

AN AUDIT EVALUATING THE USAGE OF OUTPATIENT
ANTIBIOTIC THERAPY FOR BRONCHIECTASIS AGAINST
CURRENT BTS GUIDELINES
A RE-AUDIT

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Aims, Objectives and Standards

▶ Aim

- ▶ Evaluate the performance of the OPAT service against the objectives set in the BTS guidelines for the treatment of non-CF bronchiectasis.

▶ Objectives

- ▶ Analysis of care received, measured against the current BTS guidelines.

▶ 4 parameters

- ▶ Pre treatment cultures and use of sensitive antibiotics
- ▶ Pre and post Pulmonary Function Tests
- ▶ Documentation of clinical improvement
- ▶ Eligibility for nebulised antibiotics and correct usage

▶ Eligibility for nebulised antibiotics

- >3 admissions for bronchiectasis in past 12 months OR <3 admissions but bronchiectasis causing significant morbidity
 - Colonised with *pseudomonas aeruginosa*
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Methodology

▶ **Population**

- ▶ All patients with previously diagnosed bronchiectasis, referred to the Outpatient Parenteral Antibiotic Therapy (OPAT) service, who received antibiotic therapy over the two year period of May 2014 to June 2016 for the treatment of bronchiectasis.

▶ **Audit**

- ▶ A retrospective audit looking at all episodes of patient treatment
- ▶ Compared to the previous audit of 2012 to 2014



Summary of 2014 audit results

- ▶ Initial sputums sent in 87%
- ▶ Recent sputums sent in 85%
- ▶ 36% of patients had pre and post PFT
- ▶ 69% indicated for nebulised antibiotics
- ▶ All but one received nebulised antibiotics



Action Plan from 2014 Audit

- ▶ Regular sputum samples every 6-12 month
- ▶ Checklist for acceptance for OPAT service, including
 - ▶ Previous sputum sample
 - ▶ OR Sputum sample on acceptance
 - ▶ Prior PFTs
- ▶ Follow up in clinic as a routine
- ▶ Extension of OPAT nurse role



