Supplementary Materials

Supplementary Table 1 - reason for review

Reasons for medical review include:
• Ongoing fever (>72 hours from presentation) or new fever after being afebrile for 24 hours
• Feeling unwell/new symptoms and signs
• Parental concern
• Significant decrease in oral intake or significant increase in output (vomiting and diarrhoea)
• Positive blood culture or new infection identified after transfer home
• Severe or persistent pain
• Chills/rigor/shaking
• Not afebrile by day 5 of home-based care
Reasons for re-admission include:
• Fever > 38°C beyond 5 days from the start of the febrile neutropenic episode
• Clinically unwell / unstable
• Infection requiring in-patient care

Supplementary Table 2 - Criteria for stopping service evaluation

RED CRITERIA: IMMEDIATE DISCONTINUATION AND REVERTING TO ORIGINAL POLICY	**AMBER CRITERIA: MODIFICATION OF MINIMUM ADMISSION DURATIONS**
• Avoidable death or ICU admission from bacterial sepsis in a 0/1 score group discharged before 36h	• High numbers of re-admissions (>90%ile expected) in the 0/1 score group discharged before 36h: expected value 15% • High numbers of re-presentations within the first 24h after presentation (>50%)

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

Supplementary Table 3 - Diagnosis at first recorded episode

Diagnosis at 1st recorded episode	n	% total
Acute lymphoblastic leukaemia	169	41.7%
Acute myeloid leukaemia	33	8.1%
Brain/Central Nervous System tumour	34	8.4%
Ewing's sarcoma	21	5.2%
Germ cell tumour	3	0.7%
Hepatoblastoma	5	1.3%
High risk neuroblastoma	15	3.7%
Low/intermediate risk neuroblastoma	1	0.2%
Lymphoma	25	6.2%
Osteosarcoma	17	4.2%
Other	24	5.9%
Other sarcoma	4	1.0%
Post haematopoietic stem cell transplant (allogeneic)	22	5.4%
Post haematopoietic stem cell transplant (autologous)	2	0.5%
Renal tumour	14	3.5%
Retinoblastoma	2	0.5%
Rhabdomyosarcoma	14	3.5%

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

Supplementary Table 4 Diagnoses for each episode by centre

	PTC 1 n=123	PTC 2 n=203	PTC3 n=46	PTC 4 n=157	PTC 5 n=77	POSCU 1 n=7	POSCU 2 n=20	POSCU 3 n=3	POSCU 4 n=9	POSCU 5 n=25	POSCU 6 n=23	POSCU 7 n=17	POSCU 8 n=19
ALL	31%	38%	46%	44%	10%	43%	20%	0%	67%	24%	74%	71%	79%
AML	18%	6%	11%	6%	39%	14%	15%	0%	0%	8%	4%	0%	0%
Brain/CNS tumour	7%	12%	11%	6%	0%	29%	15%	0%	0%	16%	9%	0%	5%
Lymphoma	11%	7%	7%	6%	10%	0%	0%	67%	0%	0%	0%	0%	0%
Non-CNS solid tumour	28%	21%	20%	29%	22%	14%	45%	0%	11%	36%	0%	29%	11%
Other	5%	7%	7%	8%	1%	0%	5%	33%	11%	0%	0%	0%	5%
Post HSCT	0%	8%	0%	1%	17%	0%	0%	0%	11%	16%	13%	0%	0%

Supplementary Table 5 AUS score distribution by centre

AUS score	PTC 1 n=123	PTC 2 n=203	PTC 3 n=46	PTC 4 n=157	PTC 5 n=77	POSCU 1 n=7	POSCU 2 n=20	POSCU 3 n=3	POSCU 4 n=9	POSCU 5 n=25	POSCU 6 n=23	POSCU 7 n=17	POSCU 8 n=19
0	5%	8%	15%	13%	1%	71%	10%	33%	33%	0%	9%	18%	26%
1	31%	38%	26%	38%	14%	14%	10%	33%	44%	16%	57%	24%	16%
2	39%	31%	28%	29%	45%	0%	30%	0%	11%	64%	17%	24%	37%
3	25%	22%	30%	20%	39%	14%	50%	33%	11%	20%	17%	35%	21%

