

# Antibiotic Centric To Reduce Antibiotic Overuse In Hospitals: Evaluation Of Perceptions And Impact

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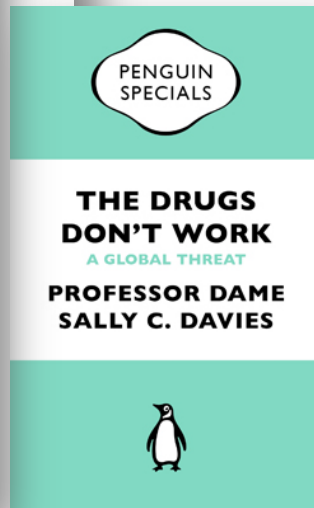
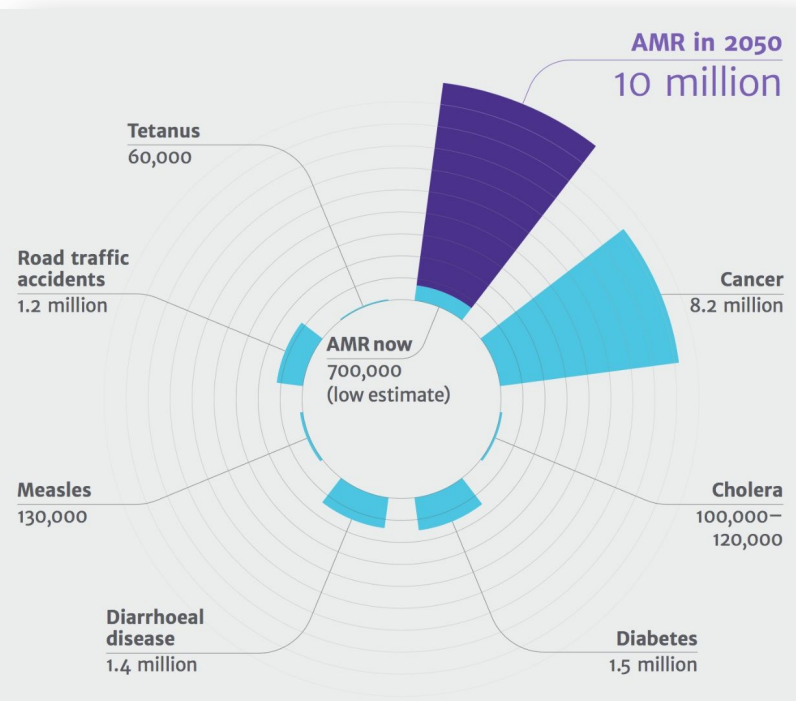


Department of Health



Department for Environment Food & Rural Affairs

## UK Five Year Antimicrobial Resistance Strategy 2013 to 2018



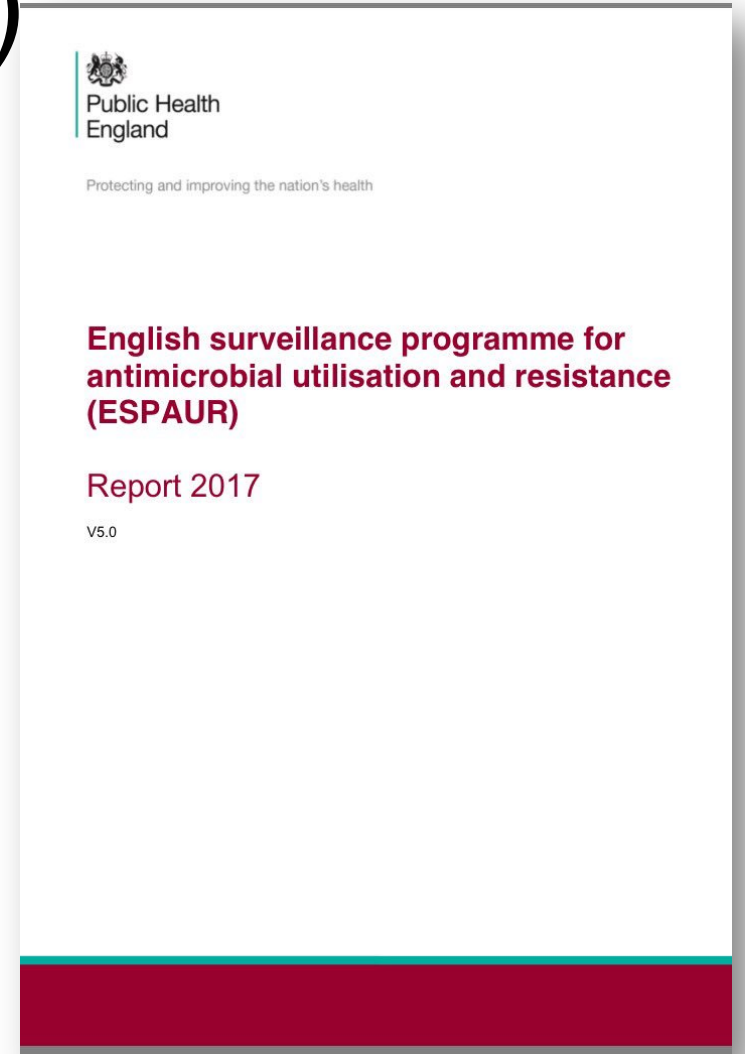
# Antimicrobial Resistance (AMR)