Demographics comparison

2014

- Patient episodes n=56
- Individual Patients 41

- Gender

Male: 18

Female: 23

- Age

Range - 30-88

Median - 63

2016

- Patient episodes n=55
- Individual Patients: 40

- Gender

Male: 15

Female: 25

- Age

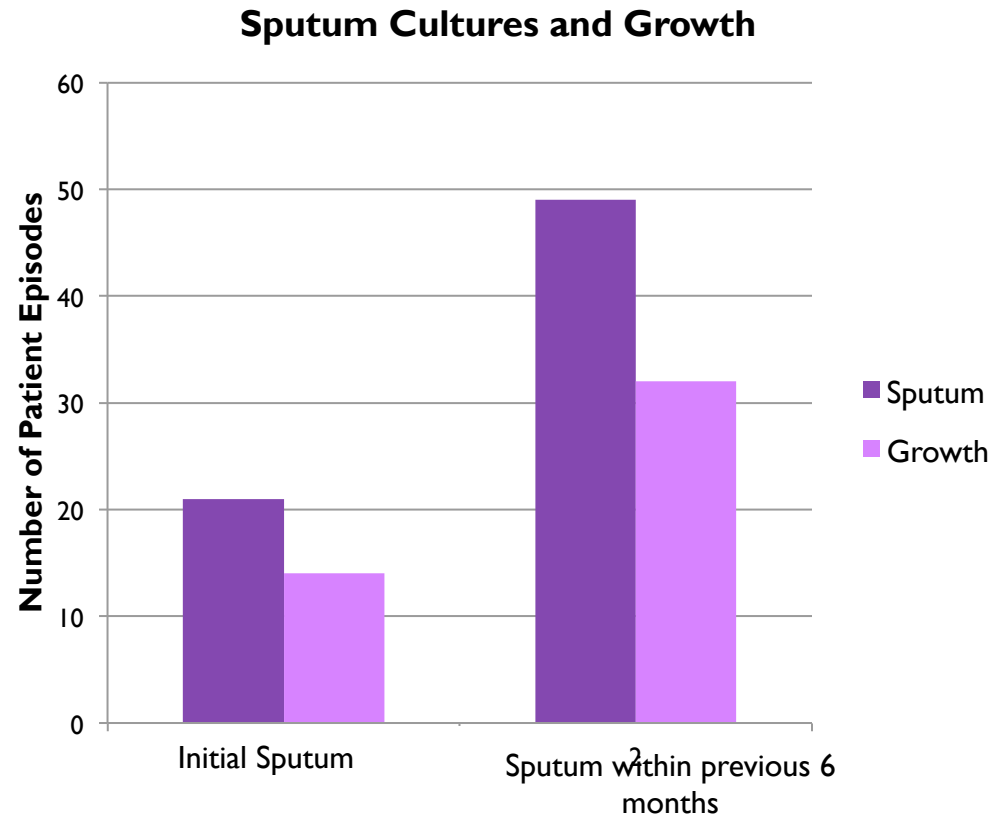
Range: 19 to 86

Median: 68



Pre-treatment Sputum Culture 2016

- ▶ Initial Sputum Sample sent
 - ▶ 38% sent, 67% showed growth
- ▶ Previous Sputum Sample sent (6months)
 - ▶ 89% sent, 65% showed growth
- ▶ Three patients who have never had a sputum culture done
- ▶ Pseudomonal growth in 53% of all growth. (Plus one colonised)



- ▶ One treated with ceftazidime and azithromycin for achromobacter growth. Culture not tested against azithromycin and was resistant to ceftazidime.
- ▶ One started on ceftriaxone for 4 days, then sputum culture showed resistant p aureginosa. Changed to ceftazidime.

Pre-treatment Sputum Culture comparison

2014

Initial Sputum Sample sent

- ▶ 87% sent, 95% showed growth

Previous Sputum Sample sent
(6months)

- 85% sent, 91% showed growth

One episode with no sample sent at all

Pseudomonal growth in 76% of all growth

2016

Initial Sputum Sample sent

- 38% sent, 67% showed growth

Previous Sputum Sample sent
(6months)