Supplementary Table 6 - Outcomes of representations

	Homecare eligible: No (N = 43)	Homecare eligible: Yes (N = 21)
Time to representation (hours)		
Median (IQR)	120 (72, 144)	96 (72, 120)
Reason for representation		
Positive blood culture	4 (9%)	5 (24%)

New symptoms	27 (63%)	8 (38%)
Persistent symptoms	11 (26%)	8 (38%)
Outcomes		
Significant infection requiring IV antibiotics	10 (23%)	6 (29%)
ICU admission	0 (0%)	0 (0%)
Death from infection	0 (0%)	0 (0%)
Death from other cause	0 (0%)	0 (0%)

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

Supplementary Table 7 - Organisms isolated in bloods cultures

Organism	n	% total
Abiotrophia defectiva	1	0.5%
Acinetobacter spp	3	1.6%
Bacillus spp	3	1.6%
Campylobacter	2	1.1%
Candida albicans	1	0.5%
Citrobacter spp	2	1.1%
CoNS	48	25.3%
Diphtheroids spp	1	0.5%
Enterobacter cloacae	7	3.7%
Enterococcus spp	9	4.7%
Escherichia coli	21	11.1%
Fusobacterium spp	4	2.1%
Klebsiella spp	10	5.3%
Kocuria spp	3	1.6%
Micrococcus spp	5	2.6%
Moraxella spp	3	1.6%
MRSA	1	0.5%
MSSA	11	5.8%
mycobacterium mucogenicum	2	1.1%
Neisseria Cinerea	1	0.5%
NOS	8	4.2%
other	1	0.5%
Pantoea septica	1	0.5%

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

Pseudomonas spp	11	5.8%
Rhizobium radiobacter	1	0.5%
Rothia Mucilaginosa	2	1.1%
Serratia spp	2	1.1%
Stenotrophomonas	1	0.5%
Strep pneumoniae	1	0.5%
Streptococcus spp	2	1.1%
VGS	22	11.6%

Supplementary table 8

Core outcomes for randomly selected unique episodes, one per patient

Number of episodes submitted: 405

Initial presentations where homecare criteria met 87 (21%)

Core outcome data

	AUS: 0 (N = 54)	AUS: 1 (N = 131)	AUS: 2 (N = 127)	AUS: 3 (N = 93)
Duration of IV antibiotics (Days)				
n;Median (IQR)	53; 3 (1, 4)	117; 3 (2, 6)	112; 5 (3, 9)	83; 6 (3, 10)
n;Duration of admission (hrs) Median (IQR)	53; 72 (28, 216)	128; 96 (48, 192)	125; 144 (72, 240)	90; 168 (72, 330)
Outcomes				
Positive blood culture (excl contaminants)	10 (19%)	18/130 (14%)	26 (20%)	34 (37%)
Significant infection requiring IV antibiotics	12 (22%)	15/130 (12%)	33 (26%)	31 (33%)
Representation within 7 days	3 (6%)	10 (8%)	7 (6%)	10 (11%)
Readmission within 7 days	3 (6%)	8 (6%)	7 (6%)	9 (10%)
ICU admission	0 (0%)	2/130 (2%)	4 (3%)	3 (3%)
Death from infection	0 (0%)	0/130 (0%)	0 (0%)	1 (1%)
Death from other cause	0 (0%)	0/130 (0%)	1 (1%)	0 (0%)

Initial presentations meeting homecare criteria

	AUS: 0 (N = 21)	AUS: 1 (N = 34)	AUS: 2 (N = 18)	AUS: 3 (N = 14)
Duration of admission (hrs)				
n;Median (IQR)	20; 26 (16, 39)	34; 30 (18, 68)	18; 58 (37, 72)	13; 68 (48, 96)
Outcomes				
Positive blood culture (excl contaminants)	1 (5%)	2 (6%)	1 (6%)	0 (0%)
Representation within 7 days	1 (5%)	6 (18%)	2 (11%)	1 (7%)
Readmission within 7 days	1 (5%)	4 (12%)	2 (11%)	1 (7%)

