

How does practice differ between London hospitals in the management of febrile infants? An analysis of data from Febrile Infants Regional Evaluation (FIRE)

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REACH Network



Trainee-led research group based in London

All projects proposed, designed and run by trainees

Aims to improve access to research in those on a non-academic pathway

Recognises the role trainees can have in identifying areas of interest

Why febrile infants?



Rotating trainees experiencing different practice at different hospitals

Variation in national and local guidelines

Common presentation to emergency departments and assessment units

Most have self-limiting illnesses, 10-20% have a serious bacterial infection (1).

Methods



Retrospective observational study

19 London hospitals

Data collected from clinical notes of eligible infants by research teams at each participating site

Pseudo-anonymized data entered into Redcap

Inclusion and exclusion criteria



Inclusion criteria

Infants up to and including **90 days of age**

Presenting with **fever**, defined as:

- **Recorded fever $\geq 38.0^{\circ}\text{C}$** on presentation
- Caregiver **reported fever $\geq 38.0^{\circ}\text{C}$** in the 12 hours prior to attendance

Exclusion criteria

Ex-premature infants (<32 weeks gestation at birth)

Infants already in hospital (i.e on neonatal units/postnatal wards) at the time of developing fever

1st April 2021 – 31st March 2022

Results

Participant characteristics



Total presentations: 2019

Median age: 49 days

Gender: 40.9% female

Median index of multiple deprivation decile: 5

Results

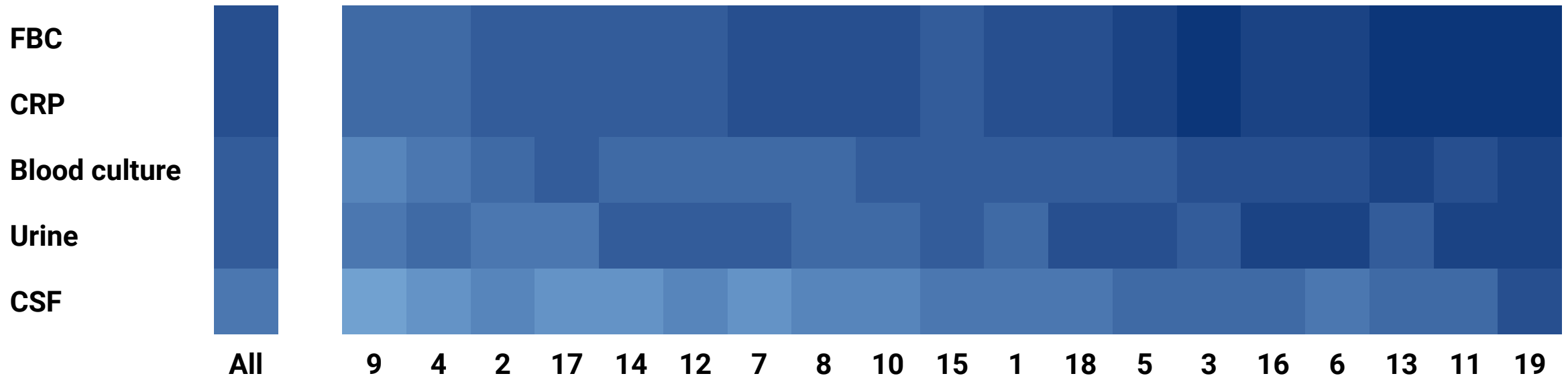
Investigations – total



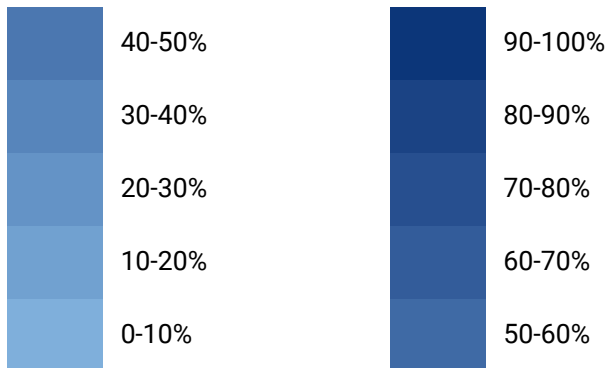
	% taken	Range (min – max)
FBC	73.3%	55.1 - 96.7%
CRP	73.6%	55.1 - 96.7%
Blood culture	62.1%	38.1 - 87.8%
Urinalysis/MC&S	63.0%	43.2 - 85.7%
CSF sampling	40.5%	17.0 - 70.7%

