

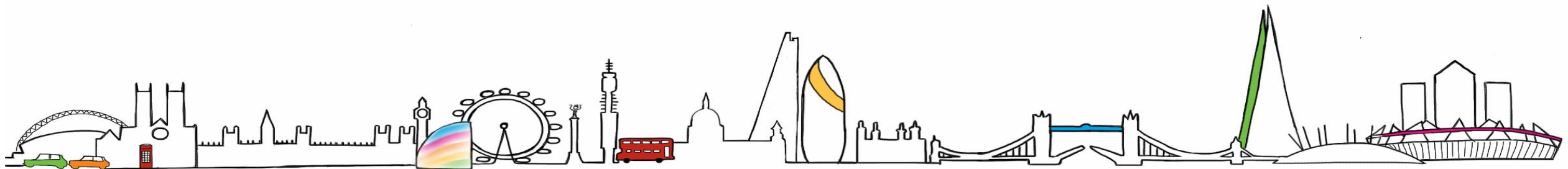


Ears, nose, heart, bones and brain- bones and brain

How to treat mastoiditis

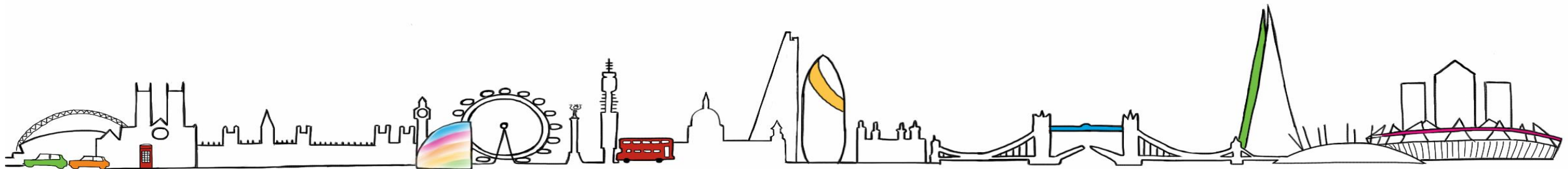
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OPAT Lead*

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Diseases/Immunology*



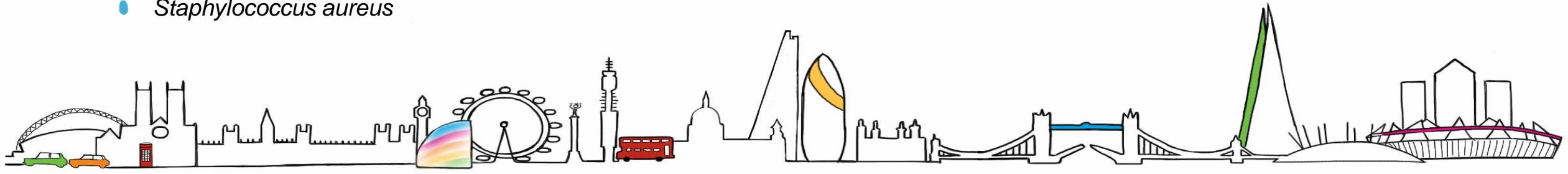
Overview

- Case presentation
- Case series
 - 8 years of p-OPAT experience of treating mastoiditis at the Evelina



Mastoiditis overview

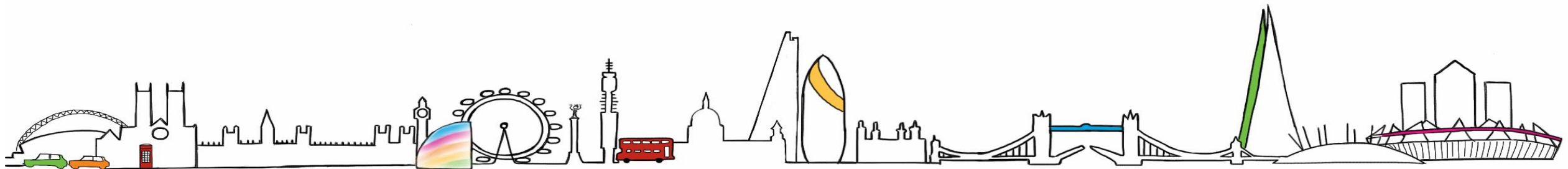
- Suppurative infection of the mastoid air cells
- Most common intra-temporal complication of otitis media
- Majority of patients usually <2yo
- Complications
 - Cranial nerve involvement
 - Meningitis
 - Sinus venous thrombosis
 - Hearing loss
 - Abscess
 - Osteomyelitis
- Common pathogens
 - *Streptococcus pneumoniae*
 - *Haemophilus influenzae*
 - *Streptococcus pyogenes*
 - *Staphylococcus aureus*





