Urine-based tests

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Urinalysis In a urine dipstick test, used to screen for significant disease, urine is dipped with a stick on which there is a series of small chemical-containing pads designed to detect, typically , glucose, bilirubin, ketones, the specific gravity , blood, pH, protein, urobilinogen, nitrites and leukocyte esterase through colour changes. A similar test may be performed using reagents in a laboratory . Midstream specimen of urine or urine culture A midstream specimen of urine (MSU) or urine culture is used to establish the diagnosis of a UTI and allows identification of the urinary pathogen and selection of the most appropriate antibiotic. Most MSUs will be processed in two stages, with initial urine microscopy followed by urine culture only if appropriate. Normal urine contains small numbers of white blood cells, red blood cells and epithelial cells as indicated in Table 81.1 . Early-morning urine Early-morning urine (EMU) samples are sent on three consec - utive days for Ziehl–Neelsen staining and culture for acid-fast bacilli if genitourinary TB is suspected. Staining results are available within a day but culture results take 6 weeks. Nucleic acid amplification tests based on polymerase chain reaction ® ® (PCR), such as GeneXpert and TruNAAT , are frequently used for rapid detection of a small amount of bacterial DNA. An early-morning sample is preferred since it is expected that overnight shedding of bacilli will increase detection rates. Voided urine cytology V oided urine cytology is performed when a urothelial carci noma is suspected. The test has the disadvantage of a high false-negative rate. Approximately 15% of low-grade transi tional cell carcinomas produce positiv e voided urine cytology compared with approximately 50% of high-grade transitional cell tumours. Urine for chyle Testing urine for chyle is performed in specific situations where the suspicion for chyluria is high. This is restricted to certain endemic regions of the world. A high-fat diet is administered the night prior to collection of a morning sample of urine. The urine may visibly appear milky white (Figures 81.2 and 81.3

White blood cells 3–5 per high-power /f_i eld Epithelial cells <10–15 per high-power /f_i eld Red blood cells 0–2 per high-power /f_i eld

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