



# How data can help us close the medicines gap

Regional Drug and Therapeutics Centre

Dr Helena Nettleton, Monica Mason

July 2023



# Session overview

- Demonstrate how different data metrics can influence the activity of medicines optimisation and the wider ICB teams
- Why it is important that we question the data sets that are presented to us for use within our populations.

# Prescribing data + RDTC carbon footprint methodology



North of England ICBs: Carbon Footprint summary - Apr 22 - Mar 23

Organisation	Carbon Footprint (KgCO <sub>2</sub> e)			Inhaler growth	Actual Cost	Cost Growth %
	Apr 22 - Mar 23	2018	Growth %			
North East and North Cumbria	44,328,513	48,395,499	● -8.40	-170,045	£63,108,891	1.1
England	709,595,681	769,250,835	● -7.75	-377,130	£896,772,055	4.0
South Yorkshire	21,071,279	22,622,109	● -6.86	-42,741	£28,868,089	1.5
North East and Yorkshire	117,081,937	125,284,795	● -6.55	-327,405	£166,064,442	0.0
Cheshire and Merseyside	38,570,718	40,984,950	● -5.89	27,535	£49,898,755	1.2
Humber and North Yorkshire	21,505,644	22,671,242	● -5.14	-68,177	£31,600,495	5.5
West Yorkshire	30,032,969	31,477,717	● -4.59	-47,952	£42,343,054	4.8
<b>Greater Manchester</b>	<b>44,268,607</b>	<b>45,951,983</b>	● <b>-3.66</b>	<b>73,204</b>	<b>£53,766,795</b>	<b>1.7</b>
North West	105,406,018	109,411,895	● -3.66	107,656	£137,519,831	2.4
Lancashire and South Cumbria	22,501,918	22,409,909	● 0.41	6,739	£33,809,784	5.3