Case presentation- background

- 2y2m boy
- Previously fit and well
- Immunisations up to date





Admitted to WHH with a 3/7 hx of fever, lethargy, cough and vomiting. O/E found to have bilateral red ears
Started on co-amoxiclav

23/4: Clinically deteriorated:

- Increased lethargy
- New right sided convergent squint
- Abx escalated to ceftriaxone

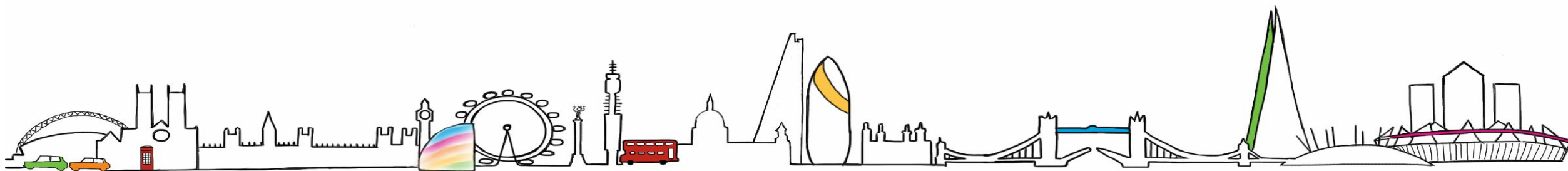
Underwent a CT scan:

- Maxillary and ethmoidal sinusitis with bilateral effusion and suspicion of transverse sinus thrombosis and right subdural empyema

Intubated and transferred to KCH

24/4: MRI scan which showed

- Acute venous sinus thrombosis
- Right cerebellar infarction
- Suggestion of mastoiditis with right sigmoid and transverse sinus + jugular bulb thrombosis with increased ICP





25/4: Transferred to PICU at Evelina via STRS for ENT intervention.

Medications on transfer:

- Ceftriaxone
- Metronidazole
- Aciclovir
- Azithromycin
- Heparin infusion

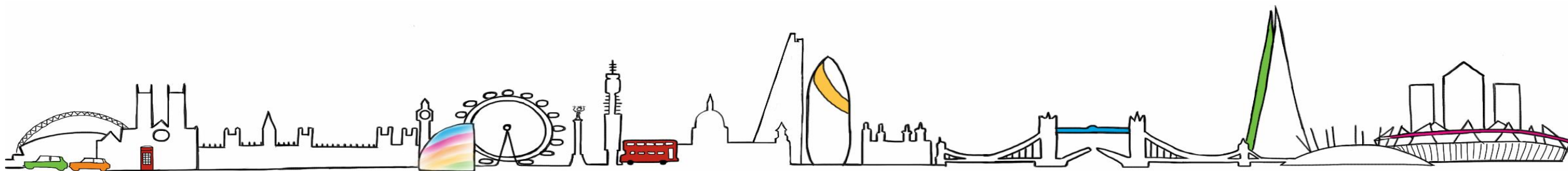
Underwent a right cortical mastoidectomy + drainage
+ bilateral grommets inserted

- Right inflamed mastoid mucosa
- No pus

26/4:

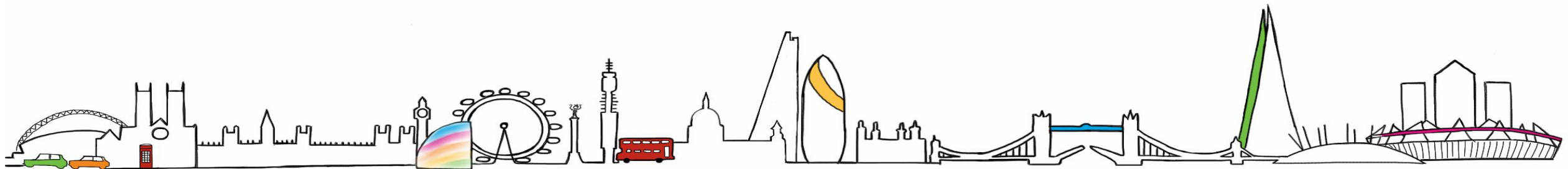
- Extubated
- Medications rationalised:
- Ceftriaxone
 - Metronidazole
 - Ciprofloxacin ear drops
 - Heparin infusion

