

PCT in SARS-CoV-2

JCUH

Kasha Rogers-Smith

Tom Hellyer

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Antibiotic use in SARS-CoV-2

- Early guidelines from Europe recommended broad spectrum antibiotics
- Current NICE guidance (NG173):
 - Bacterial co-infection <10%
 - If typical for COVID reasonable not to start antibiotics
 - Start antibiotics if clinical suspicion of bacterial pneumonia
 - If continuing, then give for 5 days. May need longer if suspicion of MDR bacteria, failure to improve after 48-72hrs
 - Role of PCT uncertain – research recommendation

Aim

- Evaluate PCT in COVID patients admitted to JCUH ICU
- Determine the bacterial co-infection rate
- Did not use paper record and so do not link to antibiotics

Methods

- COVID-19 patients identified through ward watcher
- Outcome data collected from ward watcher
- PCT and lab data collected from electronic record
- Registered with audit office

Characteristics

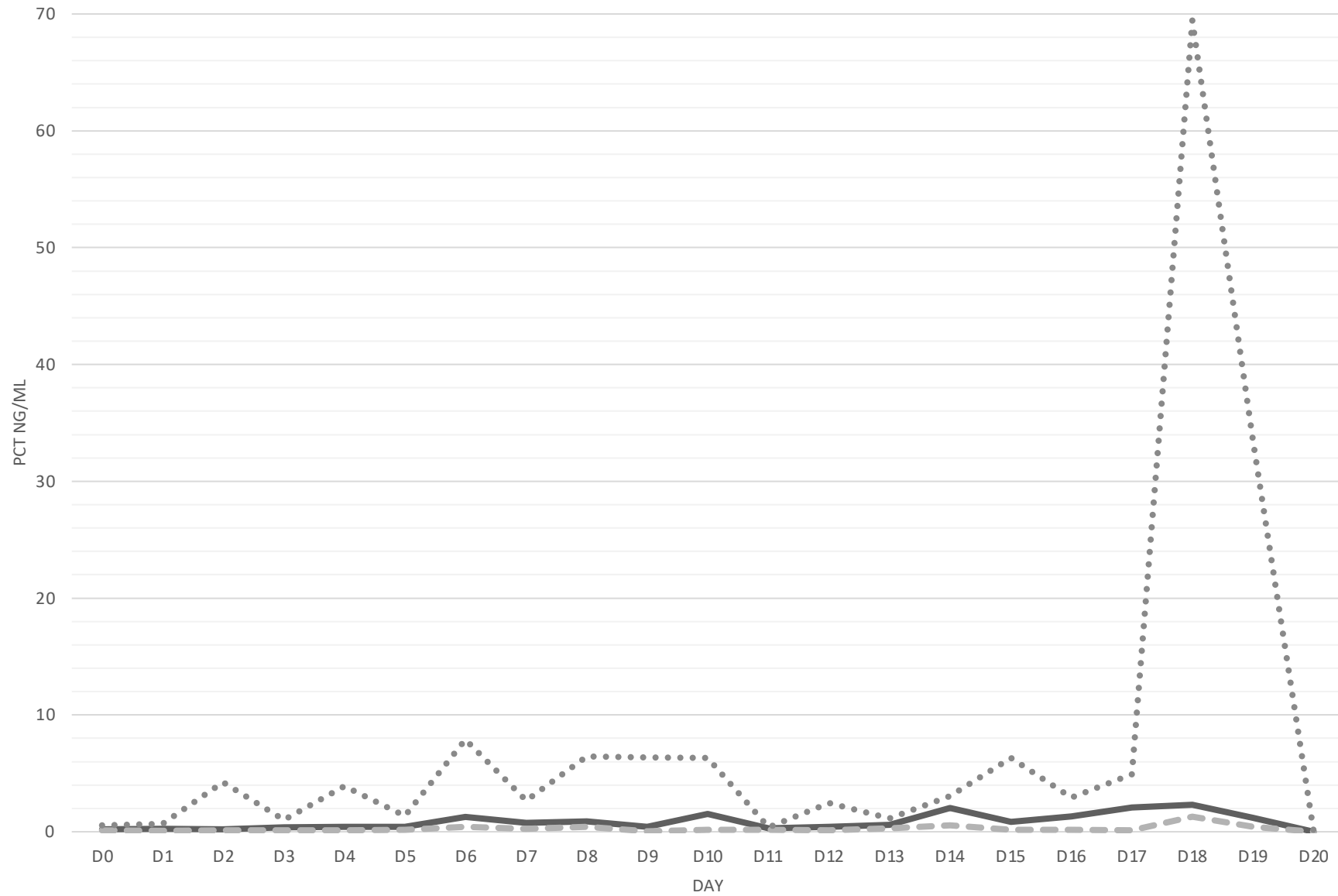
Characteristic	N=97
Age, mean (SD)	59 (14)
Male, n (%)	65 (67)
Advanced respiratory support days, mean (SD)	12 (9)
Renal days, mean (SD)	8 (6)
Length of unit stay, mean (SD)	10 (11)
Hospital mortality, n (%)	43 (44)

