

# UTI or ABU



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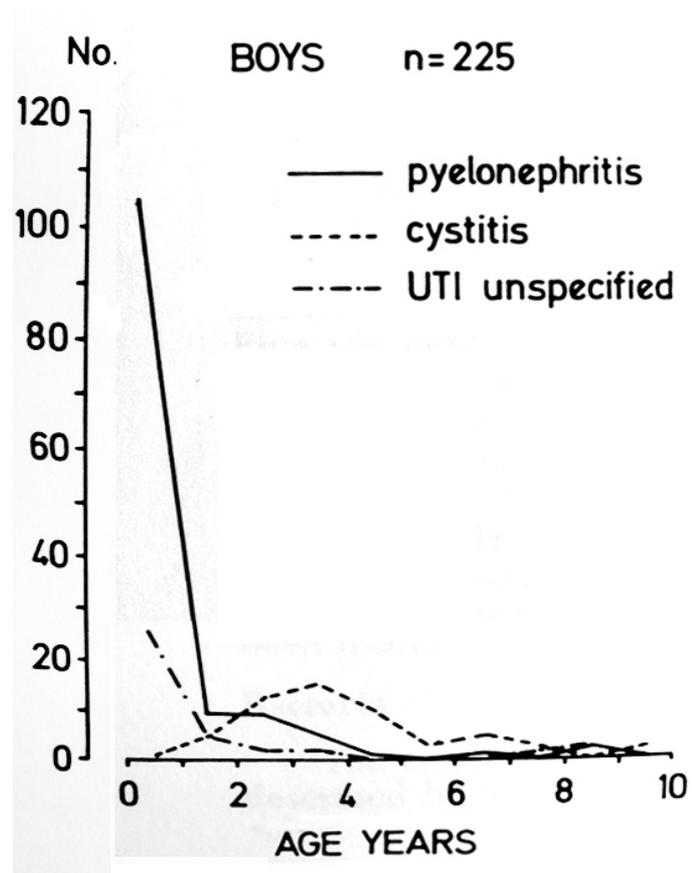
**Why ask such a stupid question?**

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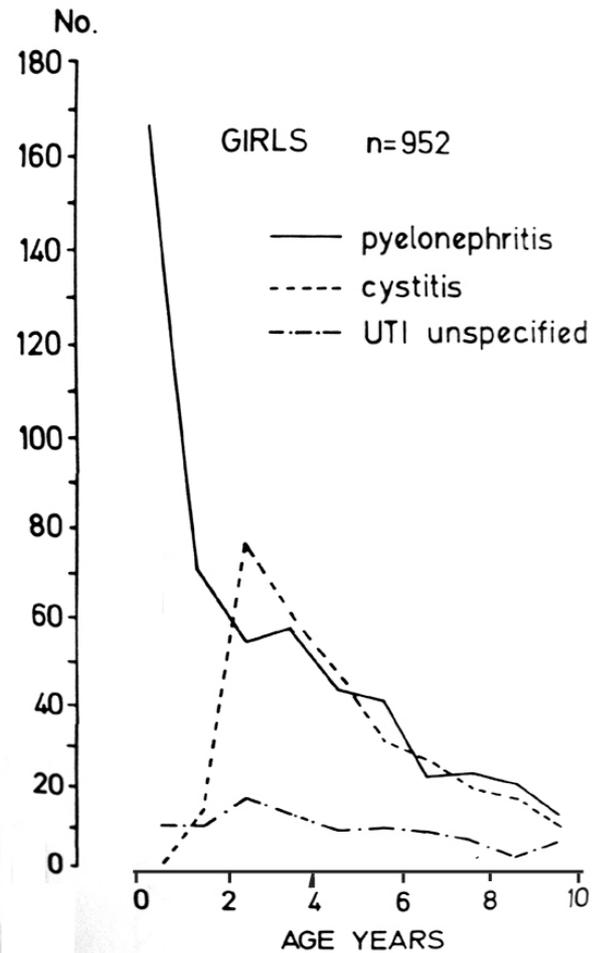
# Urinary Tract Infections

