

Urine findings: ↑ uric acid, ↓ pH (eg, from chronic diarrhea)

- **Magnesium ammonium phosphate** (“struvite” or “triple phosphate”) Chronic upper UTI w/ urea-splitting organisms (eg, *Proteus*, *Klebs*) → ↑ urine  $\text{NH}_3$ , pH >7
- **Cystine**: inherited defects of tubular amino acid reabsorption

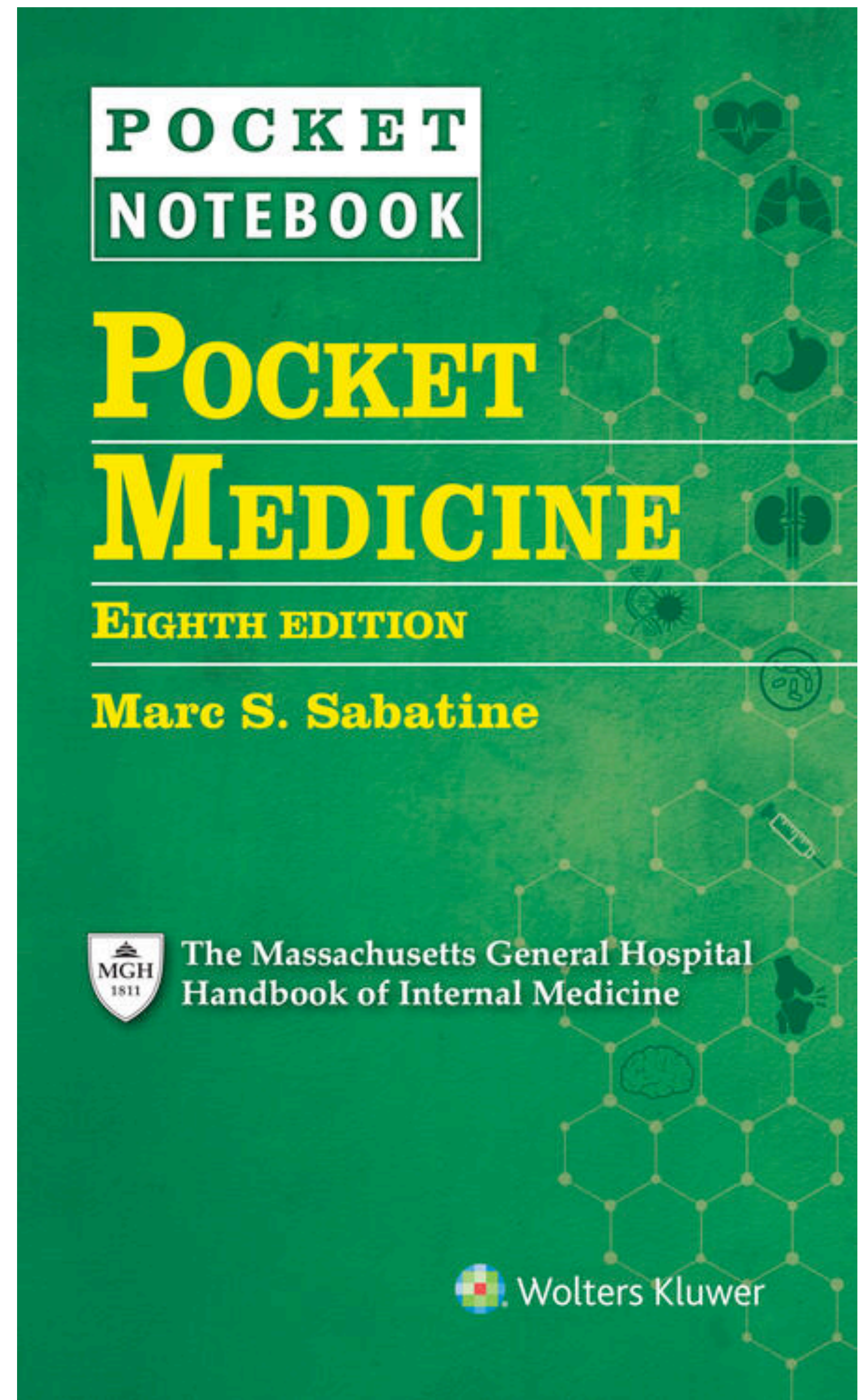
### Clinical manifestations

- Hematuria (absence does not exclude diagnosis), flank pain, N/V, dysuria, frequency
- Ureteral obstruction (stones >5 mm unlikely to pass spont.) → AKI if solitary kidney
- UTI: ↑ risk of infection proximal to stone; urinalysis of distal urine may be normal

### Workup

- **Non-contrast CT** 97% Se, 96% Sp (ureteral dilation w/o stone suggests recent passage); U/S (Se 57%, Sp 98%) may serve as initial test in stable patient (*NEJM* 2014;371:1100)
- Strain urine for stone to analyze; U/A & UCx; electrolytes, BUN/Cr, Ca,  $\text{PO}_4$ , PTH
- 24-h urine × 2 (>6 wk after acute setting) for Ca,  $\text{PO}_4$ , oxalate, citrate, Na, Cr, pH, K, vol.

### Acute treatment (*JAMA* 2020;323:1961)





<b>Oboljenje</b>	<b>Zlatni standard</b>
Alzheimerova bolest	Klinički nalaz/autopsija
Karcinom dojke	Biopsija
Karcinom pluća	Biopsija
Duboka venska tromboza	Kontrastna venografija
Streptokokna angina	Bris ždrela i zasejavanje na podlogu

Tabela 1. Primeri oboljenja i njihovih zlatnih standarda