- AMR major public health risk leading to mounting healthcare costs, treatment failure and deaths<sup>1,2</sup>
- **Overuse and inappropriate antibiotic prescribing** is a major driver of resistance
- UK ranked **5<sup>th</sup> highest of 19** European countries for hospital antibiotic use (2011)

1. WHO The evolving threat of antimicrobial resistance - Options for action
2. DH UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018

# English Surveillance Programme for Antibiotic Use and Resistance (ESPAUR)

- Surveillance data on antibiotic resistance and prescribing
- Antimicrobial stewardship activities
- Education and training for healthcare professionals
- Public education and awareness



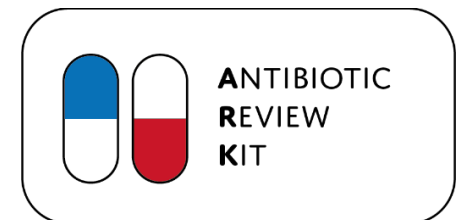
# Aim

1. Establish to what extent trusts made funding available to achieve the AMR CQUIN
2. How the CQUIN was perceived by staff responsible for achieving it at individual trusts
3. Explore whether these factors had an impact on trusts actually achieving the CQUIN components
4. Evaluate the need for novel interventions to support AMS



# Method

- Survey created using online web tool
  - Emailed on behalf of ESPAUR, PHE and ARK-Hospital to secondary care trusts (n=155)
- ESPAUR data collected through PHE Fingertips website portal
- Comparison of predicted reductions needed by trusts to actual reductions achieved
- Survey data analysed using SPSS (version 24) and Graphpad Prism



