Observational Report

Retrospective Review of Physician Opioid Prescribing Practices in Patients with Aberrant Behaviors

Anita Gupta, DO, PharmD[1], Christopher Patton, MD[1], Dina Diskina, BS[1], and Martin Cheatle, PhD[2]

From: [1]Department of Anesthesiology and Critical Care, University of Pennsylvania, Philadelphia, PA; [2]Center for Studies of Addiction, University of Pennsylvania, Philadelphia, PA

Dr. Gupta is Assistant Professor, Penn Pain Medicine, Department of Anesthesiology and Critical Care, University of Pennsylvania, Philadelphia, PA . Dr. Patton is a Resident with the Department of Anesthesiology and Critical Care, University of Pennsylvania, Philadelphia, PA. Diskina is Research Assistant, Department of Anesthesiology and Critical Care, University of Pennsylvania, Philadelphia, PA. Dr. Cheatle is with the Center for Studies of Addiction, University of Pennsylvania, Philadelphia, PA

Address Correspondence:
Anita Gupta, DO, PharmD
Assistant Professor, Penn Pain Medicine
Department of Anesthesiology and Critical Care
1840 South Street
Tuttleman Center, 2nd Floor
Philadelphia, PA 19146
Email anita.gupta@uphs.upenn.edu

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In the past few decades, opioid use for the treatment of chronic noncancer pain has slowly gained acceptance. With this increase in prescription opioid use, there has also been an increase in prescription opioid abuse. To help detect aberrant drug related behaviors, clinicians have utilized urine drug screens to determine patient noncompliance in outpatient pain clinics. The primary objective is to determine how the use of urine drug testing (UDT) affects health care outcomes. The secondary outcome is to evaluate these findings as it relates to pharmacoeconomics and aberrant behaviors in an outpatient clinical setting. In this study we will determine if UDT influences prescribing practices among physicians. Patients at an academic center's chronic pain outpatient clinic were categorized as having urine screens that were "normal" (expected findings based on their prescribed drugs) or abnormal. Abnormal findings were those with either 1) the absence of a prescribed opioid, 2) the presence of an additional nonprescribed controlled substance, 3) detection of an illicit substance, or 4) an adulterated urine sample. We examined the incidence of such aberrant behaviors as well as concomitant pain diagnoses, psychiatric comorbidities, and the ultimate effect upon the prescribing patterns of the physicians in this clinic. Results of the study showed that the patients exhibiting aberrant drug behaviors have similar pain and psychiatric diagnoses as other chronic pain patients. The most common aberrancy detected was an abnormal urine drug screen, often with the presence of illegal substances. However, in the great majority of aberrancies detected, providers chose to continue prescribing opioids. We speculate on the reasons for this, and discuss the role of the urine drug screen in influencing prescriber behaviors.

Key words: Chronic pain, noncancer pain, opioid, aberrant behavior, urine drug test, prescriber pattern, preference

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Physicians practicing in the field of chronic pain management make use of a variety of methodologies to treat their patients. Not uncommon in current practice is the prescribing of opioids, although this practice is not without controversy (1-3). Like many other medical treatments, this approach carries with it certain widely recognized inherent risks to the patient, such as addiction, hormonal changes, and immune dysfunction (4). In addition, the physician provider must appreciate that there may be risks to others as well, should the opioid medication be diverted or sold by the patient (5). As

such, the prescriber acknowledges these risks and is expected to take steps to mitigate them. At present there are a variety of practice guidelines for chronic pain therapy that address this (4-8). Examples include risk stratification of patients (9) and close monitoring of patients for aberrant behaviors (10). Examples of such aberrant behaviors are positive urine drug tests (UDT) for other controlled substances, absence of prescribed opioids in UDT, requesting early refills, violence, and other behaviors listed in our data set. At present, such monitoring is considered an integral part of any opioid therapy treatment regimen (4-11) and a variety of literature has addressed the various modalities available to the prescriber.

However, there is at present a dearth of guidance as to exactly how a prescriber should respond when aberrant drug behaviors are detected. Practice guidelines do not address this (12), except for one (9) and it is suspected that providers may pursue a wide variety of responses. Without any good data to guide prescribers, it is suspected that they draw from a variety of sources, such as personal experiences, anecdotal stories from colleagues, and "expert advice" from those who trained them. It is not uncommon that some prescribers practice a "zero tolerance" to any aberrant behavior whatsoever. Others, however, may tailor their response to the "gut" reaction they get from the patient, as well as the severity of the infraction. We feel it is likely that trends can be observed in the type of response chosen, from one prescriber to another. It is entirely unclear at present which of the various possible responses leads to better outcomes for both the patient's health and the economic bottom line.