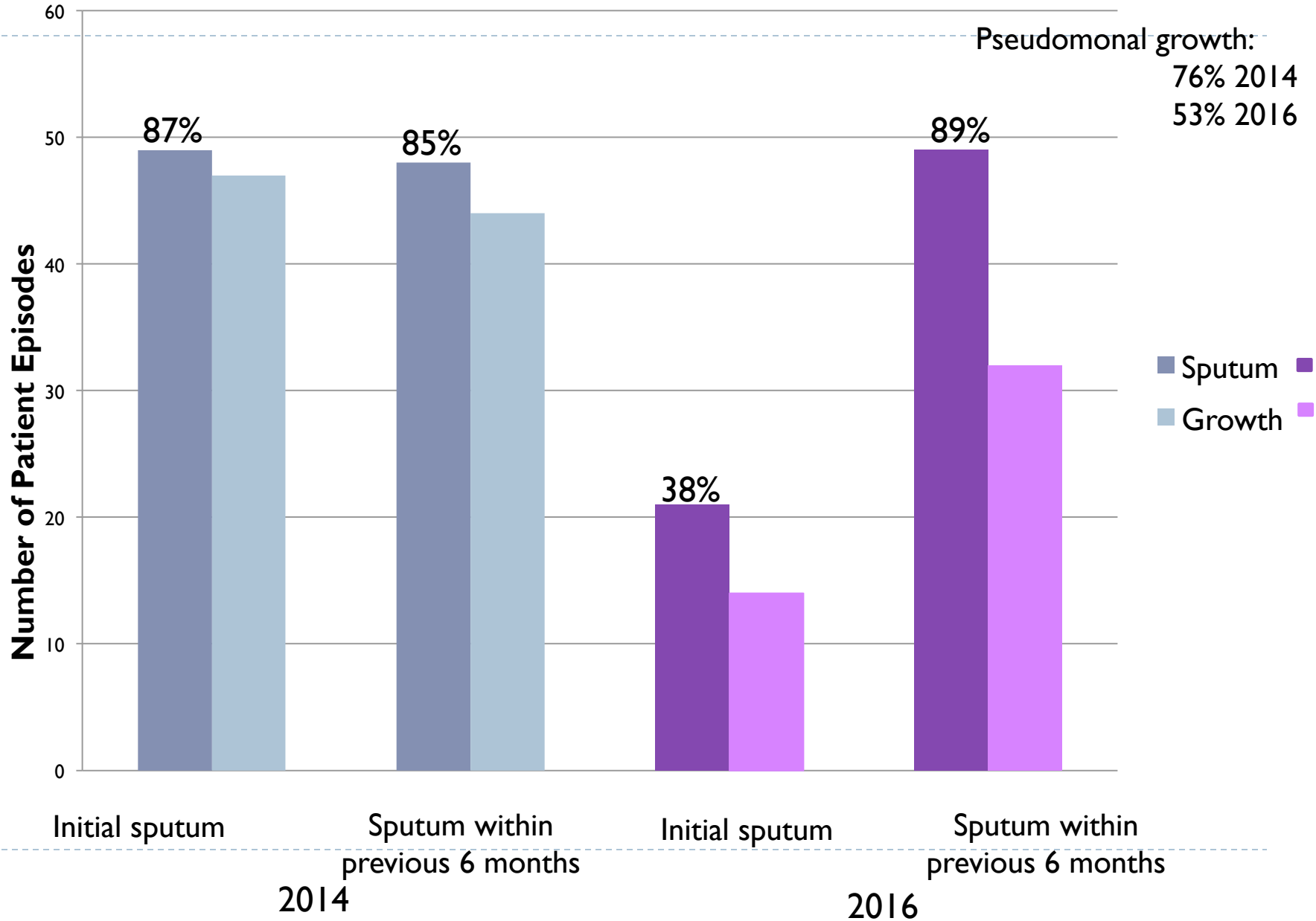
- 89% sent, 65% showed growth

Three patients with no sample sent at all

Pseudomonal growth in 53% of all growth. (Plus one colonised)