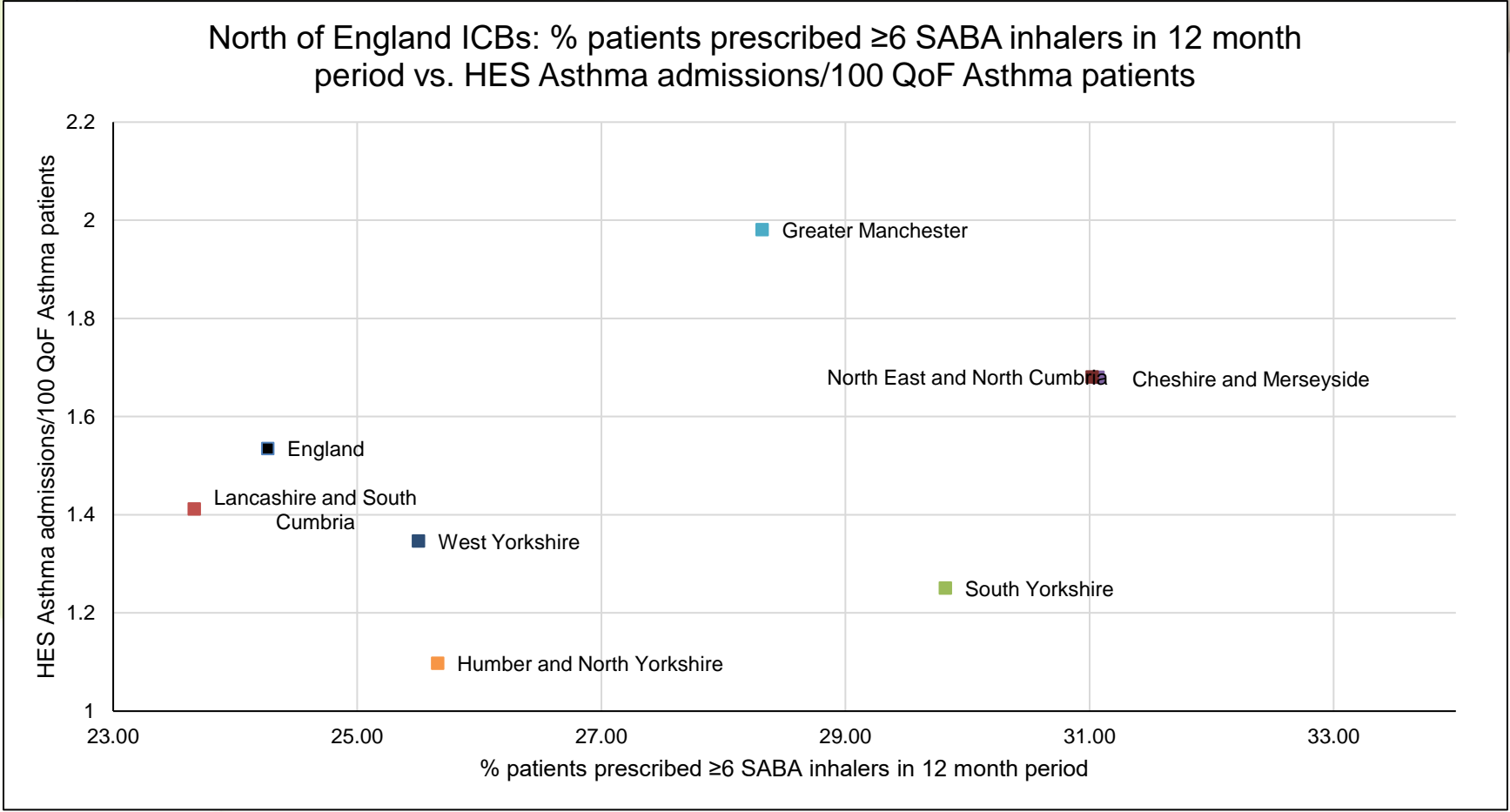


# Why weight?

## Weighting gives data context

	Carbon footprint per patient		
	2018 baseline (avg per quarter)	latest quarter (Q4 2022/23)	% change
England	38.15	27.57	27.74%
Lancashire and South Cumbria	31.36	23.29	25.73%
South Yorkshire	39.68	28.73	27.60%
North East and North Cumbria	37.88	24.25	35.98%
Greater Manchester	41.68	31.24	25.05%
Humber and North Yorkshire	35.27	22.25	36.92%
West Yorkshire	32.79	22.4	31.69%
Cheshire and Merseyside	40.81	31.77	22.15%

“carbon footprint per patient” is defined as Carbon footprint (KgCO<sub>2</sub>e) per COPD & Asthma patient (QOF)



\*carbon footprint per patient is defined as Carbon footprint (KgCO<sub>2</sub>e) per COPD & Asthma patient (QoF)



## System wide action

- Develop and implement an ICB-wide plan to reduce variation within the ICB population in respiratory outcomes.
- The plan should focus on those areas with high levels of deprivation where it is likely that there are significant opportunities to improve access to and optimise the use of medicines, reduce smoking and improve air quality.
- These interventions should help people optimise management of their respiratory health, reducing associated hospital admissions and the overuse of inhalers

# Standard metrics: opioids

In the North of England (NoE) Integrated care systems (ICSs), the number of patients prescribed an opioid is higher than the England average. Of note is the North East and North Cumbria (NENC), which is significantly higher than the other ICSs in the north when weighted for list size (Figure 1).