This study is an attempt to better characterize exactly what this spectrum of responses covers. A retrospective study of aberrant behaviors discovered at an outpatient academic pain center is presented, with a correlation to the variety of responses made by the providers to these behaviors. Additionally, this study digs deeper, examining a cross-section of presenting complaints, correlated with the type of aberrant behavior seen.

Methods

This is a retrospective cohort study of UDT results of chronic pain patients prescribed opioids. As part of routine clinical care, all patients who were prescribed opioids at the pain management center of an urban teaching hospital were requested to submit a urine sample for drug testing before receiving their next opioid prescription. Patients were told before their appointment that a urine screening would be requested.

The urine collection procedure entailed recording a patient's current medications along with the date and time the last medications had been taken. Each patient was given a specimen cup and instructed to provide a urine sample (approximately 30 to 75 mL of urine) without supervision in the clinic bathroom. A member of the clinic staff sealed the specimen and determined the approximate temperature of the urine shown on a liquid crystal thermometer on the side of the cup. The UDT were performed by gas chromatography mass spectroscopy (GCMS) technology, which is highly accurate (12) and considered to be the "gold standard" for urine drug testing for prescription opioids (13). The technique involves direct visualization of the compound under electron ionization spectrometry; the error rate is primarily based on human visualization or data transcription errors. The urine analyses include measures of sample quality, reporting specific gravity, pH, and creatinine concentration in the urine, to enable identification of adulterated samples. The urine toxicology results were posted on a secure Web site and independently sent to the pain center.

After removing sensitive patient information, results of the toxicology screen and information from the patient medical records were entered into a data file. Additional information was obtained from the medical records, including dates, number, quantities, and doses of each medication prescribed. Additionally, for the cohort of patients selected, we examined their demographics, length of opioid treatment, number of outpatient clinic visits to the pain clinic per year, aberrant behaviors (missed appointments, multiple phone calls, lost prescriptions), patient satisfaction with pain control, pain control overall, and percentage of prescribers changing treatment based upon the UDT.

To establish severity categories so that the urine results could be operationally defined and grouped together for purposes of analysis, clinic staff—including attending physicians, fellows, nurses, and support staff—were asked to rank possible outcomes of urine test results from most severe to least severe. This was performed to generate a methodology for classifying the results and not to assert that one type of test abnormality was definitively better or worse than another. These abnormal categories were: 1) evidence of an illicit substance (such as marijuana or cocaine), 2) evidence of an additional nonprescribed opioid, 3)

lack of evidence of a prescribed opioid in the urine, 4) both evidence of an additional nonprescribed opioid and a lack of evidence of a prescribed opioid, and 5) an adulterated sample.

A sample was only classified as missing a prescribed opioid if the substance should have been in the urine at the time the patient gave the sample. For instance, some patients prescribed as-needed opioids may have reported taking them infrequently and taking their last dose more than 6 hours before giving a urine sample. In these cases, it may have been appropriate for the opioid not to be in the urine. On the other hand, those patients who reported running out early in relation to their prescription dates and had the substance absent in their urine were categorized as lacking the prescribed opioid(s). Samples that met criteria for multiple classifications, such as presence of an illicit substance and of additional nonprescribed opioids, were categorized in the most severe category on the basis of clinic staff consensus. For the analysis, we will assume that adulterated samples were indicative of patients trying to avoid detection of an illicit substance, and thus were placed in that category. We then classified this result in the appropriate category (normal or one of the abnormality categories). If this information could not be verified, that is, we could not clearly say that it was abnormal, we classified the presence of these substances as "normal."

Screening

The following list encompasses the activities conducted for each patient during screening:

- informed consent was obtained
- inclusion/exclusion criteria was evaluated
- medical history, demographic data, and the use of concomitant medications was obtained
- a physical examination was done
- a urine sample was collected and a urine drug test was done.

Urine Drug Test

Samples obtained for the urine drug test were collected and stored in accordance with the laboratory's established procedures. Testing was done for cocaine, marijuana (THC), opiates, amphetamine, methamphetamine, phencyclidine, benzodiazepines, barbiturates, and methadone.

Inclusion criteria:

- provided at least one urine sample
- treatment history: > 6 months of opioids
- physician visit frequency: monthly or Bi-monthly bimonthly is often confused—suggest saying semimonthly (if every 2 weeks) or saying every 2 months
- urine toxicology screening: Monthly or Bi-monthly see above
- men, non-pregnant women, ages 18–60 years, opioid therapy.

Exclusion criteria:

- serious medical (e.g., congestive heart failure) or psychiatric (untreated depression) condition that might preclude optimal outcome
- pregnancy
- nonopioid therapy
- ages < 18 years or > 60 years.