Stepped down to HDU on 30/4



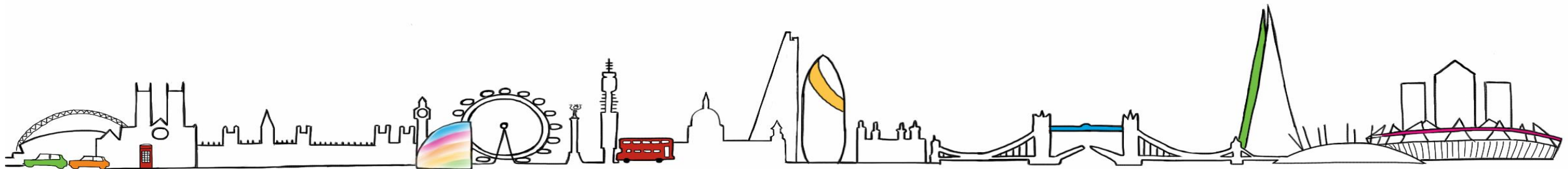
Investigations

- No pus sent at time of the operation so no organism identified
- BCs from local and ELCH negative
- USS lower limb: Left common femoral vein thrombus
- MRI brain discussed at radiology meeting:
 - Acute venous sinus thrombosis affecting the right transverse sinus, sigmoid sinus and jugular bulb.
 - Signs suggesting a degree of raised intracranial pressure.
 - Acute infarct in the inferior portion of the right cerebellar hemisphere and a tiny punctate focus of acute ischaemia is also noted in the right thalamus
- Echo: PFO



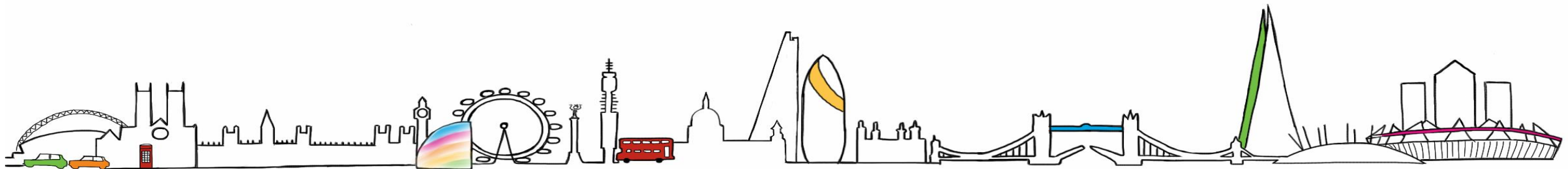
Antibiotics

- PICC line inserted under GA to facilitate abx treatment
- IV ceftriaxone + IV metronidazole
 - IV metronidazole rationalised to PO after 9 days
- Total duration of treatment 4 weeks from surgery



Follow up

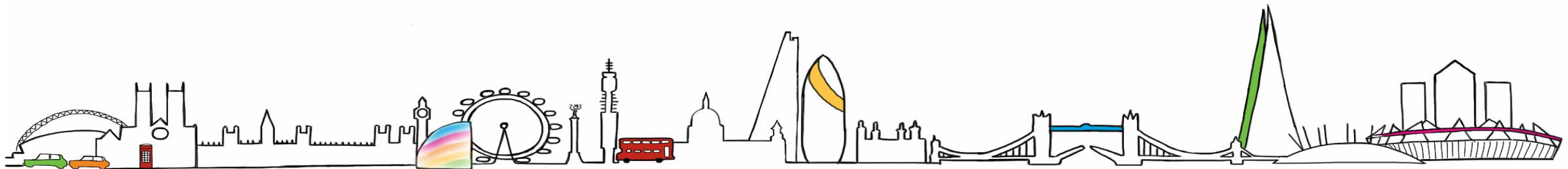
- P-OPAT
 - CCNT facilitated administration of IV abx during the week and local hospital on the weekends
 - Regular reviews by p-OPAT team at Evelina
 - Had an ad-hoc admission at Evelina in between due to vomiting
 - Felt to be due to not tolerating the PO metronidazole → stopped
 - 2 week follow up telephone call post completion of abx
- Planned F/U with haematology, neurology and ENT teams





Case challenges

- Family relocated during treatment
- CCN short staffed
- Re-admitted 3x during OPAT treatment



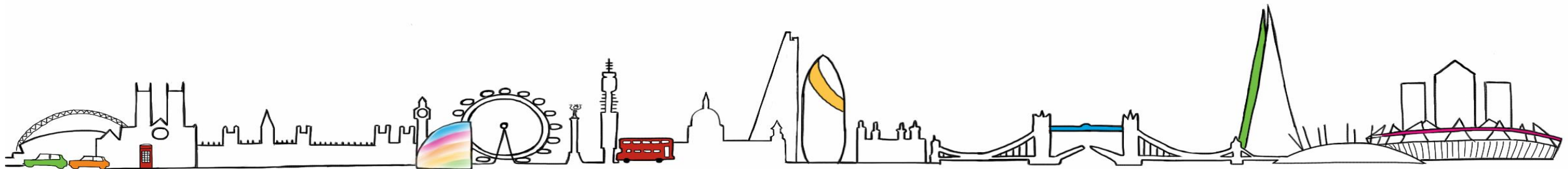


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Evelina's p-OPAT experience of treating mastoiditis