Mean PCT by day

Day	PCT, median (IQR), n
0	0.23 (0.12-0.53), n=30
1	0.26 (0.10-0.68), n=14
2	0.20 (0.14-4.22), n=15
3	0.36 (0.11-1.0), n=19
4	0.43 (0.12-3.89), n=13
5	0.41 (0.17-1.34), n=20
6	1.26 (0.41-7.91), n=8
7	0.76 (0.25-2.65), n=13
8	0.91 (0.43-6.45), n=9

Daily PCT Admission to day 20

— Median - - - IQR25 ····· IQR75



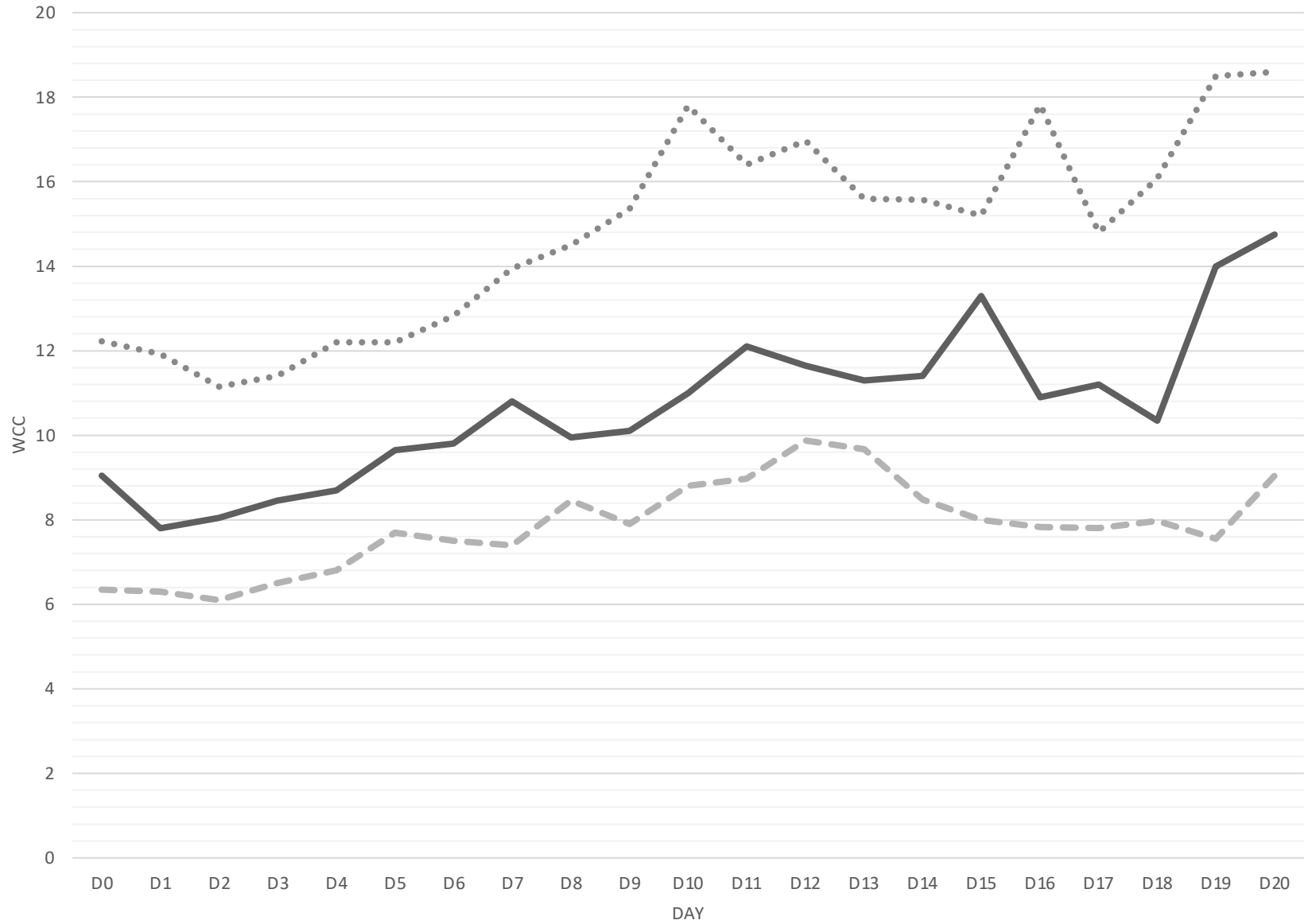
Daily CRP

Admission to day 20



White cell count Admission to day 20

— Median - - - IQR25 IQR75



Neutrophil count Admission to day 20

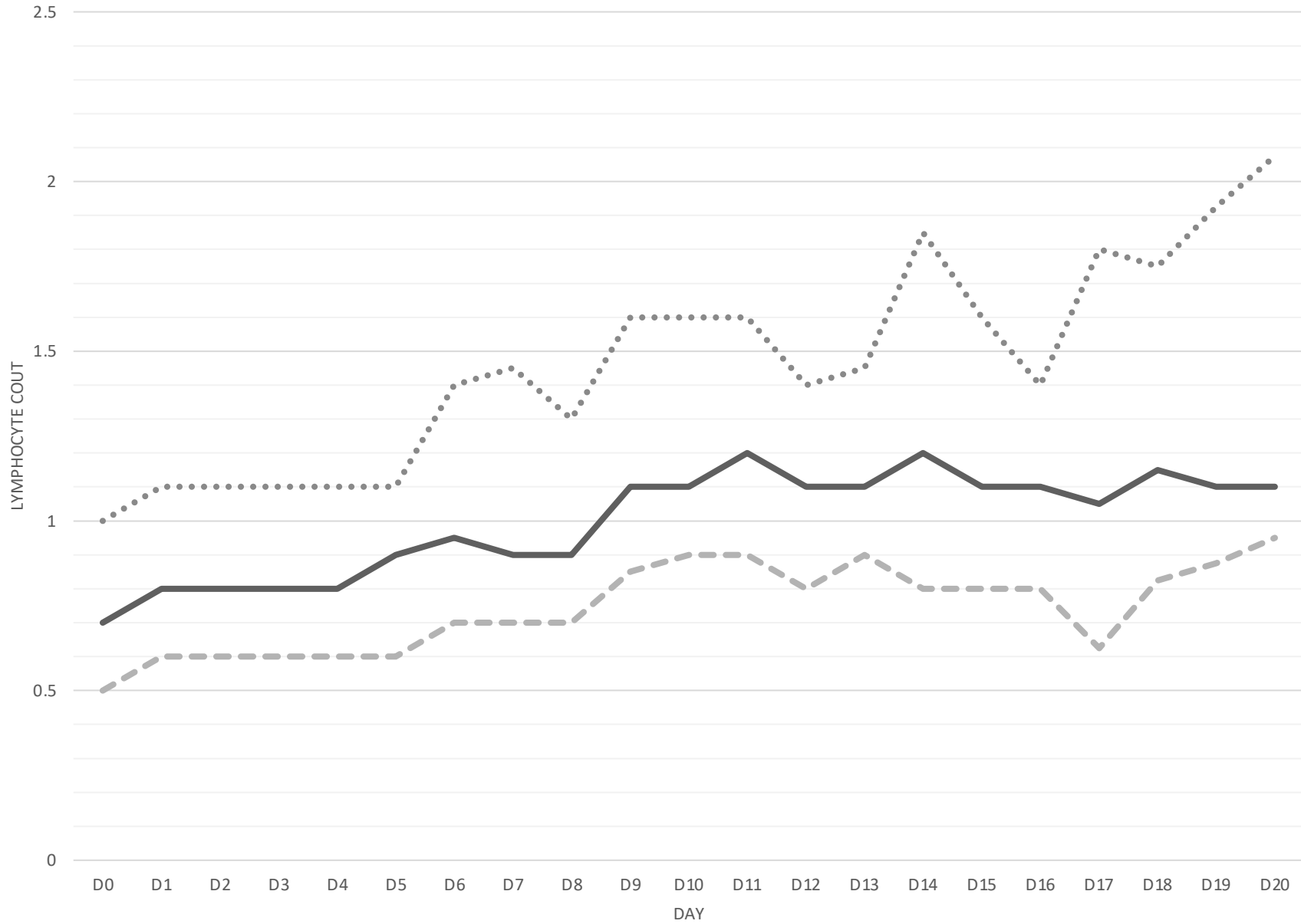
— Median - - - IQR25 ····· IQR75



Lymphocyte count

Admission to day 20

— Median - - - IQR25 IQR75



Microbiology data

- Split D0-D3 and D3 onwards – co-infection on admission and nosocomial infection later
- Judged what was infection vs colonisation (exc candida in sputum)
 - BUT take a conservative approach. Included staph epi CVC and corynebacterium in sputum
- Early positive micro n=8 (8%)
- Late positive micro n=27

Conclusion

- Bacterial co-infection rate was low on admission
 - Consistent with reports¹
 - Much lower than H1N1 (approx 40%)²
- PCT often low but large spread of values
- Proportion of late infections consistent with reported rates of HCAI³
- Number of bacterial infections too low to evaluate diagnostic accuracy/cut off for PCT

1. Rawson CID 2020. c1aa530
2. Pfister Crit Care 2014, 18: R44
3. Magill NEJM 2014, 370: 1198

Suggestion for improved antibiotic stewardship

- Limiting early antibiotics is an opportunity to reduce antibiotic exposure
- If typical for SARS-CoV-2 do not give antibiotics
- If PCT low, gives greater confidence
- Perform early BAL or mini-BAL. If negative stop antibiotics
- If proceeding with a course of antibiotics consider limiting to 5 days