- Pyelonephritis – febrile UTI
- Cystitis – afebrile UTI
- Asymptomatic Bacteriuria (ABU)

# Occurrence - boys



# Occurrence - girls



# **Asymptomatic Bacteriuria (ABU)**

- Girls
- Infants of both sexes
- Children with urinary tract malformations

# **ABU in girls**

- Bladder dysfunction
- Voiding postponers
- Wetting
- Sometimes some symptoms

# **ABU in girls (2)**

- Avirulent bacteria
- Long persistence of the bacteria - medium 5 years
- Does not cause any long term harm to the kidneys

# ABU in infants

- 3000 children with screening urine cultures at three times during first year of life.
- Any positive culture confirmed with a bladder puncture
  - Wettergren et al

# Occurrence of infantile ABU

Screening bacteriuria

Pyelonephritis

Boys

2.5%

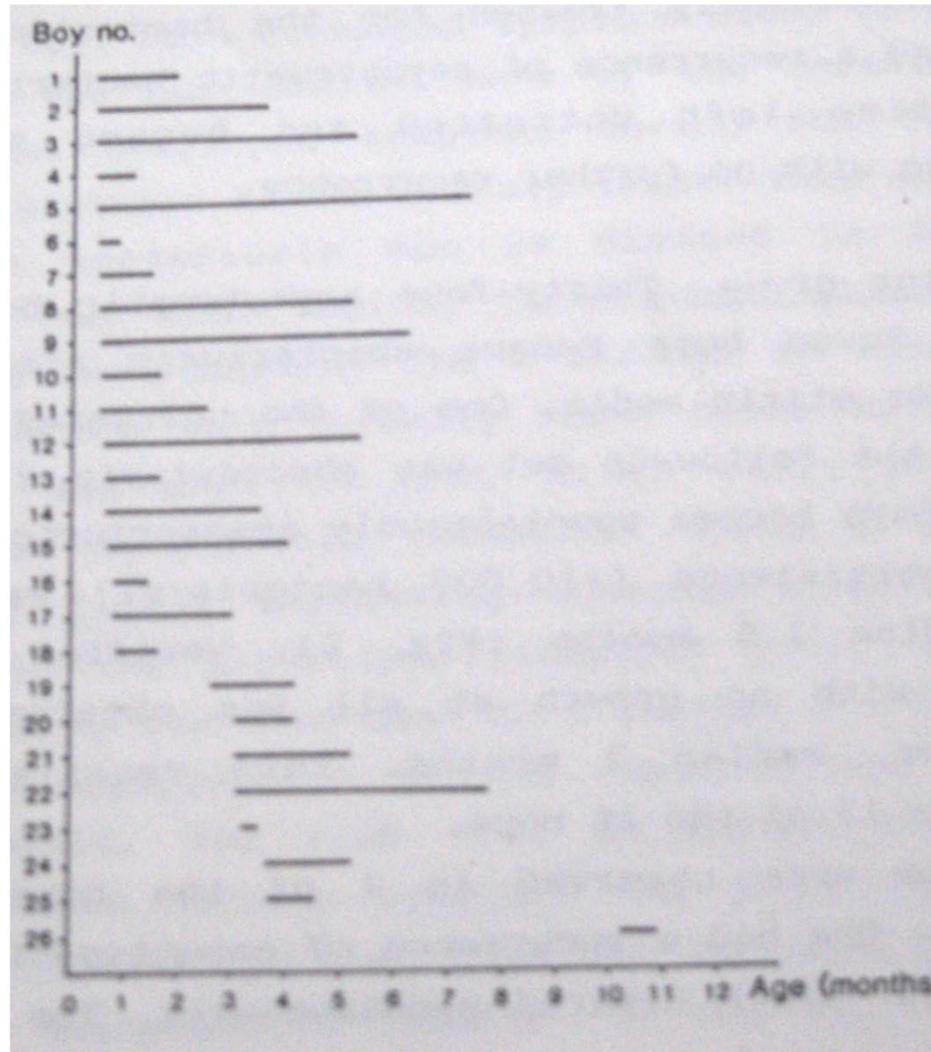
1.2%

Girls

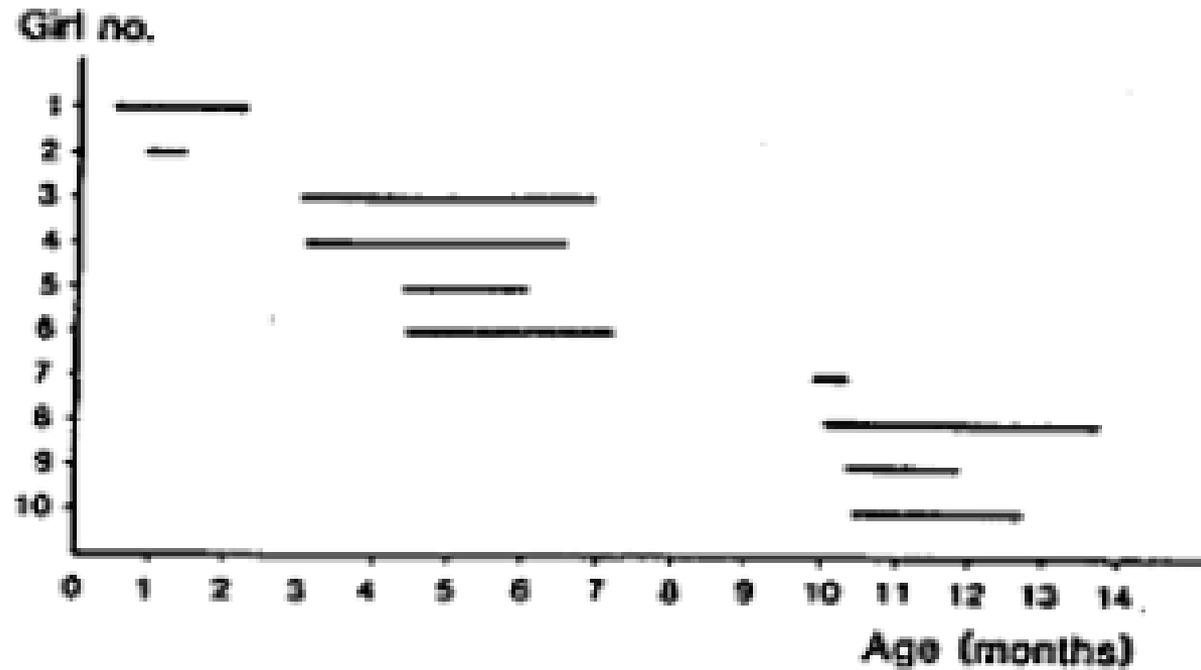
0.9%

1.1%

# Persistence of infantile ABU - boys



# Persistence of infantile ABU - girls



# Children with renal malformations

- Most children with significant renal malformations suffer from bladder emptying problems
- They do often have bacteriuria
- Often without symptoms
- Sometimes with significant symptoms and kidney involvement