Statistics and Data Analysis

All data were analyzed with standard statistics software and a treatment outcomes of pain survey (TOPS) (15) utilized by the pain clinic. A TOPS survey was completed by the patients at screening and at each monthly study visit. The TOPS is a disease-specific measure of health validated for use in patients with chronic pain. The TOPS contains several outcome measurement scores, including measurements of pain intensity, physical function, mental function, perceived and actual disability, and health care satisfaction. Parametric and nonparametric analyses were used to examine differences in demographic information, urine toxicology results, rates of abnormalities, and type of opioid prescribed and detected. Patient results were grouped by the categories of urine test results.

Results

A total of 123 patients were detected that fell within the inclusion criteria. The average age of these patients was 48 years old. The data set reflected recent provider preferences as well, with an average of 507 days, or 1.4 years, elapsing since the last office visit and the date of the study. Aberrancy was detected on an average 2.1 separate dates per patient. The average Visual Analog Scale (VAS) value at the last visit for each patient was 6.8

Of opioid-receiving patients displaying aberrant behaviors, the largest percentage presented to the clinic with a chief concern of back pain, which was greater than 3 times as many as the next most common concern (Fig. 1). This incidence is similar to that found

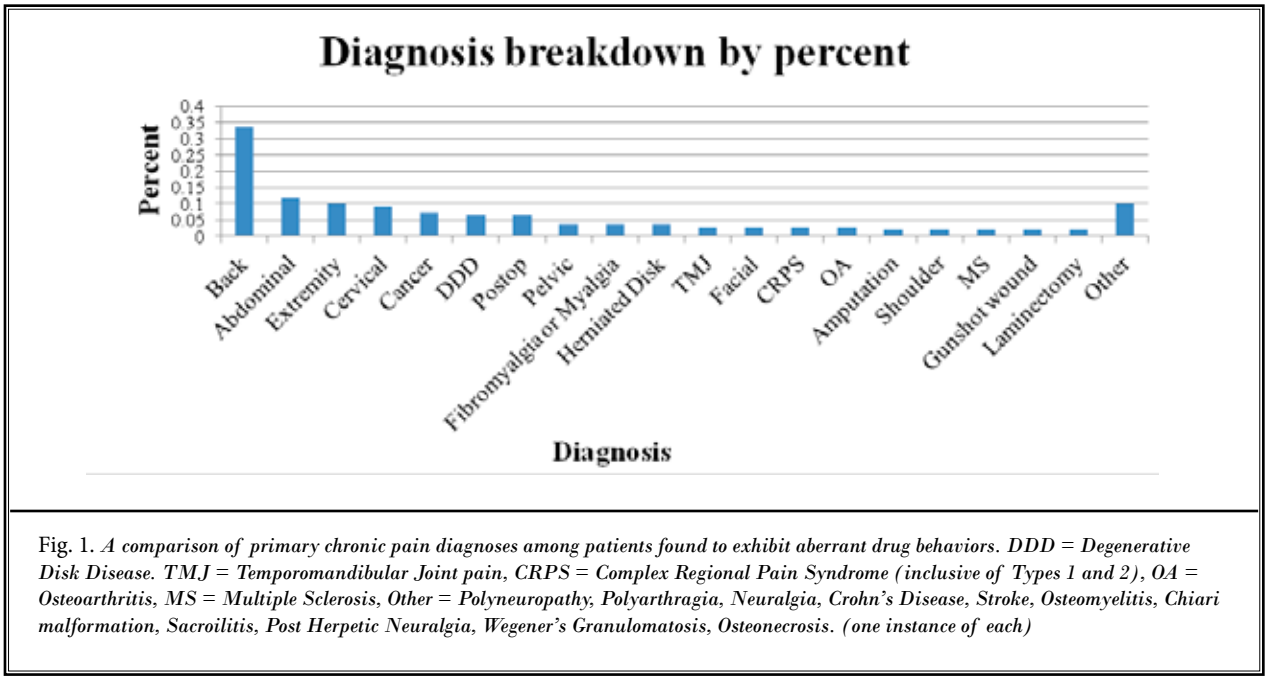

Fig. 1. *A comparison of primary chronic pain diagnoses among patients found to exhibit aberrant drug behaviors. DDD = Degenerative Disk Disease. TMJ = Temporomandibular Joint pain, CRPS = Complex Regional Pain Syndrome (inclusive of Types 1 and 2), OA = Osteoarthritis, MS = Multiple Sclerosis, Other = Polyneuropathy, Polyarthragia, Neuralgia, Crohn's Disease, Stroke, Osteomyelitis, Chiari malformation, Sacroilitis, Post Herpetic Neuralgia, Wegener's Granulomatosis, Osteonecrosis. (one instance of each)*

