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Selected Topics: Psychiatric Emergencies

DOES THE U STAND FOR USELESS? THE URINE DRUG SCREEN AND EMERGENCY DEPARTMENT PSYCHIATRIC PATIENTS

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Abstract—Background: Behavioral emergencies account for a significant portion of emergency department (ED) visits in the United States. Substance abuse is common in this population and may precipitate or exacerbate preexisting psychiatric illness. Contrary to ED policy guidelines, many behavior health centers (BH) require a urine drug screen (UDS) in stable patients prior to transfer. **Objective:** We sought to determine the role of the UDS in ED length of stay (LOS), cost, and charges to patients and inpatient psychiatric care. **Methods:** We performed a retrospective chart review of all patients transferred to an in-network BH from September 1–30, 2014. Clinical data were extracted and analyzed from our electronic medical record, including records from both the ED visit and the BH stay. **Results:** There were 205 patient encounters identified; 89 patients had a UDS performed in the ED and 89% were obtained after the ED medical clearance. LOS were similar between the two groups, however, time to ED departure from time of medical clearance was delayed in the UDS group. BH providers mentioned UDS results < 25% of the time and no confirmatory tests were performed. There was no difference in BH LOS or discharge diagnosis of substance-abuse disorder. Patient charges for UDS over the month totaled \$21,093. **Conclusion:** The UDS did not seem to have any significant effect on inpatient psychiatric care; whereas ED LOS and cost

were both negatively affected. Based on these results, the UDS seems to be of little-to-no benefit in the setting of acute psychiatric illness. © 2018 Elsevier Inc. All rights reserved.

Keywords—urine drug screen; medical clearance; behavioral health emergencies

INTRODUCTION

Patients with behavioral emergencies commonly present to emergency departments (EDs). Approximately 6% of U.S. ED visits are the result of acute psychiatric disturbances, depression, manic episodes, bipolar disorder, or substance abuse (1). Because psychiatric illness can be exacerbated or exist concomitantly with medical disease, emergency physicians are often required to initially assess patients with behavioral emergencies. This process of “medical clearance” is aimed at determining whether a patient’s symptoms are the result of, or exacerbated by, an underlying medical condition, to determine and treat any medical condition that requires emergent or urgent intervention, and determine whether intoxication may limit the accuracy of a psychiatric evaluation. Currently, there is no standard by which “medical clearance” is judged, and “clearance” may mean different things to emergency physicians and psychiatrists (2).

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The urine drug screen (UDS) is a matter of some controversy in the evaluation of ED patients with psychiatric complaints. The UDS is limited by problems of specificity (numerous psychiatric medications can result in false positives), problems of timing (a UDS can remain positive for days to weeks after use; arguing that the present behavioral disturbance may or may not be related to UDS result), and the recognition that individuals with psychiatric disease (and acute deteriorations) may have concomitant substance abuse disorders. A 2001 study demonstrated that more than half of surveyed emergency physicians considered the screen not useful for medical clearance (2). In contrast, psychiatrists may consider the screen important in determining the etiology of the current presentation or in determining disposition (3–6). Other psychiatrists argue for the UDS given the reported lack of adequate physical examination by emergency physicians (5). Some psychiatric hospitals may require the screen prior to acceptance for inpatient evaluation and treatment (6).

In 2005, a Clinical Policies Subcommittee (Writing Committee) of emergency physicians and emergency psychiatrists met to discuss and draft clinical policy recommendations related to the diagnosis and management of the adult psychiatric patient in the ED (7). These clinical policy recommendations approved by the American College of Emergency Physicians (ACEP) Board of Directors on September 23, 2005 and endorsed by the American Association for Emergency Psychiatry on December 1, 2005 stated that “routine urine toxicologic screens for drugs of abuse in alert, awake, cooperative patients do not affect ED management and need not be performed as part of the ED assessment. Additionally, urine toxicologic screens for drugs of abuse obtained in the ED for the use of receiving psychiatric facility or service should not delay patient evaluation or transfer” (7). A more recent ACEP Clinical Policy (2017) presents several studies that demonstrate an overall lack of influence of the UDS in disposition decisions to inpatient psychiatric facilities (8). However, the authors suggest a potential theoretical benefit of the UDS for alternative disposition sites such as outpatient drug and alcohol rehabilitation centers. No specific published studies have addressed this clinical question.

There is limited published literature regarding the influence of the UDS obtained at the request of an inpatient psychiatric facility on the subsequent inpatient psychiatric management of patients initially presenting to an ED, potential delays in patient evaluation or transfer resulting from such a request, and costs associated with requested UDS. We sought to evaluate the influence of the UDS ordered by emergency physicians at the request of an inpatient psychiatric facility on subsequent psychiatric care, including diagnoses made, drug counseling, potential de-

lays in timely patient transfer, and costs associated with the requested screen.

