

Is Urine Testing Worthwhile for Insurance Purposes?

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Until a few years ago this would have been a ludicrous question. Today the situation has changed so much that the answer is a qualified "yes".

With the lowering of the "age and amount" levels for requiring blood tests, and with the increased use of attending physician's statements, disease screening by urine testing in the laboratory is frequently redundant. Blood sugars combined with HbA_{1c} are more accurate for detecting diabetes and evaluating its control. A dipstick performed by the paramedic could detect proteinuria and have the advantage of diagnosing microhematuria, frequently missed in the sediment of mailed specimens because of hemolysis of the red cells.¹

The laboratory testing of urine, however, has carved itself a new niche by providing feedback on medications and habits.

The usefulness of searching for the presence of medicines in the urine is questionable for two reasons. In most instances we obtain this information directly from the applicant or from the attending physician's statement. When the test is negative, it can give a false sense of security because the list of prescribed medicines changes much faster than the drug panel checked by our laboratories. There is also a possibility of crossreaction of different medications. Urine tests are being done for detecting the presence of oral antidiabetic agents, diuretics and Beta-blockers, but they screen for less than half of the medicines most frequently prescribed in these drug groups.

There is a test that can detect HIV antibodies in the urine but I would question its use in insurance medicine because of the possibility of specimen substitution.

Nowadays one of the most important uses of urinalysis in insurance medicine is to detect nicotine and illegal drugs, mainly cocaine. This justifies urine testing as long as the laboratories adopt a true "chain of custody" system for the specimens, a system that will hold up in court. One difficulty is that two agents are involved, the paramedical facility collecting the specimen and the laboratory processing it. Some of the requirements are that the handling of the specimen be witnessed by the applicant until sealed with tamper proof tape signed by the applicant. Another is documentation by the laboratory of the procedures used for verification of the integrity of the tamper proof tape and follow up of the specimen during processing. Positive tests for drugs require confirmation by mass spec. chromatography. Concomitantly, the insurance companies should enforce rating decisions made on the basis of these findings. However, drug-free urine specimens can be purchased in

major cities for about \$50.00. Non-using individuals can test positive for opiates after eating baked products containing poppy seeds, or some imported teas contain coca.

Some new tests warrant feasibility studies by the laboratories that work for our industry.

Tests indicating the presence of microalbuminuria are suggestive of incipient diabetic nephropathy. That albuminuria caused by diabetes mellitus carries a gloomy prognosis is no news. It has been defined as the presence of more than 300 mg/L of albumin or protein, (the level at which it is detected by current laboratory methods, including the dipstick tests). Between 30% and 40% of patients with juvenile-onset insulin-dependent diabetes mellitus (IDDM), develop diabetic nephropathy.²⁻⁴ The risk of developing this complication peaks during the second decade of diabetes and declines thereafter. Microalbuminuria was recently defined as urinary albumin excretion between 20 mcg/min (30 mg/24h) and 200 mcg/min (300 mg/24h), irrespective of how the urine is collected.³⁻⁵ The sensitivity of the radioimmunoassay method has been set at a level that does not detect the minute amount of protein normally excreted by healthy kidneys. Because patients with IDDM have variations in urinary albumin excretion, incipient diabetic nephropathy is considered to be present only if otherwise unexplained microalbuminuria is found in two out of three urine samples collected consecutively, preferably within six months. Several longitudinal studies have shown that persistent microalbuminuria predicts the development of diabetic nephropathy in 30% to 40% of patients with IDDM.²⁻⁶ Patients with microalbuminuria also demonstrate a higher prevalence of proliferative retinopathy, blindness, arterial hypertension, and peripheral neuropathy (foot ulcers). Furthermore, microalbuminuria is a predictor of cardiovascular death in patients with NIDDM.

The Lancet has commented in a recent editorial⁷ that most alcohol-related illness and death occur among individuals who do not consider themselves to be alcohol abusers and who are not recognized as such by their physicians. Included in this group are physicians themselves.

According to Simko *et al* liver disease, the fifth leading cause of mortality in middle-aged men in the U.S., is usually diagnosed too late, when the treatment is restricted to palliation. Most of the cases are due to alcohol abuse. These authors reported an increased level of urinary bile acids in individuals with histologically documented early liver disease. Urinary bile acids reflect abnormalities in plasma bile acids and were a more sensitive indicator of liver abnormality than ALT (SGPT).

Royne *et al*¹⁰ have described elevated urinary levels of the long-chain polyprenol dolichol in chronic alcoholics. The controls had a false-positive rate of 3.9%. The sensitivity of urinary dolichol for detecting alcoholism was 68% which, according to the authors, compared favorably with a sensitivity of 44% attributed to GGTP when used for this purpose.

If these tests were available at a reasonable cost, they would help to firm up a suspicion of alcohol abuse.

The laboratory testing of urine, in the context of today's insurance medical examination, is useful mainly for the

detection of nicotine and illicit drugs. For other purposes, a dipstick performed by the Paramedic could well be sufficient. In the practice of insurance medicine we are constrained to make diagnostic judgements without the benefit of a candid history and with the added difficulty of having to make decisions on the basis of tests that often cannot be repeated. It is imperative that the laboratory be extremely reliable. The testing of urine, ancestral tool of the medical profession, continues to provide an important service to our industry.

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