide additional information that allows providers to screen for drugs of abuse as well as other prescribed medications.

The specificity of urine drug testing depends on the type of testing used. One type of testing is enzyme-immuno-assay testing (EIA), which uses antibodies to detect drugs in the urines. This method is commonly used to detect opiates and benzodiazepines. Gas chromatography and mass spectroscopy testing (GCMS) separates and isolates the specific drug (i.e. morphine or diazepam) and gives the prescriber a quantity of the drug found. GCMS allows the prescriber to have a repeatable, accurate, and objective measure to determine therapeutic and illicit drug usage (Tenore, 2010). Gas chromatography has been considered the standard for conformational analysis until recent years, when more laboratories began using liquid chromatography (Rummell, 2012).

It is important to note that the assay processes within each laboratory performing the test may differ and that qualitative results should be reviewed with each individual laboratory to ensure that the prescribing provider is making appropriate decisions based on the results (Melanson et al., 2010). The prescribing provider's decisions can affect the patient drastically, and the use of inaccurate laboratory values or inaccurate interpretation can cause negative outcomes for the patient. Patient diseases or pain may be undertreated, there may be criminal complaints, or patients may be falsely accused of diversion. Diversion in the clinical setting refers to misuse of medications that can include sharing or selling medications. Recommendations for treatment can also depend on verification of the patient's drug use (Patterson, 2008).

False positive results can complicate the clinical picture and the prescribing clinician should be aware of substances that can produce those false positive/negative results. Occasionally, medications without abuse potential can provide a false-positive result. The most common classes of medications that have false positive results are antihistamines, antipsychotics, antidepressants, antibiotics, and analgesics (Braham, Yeager, Fox, Farmer, & Palmer, 2010). It is important for the prescribing clinician to understand both the active drugs and their metabolites (Dasgupta, 2009). It is also important to verify those false positive results with additional testing methods. If the provider has used point-of-care testing to screen patients, those positive results should then be quantified to determine which drugs created the positive results.

It is a common practice for patients to "beat" urine drug tests by altering results in some way. Patients who are not observed giving the urine sample may have the ability to "swap" a separate urine sample that would be free of illegal substances but would have the prescribed substances. Dilution is an additional strategy to change the results of urine drug tests. In an attempt to decrease the detectable substance, the patient ingests large quantities of liquids or adds water to the urine sample (Mikkelsen & Ash, 1998). The last method used by patients to alter urine drug test results is adulteration of the sample. Patients can add substances to the urine that will inactivate results. Most often, household items are used in the adulteration process and may include soaps, bleaches, acidic juices, and cleaning chemicals. The efficacy of those adulterants varies based upon the strength and "freshness" of the urine sample (Hedayati, Tajic, & Kazemi, 2008).

Understanding and interpreting urine drug testing is a complex process and providers using these tests should have a basic understanding of the strengths and limitations of each screen.

Methods

A literature review was conducted to describe the prescribing practices of providers who practice in the US. In the United States, prescribing is limited to providers such as physicians, podiatrists, veterinarians, and physician assistants, dentists, advanced practice nurses, nurse anesthetists, and nurse midwives. In a very limited number of states, optometrists and psychologists may prescribe as well. This review will focus on physicians, physician assistants (PAs), and advanced practice nurses (APNs).

The volume of literature was very limited regarding the knowledge levels of advanced practice nurses and physicians' assistants, and the review was expanded to include some information about the prescribing practices of those groups. There were no limits on the age of the articles searched. Search terms included: physician assistants, nurse practitioners, knowledge, interpretation, urine drug testing, urine drug screening, urine drug toxicology, prescribing practices, and combinations of those listed above. Search engines included CINAHL, Ebscohost, Cochrane, Medline, and NIH. The search included books and journals from nursing, allied health, medicine, psychiatry, psychology, addictions, substance abuse, and mental health. References lists from sources were included; clinical toxicologists were also consulted for landmark studies related to provider interpretation and knowledge.

Physician Knowledge

There are few studies related to the prescribing providers' knowledge levels of urine drug testing. Two studies reported similar results in interpretation response of physicians. In 2006, Levy et al. evaluated urine drug testing in ambulatory medicine. Surveys were created, as no tools were available to assess physician knowledge and practices. The survey was administered to 359 physicians with a 42% response rate. The responses of the physicians indicated wide use

of urine drug testing but poor collection methods and improper use of validation techniques. In addition, only 10% of participants were able to answer all of the questions correctly.

Reisfield et al. (2007) created a seven question survey and administered it to 60 physicians to assess knowledge and proficiency in urine drug testing interpretation. None of the physicians tested were able to answer all seven questions correctly and less than twenty percent answered more than half of them correctly. The test scores of physicians who ordered urine drug testing were generally better compared to those who did not order urine drug tests. The study results indicated that those who order drug testing generally have a poor understanding of the information provided by the test. It also indicated that in order to ensure appropriate responses to testing, those physicians should work with chemists/toxicologists when ordering and interpreting tests. Those studies imply an overall gap between providers ordering urine drug screens and what they actually understand about the tests they are ordering.

A second survey from Levy et al. (2007) in the *Journal of Adolescent Health*, reported that physicians had difficulty agreeing on indications for drug testing in general medical settings and that most disagreed with testing in school settings. The study recommended professional guidelines to assist with effective use of the procedure.

The most recent study of physician knowledge and interpretation of urine drug testing involved 99 residents who responded to a 7 item survey. The survey included a question about their confidence in interpretation of the results (Starrels, Fox, Kunins, & Cunningham, 2012). Over half the residents indicated that they were confident in their abilities to interpret results, but nearly three-fourths of the residents answered three or fewer questions correctly. The study also adjusted for gender and reported that female residents' confidence responses were positively correlated with knowledge.

None of the studies reviewed used the same questionnaire to determine provider knowledge and interpretation of urine drug testing. This limits the ability to compare the provider responses or to analyze the inconsistencies in their responses. The questionnaires cannot be used to compare knowledge on specific medications or specific knowledge deficits.

Advanced Practice Nurse and Physician Knowledge

The literature search indicated that there are no published studies, that evaluate APN and PA knowledge of urine drug screen interpretation. Hooker and Cipher (2005) found that PAs and APNs have exhibited similar prescribing practices. Another analysis of prescribing practices indicated that PAs were slightly more likely than physicians to prescribe a controlled substance in a primary care visit (Cipher, Hooker, & Guerra, 2006).

Care and outcomes of patients seen by PAs and APNs have been shown to be similar to those of physicians (Institute of Medicine [IOM], 2011; (Kentucky Coalition of Nurse Practitioner and Nurse Midwives [KCNPNM], 2010, 2011). With similar prescribing practices it is reasonable to expect similar evidence based monitoring of prescribed medications using urine drug testing (Moeller et al., 2008). If APNs are prescribing the same medications, they likely have the same or similar knowledge deficits in urine drug testing and interpretation.