METHODS

In this institutional Committee on Human Research-approved study, a search of the electronic medical record (EMR) electronic database (Epic Corporation, Verona, WI) of a four-hospital community network was performed. All patients admitted to the in-network behavioral health hospital after evaluation and medical clearance in one of the two in-network EDs were identified. Patients who were discharged from the in-network behavioral health hospital between September 1 and September 30, 2014 were included for review. The month of September 2014 was chosen using a random number generator (9). Data collected included medical record number, age, gender, ED length of stay (LOS), time from arrival in the ED to medical clearance for psychiatric evaluation, time from medical clearance to discharge from the ED, admission of substance use by patients prior to obtaining UDS, whether a UDS was obtained in the ED, the results of the UDS obtained, the number and results of previous UDS obtained, whether the results of the UDS were described correctly by the treating mental health provider at time of initial evaluation or at discharge, the nature of substance use disorders diagnosed during inpatient psychiatric care, inpatient counseling or referrals for drug or alcohol counseling, confirmatory testing after initial UDS results, and the inpatient psychiatric hospitalization LOS. Time of medical clearance was determined as the time that an order “medically cleared” was placed in the EMR by the ED provider. All recorded notes in the EMR were reviewed for abstracted data by the study authors. Patients with more than one encounter resulting in admission during the study period were treated as separate entries. All abstracted data were transcribed into a standardized Microsoft Excel 2008 (Microsoft Corporation, Redmond, WA) spreadsheet. Methods of chart abstraction were in accordance with published recommendations (10).

Continuous data were tested for normality using Shapiro-Wilk Test. Descriptive statistics were performed. Mann-Whitney *U* test for selected continuous variables, chi-squared, or Fisher’s exact test for categorical variables was performed. *p*-Values (two-tail) < 0.05 were considered statistically significant. All statistics were completed using SPSS software (v20, IBM Corporation, Armonk, NY).

RESULTS

There were 205 patient encounters representing 189 patients identified during the study interval. Eighty-nine

UDS were ordered by emergency physicians, 79 after medical clearance and at request of a psychiatric facility. Upon review of the ED provider notes (specifically, the documented medical decision-making) as well as the list of orders placed/cancelled, it is apparent that in no case did the results of the UDS change ED medical care or lead to the revocation of medical clearance. There were 116 patients admitted to inpatient psychiatric care without a UDS being performed during ED evaluation and medical clearance. The cost of each UDS performed was \$235 (personal conversation with laboratory director) for a total cost of \$20,915 for the month of inquiry. Continuous data (ED LOS, Psych LOS, age, time from arrival to clearance, time from clearance to discharge, number of previous UDS in EMR) demonstrated a lack of normality by Shapiro-Wilk test. There were no significant differences between groups (UDS performed and UDS not performed) for ED LOS, arrival to medical clearance, age, number of previous UDS recorded in EMR, gender, diagnosis of any substance abuse/use dis-

order, or psychiatric hospitalization LOS. There was, however, a statistically significant difference in time from medical clearance to departure from the ED among those in which the UDS was requested by the admitting psychiatric hospital after medical clearance (median difference of approximately 5 h); Mann-Whitney U p -value = 0.011. Mental health providers were more likely to mention the results of the UDS when done than when not done, however, it occurred < 25% of the time in either group. No results were confirmed by gas chromatography/mass spectrometry (GC/MS), and no patient in either group received drug counseling during psychiatric hospitalization nor was referred for drug counseling post psychiatric hospitalization (Table 1).

There were no differences between groups in the distribution of admission of use, diagnosis of specific drug use/abuse, or previous UDS results (Table 2). There were statistically significant associations between admission of use and diagnosis of substance use/abuse disorder, but no such association between UDS result and

Table 1. Demographics

	35–55 years old		p -Value
	UDS Done (n = 89)	UDS Not Done (n = 116)	
ED LOS (h)			
Median (IQR)	19.27 h (18.16)	16.84 h (12.88)	0.22
95% CI of median	16.3–22.48	14.53–19.92	
ED arrival to MedClear (h)			
Median (IQR)	2.35 h (4.08)	2.48 h (4.37)	0.79
95% CI of median	2.13–3.53	2.03–3.32	
ED MedClear to Depart (h)			
Median (IQR)	17.4 h (14)	12.45 h (11.4)	0.01
95% CI of median	13.1–18.85	9.77–12.45	
Psych LOS (days)			
Median (IQR)	3 d (4)	4 d (5)	
95% CI of median	2–4	2–5	
Age, years			
Median (IQR)	33.36 (20.18)	36.40 (20.19)	0.70
95% CI of median	27.75–35.72	33.02–38.64	
Number of previous UDS			
Median (IQR)	1 (3.5)	2 (6)	
Range	0–22	0–38	
95% CI of median	1–2	1–3	
Female	34 (38%)	47 (41%)	
95% CI	28–49	32–50	
Dx sub disorder	43 (48%)	52 (45%)	
95% CI	38–59%	36–54%	
UDS confirmation (GC/MS or LC/MS)	0 (0%)	0 (0%)	
UDS described	20 (22%)	12 (10%)	
95% CI	14–33	5–17	
UDS described correct	14 (70%)	12 (100%)	
95% CI	45–88	74–100	
Referral for drug counseling	0 (0%)	0 (0%)	
Inpatient drug counseling	0 (0%)	0 (0%)	