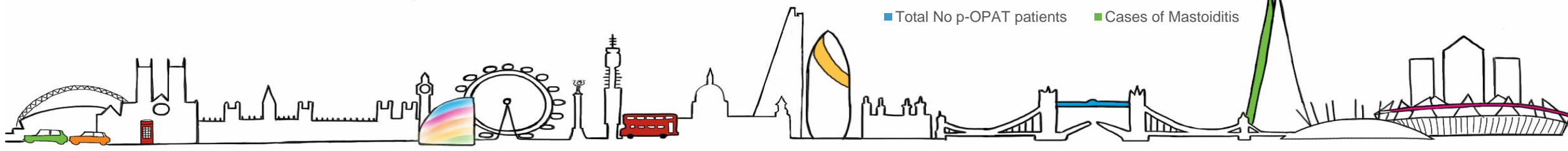
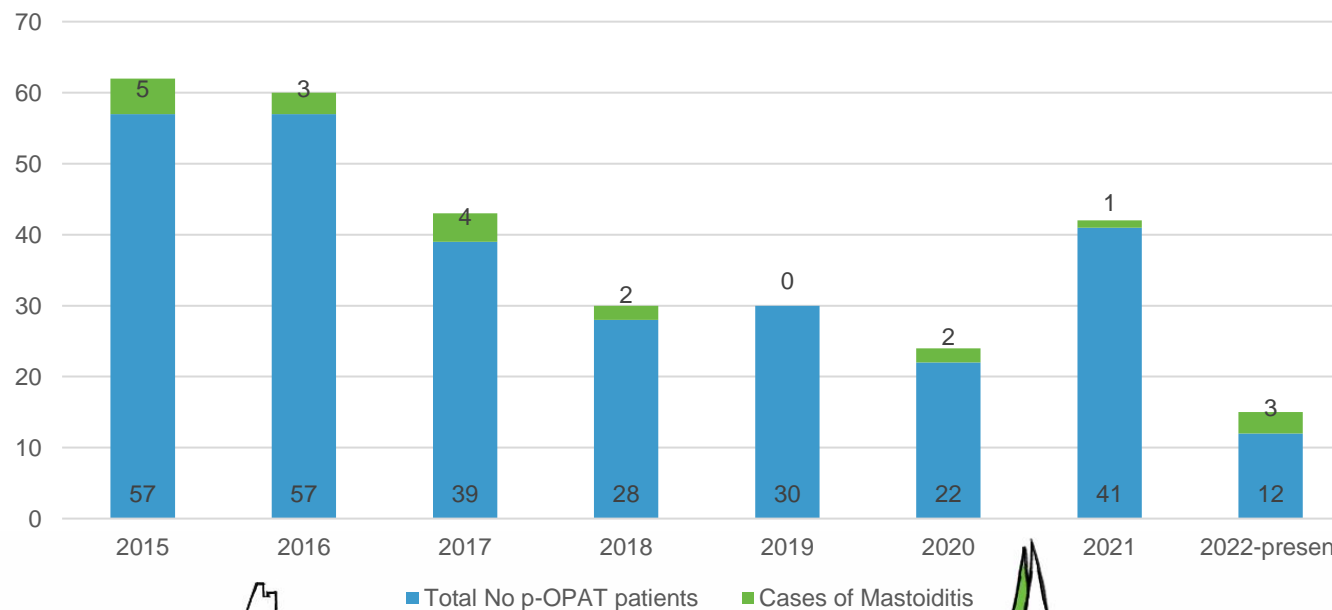


Mastoiditis- a case series

- 20 cases of mastoiditis over 2015-present
- Age range of children 8 months- 14 years old
- Mean number of bed days saved 23.1 (Range 6-41)

