Kidney Stones (Nephrolithiasis)

Cincinnati Children's®
changing the outcome together

FAST FACTS

30–50%
an increased risk that someone who has had one kidney stone will have another within 5 years

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types of kidney stones: calcium, cystine, uric acid and struvite

kidney stone causes
low urine volume/dehydration, bowel/GI conditions, high sodium diet, medications

Kidney stones are becoming much more common in children. Often, a chronic underlying condition predisposes children to stone formation and recurrence, and requires ongoing surveillance and treatment. Stones can be asymptomatic when not obstructing the ureter, so unrelated abdominal imaging can often reveal the presence of stones. Patients often seek treatment in emergency departments when a painful stone episode occurs. In younger children or those with developmental disabilities, symptoms may be atypical/hard to verbalize, making it difficult to diagnose without a prior history of stones.

ASSESSMENT

Perform a standard health history and physical exam (HPE). Obtain imaging—kidney, ureter and bladder (KUB) plain abdominal radiograph, and renal and bladder ultrasound. Use non-contrast CT scans sparingly in children and young adults.

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- Unmanageable renal colic (flank pain)
- Intractable nausea/vomiting
- Fever

MANAGEMENT/TREATMENT

If patient has renal colic and a prior kidney stone diagnosis, begin with at-home trial passage, with OTC analgesics for pain (depending on stone size, location, and child's overall clinical status). Prescribe narcotics sparingly. Facilitate stone passage through medical expulsive therapy with tamsulosin if you believe the stone is small enough (<4mm) to pass spontaneously. Advise parents they can open the capsules and mix with food if child is unable to swallow pills.

For children already diagnosed with stones, when child is trying to pass the stone, instruct family to strain urine to collect the stone, and bring it to you or to the Stone Clinic. If they bring the stone to you, send to lab as a pathology specimen and order a kidney stone analysis.

WHEN TO REFER

Refer to Cincinnati Children's Emergency when:

- Red flags (as above) are present
- Patient is unable to tolerate the pain
- Kidney function is affected
- Presence of signs of concomitant UTI with fever, in setting of obstruction

Refer to Cincinnati Children's Stone Center when:

- Medical management has proven unsuccessful (stone has failed to pass)
- History of multiple ED visits/hospitalization
- Presence of congenital anomalies that make stone passage unlikely

If you have clinical questions about patients with kidney stones, email stonecenter@cchmc.org or call 513-803-ROCK.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Tool developed by Cincinnati Children's physician-hospital organization (known as Tri-State Child Health Services, Inc.) and staff in the James M. Anderson Center for Health Systems Excellence. Developed using expert consensus and informed by Best Evidence Statements, Care Practice Guidelines, and other evidence-based documents as available. For Evidence-Based Care Guidelines and references, see www.cincinnatichildrens.org/evidence.

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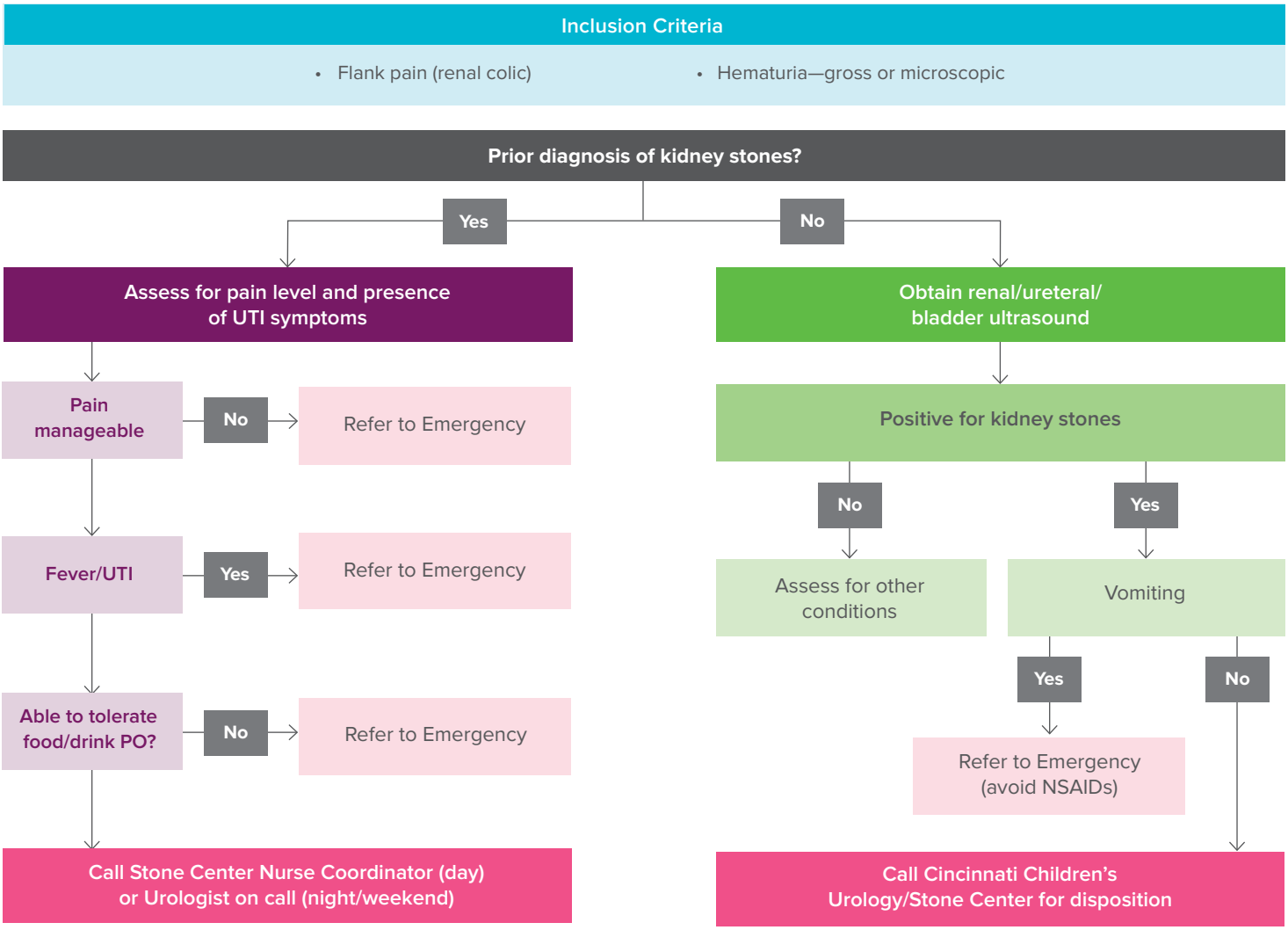

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.