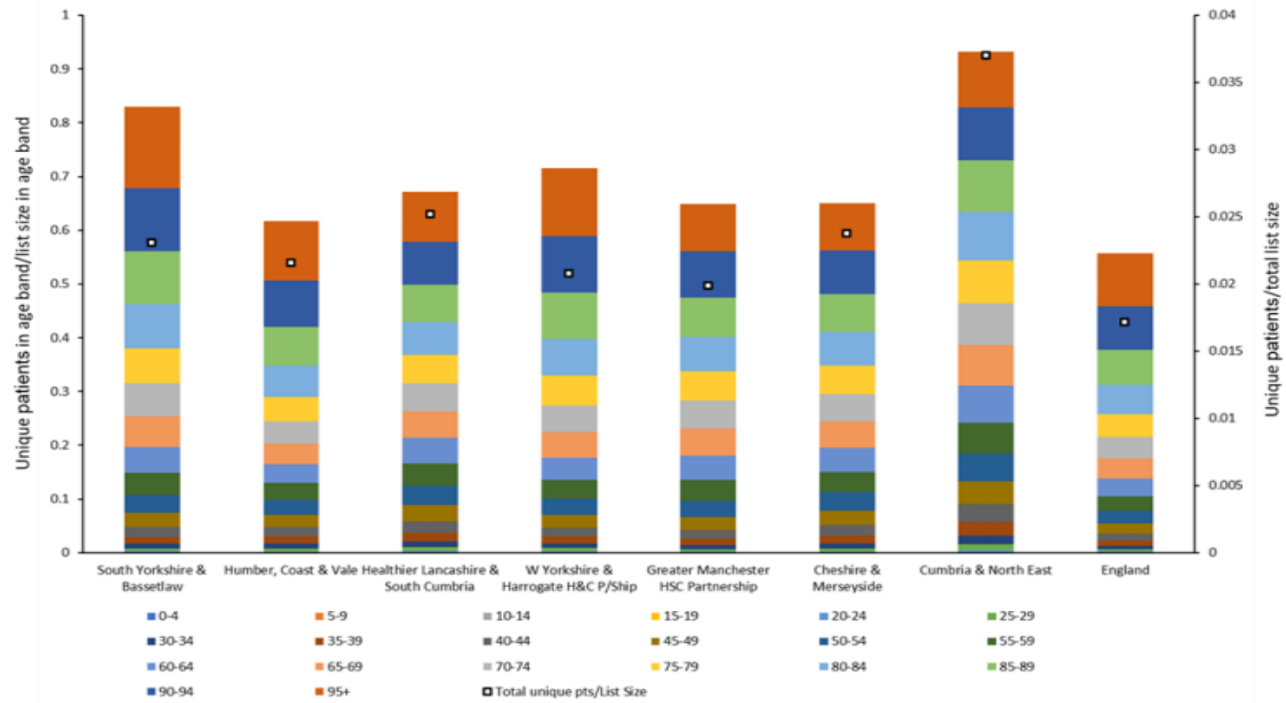


Figure 1. Unique number of opioid patients in the North of England (21<sup>st</sup> June-18<sup>th</sup> July 2022)





Highest 10 prescribers of opioids using national metric (ePACT OP01 comparator Mar 23 – April 23)	Highest 10 prescribers of opioids in the using RDTC metric (includes compound opioid analgesics).
Sunderland	Blackpool
County Durham	St Helens
South Tyneside	Knowsley
Tees Valley	Barnsley
Northumberland	Halton
North Tyneside	South Sefton
Newcastle Gateshead	Fylde and Wyre
Blackpool	Wigan Borough
Barnsley	Wirral
Halton	County Durham



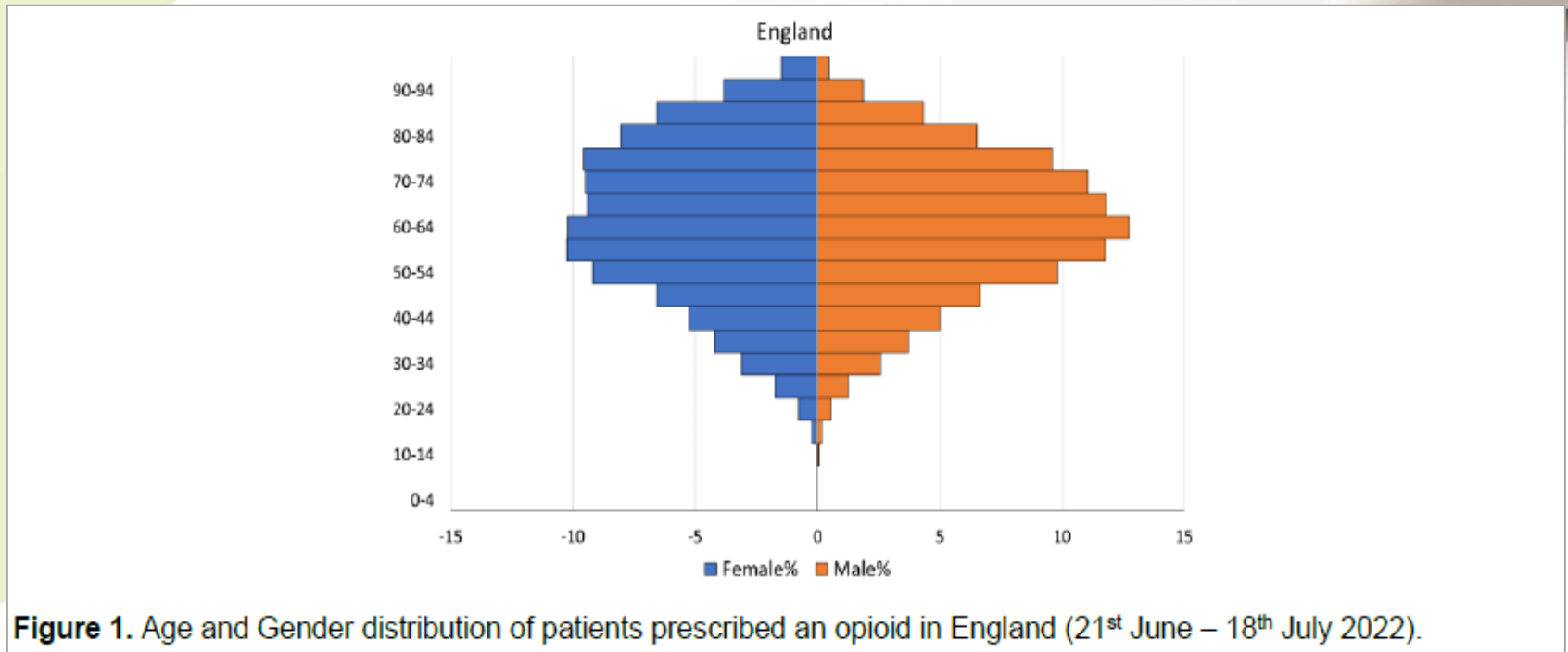
# Evolution of the metrics

**Table 1.** Ten localities in NoE with the highest proportion of people using an opioid; prescribed  $\pm$  SMS users and related outcomes.<sup>11-14</sup>