Conclusion

Despite the indication in the literature that urine drug testing can be a valid and viable tool for managing patient drug status, there is an absence of literature to support prescribing provider knowledge and understanding of urine drug screening. Physicians, APNs and PAs are all prescribing medications that have the potential for abuse, but may have different perspectives about the patient's potential to abuse them (Hagemeier, Gray, & Pack, 2013). Monitoring medications and interpretation of urine drug testing adds information to the clinical presentation

of the patient and can be used provide adequate management of many conditions (Moeller et al., 2008). The studies related to physicians all indicate that there is a difference between what physicians believe they know and what they actually understand about urine drug testing and interpretation (Reisfield, Webb, Bertholf, Sloan, & Wilson, 2007; Starrels et al., 2012). If they do not understand the tests they are ordering, it is possible that their clinical decision making in influenced by those deficits, possibly resulting in negative outcomes for patients. PAs and APNs are gaining the opportunity to prescribe and their practices are expanding (Morgan, De Oliveira, & Short, 2011). If they are prescribing in the same patterns as physicians, it is reasonable to expect similar confidence levels and misunderstandings about their knowledge related to urine drug screening.

Implications for Practice

There have been many recent studies encouraging the use of PAs and APNs to help improve access to primary care services across the United States (Deloitte, 2013; IOM, 2011; & Morgan et al., 2011). As the scope and standards of APN practice expands, it is critically important to understand the weaknesses and limitations to that practice. Addictions to both prescription drugs and illegal substances are on the rise and prescribing providers need to understand the methods to minimize that potential (SAMHSA, 2012). Initially, all prescribing provider knowledge should be assessed with a standardized tool to determine the knowledge deficits. Second, those deficits should be used to create continuing education programs to target that deficit. Third, addiction and abuse screening should be a part of the educational preparation of each prescribing provider type and needs to be addressed prior to graduation. Addiction and substance abuse management can be improved if providers have good understanding of the tools available for clinical monitoring and are using those tools appropriately.

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Manuscript 2

Psychiatric APRN's: Removing Barriers in Kentucky

Abstract

Purpose: To support the expansion of Psychiatric Advanced Practice Registered Nurses (APRN) care in the state of Kentucky by removing the limitations of the current Administrative Regulation.

Data Sources: Kentucky Health Facts, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Centers for Medicare and Medicaid Services, and related literature.

Conclusions: Mental health care is inaccessible in Kentucky and increasing patient access to Psychiatric APRNs could improve access to mental health care for Kentucky Residents. Kentucky has a critical shortage of Psychiatrists and limiting access to prescribing providers is not in the best interest of Kentuckians.

Implications for Practice: Like many chronic physical illnesses, mental illness can be treated with lifestyle modifications, patient education, psychotherapy, and medications. Granting psychiatric nurse practitioners additional visits annually can improve care and outcomes for mentally ill patients in Kentucky.

Psychiatric APRNs: Removing Payment Barriers in Kentucky

In today's political environment, healthcare policy has taken the forefront in national debates and even led to the governmental shutdown in October 2013. The introduction of the healthcare reform law supports the need for change in our current healthcare systems. In 2003, In his book, *Agenda, Alternatives, and Public Policies*, John Kingdon (2003) indicated that successful policy change requires clear identification of a problem and three streams for change.

In this case, one stream that creates an impetus for change is the observation that millions of American citizens are underinsured or uninsured, resulting in a well-publicized healthcare crisis. The second stream requires the involvement of experts willing to support the need for a proposed change. Mental health professionals at state and federal level support changes that allow for equitable coverage for mental health and substance abuse services (Institute of Medicine [IOM], 2011; (Kentucky Cabinet for Health and Family Services, 2013; "Preventing substance abuse," 2012). The third stream for change relates to the political input, and whether the proposed policy change will have any support (Kingdon, 2003). The healthcare reform law has provisions to provide equitable coverage for mental health and substance abuse. More specifically in Kentucky, the Medicaid Task Force has allowed testimony for expansion of nurse practitioner services within the state.

Mental illness is a significant problem in the United States. Data from the Department of Health and Human Services estimate that more than 6% of adults have experienced mental illness in the last year, and estimates for children are 1 in 10 (SAMHSA, 2011). Kentucky reports higher than national average numbers for children with attention deficit disorders, adults with serious mental illness, and suicide rates in high schools ("Preventing substance abuse,"

2012).Considering this information, the need for an adequately staffed mental health workforce is significant. Due to the increasing focus on health care, the Commonwealth of Kentucky commissioned a Healthcare Workforce Capacity committee to investigate the current mental health treatment demands in the state. The Health Care Workforce Capacity report, also known as the Deloitte Report, evaluated primary and mental health services in the state. In 2013, the Deloitte report indicated there are 431 Psychiatrists and 56 Child and Adolescent Psychiatrists currently in practice in KY (Deloitte, 2013). In 2007, the Kentucky Institute of Medicine stated that Kentucky will experience a mental health provider shortage of 48.6% by 2020. At the time of the study, there were 59 Child and adolescent psychiatrists and 383 psychiatrists in Kentucky(Kentucky Institute of Medicine, 2007). There is little difference in the number of practicing psychiatrists in the state during the five year difference between the Kentucky IOM report and the Deloitte report.

The number of psychiatric (behavioral health) advanced practice nurses (APRN) in the state is not available via the Kentucky Board of Nursing database. A review of the Kentucky Coalition of Nurse Practitioners and Nurse Midwives membership roster suggests that there are fewer than 100 psychiatric APRNs currently in practice in the state. In Kentucky, a psychiatric APRN can be either a Clinical Nurse Specialist or a psychiatric mental health nurse practitioner (PMH-NP). The PMH-NP can specialize in the treatment of children/adolescents or families. PMH NPs are individuals with specialized training and board certification in some aspects of psychiatry/mental health and are among the only providers who are able to bill for psychiatric services (Bjorklund, 2003). There have been a variety of reasons that psychiatric APRNs have been unable to provide those services in Kentucky. These have historically included reimbursement, prescriptive authority, admitting privileges, and bureaucracy (Dunn, 1997;

Howard & Greiner, 1997). These barriers are present regardless of the work setting (Heale, 2012).

Background

Kentucky is known as one of the unhealthiest states in the U.S. (Kentucky Coalition of Nurse Practitioner and Nurse Midwives [KCNPNM], 2010, 2011). One relevant health indicator measures the number of mentally unhealthy days experienced each month by its residents. Mentally unhealthy days are currently defined as those that do not allow an individual to attend to work or activities of daily living. In 2012, Kentucky ranked 48th in the nation for the prevalence of these mental health days (Kentucky Cabinet for Health and Family Services, 2013). These poor outcomes have been attributed to difficulties in accessing care because of insurance or provider availability. In 2013, the Deloitte report estimated that it would take 1683 full-time equivalents (FTEs) to meet the current mental health needs in Kentucky. This number includes both prescribing professionals (psychiatrists, psychiatric APRNs, physician's assistants) and non-prescribing professionals (social workers, psychotherapists, and certified alcohol and drug counselors).

PMH NPs are trained to provide psychotherapy, medication management, advanced assessments, and psychotherapy (Baradell, 1994; Gournay, 2000; Lovell et al., 2003). Psychiatric APRNs have the opportunity to meet a unique mental health need as they are able to provide both medication management visits and psychotherapy. However, Kentucky Administrative Regulation 1: 104 limits reimbursement of the psychiatric nurse practitioner to four therapy visits in a 12 month period. This means that although psychiatric APRNs are reimbursed for the evaluation and management of a patient, they cannot bill for more than four therapy visits per year. This paper will address the reasons for removal of the limitations on

psychiatric APRNs' reimbursement for psychotherapy services. The current regulations do not provide parity for mental health, are not cost effective, and limit access to providers with a history of providing quality care.