**Where is the problem?**

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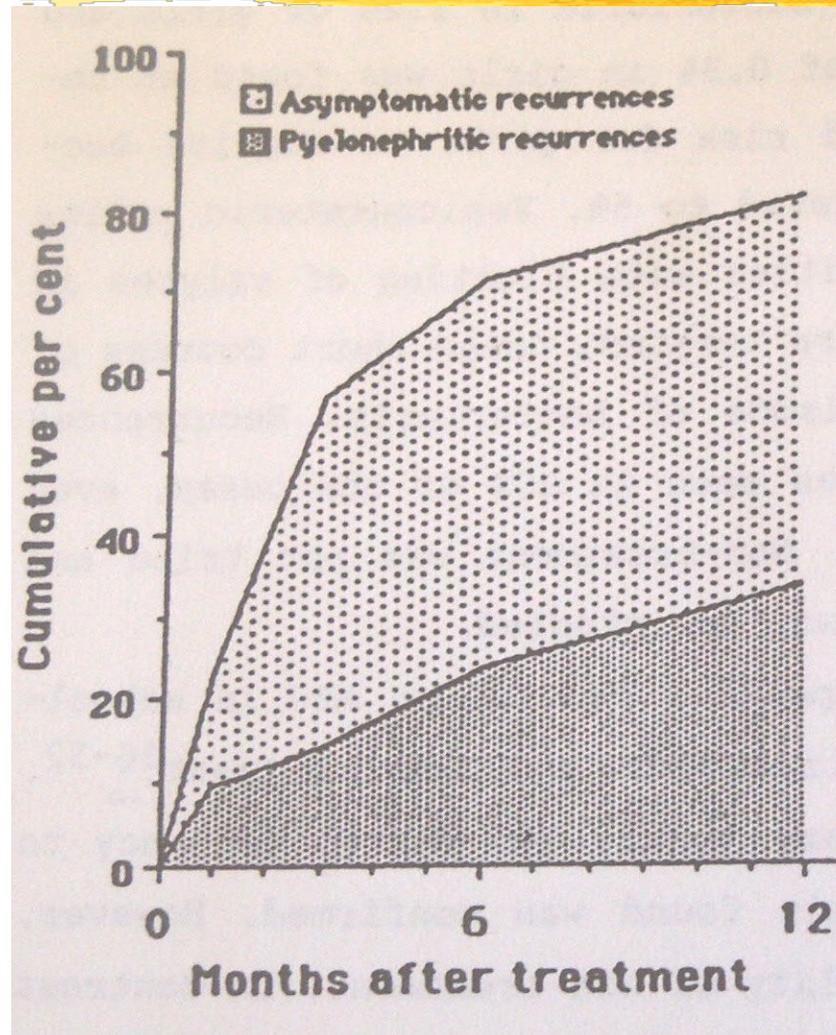
# 5 year old girl

- Many recurrent attacks of abdominal pain
- Diagnosed with many UTIs by the GP
- Urine culture results not available
- Sometimes pain when weeing?
- Wetting herself
- Antibiotic treatment has not really changed her symptoms

## **5 year old girl (2)**

- Urine culture positive
- Treatment made the bacteria disappear
- No change in symptoms
- But they reoccured quickly.

# Treatment results



# **5 year old girl (3)**

- What is this? UTI or ABU?
- What should you do?

# 4 month old boy

- High temperature
- Not feeding well
- Red throat but nothing else on examination
- Urine dipstick 2+ protein 1+ blood, 3+ ketones, 2+ white cells

