
Urinalysis in Inpatient Psychiatry

Last updated April 2024

Introduction

In this fact sheet we discuss when to order and how to interpret a urinalysis in psychiatric inpatients. We won't cover the urine tox screen (or drug screen) in this fact sheet, as it is already covered in

Elements of Urinalysis: Quick Reference Chart

Element	Normal Range	Significance
Color & Appearance	Pale to dark yellow, clear	Dark urine may indicate dehydration; cloudy urine suggests infections.
Specific Gravity (SG)	1.005 to 1.030	High SG points to dehydration; low SG may signal kidney issues or overhydration.
pH	4.6 to 8.0	Affected by diet, diseases, medications. Abnormal levels may indicate metabolic or renal disorders.
Protein	Little to none	Presence indicates potential kidney disease; transient increases can occur with stress or exercise.
Glucose	Absent	Presence suggests diabetes.
Ketones	Absent	May indicate diabetes mellitus, starvation, or a low-carbohydrate diet.
Blood (Hematuria)	Absent	Sign of infection, injury, stones, cancer, or kidney disease.
Leukocyte Esterase & Nitrite	Absent	Indicate UTIs; leukocyte esterase for WBCs, nitrites suggest bacterial conversion from nitrate.
Microscopic Examination	—	Identifies cells, crystals, casts, bacteria, or yeast; crucial for diagnosing infections, stones, or kidney diseases.

When to order a Urinalysis in Psychiatry

- **Diagnosing UTIs:** Initial screening for symptoms like dysuria (painful or burning urination), hematuria, or flank pain. In addition, order a UA in geriatric patients who are agitated or delirious for no clear reason. Sometimes such patients—especially those with dementia—may have a UTI without a fever and may not be able to communicate any clear urinary symptoms.
 - **Typical UTI findings** include cloudy or odorous urine, positive leukocyte esterase, positive nitrites, increased WBCs, hematuria, and presence of bacteria on microscopic exam.
 - **Contamination signs:** Large numbers of squamous cells and common skin flora (e.g., *Staphylococcus epidermidis* or *Staphylococcus aureus*) suggest contamination. Order a "clean catch" repeat test if necessary.
 - **Should you order a culture?** If your patient is otherwise healthy and has UTI symptoms, empiric treatment with nitrofurantoin (Macrobid) or trimethoprim/sulfamethoxazole (Bactrim) is usually recommended. Order a medicine consult if a clinical decision hinges upon culturing the sample to identify a specific pathogen.
- **Assessment for Dehydration:** While often signaled by orthostatic vital signs and a high BUN/Cr ratio, the UA may also show findings a dark color an elevated specific gravity.
- **Psychogenic polydipsia:** Patients with psychogenic polydipsia may have UA findings like low specific gravity and low osmolality.

Additional Urine-Based Testing-- While not part of a routine urinalysis, you can use urine tests for these purposes:

- **STD Screening.** For chlamydia, gonorrhea, or trichomoniasis.

- **Substance Use Screening**
- **Pregnancy Testing.** Critical before starting medications that might be teratogenic.
- **Urine Osmolality** – to measure the concentration of particles in urine; relevant for patients with psychogenic polydipsia or those at risk of dehydration due to neglect of basic needs.