

**Pascale H. Lane,  
MD**



Pascale Lane is the Helen Freytag Distinguished Professor of Pediatrics in the section of Pediatric Nephrology at the University of Nebraska Medical Center.

She received her MD from the University of Missouri at Kansas City and trained in Pediatrics at Rush Medical College in Chicago.

Her fellowship in Nephrology was at University of Minnesota. She joined the faculty at UNMC in 1998, and became the Associate Chair for Research for the Department of Pediatrics in 2000.

Dr. Lane is a member of many professional organizations in nephrology and scientific disciplines.

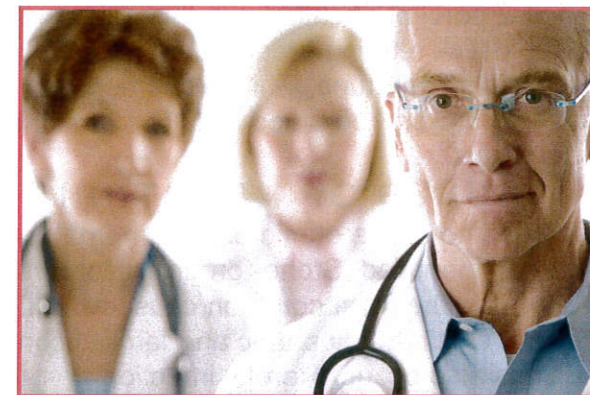
She has performed and published both basic and clinical research, teaches in the lecture hall and the clinic, and sees patients in her specialty.

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# Doctor to Doctor



Provided as a service for  
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# Asymptomatic Pediatric Hematuria

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Approximately 10 percent of children between 6 and 15 years of age show asymptomatic microscopic hematuria on a random urinalysis (UA). Persistent hematuria, present on 2 or more samples, occurs in 1-2 percent of children in this age group.

A dipstick reading greater than trace suggests hematuria, while a microscopic exam showing red blood cells confirms the diagnosis.

## CAUSES OF HEMATURIA

Often no cause of microscopic hematuria can be identified. Stone-forming disorders compose the most common causes identified in children. Idiopathic and familial conditions also occur. Rarely, infection or nephritis may present with isolated hematuria, although other urine abnormalities usually present with these disorders.

## HEMATURIA APPROACH

A history and physical exam plus blood pressure, proteinuria, and estimated glomerular filtration rate (GFR) guide the approach to hematuria. If the patient has a history of gross hematuria, and if all of these are normal, then a work-up for stone-forming disorders should be performed. If any of these are abnormal, then a nephritis work-up should be performed, with referral to a Nephrologist.

Microscopic hematuria without proteinuria, hypertension, or abnormal GFR requires repeated UAs over a period of 2-3 months.

In many children, hematuria decreases

or resolves. If microscopic hematuria persists, then a work-up for stone-forming disorders should be performed. If these studies are negative, then nephritis work-up and referral to a Nephrologist may be indicated.

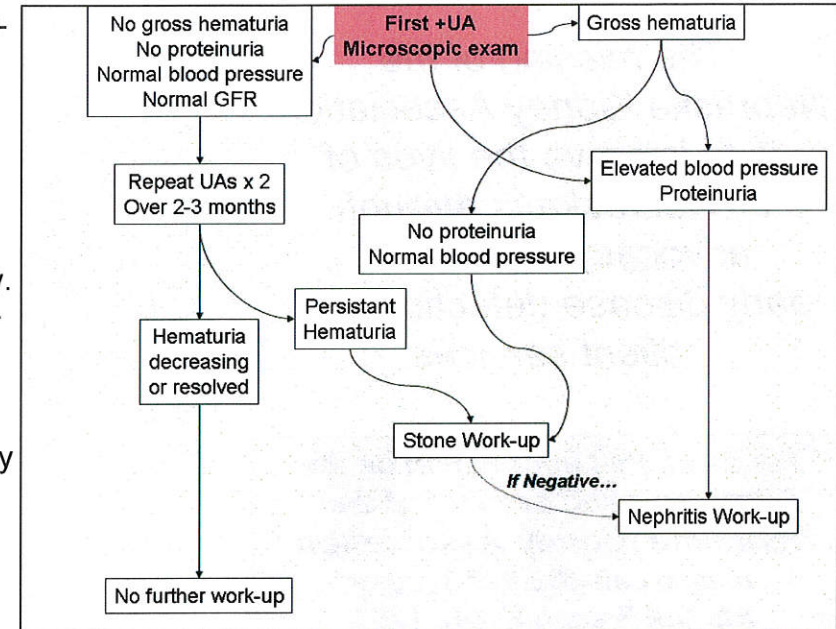
## STONE-FORMING WORK-UP

Urinary stones occur commonly in the Midwestern United States, most often associated with hypercalciuria. Disorders of excretion of oxalate, citrate, cystine, and uric acid may also result in hematuria. These disorders can all be diagnosed by examining spot urines (Normal values in Table). Units vary from lab to lab; care must be taken to assure ratios are calculated correctly.

## NEPHRITIS WORK-UP

Other tests for nephritis include kidney ultrasound to assess anatomy. Anti-streptococcal antibodies, antinuclear antibodies, anticytoplasmic neutrophil antibodies, and complement levels can screen for a number of kidney disorders. Ultimately, kidney biopsy defines nephritis discussed above should be screened.

	Age	mg/mg	mmol/mmol
Ca:Cr	<6m	<0.8	<2.24
	6-12m	<0.6	<1.68
	1-18yr	<0.2	<0.56
Oxalate:Cr	<6m	<0.3	<0.061
	6m-4yr	<0.15	<0.036
	>4yr	<0.1	<0.01
Cystine:Cr	All	<0.02	<0.01
Citrate:Cr	All	≥0.51	
UA: 100 ml of GFR $\frac{U_{UA} \times P_{Cr}}{U_{Cr}}$	≥3yr	<0.56	<0.03



## FOR MORE INFORMATION

Contact Dr. Lane at 402.559.7344 or via e-mail at [phlane@unmc.edu](mailto:phlane@unmc.edu).