UDS = urine drug screen; ED LOS = emergency department length of stay; IQR = interquartile ratio; Psych LOS = inpatient psychiatric hospitalization length of stay; Number of Previous UDS = how many previous urine drug screens (UDS) were available in the electronic medical record; Dx sub disorder = diagnosis of substance use/abuse/dependence made at discharge from psychiatric hospitalization; UDS confirmation = the screen result was confirmed with GC/MS or LC/MS (gas chromatography/mass spectrometry or liquid chromatography/mass spectrometry); UDS described = the results of the UDS were described in psychiatry documentation; UDS described correct = the UDS results were interpreted correctly; 95% CI = 95% confidence interval.

Table 2. Distribution of Admission of Use, Diagnoses, and Previous Urine Drug Screen Results

	UDS Done (n = 89)	UDS Not Done (n = 116)
Amphetamine/methamphetamine [95% CI]		
Admission of use	29 (33%) [23–43%]	32 (28%) [20–37%]
Dx of use/abuse/dependence	16 (18%) [11–28%]	21 (18%) [12–26%]
Prev UDS	27 (30%) [21–41%]	37 (32%) [24–41%]
Cocaine [95% CI]		
Admission of use	6 (7%) [3–14%]	9 (8%) [4–14%]
Dx of use/abuse/dependence	3 (3%) [1–10%]	3 (3%) [0.5–7%]
Prev UDS	8 (9%) [4–17%]	11 (9%) [5–16%]
Benzodiazepines [95% CI]		
Admission of use	2 (2%) [0.02–8%]	0 (0%)
Dx of use/abuse/dependence	1 (1%) [0.03–6%]	0 (0%)
Prev UDS	15 (17%) [10–26%]	20 (17%) [11–25%]
Barbiturates [95% CI]		
Admission of use	0 (0%)	0 (0%)
Dx of use/abuse/dependence	0 (0%)	0 (0%)
Prev UDS	0 (0%)	5 (4%) [1–10]
Cannabis [95% CI]		
Admission of use	34 (38%) [28–49%]	32 (28%) [20–37%]
Dx of use/abuse/dependence	16 (18%) [11–28%]	14 (12%) [7–19%]
Prev UDS	28 (31%) [22–42%]	36 (31%) [23–40%]
PCP [95% CI]		
Admission of use	0 (0%)	2 (2%) [0.2–6%]
Dx of use/abuse/dependence	0 (0%)	0 (0%)
Prev UDS	6 (7%) [3–14%]	19 (16%) [10–24%]
Opiates/opioids [95% CI]		
Admission of use	5 (4%) [2–13%]	6 (5%) [2–11%]
Dx of use/abuse/dependence	1 (1%) [0.03–6%]	1 (0.9%) [0.02–5%]
Prev UDS	8 (9%) [4–17%]	6 (5%) [2–11%]
Dx Mixed disorder [95% CI]	2 (3%) [0.02–8%]	2 (1%) [0.2–6%]
Dx PolyDrug disorder [95% CI]	18 (20%) [12–30%]	21 (18%) [12–26%]

UDS = urine drug screen; 95% CI = 95% confidence interval of proportion; Dx = diagnosis.

diagnosis of substance use/abuse disorder (Table 3). Statistical significance was maintained after Bonferroni correction for repeated comparisons.

DISCUSSION

In this retrospective case series of patients admitted to a behavioral health hospital after initial ED evaluation and medical clearance, the UDS did not seem to have any significant or meaningful impact on ED or inpatient psychiatric care. This is reflected in the infrequent mention of UDS result by treating mental health provider as well as the similarity between psychiatric facility LOS and substance abuse discharge diagnoses regardless of UDS performance or result. Patients who admitted to illicit drug use were statistically more likely to be given a diagnosis of substance use/abuse than patients who merely tested positive, further calling into question the utility of testing. No patient (either with admission of use or positive UDS result) received drug counseling during psychiatric hospitalization nor referral for drug cessation counseling or treatment, further negating any potential or theoretical benefit of UDS testing among patients in this series.