Parity

In 1996, President Bill Clinton enacted the Mental Health Parity Act, which incorporated provisions to current insurance plans to enhance and provide mental health coverage that is equitable to coverage for treatment of medical illnesses. Although this act did not make provisions for mental health coverage, it was the beginning of a series of acts that would increase coverage for mental health diagnosis and treatment from employers (www.nami.org). Kentucky's version of the parity law appears in Kentucky Regulatory Statue 304.17-318. The parity regulation states the following:

> Any offer to sell a policy or contract of general health insurance to be issued,
>
> Delivered, issued for delivery, amended or renewed in this state after January
>
> 1, 1987, shall include an offer of coverage for the inpatient and outpatient
>
> Treatment of mental illness, at least to the same extent and degree as coverage
>
> Provided by the policy or contract for the treatment of physical illnesses
>
> (www.lrc.ky.gov).

Nationally, an additional parity act was created in 2008, but that act does not apply to federally funded plans, such as the Medicare and Medicaid systems (CMS, 2013). Therefore, the many individuals who receive Medicare and Medicaid benefits for mental illness and associated disabilities are not receiving parity in their healthcare (McAllister, 2005).

Quality

The quality of APRN services has been documented in numerous studies comparing the quality of physicians to APRNs. Those studies were used in the 2011 report from the Institute of Medicine, providing documentation that despite the difference in educational preparation, there is no noticeable difference in the provision for primary care services (Institute of Medicine [IOM], 2011). The comparison between psychiatric APRNs and psychiatrists has not been studied as extensively. There is some evidence to support the use of psychiatric APRNs in medication management and psychotherapy services. A direct comparison of psychiatric and APRN practices in the treatment of depression indicates that there was no change in medication adherence (Jacobs, 2005). The same study indicates that psychiatric APRNs spent more time with the patients while Psychiatrists wrote more prescriptions for anxiolytic agents (Jacobs, 2005). Optimal psychotherapy outcomes rely on both medication management and adequate time devoted to patient education and prevention. This study supports the role of psychiatric APRNs as quality providers.

Although patients need increased access to prescribing professionals, such as psychiatric APRNs, they also require psychotherapy at times to assist with resolution of symptoms. The effectiveness of treatment provided by PMH NPs has been studied in patient populations with obsessive compulsive disorder. In a study by Reasor and Farrell (2005), Psychiatric Clinical Nurse Specialists were noted to have both the appropriate level of training and the ability to effectively treat psychological conditions. Studies using early intervention as a treatment in early psychosis have indicated that it is within the scope of Psychiatric APRN practice to implement those measures (Moore & Proctor, 2011). Early identification in APRN screening has also been shown to improve outcomes in the Postpartum Depression population. Using research on best practices, psychiatric APRNs are able to screen and intervene more effectively

in mental illnesses and provide evidence based interventions (Neiman, Carter, Van Sell, & Kindred, 2010). The study only evaluated the psychiatric APRNs' use of evidence based protocols for management of illness.

Psychiatric APRNs are regarded as providing high quality care in multiple settings (Cornwell & Chivernton, 1997). For example, psychiatric APRNs are being used to improve mental health outcomes in emergency rooms (Wand & White, 2007) and school based clinics (Grossman et al., 2007). They have been known to use identification symptom relief, patient self-reports, patient determined goals, attaining treatment plan goals, and behavioral changes as methods to gauge positive and negative patient outcomes (Barrell, Merwin, & Poster, 1997). These data are critically important when assessing patient outcomes, such as patient satisfaction and improvement in symptoms and functioning. They can also be considered methods to decrease patient healthcare costs.

Cost

Currently, Medicare is the standard of reimbursement and is considered the central value at 100%. Insurance reimbursements are typically 110-120% of the Medicare rate. Kentucky Medicaid reimburses physicians at 75% of the Medicare reimbursement rate and APRNs at 75% of the physician's rate or 54.75% of the Medicare rate. The cost effectiveness of PMH NPs can be illustrated by an evaluation of reimbursement for a moderately complex new patient visit (CPT Code 99203), follow-up visit (CPT 99214), and the lowest psychotherapy add-on codes (CPT 90833; www.cms.gov).

Table 1

Reimbursement Rates for a Moderately Complex Patient

CPT Code	Private Insurance	Medicare	Medicaid Physician	Medicaid APRN

	Reimbursement (110-120%)	Reimbursement (100%)	(Psychiatrist) (75%)	(73% of the Physician Medicaid Rate)
99203 (New)	93.41-101.90	84.92	63.69	46.49
99214 (Follow-up)	92.79-101.22	84.35	63.26	46.17
90833 (therapy)	37.68-41.1	34.25	25.68	18.75

At the current reimbursement rates Psychiatric APRNs are being reimbursed at just 54% of the Medicare rate for providing patient care (www.lrc.ky.gov). Essentially, it is more cost effective for the state to allow nurse practitioners to see patients.

In an analysis of state level spending from 1997-2005, the Substance Abuse and Mental Health Services Administration (SAMHSA) found that Kentucky spent $423 per person on mental health and addiction services (SAMHSA, 2013); further analysis indicated that the majority of Kentucky's spending was spent on hospitalizations ($140 per person) and on retail prescription drugs ($138 per person). An estimate from a Rand Report in 2009 indicates that the state of Massachusetts could save $4.2-8.4 billion per by expanding the scope for nurse practitioners and allowing them to practice independently, without any physician oversight (Eibner, Hussey, Ridgely, & McGlynn, 2009). Although mental health cost effectiveness has not been studied, APNs have been shown to be effective in cost savings for both heart failure and pneumonia (Dahle, Smith, Ingersoll, & Wilson, 1998; Gross, Aho, Ashtyani, & Levine, 2004). Healthcare cost saving is important to every individual and nurse practitioners have been cost effective in other areas of disease management. Patients should have the opportunity to choose a provider that is able to meet their needs without having undue restrictions.

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From 1997-2005, Kentucky was noted to have a suicide rate higher than the national average, had a higher rate of fatalities in alcohol related accidents (http://www.samhsa.gov/data), and was scored at an "F" in 2009 from the National Alliance of Mental Illness: Grading the States (www.nami.org). Among the reasons for that rating were the decreased funding, Medicaid spending cuts, and accessibility to mental healthcare. Currently, 80% of counties in Kentucky have a gap in the number of mental health professionals with 10% of counties needing 25 mental health professionals to meet the current demand for services (Deloitte, 2013). With budget deficits looming, Kentucky has significantly reduced spending on mental health (www.nami.org). As a result, Kentucky has seen a large number of mentally unhealthy days resulting in lost time and disability (Kentucky Cabinet for Health and Family Services, 2013).