Locality (SICBL)	Opioid & opioid-compound analgesics pts/list size	% patients Rxed both opioid and opioid-compound analgesic	Opioid & opioid-compound analgesics+SMS opiate patients/list size	% SMS opioid users attributable to prescription opioids	Rank in NoE opioid admissions/1000 list size	Deaths from drug misuse (DFDM, per 10,000)	Rank in NoE for DFDM
Blackpool	0.07778	10.14	0.08353	2.48	1	2.06170	1
St Helens	0.07571	13.43	0.07950	4.61	6	0.62762	33
Knowsley	0.07294	10.19	0.07586	5.05	10	0.77282	14
Barnsley	0.06730	7.74	0.07073	1.65	13	0.74311	15
Halton	0.06682	9.18	0.06963	3.95	20	0.46440	47
South Sefton	0.06384	8.12	0.06756	1.99	5	0.83824	12
Fylde And Wyre	0.06055	9.52	0.06352	3.17	43	0.59277	38
Wigan Borough	0.05936	9.72	0.06219	6.28	14	0.62915	32
Wirral	0.05924	8.44	0.06409	3.34	2	0.94691	7
County Durham	0.05797	7.95	0.06057	4.83	24	0.73575	16
Doncaster*	0.05760	9.29	0.06189	0.71	16	0.78057	13
England	0.03609	7.95	0.03839	2.59	39	0.48485	45

\* Doncaster replaces County Durham in the worst ten in Table 1, when the total patients prescribed an opioid or opioid-containing compound analgesic and the number of opioid users in treatment in the SMS is combined and weighted for the list size.

# Demographics



**Figure 1.** Age and Gender distribution of patients prescribed an opioid in England (21<sup>st</sup> June – 18<sup>th</sup> July 2022).