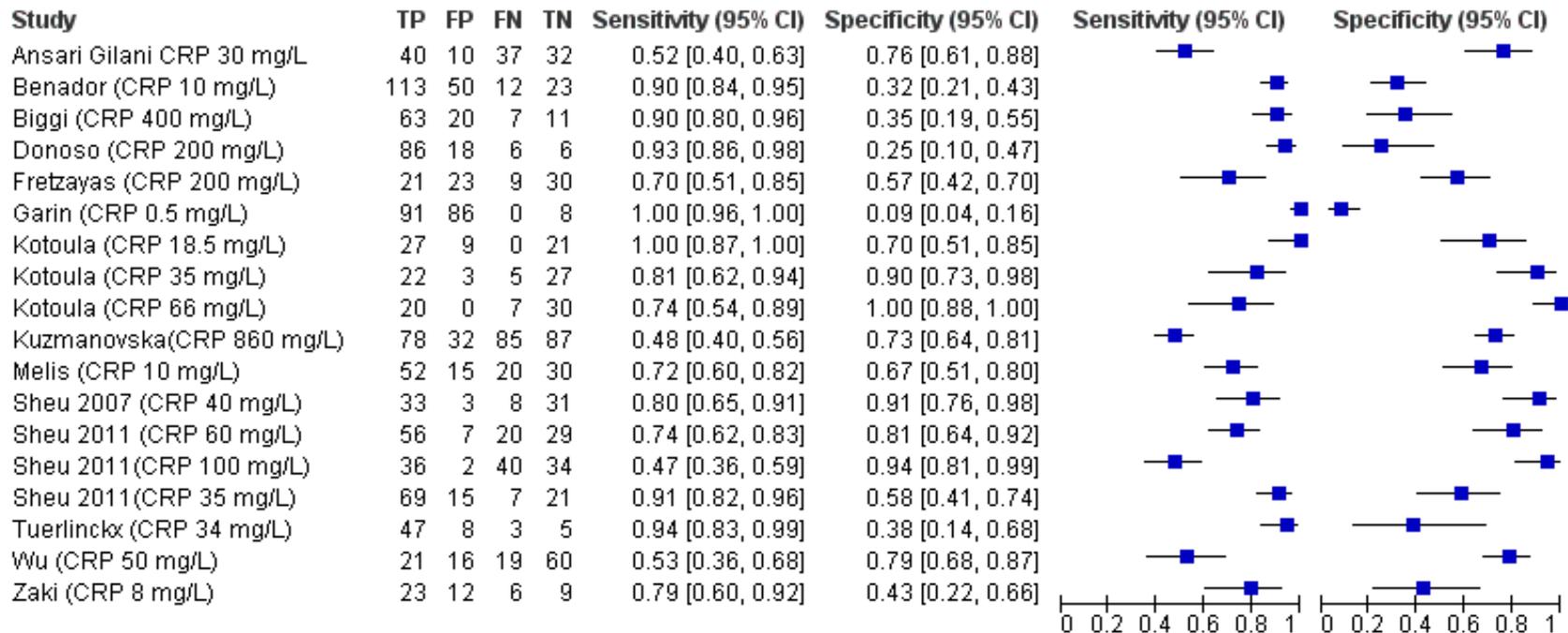
# 4 month old boy (2)

- Urine culture was sent.
- It showed E.coli  $10^6$  CFU/mL
- What is this? ABU or UTI?
- What do you do??

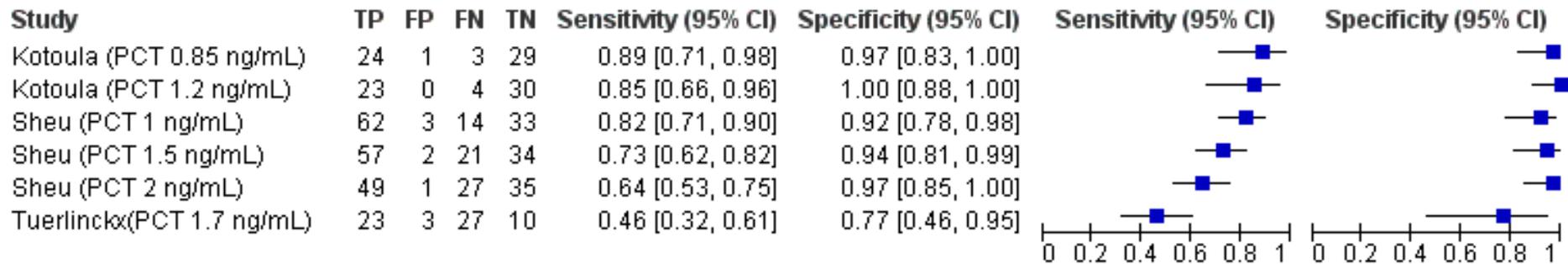
# Urine dipsticks

- Nitrite test
  - Supports the bacteriuria
- Leucocyteesterase
  - Some authors believe that ABU have fewer white cells in the urine