Percentage of AUS 0-1 readmitted

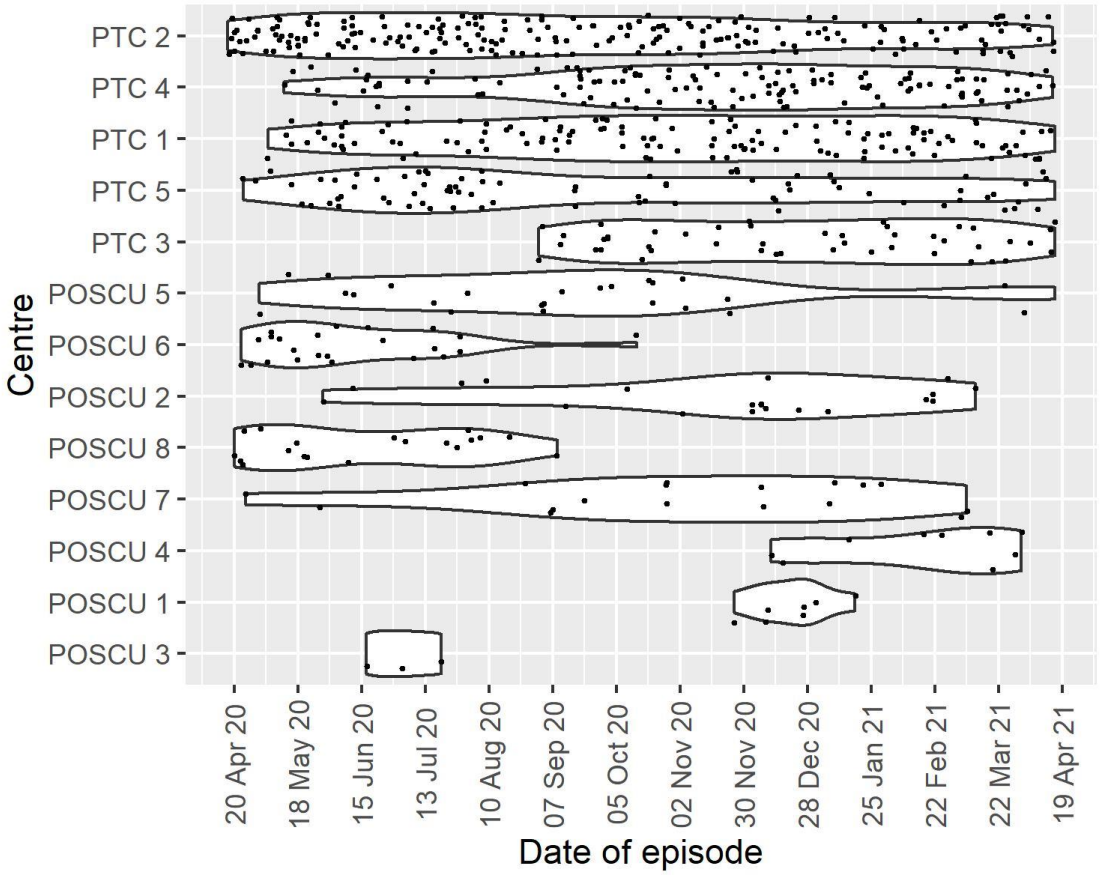
9%

Binomial test for significance of readmission in AUS 0-1 different to expected (15%)