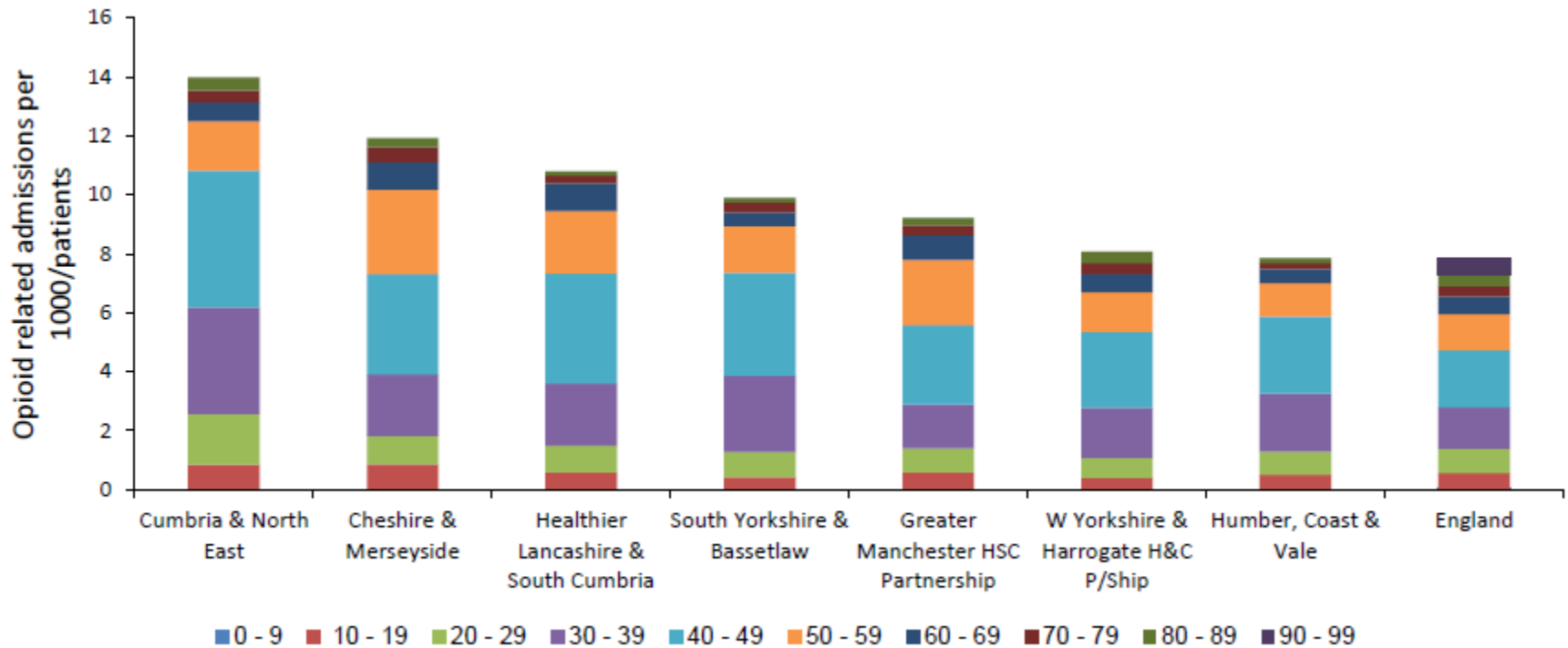


# Duration of use



CCG (pre-July 2022)	Unique patients/list size	Highest frequency age band	Value in that age band	% male	% of opioid patients in age band that are long term use*
County Durham	0.04223	60-64	2,877	42.6%	85.2%
South Tyneside	0.04216	60-64	897	41.9%	83.3%
Sunderland	0.04153	60-64	1,527	43.5%	86.4%
Northumberland	0.03761	60-64	1,511	42.5%	82.3%
Tees Valley	0.03765	60-64	3,371	41.5%	84.8%
North Tyneside	0.03659	60-64	1,044	42.0%	82.3%
Newcastle Gateshead	0.03470	60-64	2,413	42.1%	84.8%
Blackpool	0.03310	55-59	815	42.6%	89.2%
Barnsley	0.03242	55-59	1,034	40.0%	86.2%
St Helens	0.03078	60-64	742	45.4%	90.4%
England	0.01715	55-59	114,224	39.7%	83.5%
England	0.01715	60-64	117,840	41.6%	82.8%

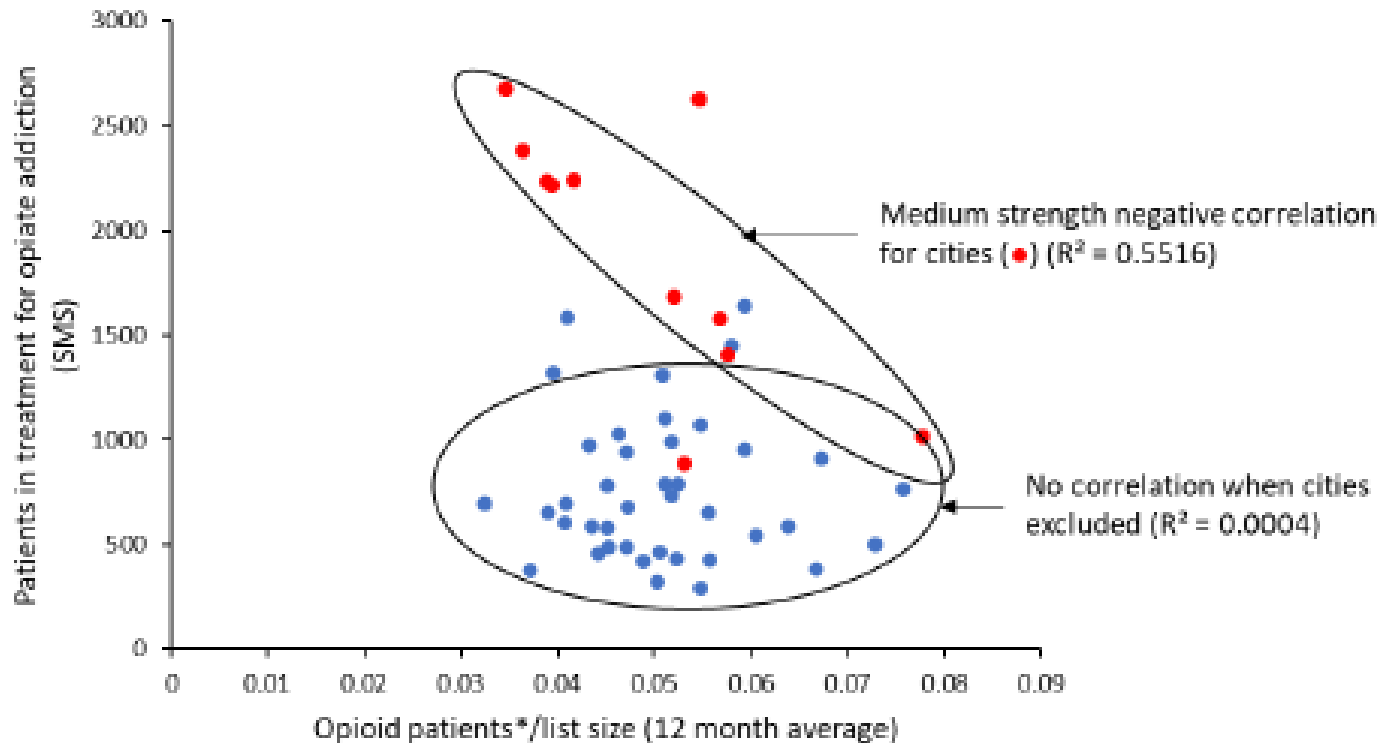
# Opioid hospital admissions



**Figure 2.** Age band analysis for the total opioid related hospital admissions (weighted by list size) for April 18 to March 22.<sup>6</sup>

NHSD. Hospital Episode Statistics Dataset. Copyright © 2022, re-used with the permission of NHS Digital. All rights reserved.

