

Reducing the standard duration of home intravenous antibiotics for an infective exacerbation of bronchiectasis

Dr Rachel Scott and Dr Maria Miles

Supervised by Dr Mahableshwar Albur

What?

- NICE guidance¹ recommends 7-14 day abx course for exacerbations of bronchiectasis.
- 14 days is North Bristol NHS Trust current standard of practice
- Much of this is provided using IV abx at home via H@H

Aim: Reduce standard prescription for IV antibiotics from 14 to 10 days

1) Bronchiectasis (non-cystic fibrosis), acute exacerbation: antimicrobial prescribing (2018). NICE guideline NG 117

Why?

- To reduce workload & wait times for H@H
- To reduce patient morbidity
 - Feasibility RCT study of 90 pts showed 7-10days of abx reduces time to next exacerbation (compared with 14 days)¹. Larger NIHR-funded RCT ongoing²
- To improve antimicrobial stewardship
- To reduce burden on patients and improve regimen adherence

1) Bedi, P., Cartlidge, M.K., Zhang, Y., Turnbull, K., Donaldson, S., Clarke, A., Crowe, J., Campbell, K., Graham, C., Frangoulan, R. and Rossi, A.G., 2021. Feasibility of shortening intravenous antibiotic therapy for bronchiectasis based on bacterial load: a proof-of-concept randomised controlled trial. *European Respiratory Journal*, 58(6).

2) Hill et al. Protocol: Seven versus Fourteen Days Antibiotics for Patients with Bronchiectasis Requiring Intravenous Antibiotics. Link: <https://www.fundingawards.nihr.ac.uk/award/NIHR133876>

How?

Aim: Reduce standard prescription for IV antibiotics from 14 to 10 days

- Call from respiratory consultant at 9 days, if inadequate clinical improvement extend to 14 days

Primary outcome measure:

- Total duration of course of IV antibiotics for an infective exacerbation of bronchiectasis

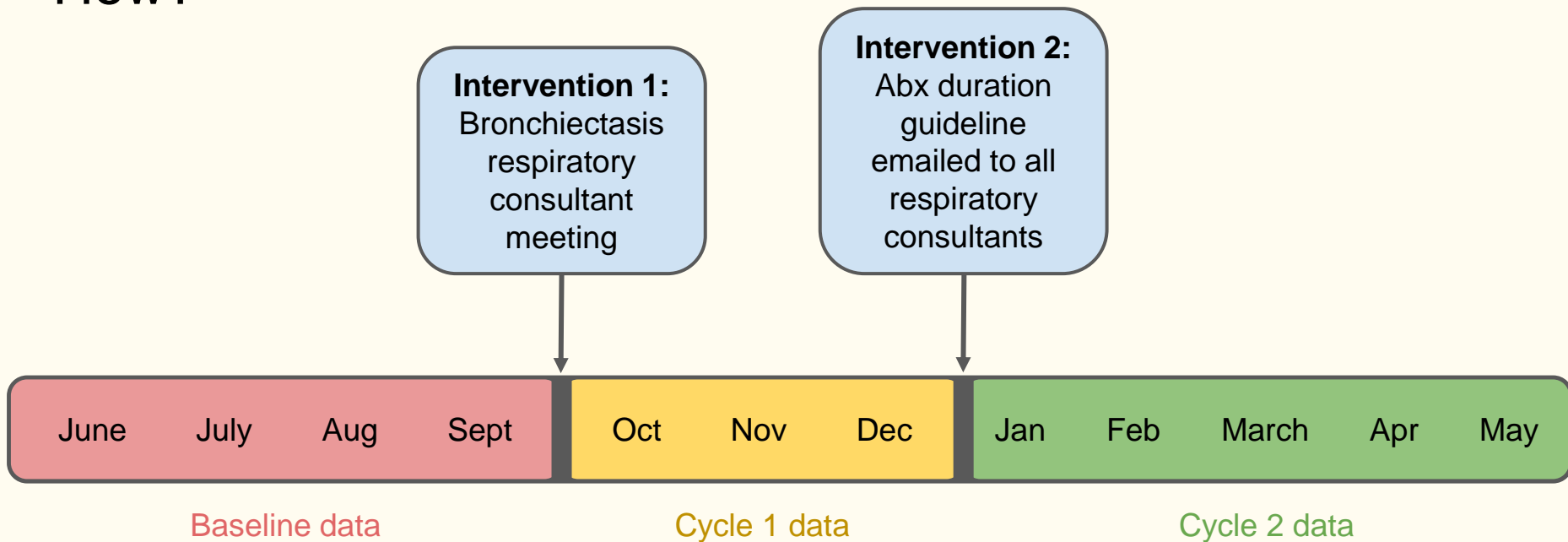
Balancing measures:

- Failure of treatment (admission to hospital, extended or repeated course of abx or death within one month)

Process measures:

- Sputum cultures prior to and following abx course
- Delay to commencing IV abx with H@H (days from referral to commencement of abx)