Current regulations do not allow for Kentuckians on the Medicaid system to have access to equitable mental health coverage. In addition, the state does not have enough psychiatrists to meet the need and these numbers have not increased since 2007 (Deloitte, 2013; Kentucky Institute of Medicine, 2007). In previous years, the KCNPNM has advocated for the removal of the barriers for psychiatric APRNs. They are not going to significantly increase the number of Medicaid dollars spent nor are they competing with psychiatrists for patients. The justification for the current regulation has always been the potential cost for the state. Psychiatric APRNs have the potential to help bridge the gap to patients who would otherwise seek treatment in emergency room settings (Delaney, Hanrahan, & Merwin, 2007; Weber, 2008). Psychiatric care in an outpatient setting has a lower cost than care sought in an emergency room.

The current regulation also prevents patients from seeking mental healthcare in settings where a Psychiatric APRN is the sole provider. In community mental health settings, psychiatric APRNs are able to bypass the regulation by having the psychiatrist see the patient as well and

then bill for incident to services. This again creates additional cost because the patient is billed for the physician visit, which is reimbursed at a higher rate. It is unnecessary because psychiatric APRNs have been shown to be safe and effective (Greenberg, Myer, Sernyak, & Rosenheck, 2006), to use evidence based practice (Crigger & Holcomb, 2008), and to provide cost effective options for care (KCNPNM, 2010, 2011). Changing the limits on the number of psychotherapy visits for Kentucky Medicaid recipients would potentially improve the mental health coverage in the state.

Mental health and substance abuse are currently issues that are important to Kentucky ("Preventing substance abuse," 2012). Assessment and treatment of addiction has often been referred to mental health professionals for management. With the shortage of psychiatrists in Kentucky, PMH-NPs are even more important. They can provide additional resources for assessment and treatment.

Kingdon's Streams Model

Using Kingdon's Streams Theory of Policy change, Kentucky is in a unique position to change the outcomes for thousands of Medicaid recipients who require mental health or addictions treatment. The Medicaid Commissioner and Medicaid task forces are asking for suggestions for changes within the system. This is indicative of a positive potential for change in the political stream. As a provider, it will be important to attend and provide background information to the Commissioner to support the need for increased access to care. It will also be important to use the substance abuse and addiction treatment perspective to encourage access. Second, there is a clearly identified problem on a state and national level. Kentucky law is currently focused on minimizing substance abuse and addictions. PMH-NPs are an integral part or maintenance and treatment for patients and provide primary care providers with additional

referral sources when addictions are detected. The Cabinet for Health and Family services commissioned the Deloitte report to evaluate the current levels of service within the state. They study noted that there are significant deficits in access to mental healthcare within the state (2013). Experts agree and have testified and the Medicaid task force meeting, that mental health services need to be improved. The information on parity, cost, and quality were presented to the task force, to encourage the removal of limitations on PMH-NPs.

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Manuscript 3

Nurse Practitioners and Urine Drug Testing: What do they know?

Abstract

Objective: To determine the proficiency in urine drug testing interpretation among nurse practitioners who order the tests to monitor adherence in their patients on scheduled medications.

Methods: A 28-question instrument, consisting of four questions on participant demographics, two question on urine drug testing orders, one question on continuing education, nine questions on urine drug testing interpretation, five questions on response to interpretation, and seven Likert-scale questions about personal beliefs related to urine drug testing interpretation. A RedCaps survey was sent out to the 1500 members of the Kentucky Coalition of Nurse Practitioners and Nurse Midwives. Reminders were sent once per week.

Results: The instrument was completed by 111 advanced practice nurses in the KCNPNM membership, who subscribe to the organization's list-serve.

Conclusions: Advanced Practice Registered Nurses who order urine drug testing to monitor patients on scheduled medications are not consistent in their interpretation and knowledge of those tests. This study indicates the need for additional education related to urine drug testing. It is important for APRNs to work closely with laboratory professionals when interpreting those results.

Nurse Practitioner and Urine Drug Testing: What do they know?

Introduction

Prescription drug abuse has become an epidemic problem in many states, including Kentucky. In 2012, Kentucky sought to decrease the number of deaths in the state related to overdoses of prescription medications. As a result, urine drug screening was mandated by the Kentucky Board of Medical Licensure and recommended by the Kentucky Board of Nursing to assess and monitor for appropriate use of prescription medications (http://odcp.ky.gov). These requirements were implemented as a portion of House Bill 1: The Pill Mill Bill. Originally intended to address medications for the treatment of pain, each professional board adapted the law to include many of the drugs of abuse for Kentucky. Since the implementation of House Bill 1, the Office of Drug Control Policy reports that hydrocodone and oxycodone containing products have decreased 11.8% each, oxymorphone (Opana) decreased 45.5%, and Xanax 14.5%.

Many strategies for monitoring patient medication compliance exist, but urine drug testing remains the gold standard for compliance. Urine drug testing has the ability to enhance the prescribing practices of controlled substance prescribers (Gourlay, Heit, & Caplan, 2012). A variety of methods and screening sensitivity is available and not all of those are appropriate in all practice sites. Each provider should review their practice type and choose the method of urine testing that allow them to best monitor those prescribed medications (Hammett-Staber, Pesce, & Cannon, 2002; Perrone, De Roos, Jayaraman, & Hollander, 2001).

Knowledge and comfort levels related to urine drug screening and interpretation have been studied in family physicians and internal medicine resident (Reisfield, Webb, Bertholf, Sloan, & Wilson, 2011). Those studies indicate that internal medicine residents and family

physicians have a knowledge gap related to urine drug screening. Interpretation of drug screening and accurate use of those screens can be problematic (Pesce, West, City, & Strickland, 2012). It appears that there are no similar studies in nurse practitioners.

Methods

This descriptive, correlational study was conducted to measure NP knowledge about urine drug testing and examine the relationship between participants' reported confidence in drug screen interpretation and the accuracy with which they interpreted findings from drug screens. A convenience sample of 111 NPs participated in the study. Participants were recruited from the Kentucky Coalition of Nurse Practitioners and Nurse Midwives (KCNPNM). All KCNPNM members were eligible to participate, and members were not excluded on the basis of practice type, location, or retirement status.

An on-line survey was used to collect data. The survey was sent via a list-serve to all active and subscribing members of KCNPNM, for a total of 1500 eligible participants. A cover letter was also sent with the survey, which explained the purpose of the study, data collection methods, and use of the RedCaps survey. The Survey was open to members Oct. 2-30. Participant recruitment emails were sent to members on October 9, 16, and 23, 2013.

Participation was voluntary and participants were given the opportunity to opt out of the study at any time. The study was approved by the University of Kentucky Medical Institutional Review Board and the Executive Director of KCNPNM. Procedures to ensure participant confidentiality and anonymity were used throughout the study. Participant identity was not linked to any of the links on the survey.

Drug Knowledge Assessment Survey.

A 28- item survey was developed specifically for this study to measure NP knowledge of urine drug interpretation, due to lack of currently available tools. The survey items were developed using current urine drug screen testing standards. Input was offered from clinical laboratory experts, including clinical toxicologists. Five of the included interpretation questions were previously used to study physician knowledge levels by Reisfield et. al (2007). Permission was obtained to include those questions. Four questions obtained demographic information related to gender, age group, APRN credentials, and years of practice. Nine questions addressed specific interpretative knowledge of APRNs on urine drug testing. One question was included to determine if the APRNs ordered urine drug testing and another asked about continuing education on urine drug testing. Eleven questions asked the provider questions about general urine drug testing practices, particularly related to frequency of use and general office management of urine drug testing. The last portion of the survey asks the APRNs to rate their agreement to statements regarding urine drug testing and interpretation. Those questions were scored on a Likert scale.