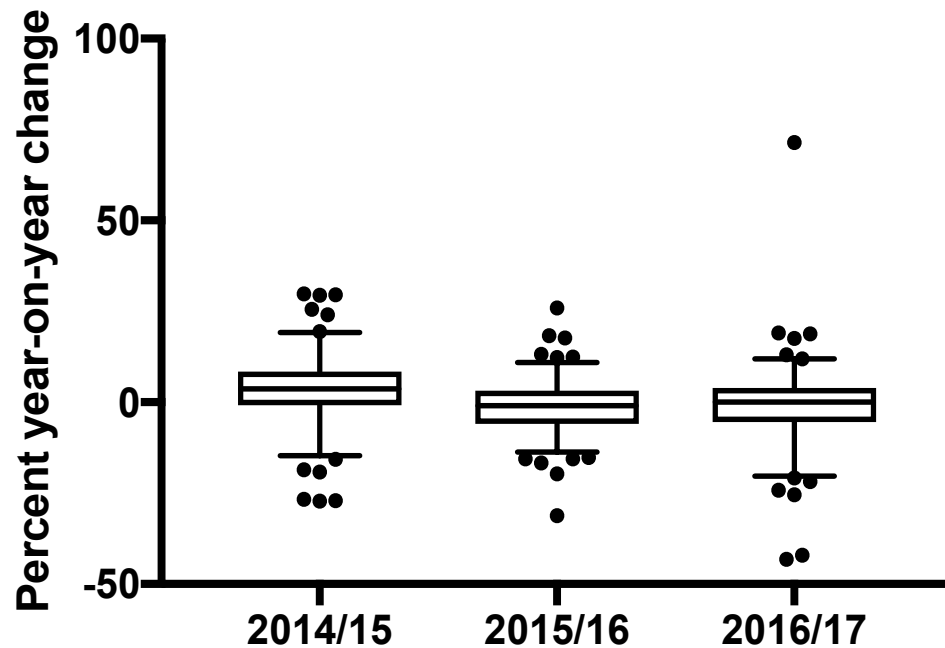
# Results

- 116/155 (75%) trusts responded
- 5 trusts surveyed had decided not to take part in the CQUIN
- 59% (68/116) trusts planned to meet the nationally set CQUIN reductions
- 56% (64/116) had implemented a specific AMS action plan as part of local antimicrobial policy
- Variation in the composition of AMS committees & frequency of meetings
- 91% (105/116) reported accessing AMR local indicators → 71% (82/116) shared this data with their AMS committee

**BUT only 6/116 (5%)** respondents had shared this data with **front-line staff**

# Changes In Antibiotic Use At Secondary Care Trusts

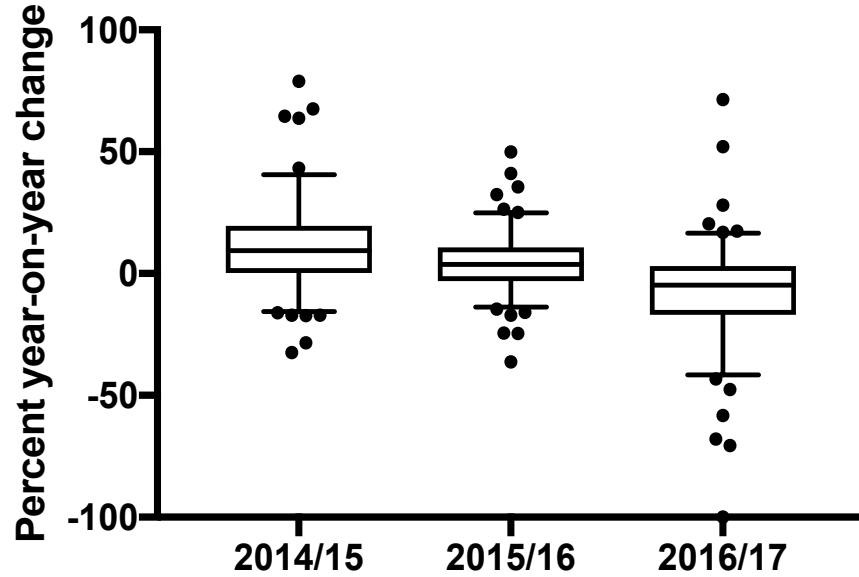
Total Antibiotics



	2014/15	2015/16	2016/17
25th percentile	-0.8	-6.0	-5.4
Median	3.7	-1.0	0.1
75th percentile	8.4	3.2	4.0

P<0.0001\*      P=0.05

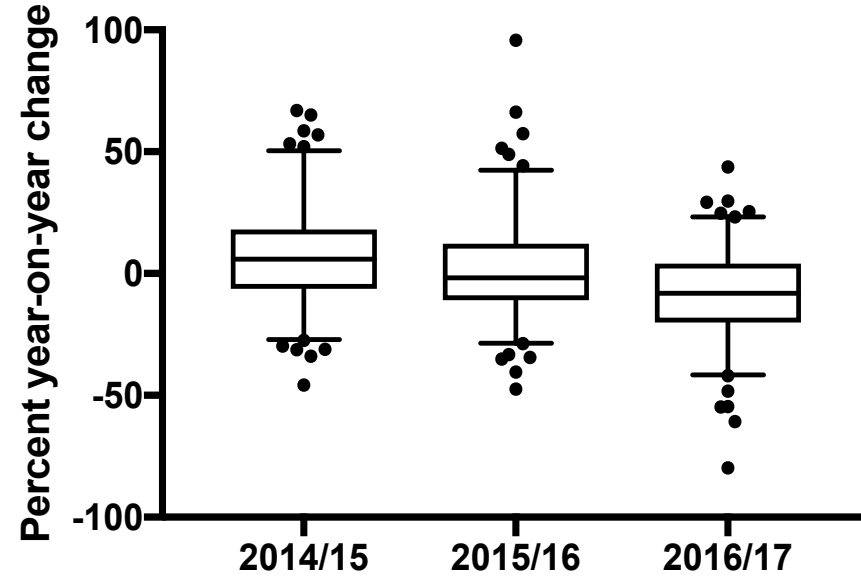
### Piperacillin/Tazobactam



	2014/15	2015/16	2016/17
<b>25th percentile</b>	0.2	-3.2	-16.9
<b>Median</b>	9.4	3.7	-4.8
<b>75th percentile</b>	19.5	10.8	3.2