A number of patients who tested positive on the UDS, yet denied illicit substance use, were currently prescribed

outpatient medications known to cause false-positive UDS results (11). No mention of these potential confounding medications were found in any psychiatric documentation. As no laboratory confirmation with GC/MS was performed in the present series, it is impossible to determine the reason for these positive results: illicit drug use vs. prescribed medication compliance. These potential confounding medications call into question the validity of many of the substance abuse/use disorder diagnoses made in the present series, as many were without symptoms to suggest acute intoxication at the time of initial ED evaluation and clearance.

Conversely, there was a trend for longer ED stay medians in tested patients, yet, both groups had similar 95% confidence intervals. There was, however, a statistically significant delay in time from medical clearance to discharge. In our experience, these tests are almost always ordered by emergency physicians per request of the inpatient facility or psychiatric liaison, and not per the discretion of the ED provider. It is the opinion of the authors that the use of drugs should not limit evaluation/treatment for concomitant psychiatric disease and that the external request for a UDS is often a “stall” tactic employed to delay transfer.

In addition to the negative effect on ED LOS, the UDS significantly affected the overall cost of

Table 3. Association Between UDS Result and Admission of Use and Diagnosis of Substance Disorder

Amphetamine	Diagnosis of Amphetamine Disorder		<i>p</i> -Value
	Yes	No	
UDS			
Positive	6	12	0.08*
Negative	31	156	
Admission			
Yes	26	35	0.000*
No	11	133	
Cocaine	Diagnosis of Cocaine Disorder		
	Yes	No	
UDS			
Positive	0	2	1.00†
Negative	6	197	
Admission			
Yes	4	11	0.000†
No	2	188	
Cannabis	Diagnosis of Cannabis Disorder		
	Yes	No	
UDS			
Positive	7	26	0.11*
Negative	19	153	
Admission			
Yes	20	46	0.000*
No	10	129	
Benzodiazepines	Diagnosis of Benzodiazepine Disorder		
	Yes	No	
UDS			
Positive	0	5	1.00†
Negative	0	200	
Admission			
Yes	1	1	0.001†
No	0	203	
Opiates/Opioids	Diagnosis of Opiate/Opioid Disorder		
	Yes	No	
UDS			
Positive	0	3	1.00†
Negative	2	200	
Admission			
Yes	2	9	0.003†
No	0	194	
Barbiturates	No diagnosis of barbiturate disorder was made in the present case series		
PCP	No diagnosis of PCP disorder was made in the present case series despite 2 patients admitting to use		

UDS = urine drug screen; PCP = phencyclidine.

* Chi-squared test (two-tailed).

† Fisher's exact test (two-tailed).

care. As mentioned earlier, the cost of each UDS was \$235, which came to a total cost of \$20,915 during the month of inquiry. In the absence of any meaningful patient-oriented outcomes, this is a substantial cost to patients and to the health care system at large.

LIMITATIONS

This is a retrospective descriptive analysis limited to the information available in a single health care system EMR, and the results may not be generalizable to other health care systems or acute psychiatric care hospitals. Errors

may have been made in documentation at the time of evaluation in the ED or psychiatric hospitalization. Post hoc power analysis with the sample sizes obtained (89 and 116) demonstrated an 80% power to detect a moderate effect size (0.4) for Mann-Whitney U test using the minimal asymptotic relative efficiency method and a 75% power to detect a difference of 12% for proportions. We did not specifically address questions related to the influence of the UDS on decisions related to the disposition of patients.

CONCLUSION

The UDS seems to be of little-to-no benefit in the setting of acute psychiatric illness. Routine drug testing in stable psychiatric patients proved to be a waste of both time and money in the present series. Furthermore, obtaining a UDS had no discernible effect on inpatient psychiatric care or disposition. In concordance with the ACEP Clinical Policy guideline, a formal agreement should be made between the ED and inpatient mental health facility to forego obligatory drug testing as a means to streamline the placement process and optimize resources.

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ARTICLE SUMMARY

1. Why is this topic important?

American College of Emergency Physicians Clinical Guidelines recommend against the routine use of the urine drug screen (UDS) in stable psychiatric patients, however, many behavior health centers require the result prior to facility transfer. As behavioral health emergencies account for 6% of all emergency department (ED) visits, unnecessary testing and delayed discharges can potentially have large effects on ED resources.

2. What does this study attempt to show?

This study attempts to show that the routine UDS in stable patients not only increases costs but increases ED length of stay as well. Furthermore, it attempts to evaluate to what degree, if any, the UDS affects inpatient psychiatric care.

3. What are the key findings?

There was a statistically significant delay of 3 h from the time of ED medical clearance to ED departure in patients undergoing UDS. Approximately 90% of UDS orders were placed per request of the behavioral health facility (after the patient had already been medically cleared by the emergency physician). UDS results had no effect on behavioral health center length of stay or discharge diagnosis of substance abuse.

4. How is patient care impacted?

The UDS seems to increase the cost of patient care and prolong ED stay without providing any obvious benefit to the quality of inpatient psychiatric care.