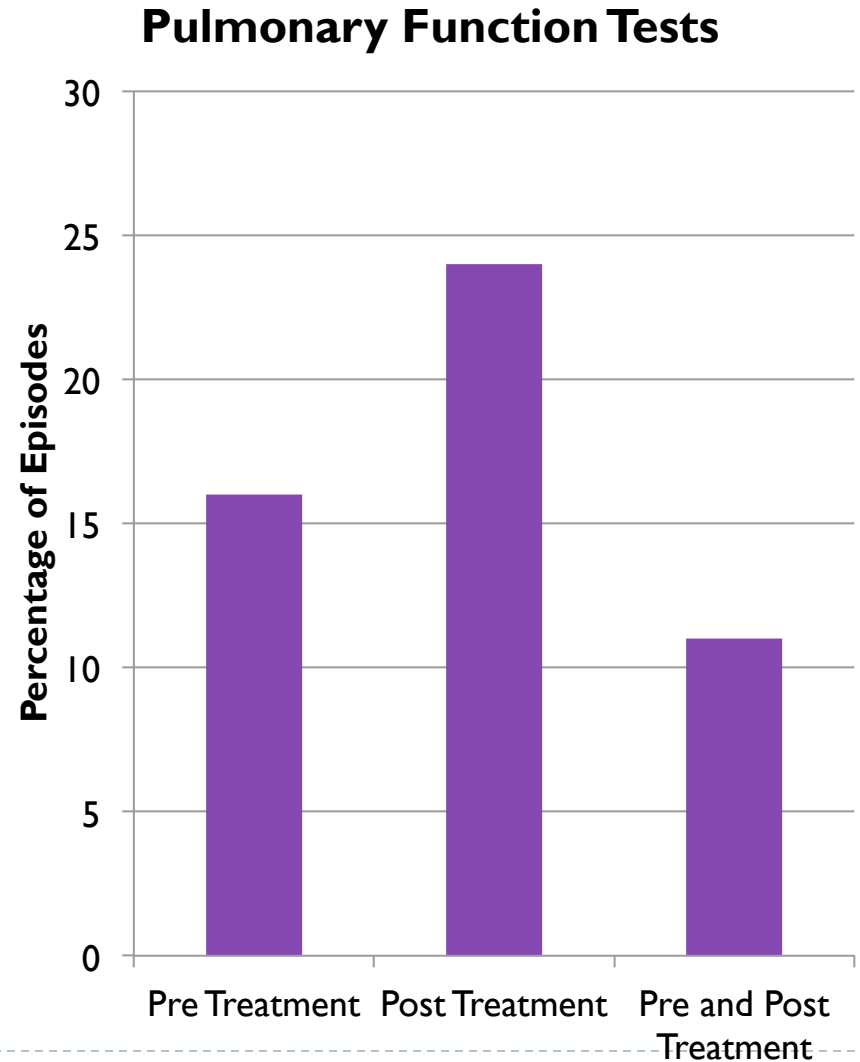


Sputum Cultures and Growth Comparison



Pulmonary Function Tests 2016

- ▶ 16% pre treatment PFTs
- ▶ 24% post treatment PFTs
- ▶ 11% received both pre and post treatment tests
- ▶ 33% of these recorded some improvement (n=2)