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 P<0.0001\*    P<0.0001\*

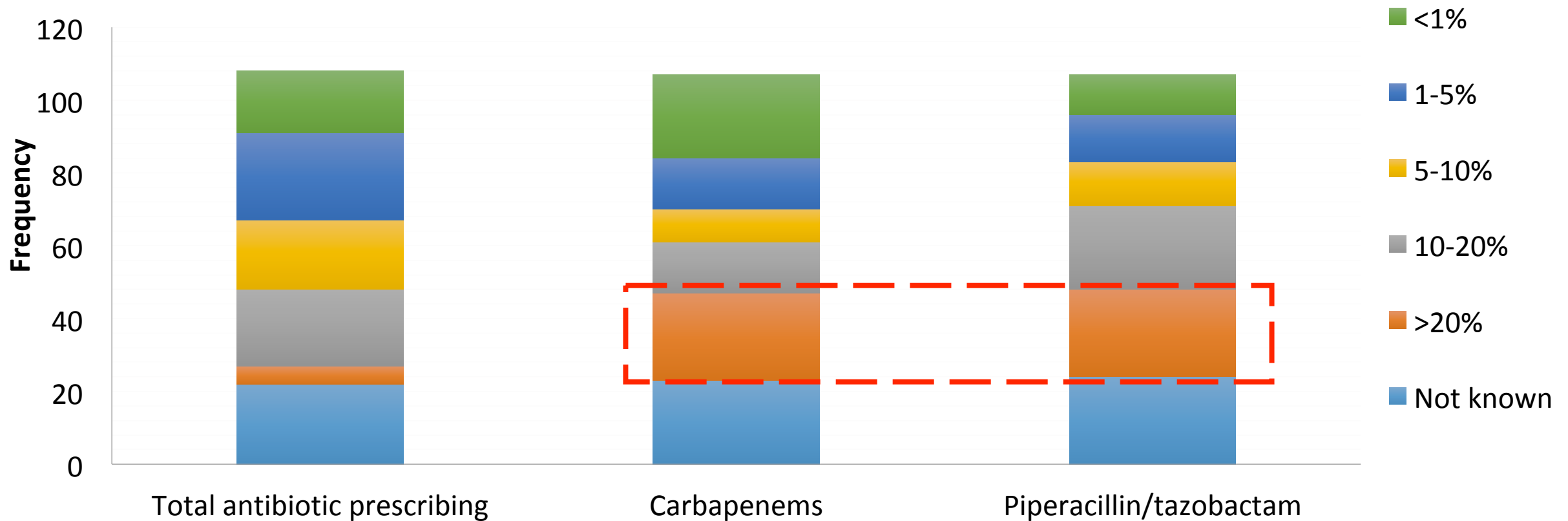
### Carbapenems



	2014/15	2015/16	2016/17
<b>25th percentile</b>	-6.2	-11.0	-20.2
<b>Median</b>	5.8	-1.7	-8.0
<b>75th percentile</b>	18.2	12.3	4.0

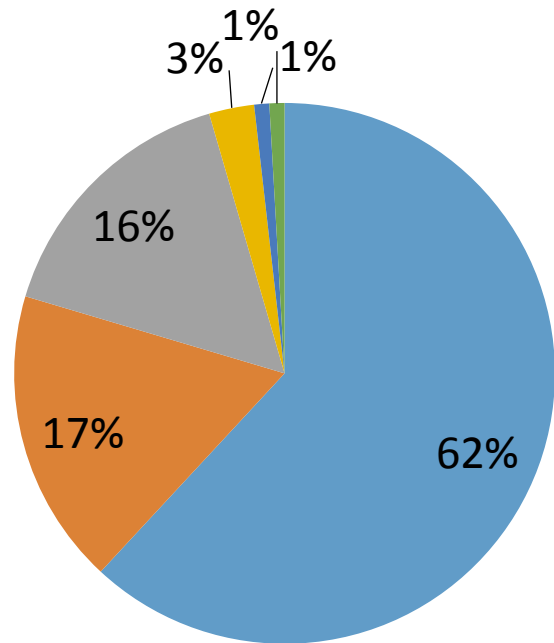
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 P=0.05    P<0.001\*