Results

Investigations – total



Site number - ordered by rate of overall investigation



Results

Investigations – subgroup analysis



	<28 days	Range	≥28 days	Range
FBC	80.4%	44.4 - 100%	71.2%	50.0 - 96.6%
CRP	80.7%	44.4 - 100%	71.6%	50.8 - 95.9%
Blood culture	72.1%	33.3 - 100%	59.2%	32.6 - 89.8%
Urinalysis/MC&S	69.0%	43.2 - 100%	61.2%	40.0 - 81.6%
CSF sampling	72.1%	11.1 - 85.0%	36.0%	10.6 - 72.2%

Results

Investigations – subgroup analysis



	Febrile at presentation	Range	Afebrile at presentation	Range
FBC	87.4%	71.3 - 100%	57.1%	36.2 - 92.3%
CRP	88.9%	71.4 - 100%	58.5%	38.2 - 92.3%
Blood culture	77.8%	56.3 - 94.5%	44.7%	20.2 - 76.9%
Urinalysis/MC&S	75.2%	47.6 - 88.6%	51.9%	26.4 - 92.3%
CSF sampling	54.8%	26.4 - 81.3%	22.0%	7.9 - 61.5%

Results

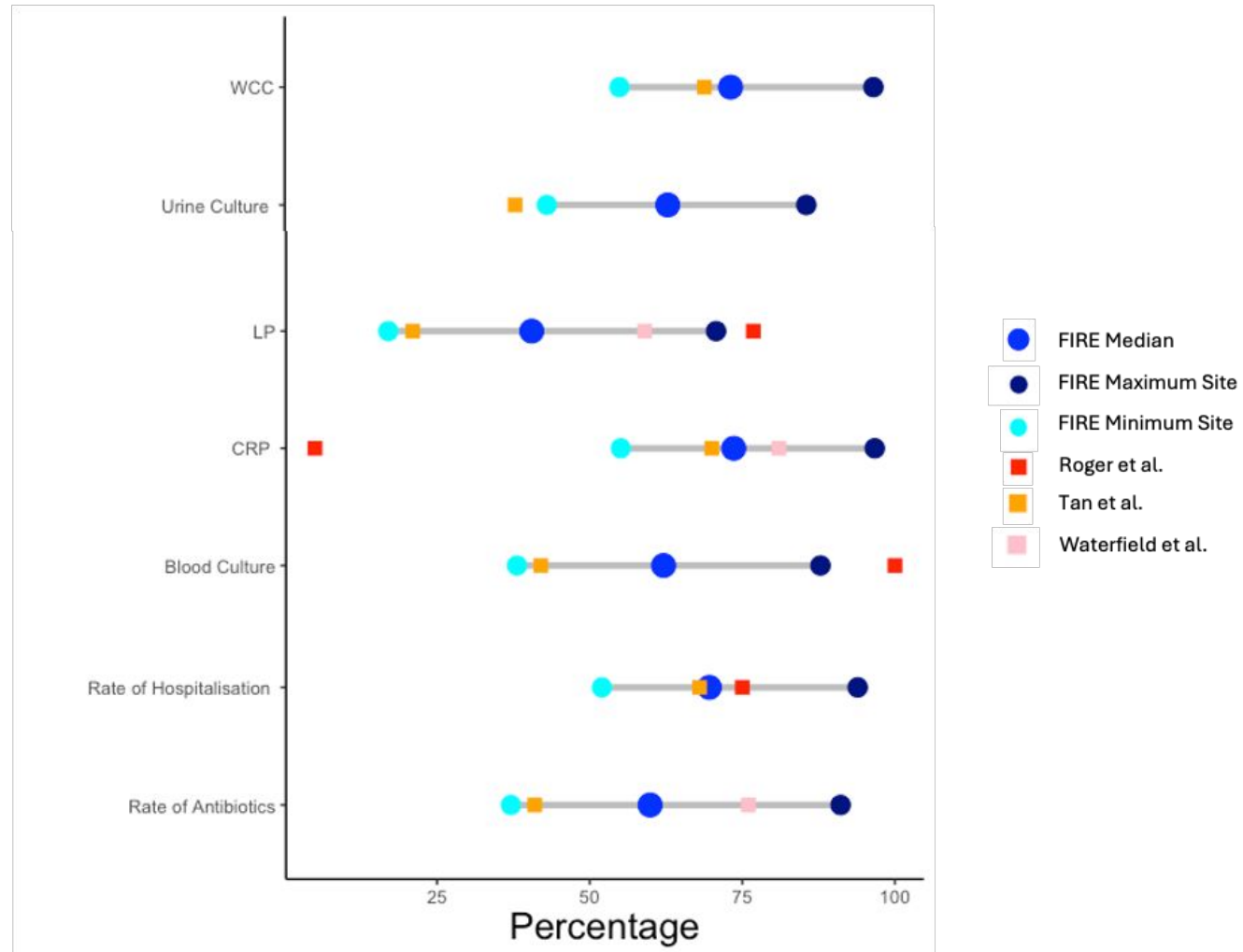
Management – total



	% total	Range (min – max)
Received antibiotics	59.9%	37.1 - 91.1%
Admitted to inpatient setting	69.6%	52.0 - 93.9%
Discharged home	29.9%	6.1 - 46.3%