RedCaps administrators harvested the data and only the raw data were sent to the principal investigator. The data were analyzed using SPSS.

Data Analysis

Frequencies were calculated for each variable. Chi-Square tests were applied to evaluate reported confidence in urine drug testing and interpretive knowledge. Data was analyzed from a 5-response likert scale, as well as grouping the responses based on agreement, neutral, and disagreement of confidence levels. The *p* values, odds ratios, and confidence intervals for observed associations are reported. A p value of ≥ 0.05 was used to identify statistical significance.

Results

The questionnaire (Appendix), was completed by 111 advanced practice nurses. The participants were mostly female (n=108), nurse practitioners (n=105), and 77% (n=75) had been in practice more than 5 years. Demographic information is included in table 1. Sixty-five percent of the participants reported ordering urine drug testing in chronic opioid patients. They also reported using a variety of urine drug testing methods with in-office testing having the greatest reported frequency. Only 65% of the participants had attended a continuing education program on urine drug testing within the last 5 years.

Table 1: Demographic Information

Q1: Gender		
	Frequency	**Percent**
Male	**8**	**7.27**
Female	**102**	**97.73**
Q2: Age Group		
	Frequency	**Percent**
18-25	**2**	**1.92**
26-34	**12**	**11.54**
35-44	**22**	**21.15**
45-54	**34**	**32.69**
55-64	**31**	**29.81**
65 or older	**3**	**2.88**
Q3: APN Credentials		
	Frequency	**Percent**
Student	**3**	**2.7**
APRN-NP	**105**	**94.59**
APRN-NM	**2**	**1.8**
Retired	**1**	**0.9**
Q4: Years in Practice		
	Frequency	**Percent**
0-5	**36**	**32.43**
6-10	**22**	**19.82**
11-15	**25**	**22.52**
16-20	**15**	**13.51**

21-25	**5**	**4.5**
>25	**8**	**7.21**
Q5: Ordering Testing for Chronic Opioid Therapy patients		
	Frequency	**Percentage**
No	**37**	**34.91**
Yes	**69**	**65.09**

When participants were asked to rate their confidence in interpretation of urine drug testing results, only 32% of participants agreed/strongly agreed that they were able to interpret. Eighty-six percent (n=94) of participants agreed/strongly agreed with urine drug testing. Cost of urine drug testing and cost of laboratory send outs were considered neutrally by participants. The majority of participants (n=98) agreed/strongly agreed that urine drug testing results would influence management decisions if patients were identified as taking non-prescription medications. The majority also agreed/strongly agreed that urine drug specimens should be screened for adulterants (n=81). Few of the participants (n=27) felt they were confident in explaining immunoassay/qualitative versus lab/quantitative results.

Table 2 Rating Scales for Urine Drug Testing

Q 22 a: Confidence in interpretation of urine drug screens		
	Frequency	**Percent**
Strongly Disagree	**15**	**13.89**
Disagree	**38**	**35.19**
Neither	**20**	**18.52**
Agree	**33**	**30.56**
Strongly Agree	**2**	**1.85**
Frequency Missing = 3		
Q 22 b: No Need for UDT, there are other ways to know what patients take		
	Frequency	**Percent**
Strongly Disagree	**63**	**57.8**
Disagree	**31**	**28.44**
Neither	**13**	**11.93**
Agree	**1**	**0.92**
Strongly Agree	**1**	**0.92**
Frequency Missing = 2		
Q 22 C: Consider cost each time for UDT consideration		
	Frequency	**Percentage**
Strongly Disagree	**13**	**12.04**
Disagree	**26**	**24.07**

Neither	**33**	**30.56**
Agree	**31**	**28.70**
Strongly Agree	**5**	**4.63**
Frequency Missing = 3		
Q 22 D: Consider Cost Each time sent to Lab		
	Frequency	**Percentage**
Strongly Disagree	**9**	**8.33**
Disagree	**24**	**22.22**
Neither	**27**	**25**
Agree	**39**	**36.11**
Strongly Agree	**9**	**8.33**
Frequency Missing = 3		
Q 22 E: UDT Results Change how you manage patients taking non-rx medications		
	Frequency	**Percentage**
Strongly Disagree	**2**	**1.83**
Disagree	**2**	**1.83**
Neither	**7**	**6.42**
Agree	**49**	**44.95**
Strongly Agree	**49**	**44.95**
Frequency Missing = 2		
Q 22 F: Important to Test Samples for Adulteration		
	Frequency	**Percentage**
Strongly Disagree	**1**	**0.94**
Disagree	**1**	**0.94**
Neither	**23**	**21.70**
Agree	**48**	**45.28**
Strongly Agree	**33**	**31.13**
Frequency Missing = 5		
Q 22 G: Confident Explaining results		
	Frequency	**Percentage**
Strongly Disagree	**19**	**17.59**
Disagree	**45**	**41.67**
Neither	**17**	**15.74**
Agree	**22**	**20.37**
Strongly Agree	**5**	**4.63**
Frequency Missing = 3		

The APRN responses to the interpretation question are displayed in table 3. Overall, the APRN rating of confidence in urine drug testing correlated with increased scores on the interpretation component. When groups into 3 categories (agree, neutral, and disagree), those APRNs who rated themselves as confident were more likely to answer the interpretation questions correctly.