Pulmonary Function Tests Comparison

2014

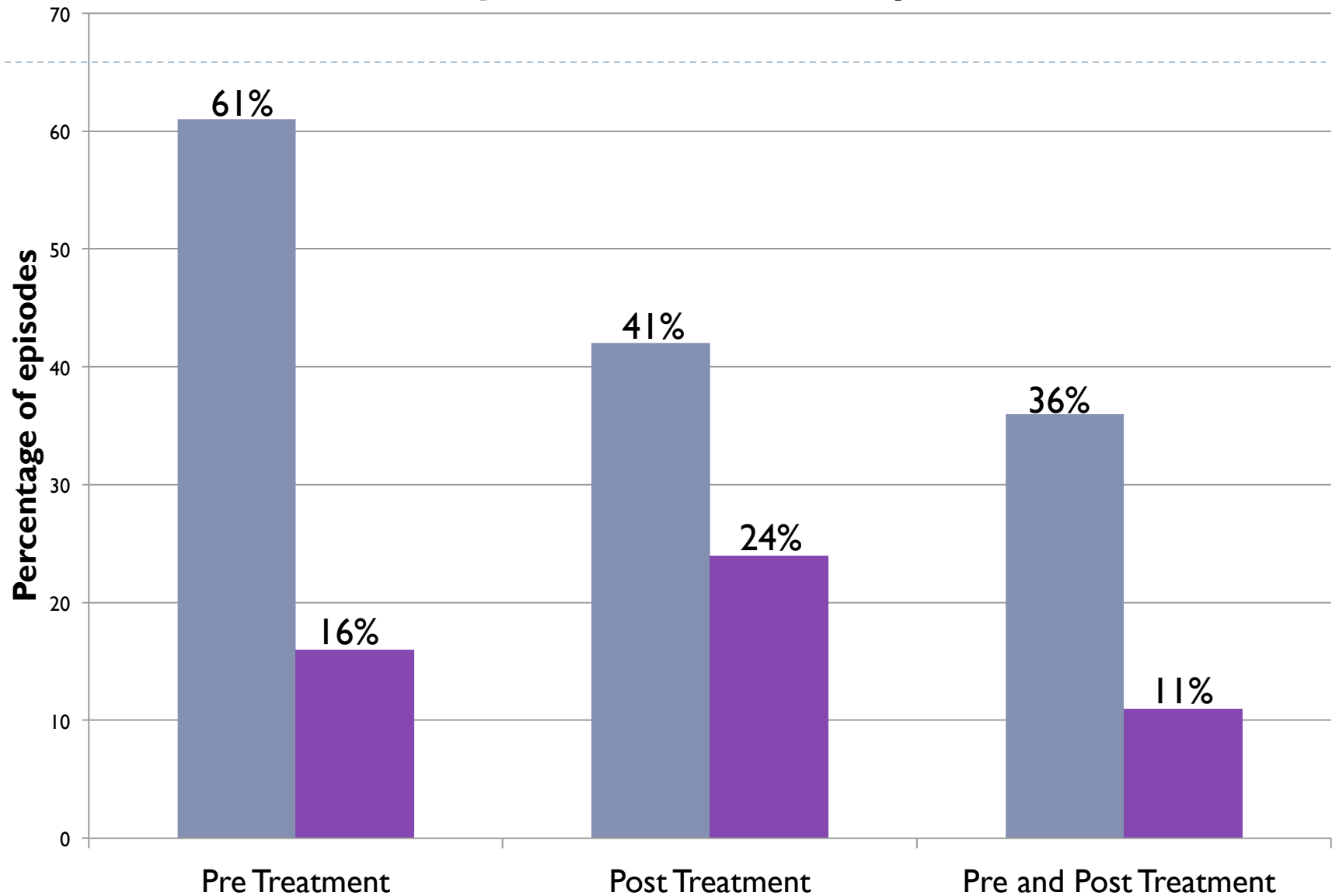
- Only 36% received both pre and post treatment tests
- 61% pre treatment PFTs
- 41% post treatment PFTs
- All who did recorded some improvement