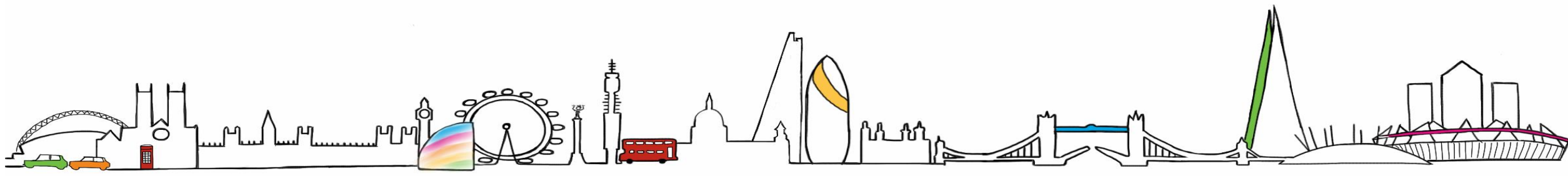
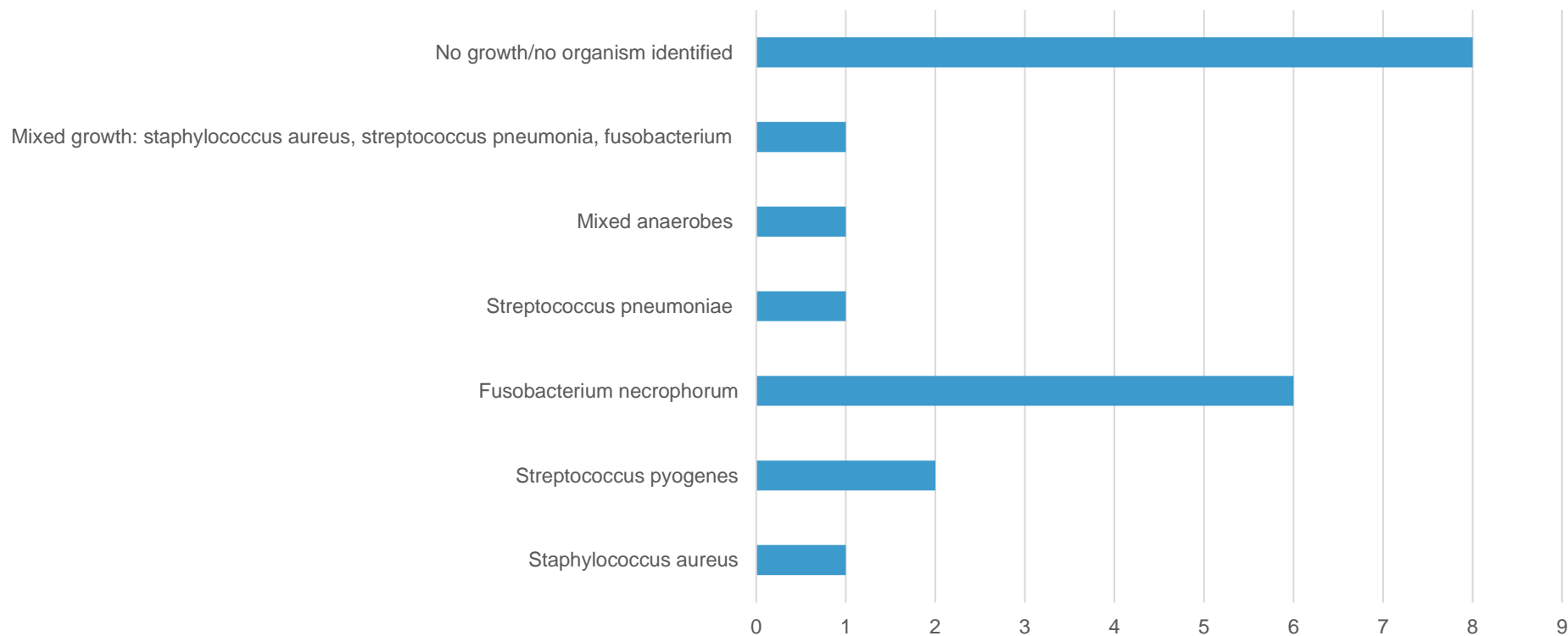
Year	Total No patients	Cases of Mastoiditis
2015	57	5
2016	57	3
2017	39	4
2018	28	2
2019	30	0
2020	22	2
2021	41	1
2022-present	12	3
	286	20 (6.99%)

Number of p-OPAT cases of mastoiditis per year (2015-present)