# Estimated Reductions Needed To Achieve 1% Reduction Compared To Baseline\*



\*2013/2014

# Availability Of Funding

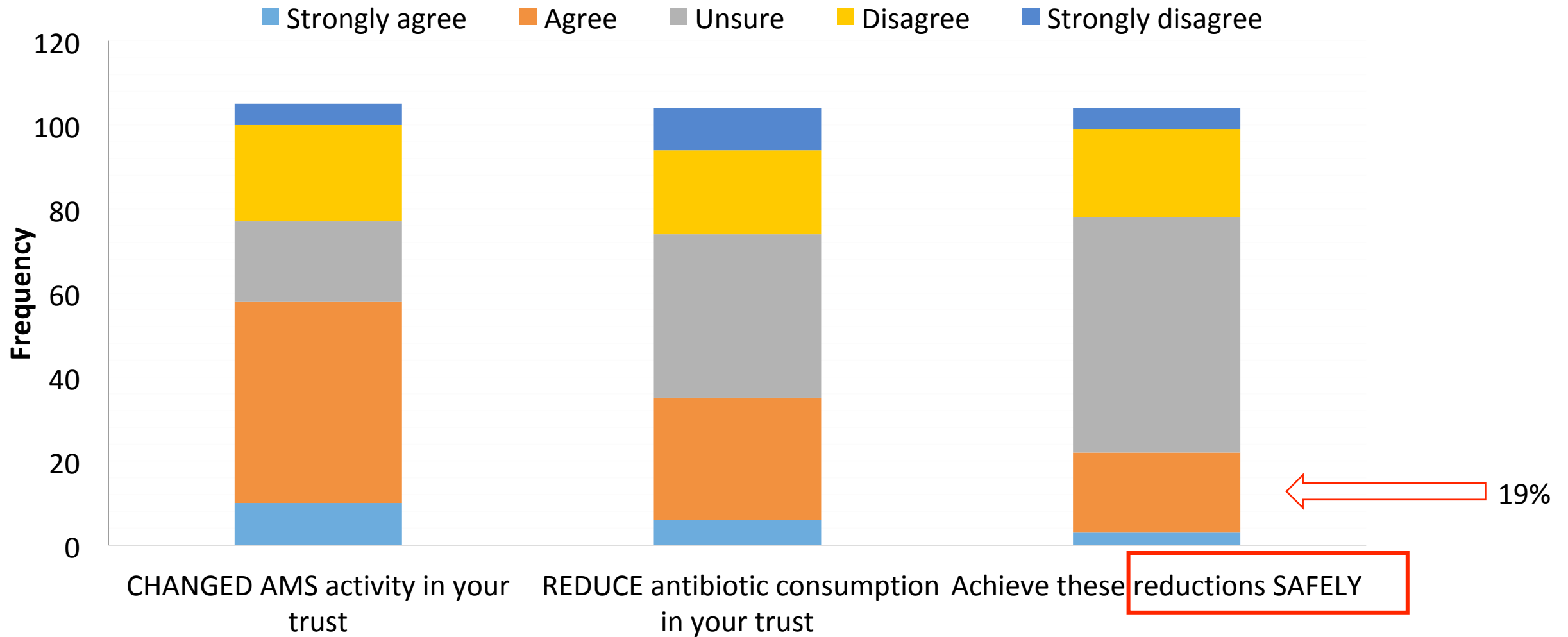


- No and none envisaged
- No but possible
- Yes <10% of total annual CQUIN funds
- Yes 11-20% of total annual CQUIN funds
- Yes 21-30% of total annual CQUIN funds

	Piperacillin/tazobactam (n=109)			Carbapenems (n=109)			Total antibiotic (n=108)		
	✓ (n=41)	✗ (n=68)	p	✓ (n=61)	✗ (n=48)	p	✓ (n=48)	✗ (n=60)	p
<b>Funding<sup>(a)</sup> (n=23)</b>	10	13	0.63	16	7	0.32	11	12	0.60
<b>No Funding (n=90)</b>	30	53		43	40		36	46	

