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Introduction

- Acute infections in children in primary care are common
- Serious infections are rare (<1%)
 - Serious infection can lead to significant morbidity and mortality
 - Differentiating serious from non-serious infections is challenging



Diagnostic uncertainty

- Inappropriate antibiotic prescribing
- Unnecessary additional testing
- Unnecessary referral

Adults: POC CRP test REDUCES antibiotic prescribing



Use in children

OBJECTIVE

- Observe POC CRP test levels and
- Patient's characteristics (age and gender)
 - Healthcare setting
 - Preliminary diagnosis
 - Serious infection (= hospital admission >24h)
 - Management (additional examination, antibiotics)

Methodology

WHAT?

- Post-hoc analysis
- Descriptive statistics (median, interquartile range, ...)

WHO?

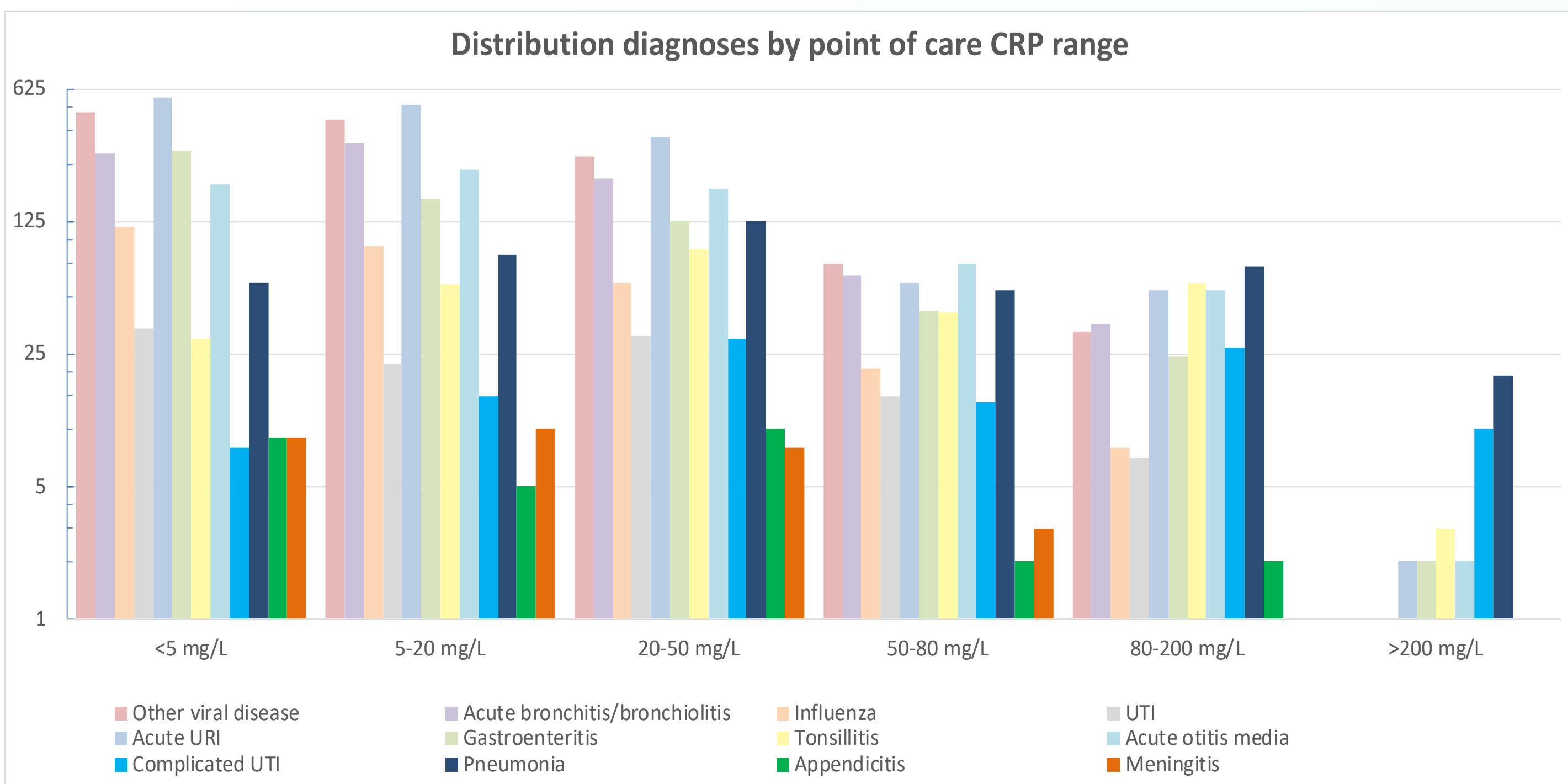
- Children 1 month to 16 years with an acute infection
- Ambulatory care in Belgium
 - General practice
 - Paediatric outpatient clinic
 - Emergency department

HOW?