2016

- 16% pre treatment PFTs
- 24% post treatment PFTs
- 11% received both pre and post treatment tests
- 33% of these recorded some improvement (n=2)



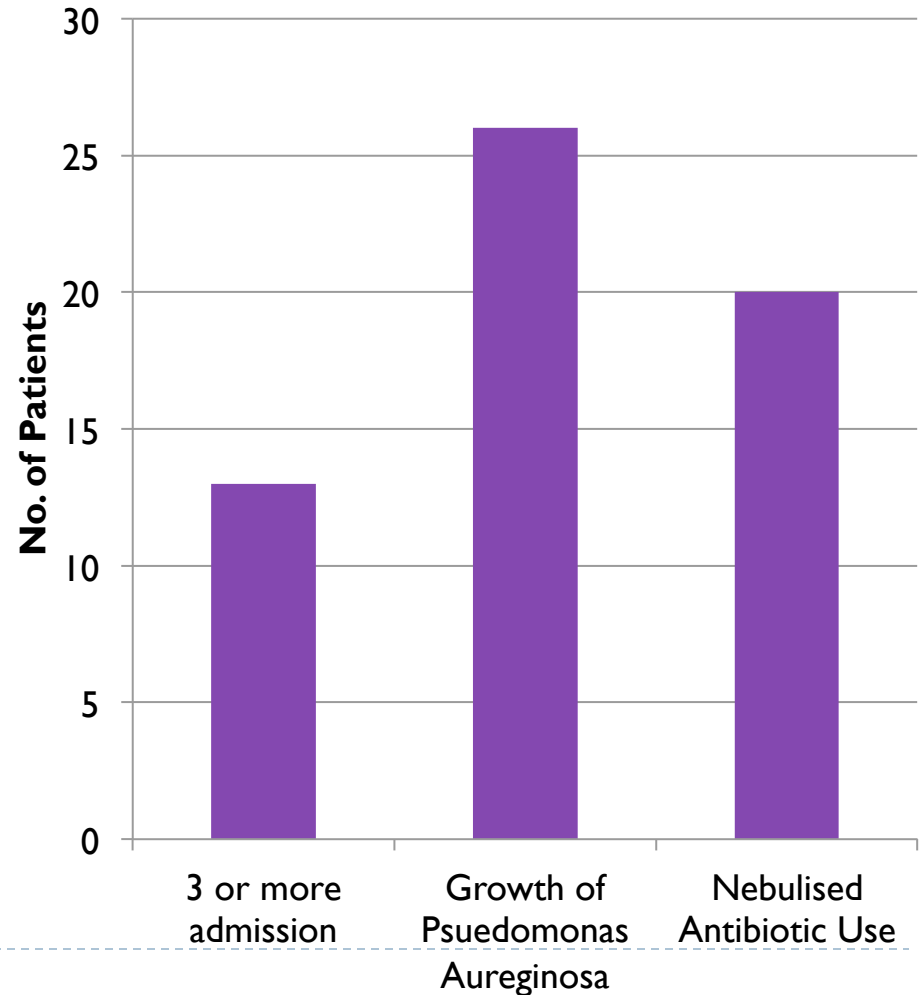
Pulmonary Function Tests Comparison



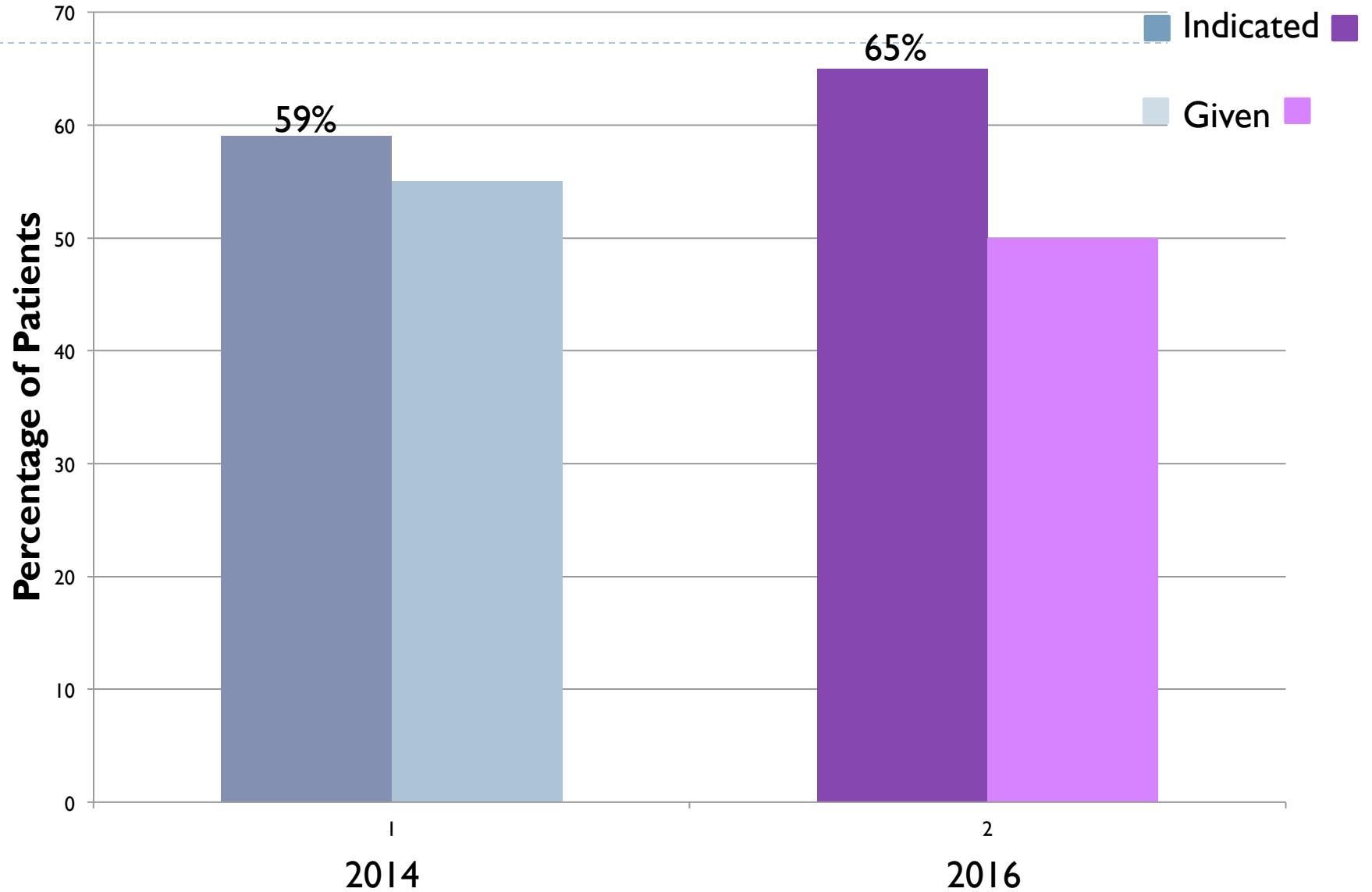
Nebulised antibiotics 2016

- ▶ 35% of patients with 3 or more admissions within 12 months
- ▶ 65% of patients with p.aureginosa growth or colonisation
- ▶ 50% treated with nebulised colomycin
- ▶ Significant morbidity definition?

Indicators for and use of Nebulised Antibiotics



Nebuliser Use Comparison



Conclusions

- ▶ Fewer patients who provided an initial sputum in the 2016 audit
- ▶ Sputum samples in the preceding 6 months remained at a good level.
- ▶ Appropriate antibiotics were given, where cultures were available.
- ▶ Requests for PFTs did not meet the bronchiectasis guideline
- ▶ Why?.....



Requests for Pulmonary Function Tests



Conclusions

- ▶ Majority had initial PFTS requested, poor completion
- ▶ Large minority did not have request made
- ▶ Majority met indications for nebulised antibiotics and received treatment



Amendments to action plan:

- ▶ Explore the barriers to implementation of action plan from 2014
- ▶ Views from the OPAT specialist nurses and respiratory clinicians.
- ▶ Exploration of patient views