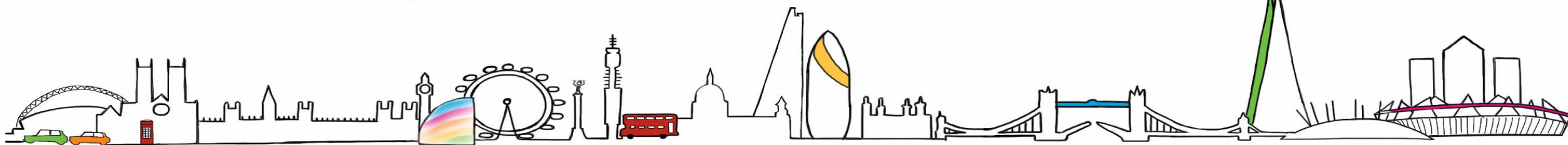
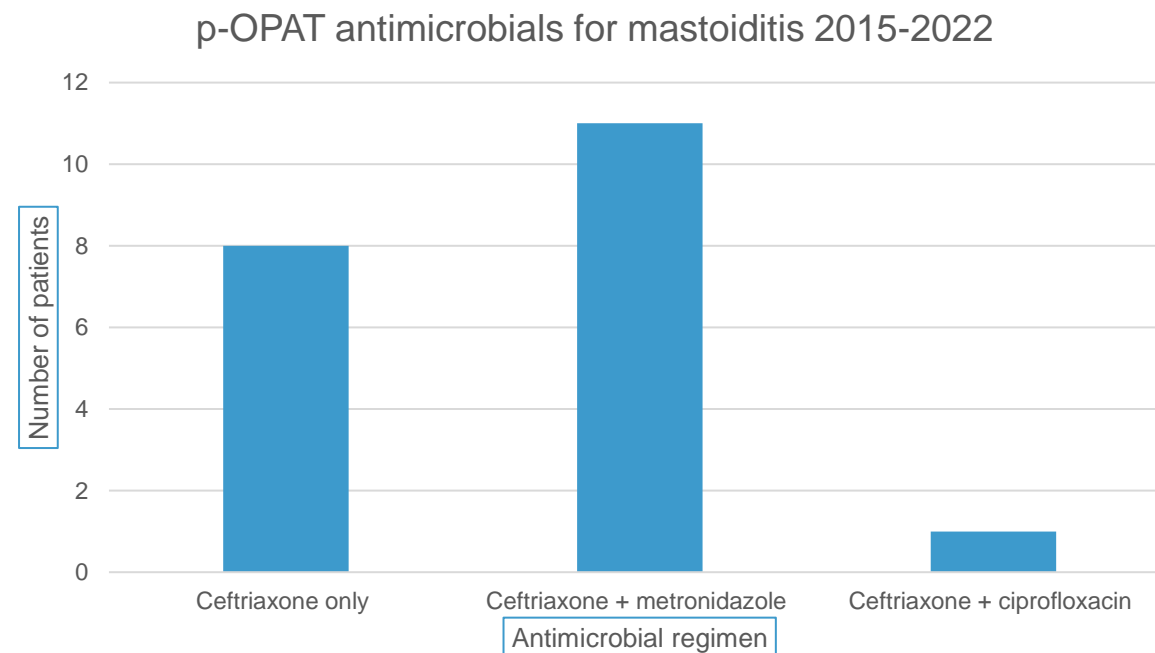


Causative organisms



Antimicrobial choice

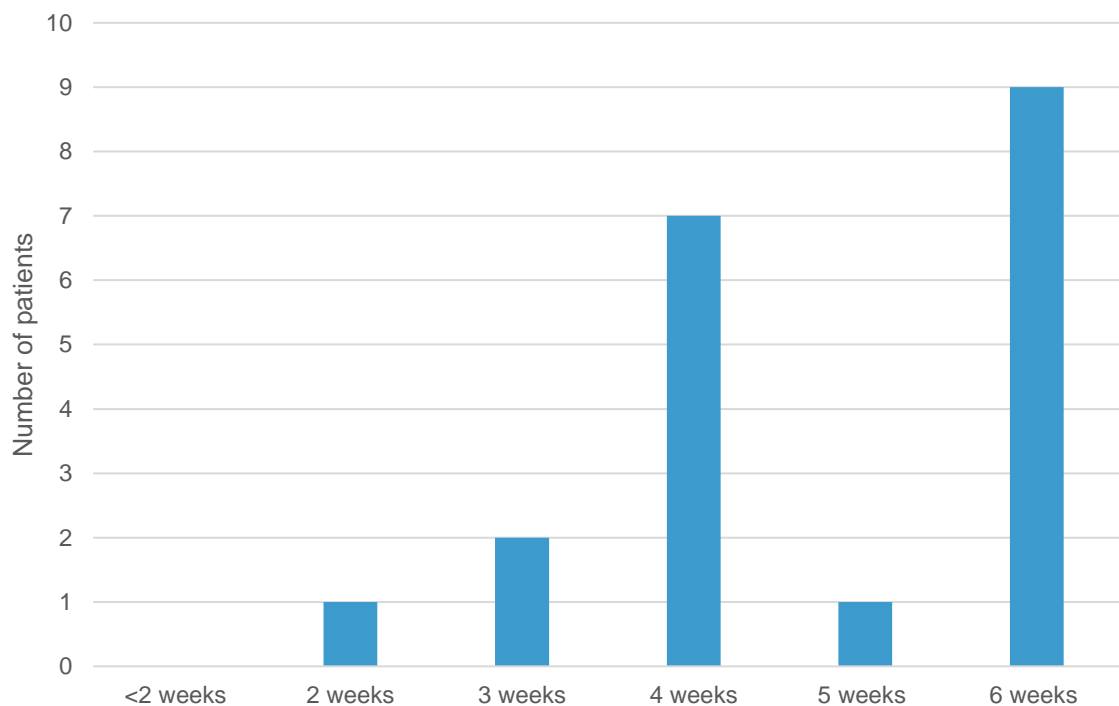
Antibiotic therapy	Number of patients
Ceftriaxone only	8
Ceftriaxone + metronidazole	11
Ceftriaxone + ciprofloxacin	1