# Missed populations?



**Figure 3.** Scatter chart showing the variation in the number of SMS users for opioid addiction with increasing number of opioid patients weighted for list size, in the NoE localities.

Opioid patients defined here as 'patients prescribed an opioid or opioid-containing compound analgesic, exclusions include: Injectables and opioids licensed for addiction'.



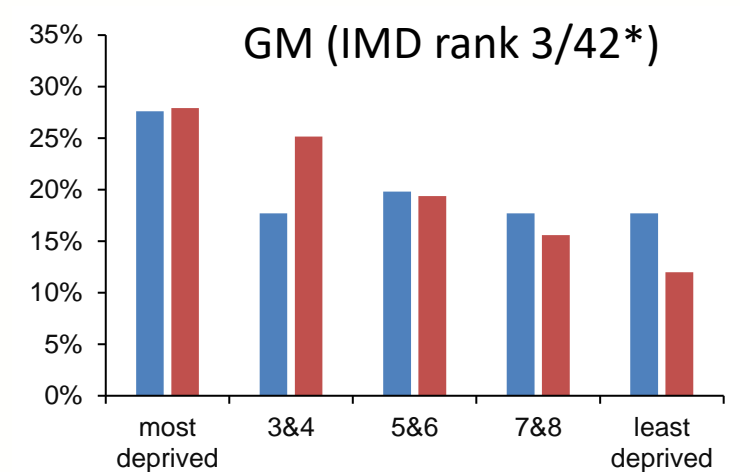
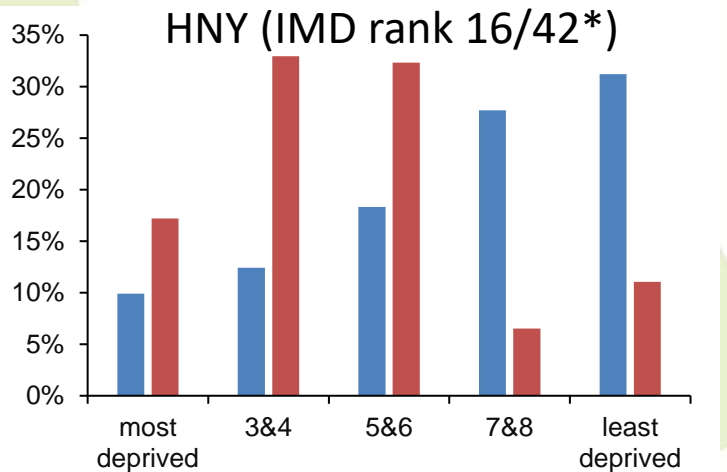
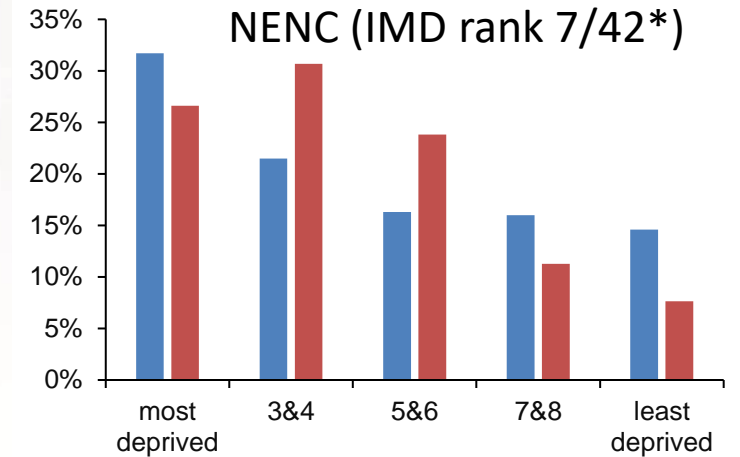
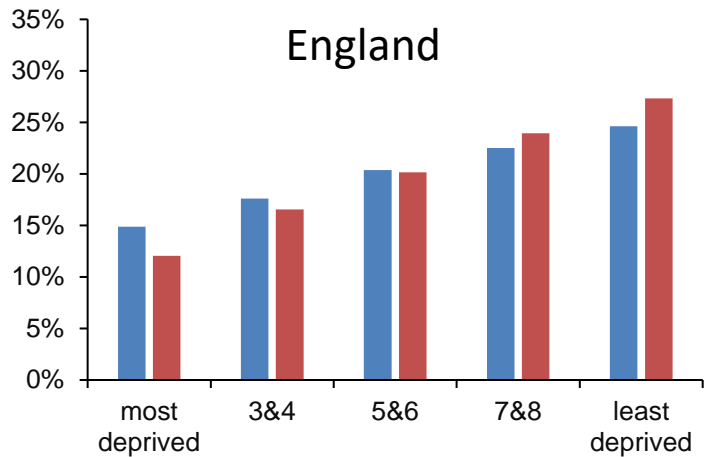
# Intervention