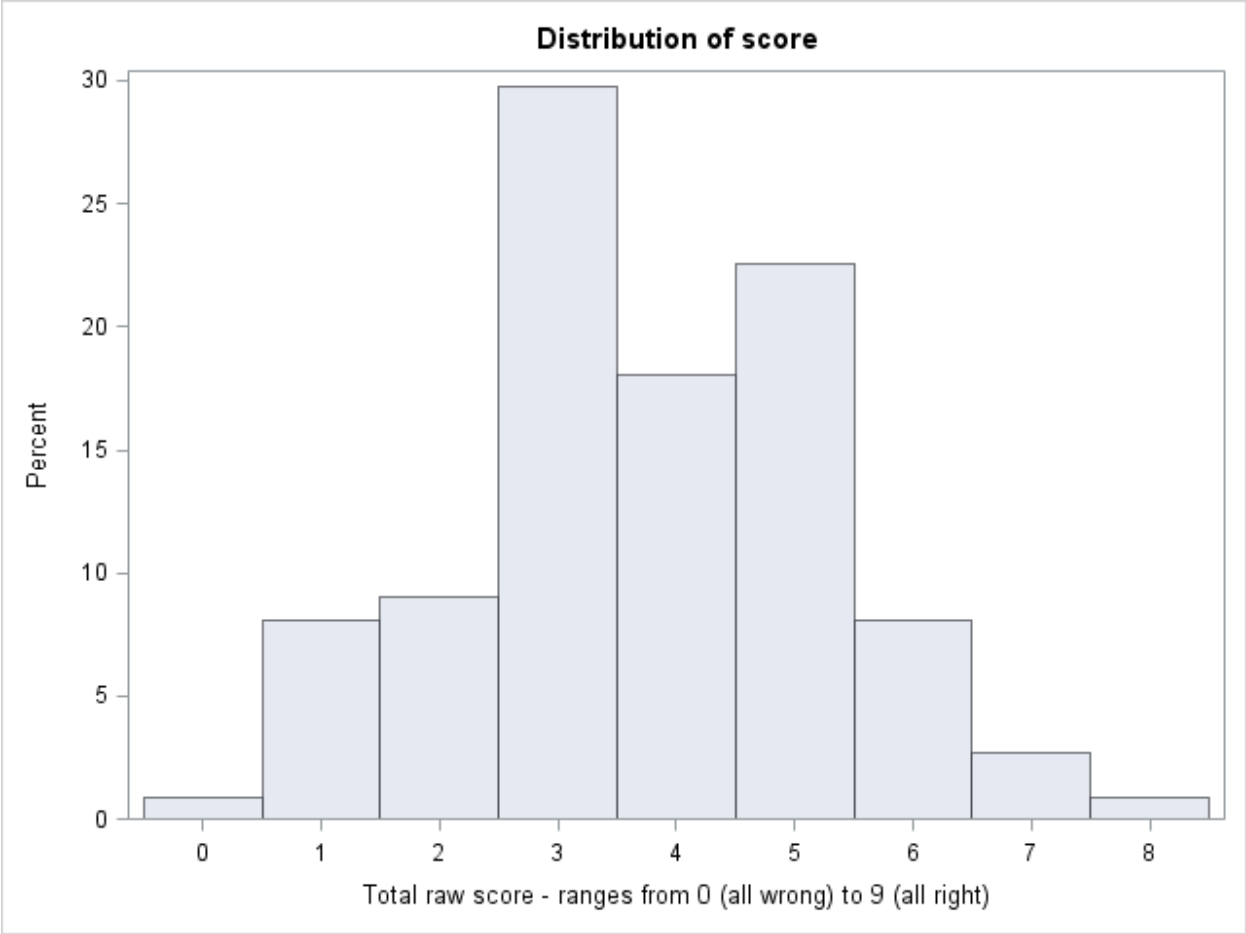
Table 3: Interpretation Scores

Q 8: Tylenol #3		
	Frequency	Percentage
Correct	47	42.73
Incorrect	63	57.27
Frequency Missing = 1		
Q 14: MS Contin		
	Frequency	Percentage
Correct	22	20.18
Incorrect	87	79.82
Frequency Missing = 2		
Q 15: Reasons for Negative Screen		
	Frequency	Percentage
Correct	60	54.55
Incorrect	50	45.45
Frequency Missing = 1		
Q 16: Chronic Hydromorphone		
	Frequency	Percentage
Correct	103	94.50
Incorrect	6	5.5
Frequency Missing = 2		
Q 17: Valium		
	Frequency	Percentage
Correct	60	55.56
Incorrect	48	44.44
Frequency Missing = 3		
Q 18: Methadone and No other Scripts		
	Frequency	Percentage
Correct	34	30.63
Incorrect	77	69.37
Frequency Missing = 0		
Q 19: Buprenorphine (6 panel + buprenorphine)		
	Frequency	Percentage
Correct	51	46.79
Incorrect	58	53.21
Frequency Missing = 2		
Q20: False Positive Benzo POC		
	Frequency	Percentage
Correct	26	23.42
Incorrect	85	76.58
Frequency Missing = 0		
Q 21: False Positive PCP		
	Frequency	Percentage
Correct	13	11.71
Incorrect	98	88.29
Frequency Missing = 0		

Correct answers were assigned 1 point, and the maximum score is 9 points. The distribution of scores are displayed in graph 1. One APRN did not answer any of the

interpretation questions correctly and none of the participants were able to answer all of the questions correctly. The mean number of questions answered correctly was 3.74, median 4.0, Mode 3.0, standard deviation 1.55, variance 2.42, and range 8.0.

Graph 1



The APRN participants were asked to rate their confidence by a Likert scale agreement with the statement "I feel confident in my ability to interpret the results of urine drug tests." Of the 108 responses to that question 53 participants disagreed with the statement, 20 were neutral and 35 agreed with the statement. Those responses were compared with the number correct interpretation responses to determine if confidence can be correlated with accuracy in urine drug

screen interpretation. The Chi-square value was 3.9291, with two degrees of freedom, Pr>Chi-Square was 0.1402. There is no statistical significance based upon confidence level.

Only 35 percent of the participants were able to answer more than 4 questions correctly. The majority of participants provided incorrect answers on items related to Tylenol #3, methadone, and buprenorphine. Table 4 illustrates the average number of questions answered correctly based upon the APRN confidence ratings.

Table 4: Mean, Median, Std Dev based on Confidence

Confidence Level in Interpreting UDT results/Number of Correct Interpretation Answers					
Strongly Disagree (n=15)					
	Mean	Median	Std Dev	Min	Max
Score	3.6	3	1.4040757	1	5
Disagree (n = 38)					
Score	3.7631579	3.5	1.3839663	1	7
Neither Agree or Disagree (n=20)					
Score	3.3	3	1.3416408	1	6
Agree (n=33)					
Score	4.0606061	4	1.7842960	1	8
Strongly Agree (n=2)					
Score	5	5	1.4142136	4	6

A comparison was also made using responses to the ordering of drug screens. Of the 111 participants, sixty-nine indicated that they order urine drug tests on patients with chronic opioid therapy. The Chi-square was 1.5022m with 1 degree of freedom, and Pr > Chi-square was 0.2203. Again, there was no significant difference based upon confidence level.

Table 5: Ordering of Drug Screening Differences

Q5 Response	**N**	**Mean**	**Std Dev**	**Std Err**	**Min**	**Max**
No	37	3.4865	1.6094	0.2646	0	7
Yes	69	3.9130	1.4925	0.1797	1	8
Diff(1-2)		-0.4266	1.5340	0.3126		

An additional finding was that when APRNs were faced with unexpected urine drug testing results (of chronic opioid patients) ninety-two percent would initiate a conversation with the patient and seventy-six percent would review the treatment agreement. Only seven percent would change the dose of the opioid, three percent would change to a different opioid, and thirty-three percent would change the management to a non-opioid. Only twenty-six percent of the participants would increase the frequency of patient visits, thirty-eight percent would increase the frequency of urine drug testing, and thirty-two percent of the providers would engage additional providers (psychiatrists, psychologists, etc). Thirty-six percent of the participants would discharge a patient of unexpected results and eleven percent would notify law enforcement.

Discussion

Despite the indication in the literature that urine drug testing can be a valid and viable tool for managing patient drug status, there is a lack of literature to support prescribing provider knowledge and understanding of the tool. Physicians, APNs, and PAs prescribe medications that have the potential for abuse but may have different perspectives about the patient's potential to abuse them (Hagemeier, Gray, & Pack, 2013). Monitoring medications and interpretation of urine drug testing adds information to the clinical presentation of the patient and can be used provide adequate management of many conditions (Moeller et al., 2008). The studies related to physicians all indicate that there is a difference between what the physician believes they know, and what they actually understand about urine drug testing and interpretation (Reisfield, Webb, Bertholf, Sloan, & Wilson, 2007; Starrels et al., 2012). Physician assistant and nurse practitioners are gaining the opportunity to prescribe and their practices are expanding (Morgan, De Oliveira, & Short, 2011). If they are prescribing in the same patterns as physicians it is

reasonable to expect similar confidence levels and misunderstanding about their knowledge related to urine drug screening (Cipher, Hooker, & Guerra, 2006).