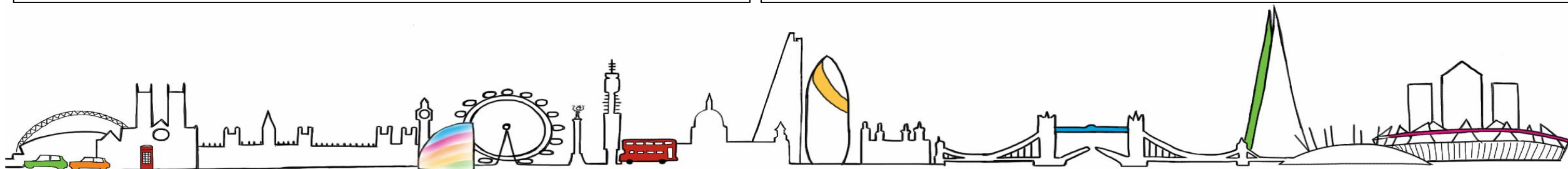
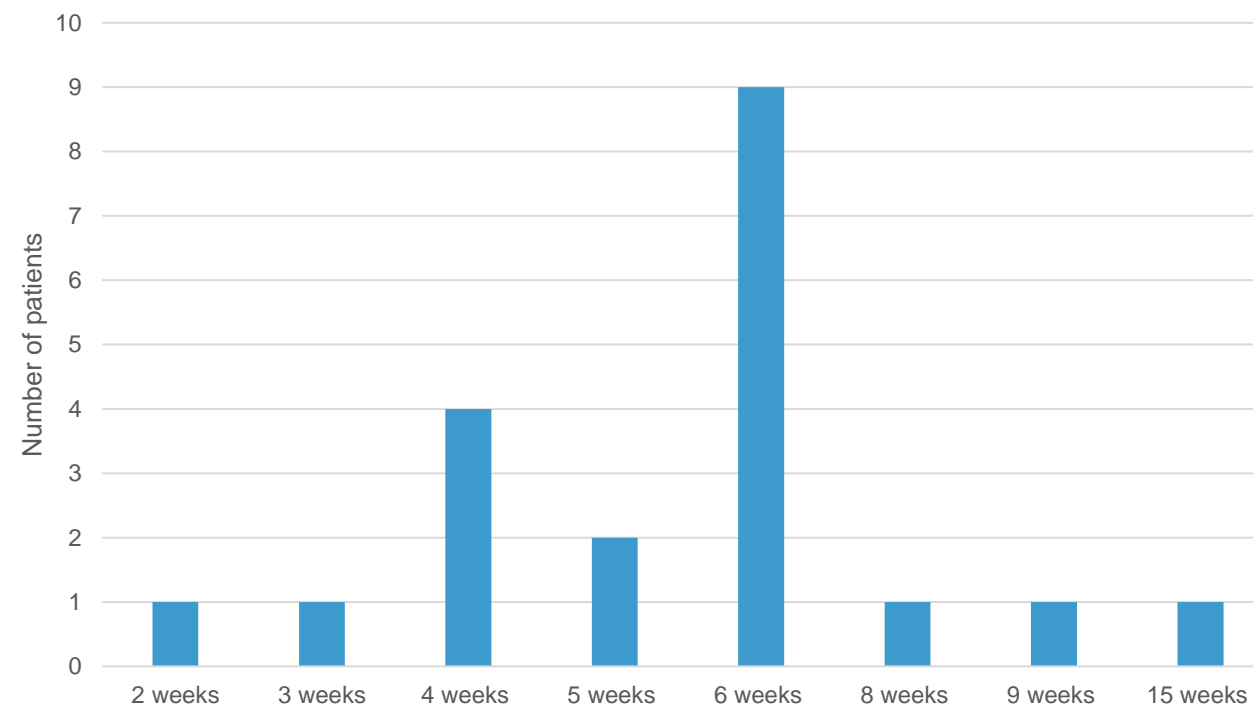