This analysis shows that there is a disparity in outcomes for opioid prescribing by both age, gender and deprivation. This supports a focus on the CORE20PLUS5 agenda with respect to reviewing opioid prescribing.

We could be missing populations - consider utilising an ICB level metric that reflects the whole population of patients prescribed opioids, including prescription opioid analgesics and opioid containing compound analgesics, as well as opioids for addiction

# Insulin pump use in T1DM; Percentage pump use by deprivation decile (unweighted)



## Index of multiple deprivation (IMD) quintile

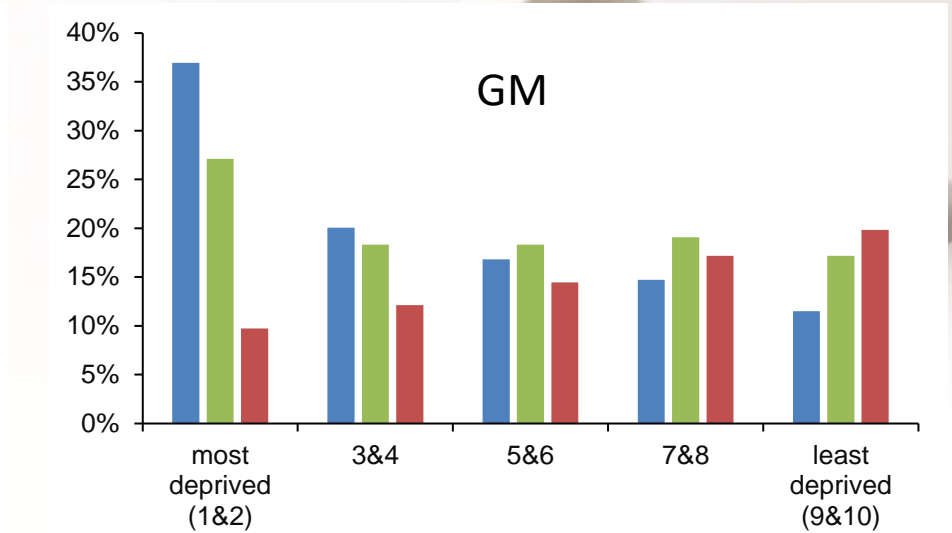
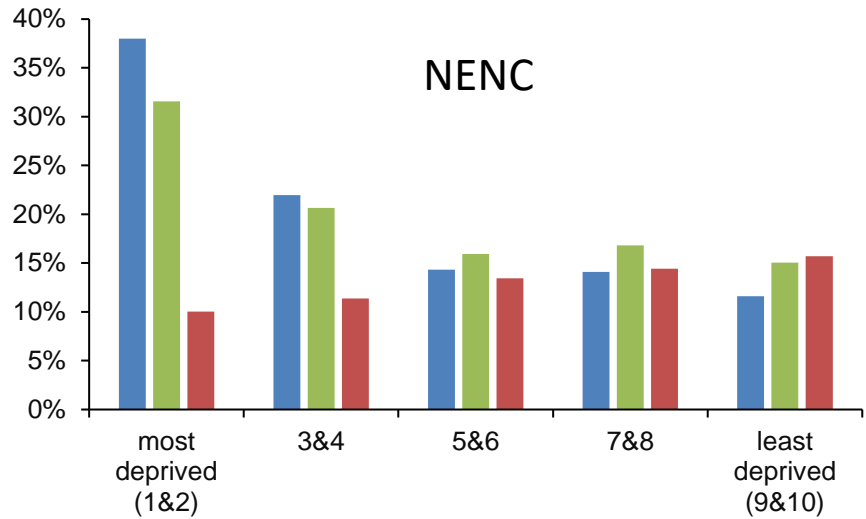
Data sources:

- National Diabetes Audit, 2021-22, Type 1 Diabetes. Dashboard.
- RDTc (PROVISIONAL DATA ANALYSIS): ePACT2 (NHS BSA, Jul-Sept 2022) filtered using GP Practice IMD based on registered population (OHID)