p= 0.261

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

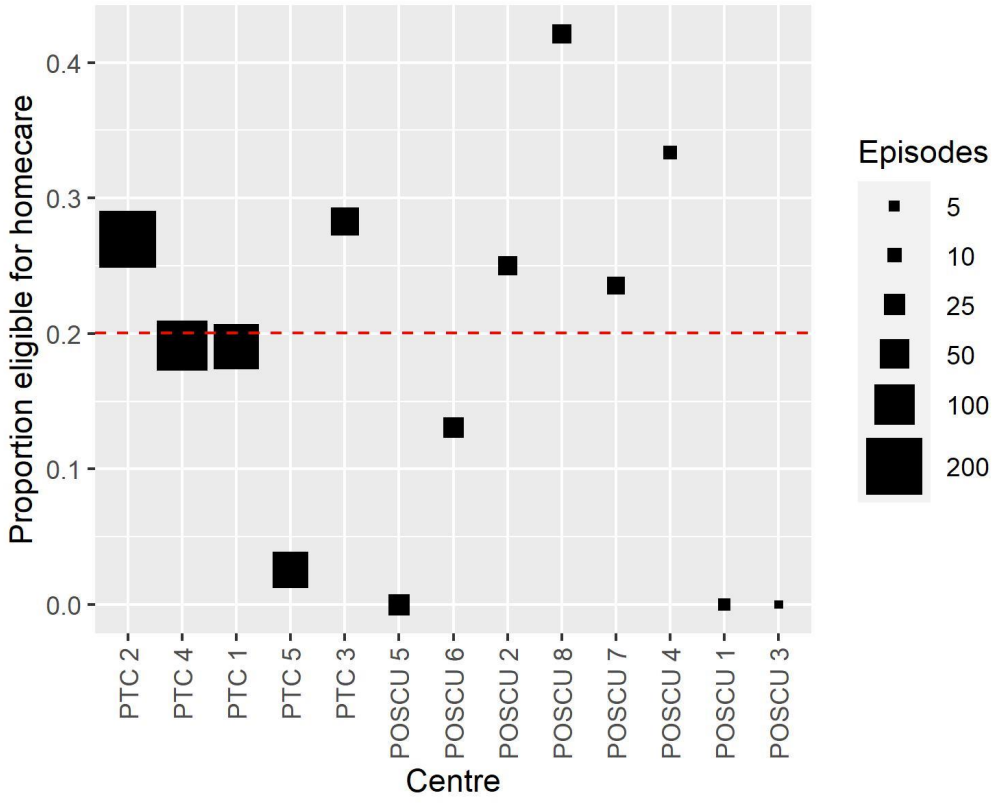
Supplementary Figure 1 - Episodes per centre over time.



Each point represents an episode and violins are smoothed density estimates. PTC = principal treatment centre, POSCU = paediatric oncology shared care unit

Jackson TJ, *et al. Arch Dis Child* 2023; 108:192–197. doi: 10.1136/archdischild-2021-323254

Supplementary Figure 2 - Proportion of initial episodes eligible for homecare by centre.



Area of each square is proportional to the number of episodes submitted by the centre. Dotted red line represents proportion of all episodes

Supplementary File 1 – data collection tool

CCLG Febrile Neutropenia Survey 2020

Start of Block: Default Question Block

Q2 In light of the current coronavirus pandemic and the resultant pressures put on our services the supportive care group has produced new guidance over management of one of our most common reasons for admission.
It is clearly important that there is a mechanism to evaluate such a major change to current practice and even more so to ensure this is carried out in order to ensure patient safety This form takes around 2 minutes to complete per patient.
Please include **every** patient with febrile neutropenia (regardless of management followed). Please input data at discharge or 7 days, whichever is sooner. If a patient re-presents within 7 days, please complete the form again, with the re-presentation questions only. (Don't worry ... the analysis will supersede original outcome data and won't double-count.)
The cumulative data will be analysed on a weekly basis and used to evaluate the protocol at a national level. Please ensure you input patients as soon as possible.

This protocol and evaluation have been adapted from the paediatric low-risk FN program developed by Gabrielle Haeusler, National Centre for Infections in Cancer, Australia and in collaboration with Bob Phillips and Jess Morgan, University of York, and the CCLG team including Sujith Samarasinghe, Barry Pizer, Richard Grundy and Jessica Bate.

End of Block: Default Question Block

Start of Block: General information

Q1 Centre name (If you are answering from a POSCU please click Other)

▼ PTC(1) ... Other (21)

Display This Question:

If Centre name (If you are answering from a POSCU please click Other) = Other

Q16 Centre name (Don't worry about the full name – e.g. North Staffs rather than "North Staffordshire Hospital NHS Trust" is fine)

_____

Q3 Unique case identifier (You may have your own, or perhaps use two initials plus day of birth: I'm RP07 for example)

_____

Q15 Is this a unique episode or a representation within 7 days (please log both incidents separately)?