Duration of treatment

Duration of IV antibiotic treatment

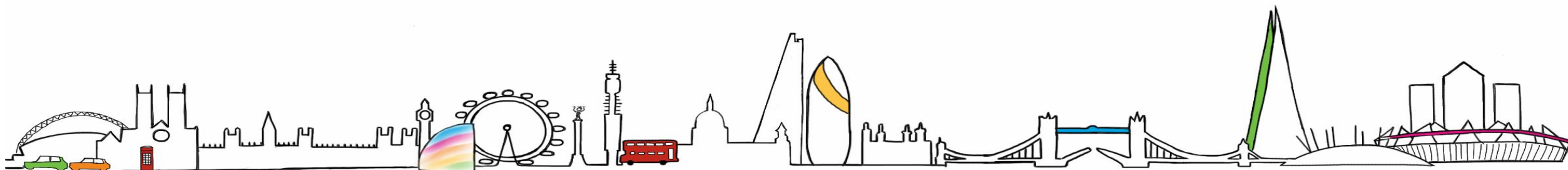
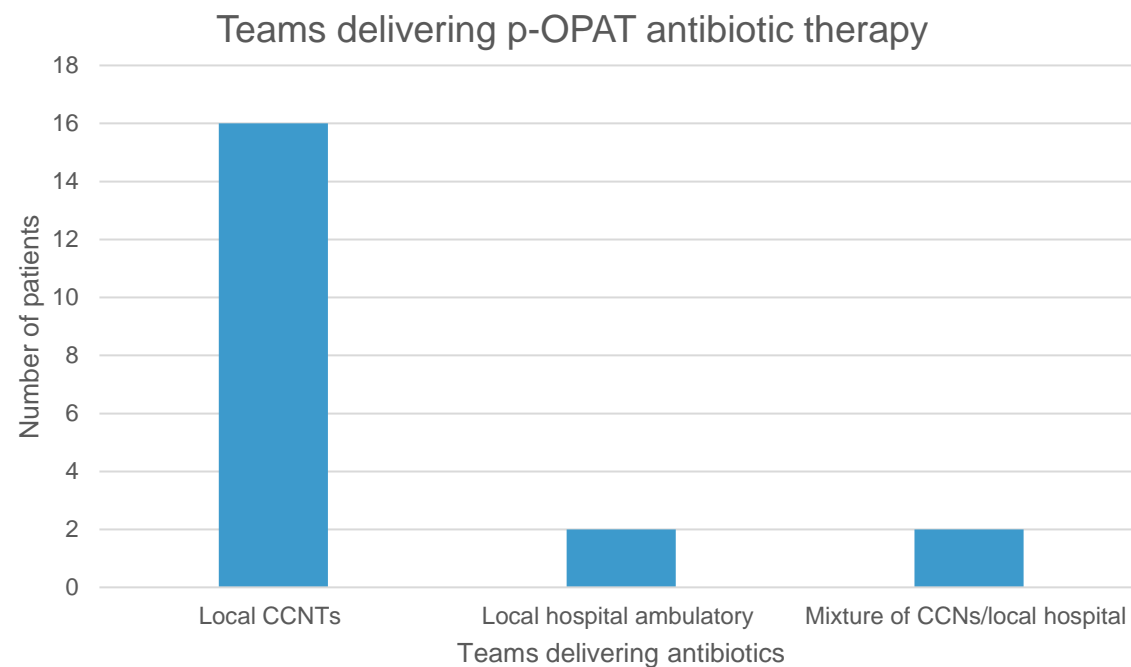


Total duration of antibiotic therapy



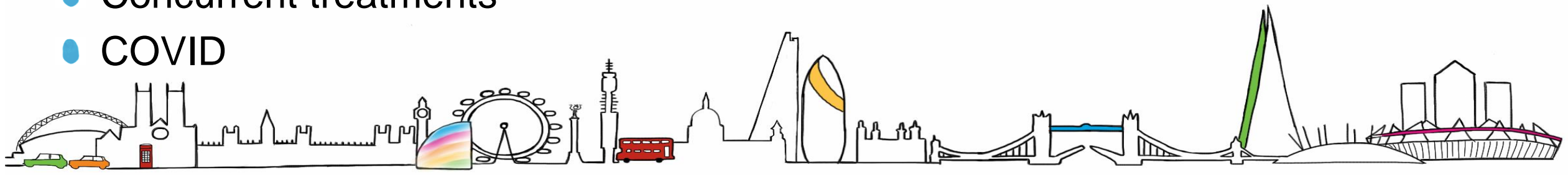


p-OPAT antibiotic delivered by	Number of patients	Percentage
Local CCNTs	16	80%
Local hospital ambulatory	2	10%
Mixture of CCNs/local hospital	2	10%
Total	20	100%



Challenges with mastoiditis p-OPAT cases

- IV access
- Identifying organisms
- Location
 - Tertiary ENT service
 - Capacity of local teams
- Antimicrobial choice
- Duration of treatment
 - Complications of mastoiditis
 - Vascular complications (11 out of 20 with thrombus)
- Concurrent treatments
- COVID





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Thank you!
Any questions?