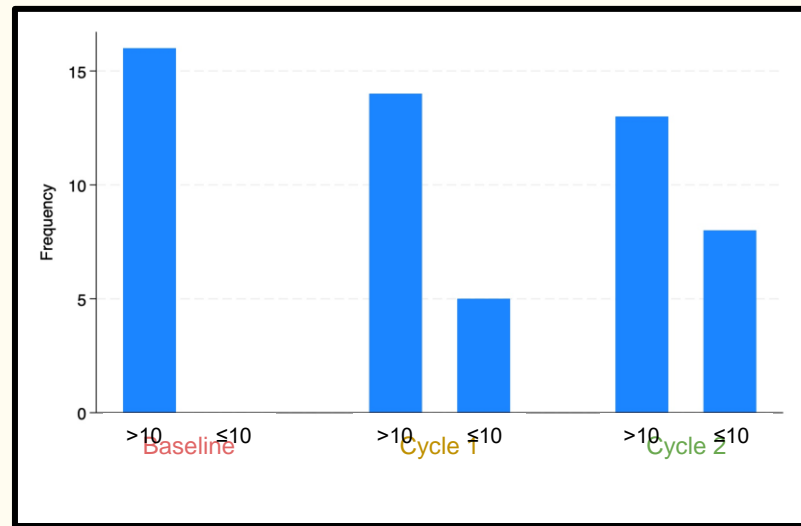
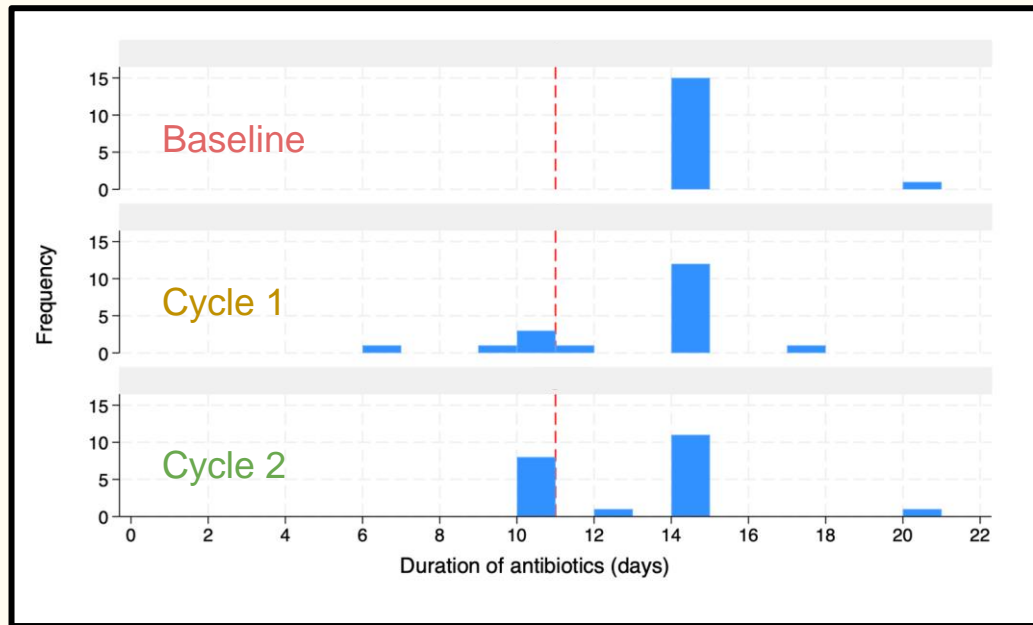
How?



Results: abx duration

	Baseline		Cycle 1		Cycle 2		p value
	June - Sept		Oct - Dec		Jan - April		
Referrals to OPAT	n	%	n	%	n	%	
Number of patients	16		19		21		
Ward referral	5	31%	5	26%	3	14%	0.445
Outpatient	11	69%	14	74%	18	86%	
Abx							
Duration of abx (mean)	14.4		12.7		12.7		0.03
≤10 day course	0	0%	5	17%	8	43%	0.023

Results: abx duration



Results: Treatment failure at 1 month

	>10 day course		≤10 day course		Chi ² p value
Patient number	43		13		
Repeat/extended antibiotics	11	25%	0	0%	0.042
Admission	5	12%	1	8%	0.710
Death	0	0%	1*	8%	0.066
Death (anomaly removed)*	0		0		

*Death at D6 of 14 prior to completion of abx

Results: Organisms grown

Organism grown	>10 day course		≤10 day course	
Pseudomonas aeruginosa	20	47%	4	31%
Pseudomonas aeruginosa and S. aureas	3	7%	0	0%
Haemophilus influenzae	2	5%	2	15%
Burkholderia cepacia	2	5%	0	0%
Escherichia coli	1	2%	1	8%
Mycobacterium chimera	1	2%	0	0%
Stenotrophomonas maltophilia	2	5%	0	0%
Achromobacter xylosoxidans	1	2%	1	8%
Rhinovirus	1	2%	1	8%
No growth	10	23%	1	8%
Not available*	0	0%	3	23%

Chi² p value = 0.052

*pts who did not have sputum sent prior to starting abx

Results: Delays to start of OPAT

Delays to start of OPAT	Baseline		Cycle 1		Cycle 2		p value
	June - Sept		Oct - Dec		Jan - April		
Patients delayed	10	63%	8	42%	12	57%	0.281
Mean number of days (for those delayed)	3		5.7		4.2		0.705
Where delay reason identified:							
No H@H capacity	8	80%	3	38%	4	33%	
No PICC line	2	20%	4	50%	5	42%	
Regimens used							
OD	4	25%	9	47%	11	52%	0.111
BD	2	13%	3	16%	3	14%	
TDS	6	38%	4	21%	0	0%	
Pump	4	25%	3	16%	7	33%	

QIP conclusions

- Simple interventions led to more pts being prescribed 10 days antibiotics as standard
- No obvious safety concerns identified (no increase in adverse events)
- Some evidence of reduced OPAT delays

What questions do you have?

rachel.scott@nbt.nhs.uk
maria.miles6@nhs.net

Possible reasons for patients not being prescribed 10 days:

- Clinician habit
- Patient expectations
- Minimal clinical improvement
- Microbial growth

Future ideas:

- *Further reminders to consultants (and possibly teaching to residents)*
- *Patient information leaflet*