- ○ Unique episode (1)
- ○ Representation with 7 days (2)

End of Block: General information

Start of Block: Underlying diagnosis

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q4 Patients underlying diagnosis

▼ ALL (1) ... Other (16)

Display This Question:

If Patients underlying diagnosis = Other

Q5 Underlying diagnosis:

_____

End of Block: Underlying diagnosis

Start of Block: Block 2

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q6 Date of febrile neutropenia episode

_____

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q7 AUS risk stratification score:

	Yes (1)	No (2)
Preceding chemotherapy more intensive than ALL maintenance (1)	○	○
White cell count (2)	○	○
Platelets (3)	○	○

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q8 Total score (sum of "yes" answers)

- ○ 0 (1)
- ○ 1 (2)
- ○ 2 (3)
- ○ 3 (4)

End of Block: Block 2

Start of Block: Block 7

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q17 Did the patient meet the following criteria for early hospital discharge?

	Yes (1)	No (2)
Leukaemia/lymphoma in remission or solid tumour stable/responding (1)	○	○
Low risk disease group: NOT ANY OF acute lymphoblastic leukaemia (ALL) induction, or acute infant leukaemias, acute myeloid leukaemia (AML), post allogeneic haematopoietic stem cell transplant (HSCT) within 3 months or still on immunosupression, congenital immunodeficiency, aplastic anaemia, Down Syndrome. (2)	○	○
No confirmed focus of infection requiring hospital care (including but not limited to central line infection, perianal cellulitis, pneumonia) (3)	○	○
No medical complication requiring inpatient care (including, but not limited to, pain requiring intravenous analgesia, poor oral intake or excessive loss requiring intravenous hydration; respiratory distress or oxygen requirement) (4)	○	○
No severe sepsis or septic shock at presentation (5)	○	○

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q18 Was there any other reason not to discharge the patient as per the protocol (eg parental concern, professional choice, previous non-compliance, social concerns, lack of adequate transport)?

_____

End of Block: Block 7

Start of Block: Time to initial discharge

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Unique episode

Q9 Time from presentation to initial discharge (Please provide in hours if <72 hours, or days if >72hours)

_____ Hours (1)
_____ Days (2)

Q25 Duration of IV antibiotics (in days, 0=single dose, if longer than 14 please use "14")

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

Days ()

End of Block: Time to initial discharge

Start of Block: Representation

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Representation with 7 days

Q19 How long after the initial assessment (not initial discharge), did re-presentation occur?
_____ hours (1)
_____ days (2)

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Representation with 7 days

Q23 What was the date of their re-presentation?

_____

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Representation with 7 days

Q22 Was the patient admitted to hospital following their re-presentation?

- Yes (1)
- No (2)

Display This Question:

If Is this a unique episode or a representation within 7 days (please log both incidents separately)? = Representation with 7 days

Q20 What was the main reason for re-presentation?

- Persistence of original symptoms (1)
- Development of new symptoms (2)
- Requested by hospital due to positive blood culture (3)
- Requested by hospital for other reason (4)

Display This Question:

If What was the main reason for re-presentation? = Requested by hospital for other reason

Q21 Why was the re-presentation requested by the hospital?

_____

End of Block: Representation

Start of Block: Positive blood cultures

Q10 Did the patient have any positive blood cultures during this episode (excluding contaminants)?

- Yes (1)
- No (2)

Display This Question:

If Did the patient have any positive blood cultures during this episode (excluding contaminants)? = Yes

Q11 What organisms were found?

_____

End of Block: Positive blood cultures

Start of Block: Significant ouctomes

Q12 Did the patient experience any of the following outcomes (tick all that apply)?

	Yes (1)	No (2)
Significant clinical infection requiring IV antibiotics (eg periorbital cellulitis, joint infection, CLABSI) (1)	○	○
ICU admission (2)	○	○
Death from infection (3)	○	○
Death from other reason (4)	○	○

End of Block: Significant ouctomes

Start of Block: Block 4

Q13 Any further comments about this patient's febrile neutropenia episode?

_____

_____

_____

_____

_____

End of Block: Block 4

Start of Block: Block 5

Q14 Please provide your email address so that if we have any further questions about this febrile neutropenia episode, we can contact you. (We will not use your email address for any other purpose.)

End of Block: Block 5