(a) 3 respondents did not answer this question

# Perception Of CQUIN



# CQUIN Achieved ?

- 43% (48/111) for total antibiotic use
- 37% (41/111) achieved the quality measure for piperacillin/tazobactam
- 55% (61/111) for carbapenems

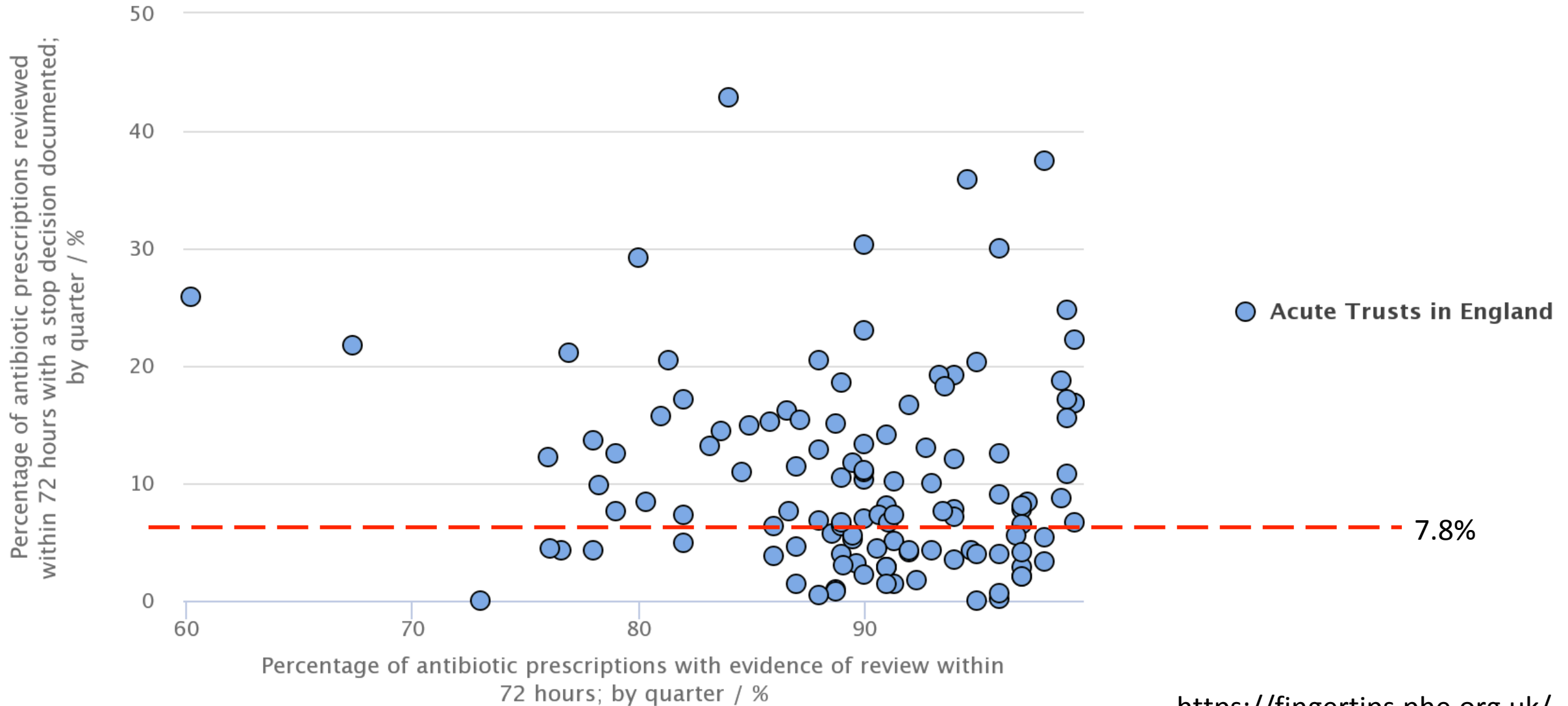
	Piperacillin/tazobactam (n=109)			Carbapenems (n=109)			Total antibiotic (n=108)		
	✓ (n=41)	✗ (n=68)	p	✓ (n=61)	✗ (n=48)	p	✓ (n=48)	✗ (n=60)	p
Predicted would achieve CQUIN <sup>(a)</sup>	26	2	<0.0001*	40	1	<0.0001*	31	1	<0.0001*
Predicted would not achieve CQUIN <sup>(a)</sup>	6	53		4	42		5	48	