Findings from the study suggest that NP knowledge related to urine drug screening is overall low. Results of the current study are consistent with the literature and research conducted with the physician population. It indicates a poor interpretative knowledge level among the APRN participants who are ordering urine drug testing in patients on scheduled medications. Their knowledge level was not correlated with their confidence in interpretation indicating a similar outcome to the studies in physicians. There were no significant associations between confidence rating of ability and actual ability. In addition, no significant relationships were found between use of drug screening and correct interpretation among APRNs who drug screening.

Perhaps the most concerning responses are those related to unexpected urine drug testing results. Fewer than half of the participants in study would make changes when faced with unexpected results. Those changes that the participants were most likely to make included increasing the frequency of urine drug testing and discharging the patient. Increasing the frequency of testing is a positive approach to management of the results, whereas a patient discharge can result in very negative outcomes.

Findings suggest that there is no significant relationship between participants' reported confidence in drug screen interpretation and the accuracy with which they interpreted urine drug screens. There is also no significant difference in ordering of urine drug testing and accuracy in interpretation. This finding has implications for NP education and practice. Nurse practitioner scope and practice has increased and part of that increase has included policy changes in prescriptive authority (KCNPNM, 2010, 2011). Nurse practitioner prescribing has increased as a

result. They have been considered safe and effective prescribers, but must continuously review prescribing guidelines to maintain competence. Substance abuse and addictions have been considered a psychiatric issue but all providers play a role in effective screening and management of addictions (Borack, 2002). Urine drug testing education should occur for all APRNs who prescribe.

APRNs have several resources available for urine drug testing education. In 2008, the Mayo Clinic published a guide for clinicians for urine drug testing (Moeller et al., 2008). The manual explains different methods of testing and the benefits and limitations of each. Manuals and screening tools are available for ordering from the SAMHSA website and provide useful quick references for urine drug testing and substances of abuse (http://www.samhsa.gov/data/NSDUH/2k11State/NSDUHsaeTOC2011.htm). Those resources can be ordered or downloaded for free.

There are limitations to this study. An unvalidated instrument was used to measure the APRN knowledge levels. Some of the questions were repeated from a prior physician study, but none had been tested for validity and reliability. The additional questions were included due to research suggesting that, with the exception of opioid prescribing, general knowledge related to scheduled medications and urine drug testing is poor outside of opioid prescribing. The additional questions were added due to concerns related to benzodiazepine abuse and false positive results. The instrument was reviewed by a clinical toxicologist and adjusted based on those responses. However, psychometric testing has not been conducted on this survey.

The study results are unable to be generalized to the general APRN population due to the use of a convenience sample. It is also possible that the sampling method resulted in an unusual population of individuals interested in urine drug testing and that skewed the responses.

Conclusion

This study supports that idea that APRNs are poorly informed on the interpretation of urine drug tests. Thirty-eight percent of the participants reported that they have attended continuing education on urine drug testing within the last 5 years. This is inconsistent with the idea that forty-nine percent of the participants felt they were not confident in interpreting the results of a urine drug test. They are also not able to or are not making changes in their clinical practices when faced with unexpected urine drug testing results. APRNs need to have more knowledge about urine drug testing interpretation for clinical practice purpose and to assist them in making informed treatment decisions for patients. As the focus on prescription drug abuse increases providers must be more knowledgeable about screening and management.

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Capstone Report Conclusion

Addictions and substance abuse treatment is at the forefront of Kentucky concerns. Treatment and management of those addictions has become a priority for our legislators (House Bill 1, 2012). With the implementation of the house bill, all providers, must screen and monitor patients for substance abuse and addictions. The Kentucky Board of Medical Licensure mandated urine drug testing in those patients prescribed scheduled medications, and the Kentucky Board of Nursing recommended urine drug testing for similar issues. In the literature review, it was noted that physicians generally could not accurately interpret those results, and APRN knowledge had never been studied. This capstone project investigates that knowledge and found that APRNs have difficulty interpreting urine drug tests as well.

Historically psychiatric/mental health providers have been integral in addictions assessments but in Kentucky, regulations limit PMHNPs from working within their full scope. Psychiatrists are in short supply for the state and they cannot possibly meet the needs of the patients to provide adequate care. If Kentucky wants to provide enough access to substance abuse treatment and assessment, PMHNPs need to be allowed to see patients with fewer restrictions.

Appendix A

The following 5 questions are for demographic purposes:

1. Identify your Gender
    a. Female
    b. Male

2. Identify your age group
    a. 18-25
    b. 26-34
    c. 35-44
    d. 44-54
    e. 55-64
    f. 64 +
3. Identify your APRN credentials
    a. Student
    b. APRN-NP
    c. APRN-CNS
    d. APRN-NM
    e. APRN-CRNA
    f. Retired
4. Number of Years in Practice as an APRN
    a. 0-5
    b. 6-10
    c. 11-15
    d. 16-20
    e. 21-25
    f. >25
5. Do you currently order urine drug testing for patients on chronic opioid therapy?
    a. Yes
    b. No

The following 13 questions are related to your drug testing practices:

6. What method(s) of urine drug testing do you utilize? (Select all that apply)
    a. In-Office Immunoassay (cup or dipstick) testing
    b. In-Office Immunoassay (desktop analyzer) testing
    c. In-Office Immunoassay (cup or dipstick) testing PLUS laboratory (GC-MS or LC-MS/MS) testing
    d. In-Office Immunoassay (desktop analyzer) testing PLUS laboratory (GC-MS or LC-MS/MS) testing
    e. Laboratory (GC-MS or LC-MS/MS) testing ONLY
    f. Other
7. In the last 5 years, have you attended any continuing education on urine drug testing or interpretation?
    a. Yes
    b. No
8. In a patient prescribed Tylenol #3 (codeine and acetaminophen), which of the following could be positive on UDT results based on parent and metabolite detection? (Check One)
    a. Codeine
    b. Oxycodone
    c. Morphine
    d. All of the Above
    e. A and C only
9. What types of monitoring do you use besides urine drug testing? (*check all that apply*)
    a. None
    b. Pill counts
    c. PDMP (online state drug prescription monitoring program)
    d. Observation (i.e., body language, aberrant behaviors)\
    e. Treatment agreements
10. What do you believe are the reasons to utilize drug monitoring? (*check all that apply*)
    a. As a baseline measure of what a new patient may or may not have recently taken

b. Determine / document presence of a prescribed medication or medication(s)
c. Determine / document abstinence from illicit drugs and non-prescribed medications
d. Identify early relapses for those with a history of addiction
e. Protect practice/self
f. Help to determine need to continue or discontinue certain treatments
g. UDT helps patients remain abstinent because they know they will be tested regularly
h. UDT helps patients anticipate that there will be consequences of nonprescribed drug use