Views from the OPAT Specialist Nurses and Respiratory Clinicians

- ▶ More patients referred urgently (bed pressures)
- ▶ Insufficient time for PFTs, narrower window for cultures
- ▶ Patients unable to physically do PFTs – requests not to
- ▶ Urgency does not explain lack of sputums
- ▶ Poor return of sputums from clinic referred patients



Action Plan 2016

- ▶ Referral to OPAT via ordercoms with prompts for sputum and PFT requests at the same time (orderset)
- ▶ PIL to go with sputum pot at clinic
- ▶ Feedback on patient views
- ▶ OPAT nurses to be provided with copy of clinic letter post PFTs
- ▶ Improve communication between other labs and UHNM, so that all bronchiectasis results are available on UHNM records
- ▶ Request lab to state any positive psuedomonas growth on bronchiectasis patients, when not a pure growth

Thanks

- ▶ ANP Barbara White, OPAT
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- ▶ Dr Darryl Menezes, ID registrar
- ▶ Dr Neena Bodasing, ID consultant
- ▶ Dr John Eardley
- ▶ Respiratory Consultants at Royal Stoke University Hospital



References

- ▶ **Guideline for non-CF Bronchiectasis (2010)** - British Thoracic Society, Bronchiectasis (non-CF) Guideline Group.

- ▶ **BTS Quality Standards for non-CF bronchiectasis in adults (2012)** - British Thoracic Society, Bronchiectasis (non-CF) Guideline Group.