Table 1. *A comparison of co-existing psychiatric diagnoses among patients exhibiting aberrant drug behavior.*

Psychiatric Diagnosis			
	Psych (any)	**Depression**	**Other**
Number	38	36	6
Percent	34.55	32.70	5.50

in chronic noncancer pain patients receiving opioids as a whole (16). The patients this study uncovered also had a co-existing psychiatric diagnosis just under 35% of the time, the great majority of that being a diagnosis of depression (Table 1). This is somewhat higher than that found in similar patients not displaying aberrant behavior (17). While the sample number in this study is small, this breakdown indicates it may at least be a somewhat accurate representation of the larger opioid-using noncancer pain patients who exhibit aberrant behavior.

When an aberrance occurred, it was most likely in the form of an abnormal UDT, followed by the presence of an illicit drug, and then self-escalating doses, with other types of aberrance comprising a small fraction of the total (Fig. 2).

Provider responses to this aberrance generally took the form of 5 basic types, with a smaller percentage of patients not returning to the clinic and therefore effectively discharging themselves. Of note, the preferred response to the discovery of aberrant behavior was actually to continue to prescribe opioids. This occurred approximately 55% of the time. Discontinuation of opioid therapy was a distant second at roughly 20% of the responses (Fig. 3). In instances in which the same patient displayed aberrant behavior on multiple occasions, opioid therapy was usually continued, with repeated aberrance resulting in referral to behavioral health/addiction medicine or discontinuation of opioid therapy. Some of these patients simply failed to return to the clinic (data not shown).

Three of the patients had more than one incidence of aberrant behavior but were ultimately continued on opioids.

All of these patients were successfully referred to behavioral medicine/addiction therapy.

Discussion

This study provides a worthwhile snapshot of the variation in prescriber responses to aberrant drug behavior. In order to understand the data at face value, as well as any reflection it may have on the field of chronic pain management as a whole, it is important to examine how well it may mirror the larger patient population.

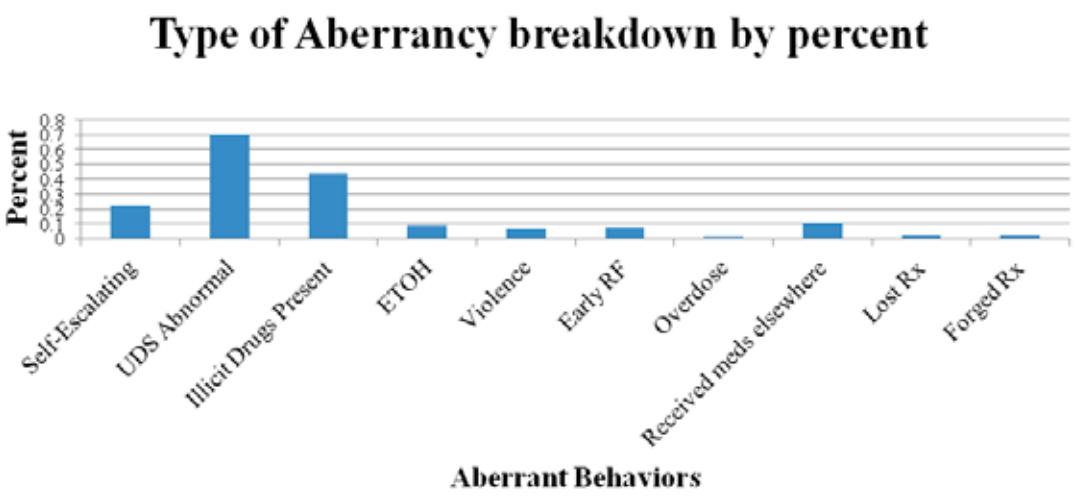

Fig. 2. *A comparison of the types of aberrant drug behavior exhibited by the patients in this study. Self-Escalating = self- escalating dose increase without prescriber permission, EtOH = evidence of alcohol use at the time of office visit, Early RF = patient request for refill on opioid ahead of schedule, Lost Rx = patient claim to have lost original prescription, needing a replacement, Forged Rx = evidence of patient having forged or altered an opioid prescription.*