11. How often do you use UDT to help manage your patients' prescribed chronic opioids? (*check all that apply*)
    a. Never
    b. Baseline testing only for new patients
    c. Baseline testing for new patients plus random testing
    d. Every office visit
    e. Random testing only for all patients
    f. When I have evidence to warrant testing in a patient with aberrant behavior (e.g., lost prescriptions, early refills, etc.)
12. What factors influence your decision to use/order a UDT? (*check all that apply*)
    a. Patient history
    b. Psychiatric history
    c. Abuse history
    d. Family history
    e. Length of time with SUD
    f. Aberrant behaviors or red flags
    g. Legal involvement
    h. Court mandate
    i. Pregnancy
    j. Patient presentation
    k. To help manage medication regimen

13. In response to a UDT unexpected result (UDT positive for a non-prescribed medication or illicit substance OR negative for a prescribed medication), I typically manage the patient in the following ways: (*check all that apply*)
    a. Initiated a conversation with the patient to determine why
    b. Review the treatment agreement
    c. Changed the dose of opioid
    d. Changed the opioid to a different opioid
    e. Change the opioid to a non-opioid
    f. Scheduled the patient to be seen more frequently
    g. Performed UDT more frequently
    h. Engaged additional providers (e.g., psychiatrist, psychologist)
    i. Discharge the patient
    j. Report to law enforcement
14. What types of monitoring do you use besides urine drug testing? (*check all that apply*)
    a. None
    b. Pill counts
    c. PDMP (online state drug prescription monitoring program)
    d. Observation (i.e., body language, aberrant behaviors)\
    e. Treatment agreements
15. What do you believe are the reasons to utilize drug monitoring? (*check all that apply*)
    a. As a baseline measure of what a new patient may or may not have recently taken
    b. Determine / document presence of a prescribed medication or medication(s)
    c. Determine / document abstinence from illicit drugs and non-prescribed medications
    d. Identify early relapses for those with a history of addiction
    e. Protect practice/self
    f. Help to determine need to continue or discontinue certain treatments
    g. UDT helps patients remain abstinent because they know they will be tested regularly
    h. UDT helps patients anticipate that there will be consequences of non-prescribed drug use

16. How often do you use UDT to help manage your patients' prescribed chronic opioids? (*check all that apply*)
    a. Never
    b. Baseline testing only for new patients
    c. Baseline testing for new patients plus random testing
    d. Every office visit
    e. Random testing only for all patients
    f. When I have evidence to warrant testing in a patient with aberrant behavior (e.g., lost prescriptions, early refills, etc.)
17. What factors influence your decision to use/order a UDT? (*check all that apply*)
    a. Patient history
    b. Psychiatric history
    c. Abuse history
    d. Family history
    e. Length of time with SUD
    f. Aberrant behaviors or red flags
    g. Legal involvement
    h. Court mandate
    i. Pregnancy
    j. Patient presentation
    k. To help manage medication regimen
18. In response to a UDT unexpected result (UDT positive for a non-prescribed medication or illicit substance OR negative for a prescribed medication), I typically manage the patient in the following ways: (*check all that apply*)
    a. Initiated a conversation with the patient to determine why
    b. Review the treatment agreement
    c. Changed the dose of opioid
    d. Changed the opioid to a different opioid
    e. Change the opioid to a non-opioid
    f. Scheduled the patient to be seen more frequently
    g. Performed UDT more frequently

h. Engaged additional providers (e.g., psychiatrist, psychologist)
i. Discharge the patient
j. Report to law enforcement
k.

The following 8 questions are related to your urine drug testing knowledge:

19. In a patient prescribed MS Contin (extended-release morphine), which of the following could be positive on UDT based on parent and metabolite detection? (check one)
    a. Morphine
    b. Codeine
    c. Hydromorphone
    d. All of the above
    e. A and C only
20. The following are possible reasons for a negative urine opiate screen on in-office point-of-care (POC) immunoassay (cup or dipstick) in a patient prescribed long-acting opioid therapy: (Check One)
    a. Patient ran out early and has not used any in a few days
    b. Patient is a "rapid metabolizer" of the enzyme which metabolizes that specific opioid
    c. Test does not detect that particular opioid
    d. A, B, and C
    e. A and C only
21. A patient on chronic hydromorphone therapy tests negative for opioids on an in-office POC immunoassay (cup or dipstick) urine drug test, but claims to be using the medication around the clock as prescribed. The most appropriate next step would be to : (Check One)
    a. Subject this urine to a more specific method of test, such as GC-MS or LC-MS/MS
    b. Continue the medication as prescribed and re-administer am in-office POC immunoassay test at the next visit
    c. Taper and discontinue the opioid therapy
    d. Refer the patient to a detoxification/rehabilitation center
    e. Notify law enforcement
22. In a patient prescribed diazepam (Valium®), which of the following could be positive on UDT based on parent and metabolite detection? (Check One)
    a. Nordiazepam

b. Temazepam
c. Oxazepam
d. All of the above
e. A and C only

23. Mr. Smith is a 50 year old man with a 10 year history of difficult to treat chronic back pain with a neuropathic component. His current treatment plan includes prescribed methadone and no other controlled substances or opioids. He presents for his clinic appointment today and his clinician orders an in-office urine drug screen. Which of the following would you expect to be positive on an in-office POC immunoassay UDT (6 panel)? (Check One)
    a. Opiates
    b. Cocaine
    c. Amphetamine
    d. Methamphetamine
    e. THC
    f. Benzodiazepines
    g. *None of the above*
24. Michael is a 27 yo man with a history of prescription opioid addiction. He is currently prescribed buprenorphine. As a condition of his on-going treatment he is subject to random urine drug testing. The results of the in-office POC immunoassay UDT (6 panel + buprenorphine cup) are as follows:

Opiates – positive

Cocaine – negative

Amphetamine – negative

Methamphetamine – negative

THC – negative

Benzodiazepines – negative

Buprenorphine – positive

These results are satisfactory to document he is adherent to the treatment plan (i.e., taking the buprenorphine and not using to taking any additional medications or illicit drugs)

a. ____ True
b. ____ False

25. Which of the following medications or compounds can cause a false positive result for benzodiazepines on an immunoassay POC (cup or dipstick) urine drug test? (Check One)
    a. sertraline (Zoloft®)
    b. Vick's® nasal inhaler
    c. diphenhydramine (Benadryl®)
    d. all of the above
    e. A and C only
26. Which of the following medications or compounds can cause a false positive result for Phencyclidine, PCP (i.e., angel dust) on an immunoassay POC (cup or dipstick) urine drug test? (Check One)
    a. venlafaxine (Effexor®)
    b. dextromethorphan
    c. diphenhydramine (Benadryl®)
    d. ibuprofen
    e. All of the above

The last questions related to your feelings about urine drug testing:

Please read the statements below and choose the response that most closely matches your beliefs.	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I feel confident in my ability to interpret the results of urine drug tests.					
I don't need to do UDT because I have other ways to know what my patients are taking.					
I consider cost each time I decide whether to do UDT.					
I consider cost each time I decide whether to send a specimen for laboratory testing.					
I would change how I manage a patient if I find they are taking prescription medications that I (or a prescriber I work closely with) have not prescribed.					
It is important to test urine specimens for adulteration.					
I am very confident explaining the differences between "immunoassay/qualitative" and "laboratory/quantitative" urine drug testing.					

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