- Point-of-care CRP test



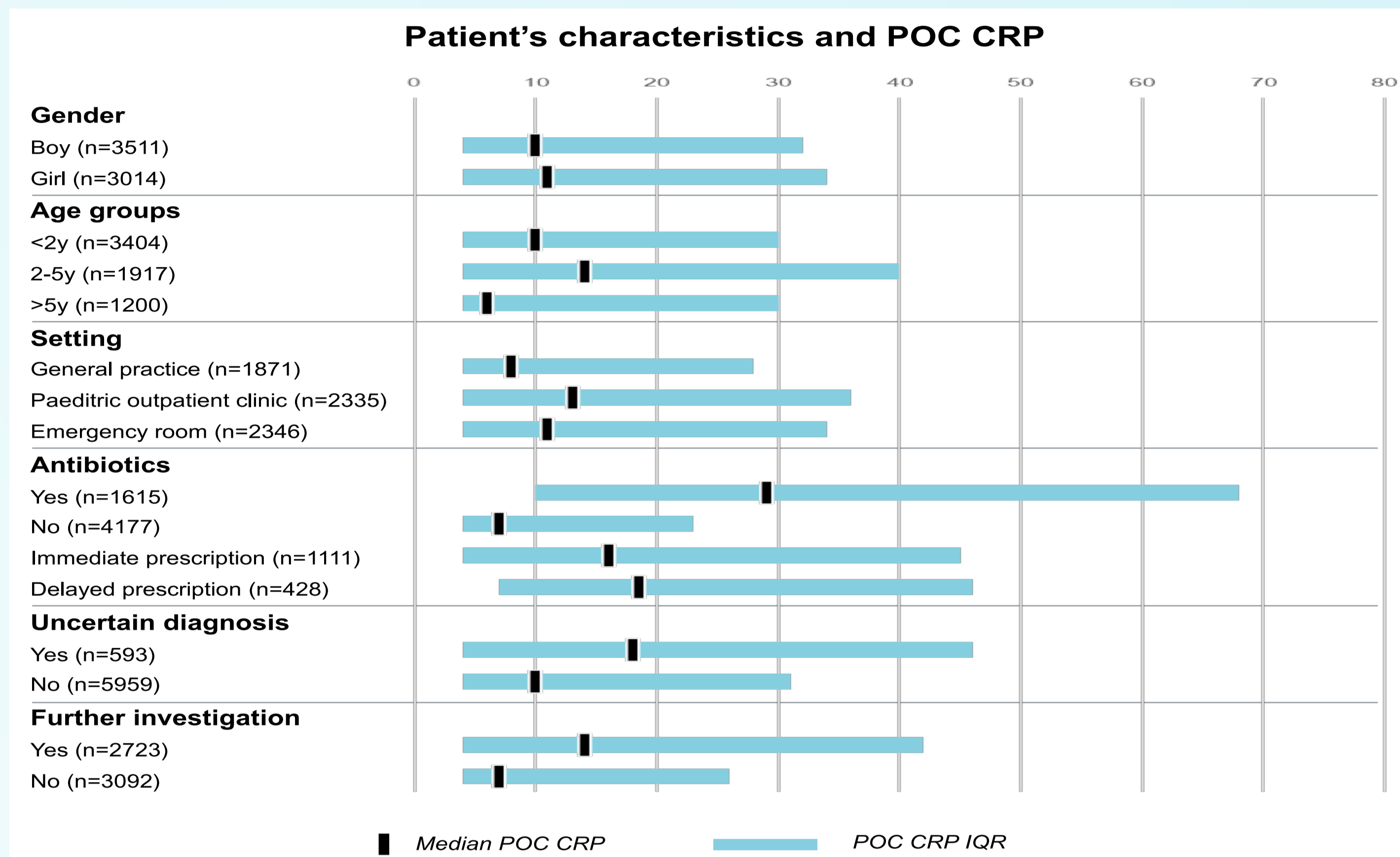
Distribution diagnoses by point of care CRP range



Graph 1: Distribution of frequency of diagnoses by point-of-care CRP range. X-axis displays 5 different point-of-care CRP ranges. Y-axis displays the frequency of the diagnoses on a logarithmic scale. CRP: C-reactive protein, URI: upper respiratory infection, UTI: urinary tract infection.

Results

Patient's characteristics and POC CRP



Graph 2: Median POC CRP and IQR for different patient's characteristics, including gender, age group, and healthcare setting, antibiotic prescribing, uncertain diagnosis and further investigation. n: number, y: years, POC: point-of-care, CRP: C-reactive protein, IQR: interquartile range.

8280 acute infections in children analysed:

- 6552 cases POC CRP values
- Median patient age: 1.98 years (IQR 0.97-4.17)
- Setting: 36.9% general practice, 32.9% paediatric out-patient clinic, and 30.2% ED

A total of 131 different preliminary diagnoses

- Acute upper airway infection (n=1536)
- Other viral disease (n=1284)
- Acute bronchitis/bronchiolitis (n=918)
- Acute otitis media/myringitis (n=741)
- Gastroenteritis presumed infection (n=654)

- The median CRP over all infectious episodes was 10 mg/L (IQR <5-29)
- Children below five years of age had a higher median CRP
- Setting: median CRP GP 8 mg/dL (IQR <5-24), paediatric outpatient clinic 13 mg/dL (IQR <5-32) and ED 11 mg/dL (IQR <5-30)

In 513 patients (6.2%) a serious infection was diagnosed

- Median CRP in serious infections: 21 mg/L (IQR 6-63.5) vs. 10 mg/L (IQR <5-27) in non-serious infections
- Pneumonia (n=164): median CRP 48 mg/L (IQR 13-113)
- Gastroenteritis with dehydration (n=162): median CRP 9.5 mg/L, IQR <5-30
- Complicated urinary tract infection (n=58): median CRP 54.5 mg/L, IQR 22-127

Antibiotics were prescribed in 27.7% (n=2030) of cases, with a delayed prescription in 29.3% (n=601) of them. When antibiotics were prescribed, median CRP level was 29 mg/L (IQR 10-58) compared to 7 mg/L (IQR <5-19) when they were not prescribed.

Conclusion

Higher median POC CRP :

- Younger children: age <5y
- Consultation with paediatrician (outpatient and ED)
- Serious infection: higher median CRP
- Antibiotics prescription



However, also serious infections in lower CRP ranges

Potential of POC CRP in assessing serious infections when integrated in a clinical decision rule?

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