Critical Review Form
Prognosis

Routine laboratory testing to evaluate for medical illness in psychiatric patients in the emergency department is largely unrevealing. West J Emerg Med. 2009 May;10(2):97-100.

Objectives: **"to determine the value of routine laboratory testing in the "medical clearance" of patients with known psychiatric disorders who present to the ED with a normal history and physical exam." (pp. 97-98)**

Methods: **This prospective, unblended study was performed at Kern Medical Center in Bakersfield, CA between December 2004 and September 2006 on a convenience sample of patients. Patients with a primary psychiatric complaint and a pre-existing psychiatric disorder were eligible for inclusion if had an "alert and oriented mental status" and laboratory testing was ordered. Suicidal patients were excluded.**

All patients were evaluated by an emergency medicine resident under the supervision of an emergency physician. Evaluation included a history, physical exam, and chart review. The physician then noted whether any abnormalities in the history or physical exam warranted laboratory testing. Laboratory testing was then ordered on all patients, including a CBC, BMP, hepatic function panel, UA, urine toxicology screen, thyroid panel, and urine pregnancy test. Significant lab abnormalities, medical interventions, and final disposition were all recorded. A "significant" lab abnormality was defined by a change in management or the need for further investigation.

A total of 400 patients were enrolled. There was incomplete data on 25 of these (6.3%), leaving 375 patients in the final analysis. Of these, 20.8% were between the ages of 18 and 24, 47.5% were between the ages of 25 and 44, 30.4% were between the ages of 45 and 64, and 1.3% were over the age of 65. These patients were overall younger than patients in the National Hospital Ambulatory Medical Care Survey, 2000.

Guide		Comments
I.	**Are the results valid?**	
A.	**Was the sample of patients representative?** *In other words, how were subjects selected and did they pass through some sort of "filtering" system which could bias your results based on a non-representative sample. Also, were objective*	Mostly yes. This was a convenience sample of patients, the details of which were not provided. It is possible that patients were only enrolled during daytime hours and this could affect the incidence of the outcome of interest. Additionally, the authors do not explicitly state how patients were selected and whether any objective

	criteria used to diagnose the patients with the disorder?	criteria were used (e.g. only patients requiring a psychiatric consultation).
B.	**Were the patients sufficiently homogeneous with respect to prognostic risk?** *In other words, did all patients share a similar risk from during the study period or was one group expected to begin with a higher morbidity or mortality risk?*	Uncertain. The authors do not provide any demographic data outside of the age of the subjects. They do not discuss medical comorbidities, substance abuse issues, or details regarding the psychiatric history and complaint.
C.	**Was follow-up sufficiently complete?** *In other words, were the investigators able to follow-up on subjects as planned or were a significant number lost to follow-up?*	Yes. Out of 400 patients enrolled, 25 (6.3%) were excluded due to incomplete data, leaving 375 subjects (93.7%) with complete outcome data. The authors do not make any comparison between those patients with incomplete data and those in the final analysis, so it is unclear if there were any baseline differences between the groups that could have affected the results.
D.	**Were objective and unbiased outcome criteria used?** Investigators should clearly specify and define their target outcomes before the study and whenever possible they should base their criteria on objective measures.	No. The primary outcome of interest was a "significant" abnormal lab value. This was defined as "resulting in change in management or prompting further investigations." (p. 98) It is not made clear who made this determination. Ideally, multiple people should have assessed for the outcome and the authors should have evaluated inter-rater reliability.
II.	**What are the results?**	
A.	**How likely are the outcomes over time?** *For the defined follow-up period, how likely were subjects to have the outcome of interest.*	Of the 375 patients in the final analysis, 128 (34.1%, 95% CI 29-39%) had an abnormal laboratory value. • Of these, 72 (56.2%) were positive urine drug screens requiring observation and hydration. • Of the remaining 56 abnormal lab values, 42 had indications for further testing due to abnormal history (n = 16, 38.1%) or physical exam findings (n = 26, 61.9%). • Of the remaining 14 patients, only 4 (1.1%, 95% CI 0.3-2.7%) had a significant lab abnormality that resulted in a change in medical management. In all 4 cases, the lab abnormality was a positive urinalysis suggesting infection. • In none of the cases was the disposition altered by the results of the lab testing.
B.	**How precise are the estimates of likelihood?** *In other words, what are the confidence intervals for the given*	See above.

	outcome likelihoods?	
III.	**How can I apply the results to patient care?**	
A.	**Were the study patients and their management similar to those in my practice?**	Yes. This was a US emergency department associated with an emergency medicine residency program. Our emergency department has a much higher yearly volume, and the incidence of substance abuse is likely higher. No other demographic information was provided with regards to the patients in the study.
B.	**Was the follow-up sufficiently long?**	Yes. This study sought to evaluate the effect of lab testing on disposition and management of patients in the ED. Follow-up to disposition from the ED should therefore be sufficient.
C.	**Can I use the results in the management of patients in my practice?**	Uncertain. While lab testing did not significantly alter medical management or disposition in the vast majority of patients, it is uncertain if some testing altered psychiatric management. Likely the majority of testing employed routinely is of little value (CBC, BMP, hepatic function, and thyroid testing) in patients with an established psychiatric diagnosis, urine drug screens likely impact further psychiatric care.

Limitations:

1. **This was a convenience sample of patients, the details of which were not provided. It is possible that patients were only enrolled during daytime hours and this could affect the incidence of the outcome of interest.**

2. **The authors do not explicitly state how patients were selected and whether any objective criteria were used (e.g. only patients requiring a psychiatric consultation).**

3. **Out of 400 patients enrolled, 25 (6.3%) were excluded due to incomplete data, leaving 375 subjects (93.7%) with complete outcome data**

4. **The primary outcome of interest – a "significant" abnormal lab value – was defined as "resulting in change in management or prompting further investigations." (p. 98) It is not made clear who made this determination. Ideally, multiple people should have assessed for the outcome and the authors should have evaluated inter-rater reliability.**

5. **The authors do not evaluate the impact of routine lab testing psychiatric management.**

Bottom Line:

In this prospective observational study of routine lab testing on psychiatric patients in the ED, only 4 patients without an indication for laboratory testing, out of 375 total patients (1.1%, 95% CI 0.3-2.7%), had a significant lab abnormality that resulted in a change in medical management. In all 4 cases, the lab abnormality was a positive urinalysis suggesting infection. These data suggest that routine laboratory testing is not beneficial in this patient population. These results are limited by the subjectivity of the inclusion criteria and of the primary outcome of interest, as well as the failure to assess the effect of lab results on psychiatric management.