Results

Comparison to existing data



Discussion



Limitations

- Retrospective nature
- Excluded sites

Strengths

- Standardised reporting tool
- Thorough search strategy

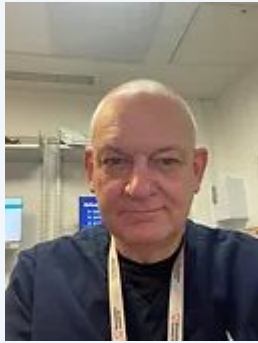
Conclusion



Variation in practice across the whole cohort and within subgroups

Least variation seen in those that were febrile at presentation

Need for cohesive strategy, balancing under- and over-investigation and treatment



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Thank you for your attention



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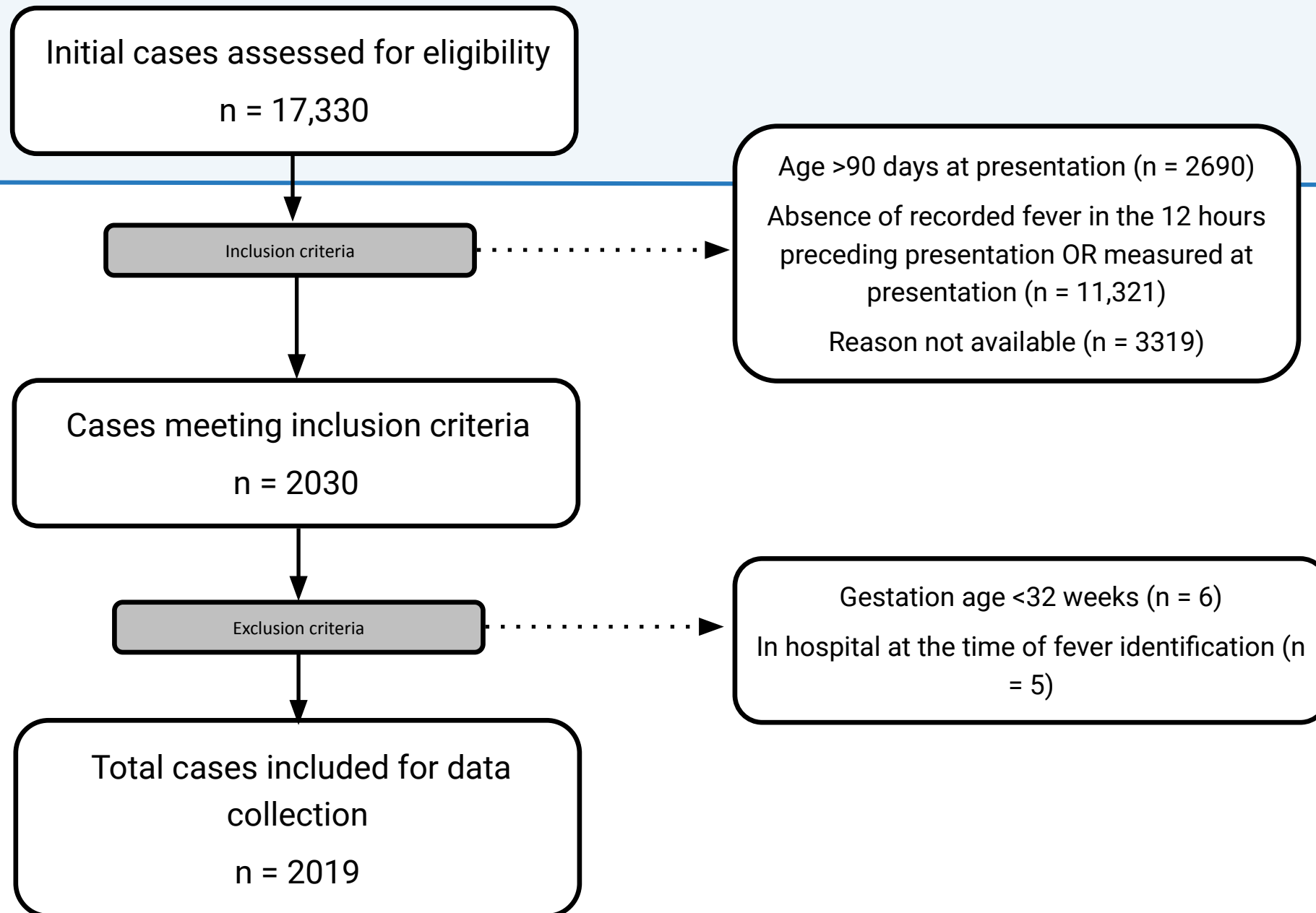
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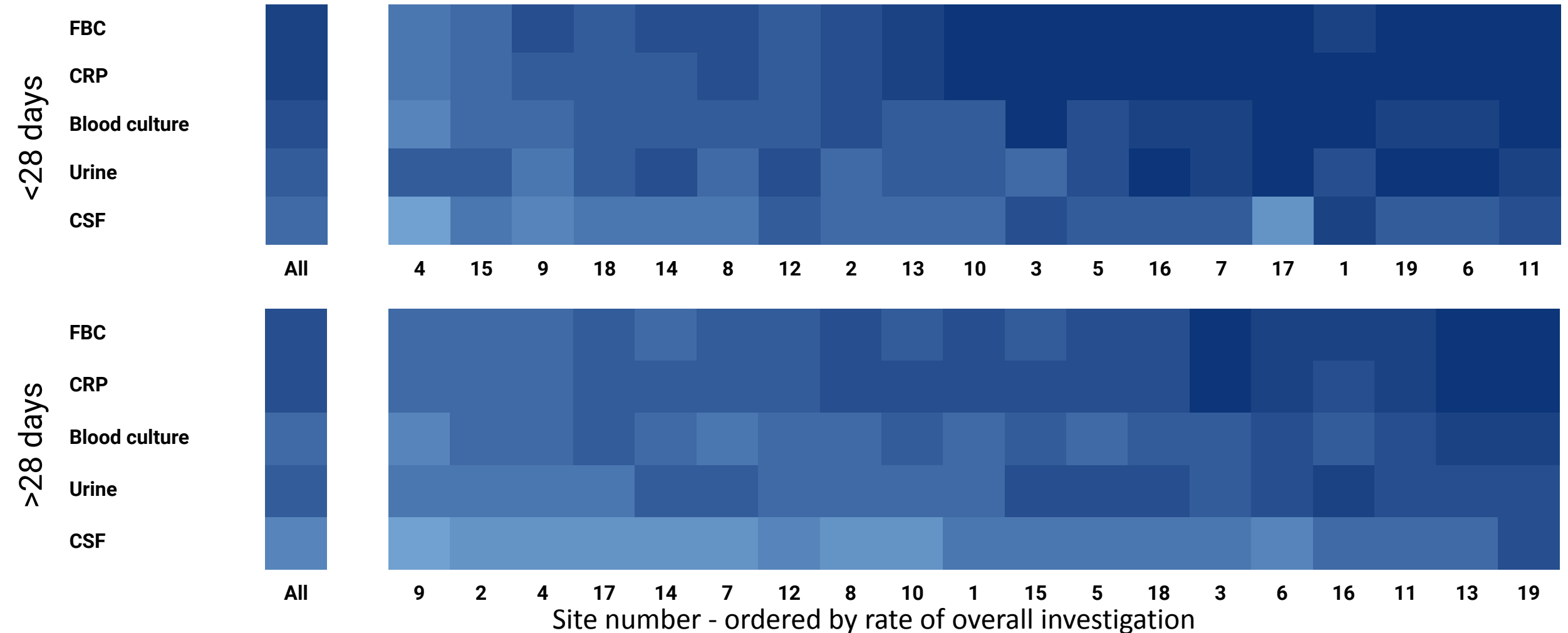
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Results

Investigations – subgroup analysis



Results

Management – subgroup analysis



		<28 days		≥28 days	
	% total	Range (min – max)		% total	Range (min – max)
Received antibiotics	70.1%	11.1* - 95.5%		56.1%	31.3 - 90.7%
Admitted to inpatient setting	75.2%	44.4* - 100%		59.9%	40.8 - 100%
Discharged home	18.6%	0.0 - 55.6%		32.5%	0 - 50.8%

Results

Management – subgroup analysis



	Febrile at presentation		Afebrile at presentation	
	% total	Range (min – max)	% total	Range (min – max)
Received antibiotics	76.0%	55.2 - 97.8%	41.0%	19.5 - 76.9%
Admitted to inpatient setting	80.0%	61.8 - 98.9%	46.7%	23.1 - 100%
Discharged home	15.2%	0.0 - 34.1%	43.3%	0 - 63.2%