(a) In total 26, 28 and 29 respondents did not answer this question for piperacillin/tazobactam, carbapenems and total antibiotics respectively

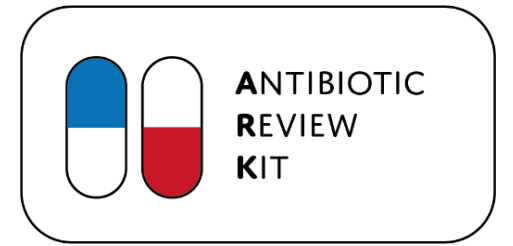
# ***“Are antibiotics given beyond the 72 hour review point unnecessarily?”***

- “Our findings from the 72 hour review process suggest that antibiotics are reviewed within the specified time point, but that the **quality of the review is not high**, and most often the **badly documented plan is just to continue antibiotics...**”
- “No reviews over the weekends or sometimes on weekday ward rounds. The current **drug chart has 5 days of prescription to use** and all patients will **receive at least this unless someone stops the prescription** regardless of the documented course length on the chart...”
- “Prescribing is within guidelines in terms of choice but patients are still unnecessarily being treated due to over diagnosis. **Once Abx are started not all senior clinicians are confident to stop them...**”

# Stopping Antibiotics At 72 hours



# ARK-Hospital



- Overarching aim:
  - Support 'Review and Revise' decisions in secondary care
  - Focus on targeting behaviour change
  - Aim of safely discontinuing antibiotics
- The programme applies approaches successful in primary care:-
  - Grace-Intro (Internet Training for reducing Antibiotic use)
  - STAR (Stemming the tide of antibiotic resistance) Educational programme

# Conclusion

- Access to funding did not influence whether or not trusts actually met the 4a CQUIN
- Few trusts have shared their CQUIN data with front-line staff responsible for delivering AMS
- Trusts who felt more optimistic about achieving the CQUIN were more likely to achieve AMR CQUIN
- AMS leaders feel the quality of the 72hour 'review and revise' could be improved
- Need for novel interventions to improve review and revise in-line with AMR CQUIN 2017/2018

# Acknowledgements

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- **Sarah Walker** Principal Investigator on ARK study **Oxford**
- **Mark Wilcox** Consultant Medical Microbiologist **Leeds**
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# Impact Of Perceptions & Funding On Achieving The AMR-CQUIN

	Piperacillin/tazobactam (n=109)			Carbapenems (n=109)			Total antibiotic (n=108)		
	Achieved (n=41)	Not Achieved (n=68)	p	Achieved (n=61)	Not Achieved (n=48)	p	Achieved (n=48)	Not Achieved (n=60)	p
<b>Funding<sup>(a)</sup> available (n=23)</b>	10	13	0.63	16	7	0.32	11	12	0.60
<b>Funding not available (n=90)</b>	30	53		43	40		36	46	
<b>CQUIN will help reduce antibiotic consumption<sup>(b)</sup> (n =35)</b>	16	16	0.34	18	15	0.94	14	18	0.96
<b>CQUIN will not help reduce antibiotic consumption (n=29)</b>	11	16		15	12		10	17	
<b>CQUIN will change AMS<sup>(c)</sup></b>	21	32	0.84	22	30	0.42	30	23	0.53
<b>CQUIN will not change AMS<sup>(c)</sup></b>	10	17		15	12		12	15	
<b>CQUIN will safely reduce antibiotic consumption<sup>(d)</sup></b>	6	14	0.87	7	13	0.87	8	12	0.99
<b>CQUIN will not safely reduce antibiotic consumption<sup>(d)</sup></b>	11	13		10	14		10	14	
<b>Trust predicted that they would achieve CQUIN<sup>(e)</sup></b>	26	2	<0.0001*	40	1	<0.0001*	31	1	<0.0001*
<b>Trust predicted that they would not achieve CQUIN<sup>(e)</sup></b>	6	53		4	42		5	48	

(a) 3 respondents did not answer this question. (b) 39 respondents were unsure about if the CQUIN would reduce antibiotic consumption and 13 respondents did not answer this question. (c) In total 26, 28 and 29 respondents did not answer this question for piperacillin-tazobactam, carbapenems and total antibiotics respectively.

# Antibiotic Prescription Reviews By Quarter

