Approach to Urinalysis

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1. **Pearls**

   - UTI: symptomatic pt: +WBC, + RBC, bacteria, +LE, + nitrites

   - + WBC, +LE but no bacteria = sterile pyuria, Dx to consider:
     - Prostatitis, Interstitial cystitis
     - Genitourinary TB
     - Inflammation in kidney, exp: AIN

   - Patterns to recognize:
     - Heme+ but no RBC on microscopy
       - Intravascular hemolysis
       - Rhabdomyolysis
     - Glucose+
       - Uncontrolled DM or pt on SGLT2 inhibitor
       - Proximal tubule dysfunction: multiple myeloma, heavy metals, drugs (tenofovir) aka Fanconi syndrome
     - negative dipstick, +protein/high UPCR. Suspect multiple myeloma.
       - urine albumin:Cr often used to screen patients with DM

   - Effect of urine concentration
     - 1.003 = very dilute. If 1+ protein → could be a ton of protein!
     - 1.025+ = very concentrated. If trace protein → probably nothing. Note: glucose & contrast in urine can cause specific gravity to be artificially high!

   - Urine sediment associations:
     - Hyaline casts: pre-renal azotemia
     - Muddy brown casts: ATN (not-specific, RPGN, vasculitis etc.)
     - WBC casts: AIN
     - RBC casts: acute glomerulonephritis (look for dysmorphic red cells)
     - Squamous/epithelial cells: may indicate lack of a clean catch

   - If Foley specimen: RBC is expected, chronic inflammation in long-term Foley (WBC, bacteria).

   - Asymptomatic bacteriuria (>100K CFU of a single species)
     - Don't necessarily treat except:
       - Pregnant
       - Kidney transplant recipients
       - Undergoing surgery