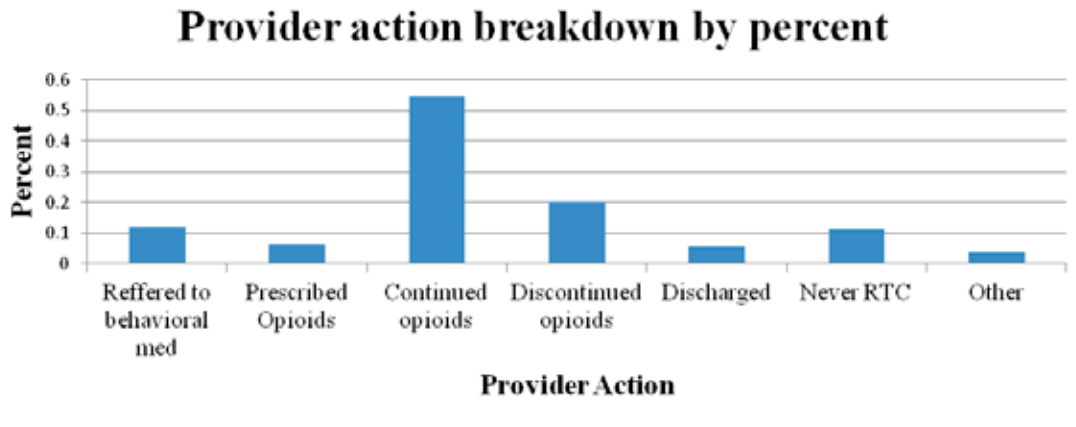

Fig. 3. *A comparison of the action taken by the primary opioid provider once an aberrant drug behavior was discovered. Refered to behavioral med = discontinuation of opioids and referrsl to behavioral medicine/addiction medicine, Never RTC = patient never returned to clinic.*

It appears that in the great majority of instances, the initial occurrence of aberrance was met with an attempt to "give the patient a chance," and opioid therapy was continued. The decision to discontinue opioid therapy had a greater likelihood of occurring after a second occurrence, increasing with each additional episode of aberrance. However, on the opposite end of the spectrum, some patients had multiple occurrences of such behavior, but therapy was never ultimately discontinued (Table 2).

This spectrum of responses from providers, from "one strike and you're out" (discontinuation of opioid therapy after the first occurrence of aberrance) to ongoing prescription of opioids despite multiple aberrance occurrences, shows the difficulty faced by chronic pain practitioners in addressing such patients. As stated ear-

Table 2. Breakdown of Patients with Multiple Aberrancies Ultimately Continued on Opioids

Number of Visits with Aberrancy Detected	Types of Aberrancies Detected
4	Self escalating doses, abnormal UDT
3	UDT abnormal, illicit drugs present
3	UDT abnormal, illicit drugs present

lier, there are multiple guidelines for predicting which patients may be at greater risk for aberrance, which are very useful tools in initially screening which patients one wishes to initiate opioid therapy with. Additionally, guidelines are plentiful in addressing how to monitor patients once they are on such therapy, from descriptions of various urine drug screening technologies to how to schedule such screening episodes (i.e., random vs. with each office visit) (11). With such tools available, opioid prescribers can feel confident and comfortable that they have good evidence to support their decisions about which patients to start on opioid therapy and how to monitor it. However, this is where the data ends. Opioid prescribers face a difficult obstacle in the staggering lack of evidence-based guidance regarding probably the biggest question remaining: "What should one do when an aberrant behavior is detected?"

We see in this study how prescribers may follow any one of an array of pathways, without definitive evidence of which one is best. As such, one can understandably wonder if UDT is worth its cost, at least in this setting. The point of the test is to provide an objective tool to guide the prescriber, but it can have no more influence on prescribing behavior than it is allowed. Its utility has been documented (14,18-20) in the setting of chronic opioid use for noncancer pain. In the clinic that was our focus, however, an aberrant result on a UDT was unlikely to provoke an immediate change in prescriber behavior. It is speculated that the basis of a provider's choice of action is only partially guided by objective findings like a UDT, and perhaps just as much by evidence and experience more anecdotal in nature, such as previous outcomes witnessed in practice. Considering that insurance companies may be billed up to $1,400 for the screening and confirmatory test (21), it is quite enlightening to see that its influence upon prescriber practices may not be as profound as previously estimated. It would, however, be of significant worth to elucidate the actual basis for how prescribers make these decisions: Why one response vs. another? Has any "signal" event occurred in the provider's career that has reinforced this choice? Are there other bases for these choices, i.e., discussions with colleagues, personal data review, etc?

In fact, multiple issues related to urine drug testing, its expenses, consequences, validity, and guidelines have been proposed (22-29)

Conclusion

The results of this study showed that patients exhibiting aberrant drug behaviors have similar pain and psychiatric diagnosis as other chronic pain patients. The most common abberancy described was an abnormal urine drug screen, often with presence of illegal substances.

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