# CRP in the diagnosis of acute pyelonephritis

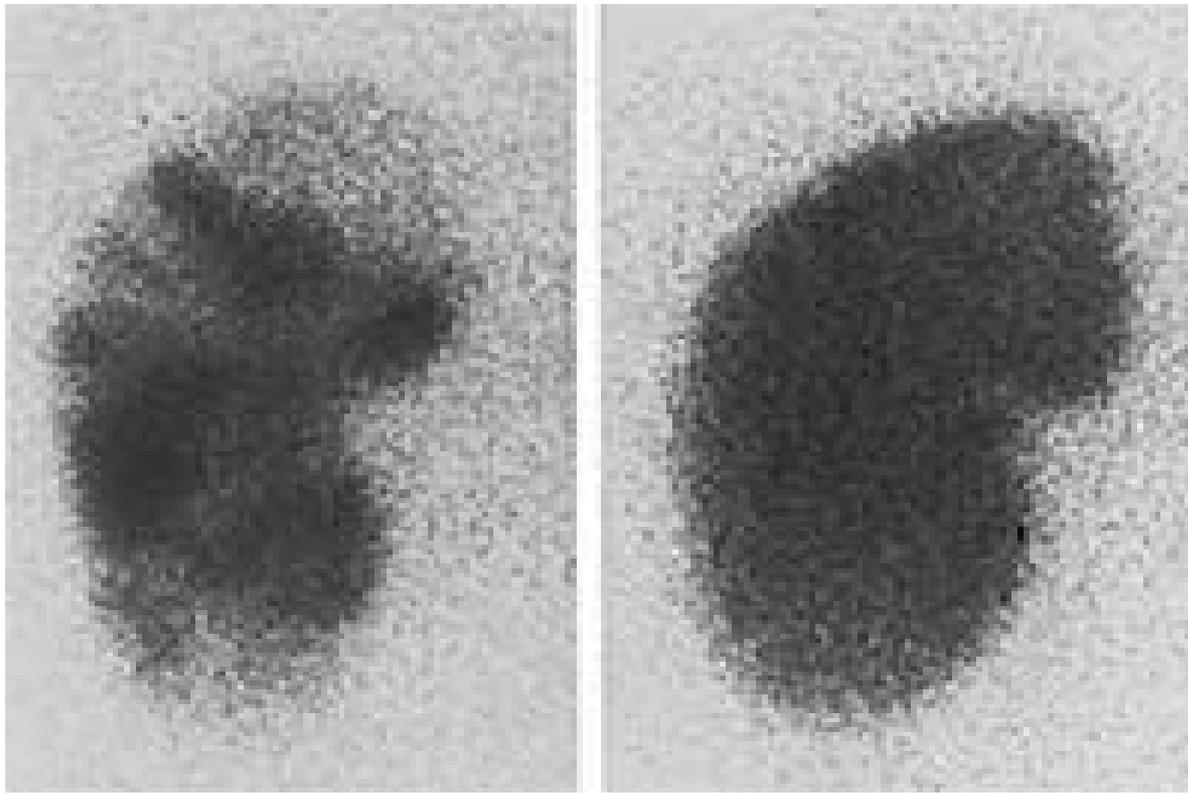


# Procalcitonin in the diagnosis of acute pyelonephritis



Cochrane review 2015

# DMSA



# **3 year old boy with posterior urethral valves**



- Small bladder
- Mostly bacteriuria despite prophylactic antibiotics



# **3 year old boy with posterior urethral valves (2)**

- High temperature but no clear signs of infectious focus
- What is this? ABU or UTI?
- What to do??

# Does it matter - infant



- Over diagnosis of a febrile UTI can lead to
  - Unnecessary treatment
  - Unnecessary imaging and follow-up
  - Problems in scientific studies

# **Does it matter - young girl**

- Treatment of a young girl with UTI can eradicate bacteria but leave room for more virulent bacteria
- And thus give her a truly symptomatic infection

# **Does it matter – boy with PUV**

- Repeated treatments of ABU in a boy with urethral valves can select really difficult to treat bacteria and finally make him impossible to treat

# Summary

- The question on when to think ABU and not to treat or UTI and to treat is a very relevant one