

UROLITHIASIS (URINARY STONES)

Includes Nephrolithiasis (Renal Calculi, Kidney Stones), Ureterolithiasis (Ureter Calculi) and Cystolithiasis (Bladder Calculi)

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of a condition important to military-associated populations. Urinary stones can decrease operational effectiveness (e.g., lost duty days, medical evacuation) and may be precipitated by environmental stressors common to military training and operational settings.¹ This case definition includes criteria for incident and recurrent case identification.

Clinical Description

Urolithiasis is the formation of urinary calculi (“stones”) in the urinary system. Nephrolithiasis or “kidney stones” refers to calculi or stones in the kidney and is the most common form of urinary tract stone disease. Ureter and bladder calculi almost always originate in the kidneys. Urinary stones are most often caused by decreased urine volume or by increased excretion of stone-forming components such as calcium, oxalate, urate, cystine, xanthine, and phosphate. Factors predisposing an individual to stone formation include reduction in fluid intake, increased exercise with dehydration, medications that cause hyperuricemia and a history of gout.² The colic-type pain associated with the transit of kidney stones through the ureter is often severe radiating to the back and groin. The majority of stones pass in 48 hours. Treatment requires a combined medical and surgical approach and depends upon the location of the stone, the extent of obstruction, and the function of the affected kidney.^{3,4}

Case Definition and Incidence Rules

For surveillance purposes, a case of urolithiasis or “urinary stones” is defined as:

- *One hospitalization* with any of the defining diagnoses of urolithiasis (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position; or
- *One outpatient medical encounter* with any of the defining diagnoses of urolithiasis (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first inpatient or outpatient medical encounter that includes a case defining diagnoses of urolithiasis.

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¹ Armed Forces Health Surveillance Center. Urinary Stones, Active Component, U.S. Armed Forces, 2001-2010. *Medical Surveillance Monthly Report (MSMR)*. 2011December; Vol 18(No12):6-9.

² Kidney stones in adults. National Institute of Diabetes and Digestive and Kidney Diseases. <http://kidney.niddk.nih.gov/kudiseases/pubs/stonesadults/index.htm>. Accessed Jan. 5, 2010.

³ Braunwald, E., Fauci, A., Longo, D. et al. 2008. *Harrison's Principles of Internal Medicine*. 17th ed. United States: McGraw-Hill Professional.

⁴ Worcester EM, et al. Nephrolithiasis. *Primary Care: Clinics in Office Practice*. 2008; 35:369.



Case Definition and Incidence Rules *(continued)*

- An individual may be considered an incident case *once every 365 days*.
- For recurrent case counts, an individual with a subsequent case defining diagnosis of urolithiasis (i.e., a diagnosis after the 365 day interval) is considered a recurrent case.

Exclusions:

- None

Codes

The following ICD9 and ICD10 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Urolithiasis (Urinary Stones)	N20 (calculus of kidney and ureter)	592 Calculus of kidney and ureter
	- N20.0 (calculus of kidney)	274.11 (uric acid nephrolithiasis) 592.0 (calculus of kidney)
	- N20.1 (calculus of ureter)	592.1 (calculus of ureter)
	- N20.2 (calculus of kidney with calculus of ureter)	592.0 and 592.1 (above)
	- N20.9 (urinary calculus, unspecified)	592.9 (urinary calculus, unspecified)
	N21 (calculus of lower urinary tract)	594 Calculus of lower urinary tract
	- N21.0 (calculus in bladder)	594.0 (calculus in diverticulum of bladder) 594.1 (other calculus in bladder)
	- N21.1 (calculus in urethra)	594.2 (calculus in urethra)
	- N21.8 (other lower urinary tract calculus)	594.8 (other lower urinary tract calculus)
	- N21.9 (calculus of lower urinary tract, unspecified)	594.9 (calculus of urinary tract not otherwise specified)
	N23 (unspecified renal colic)	788.0 (renal colic)

Development and Revisions

- In July of 2015 the case definition was updated to include ICD10 codes.



- This case definition was developed in December of 2011 by the Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR article on incident and recurrent cases of urinary stones.¹ The definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- Incident cases are restricted to urinary stone diagnoses reported in the primary diagnostic position in an effort to reduce the effect of incidental detections of asymptomatic stones. Still, some diagnoses that are considered case defining using this case definition may reflect the documentation of asymptomatic incidentally diagnosed urinary stones.
- To increase the sensitivity of the case definition one outpatient medical encounter was determined to be sufficient to define a case.

Code Set Determination and Rationale

- The code set was selected after a review of the scientific literature and of the relevant codes in the International Classification of Diseases, 9th Revision.

Reports

None

Review

Jul 2015	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
Jan 2012	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
Dec 2011	Case definition developed by AFHSC MSMR staff.

Comments

None

