

# CLIENT BULLETIN

## *Measuring Buprenorphine and Norbuprenorphine in Urine*

Buprenorphine is used as a replacement therapy in the treatment of opioid dependence and as an analgesic. This medication also has the potential for misuse and diversion. For physicians who prescribe medications containing Buprenorphine, a test for Buprenorphine can be used to determine patient compliance with Buprenorphine prescriptions.

Buprenorphine is metabolized primarily by N-dealkylation to form Norbuprenorphine, which is pharmacologically active, as well as the glucuronide conjugates of both Buprenorphine and Norbuprenorphine. Within 144 hours after the administration of an intramuscular dose, 95% of the drug is eliminated (68% in feces and 27% in urine).

Buprenorphine is excreted in the urine as free buprenorphine (1% of the dose) and as the conjugated buprenorphine glucuronide (9.4% of the dose). Similarly, Norbuprenorphine is excreted in the urine as free Norbuprenorphine (2.7% of the dose) and the conjugated Norbuprenorphine glucuronide (11% of the dose).

Pacific Toxicology Laboratory has developed a unique LCMS/MS method that provides a sensitive quantitative determination of buprenorphine and Norbuprenorphine in urine, utilizing enzymatic hydrolysis with Beta-glucuronide, which is a more efficient method than acid or base hydrolysis in releasing Buprenorphine and Norbuprenorphine from their respective glucuronide conjugates in urine. The purpose of this test methodology is to provide a more accurate result than other methods, thereby assisting the physician to better determine patient compliance with regard to Buprenorphine prescriptions.

Our technical staff is available for consultation at your convenience. You may also contact your sales representative for additional details.



Donald Simpson, MD  
Medical Director  
Pacific Toxicology Laboratories