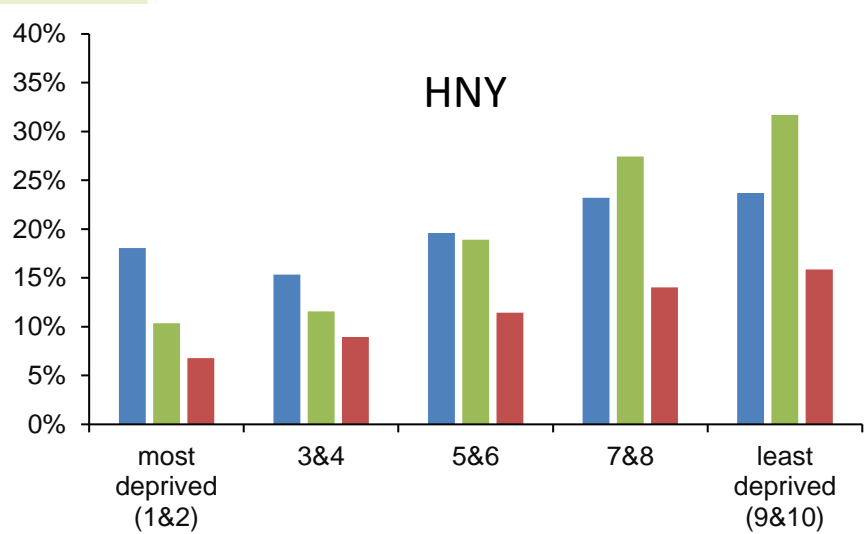
Note the population demographics (\*NHSE analytics hub) for HNY (HCV STP) show a high % of the registered population in both IMD 1 and IMD 10 deciles. Chart above shows that prescribing by GP practice IMD is not representative.



# Insulin pump use in T1DM by deprivation decile; weighted for T1DM prevalence



## Index of multiple deprivation (IMD) quintile

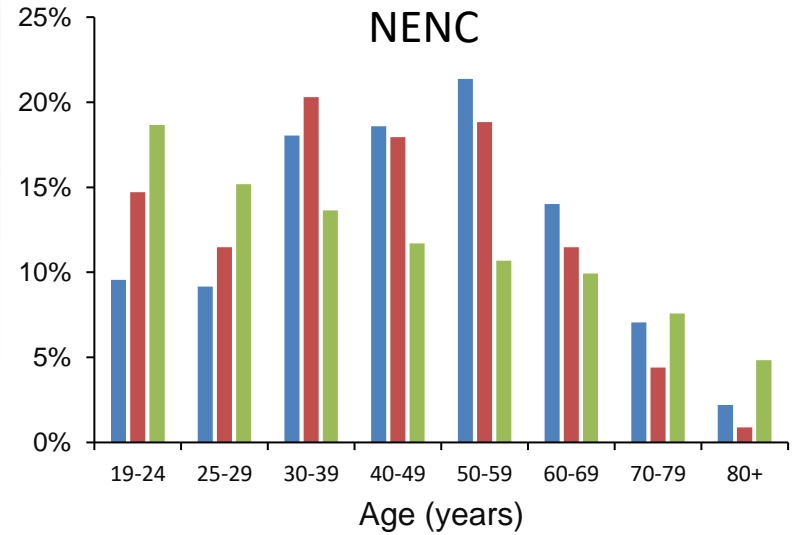
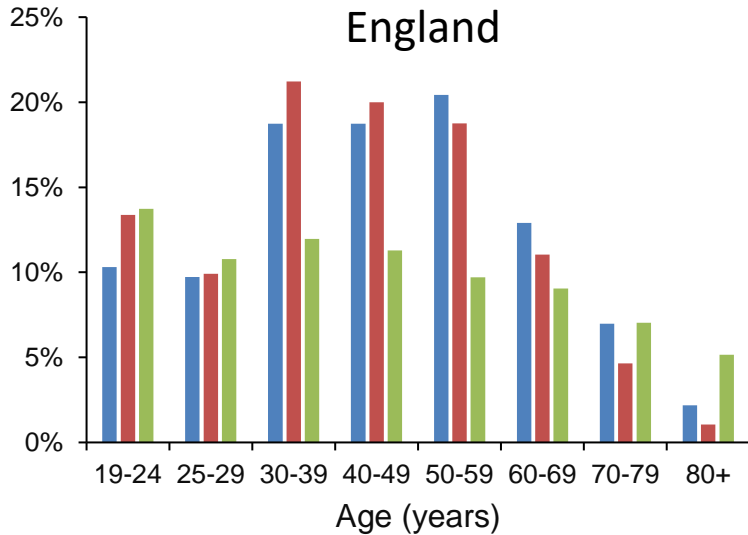


- % of the total number of T1DM registrations (unweighted)
- % of the total number of patients with an insulin pump (unweighted)
- % of quintile T1DM registrations with an insulin pump (weighted)

Data source: National Diabetes Audit, 2020-21, Type 1 Diabetes-open data.

- Prescribing by patient specific IMD.

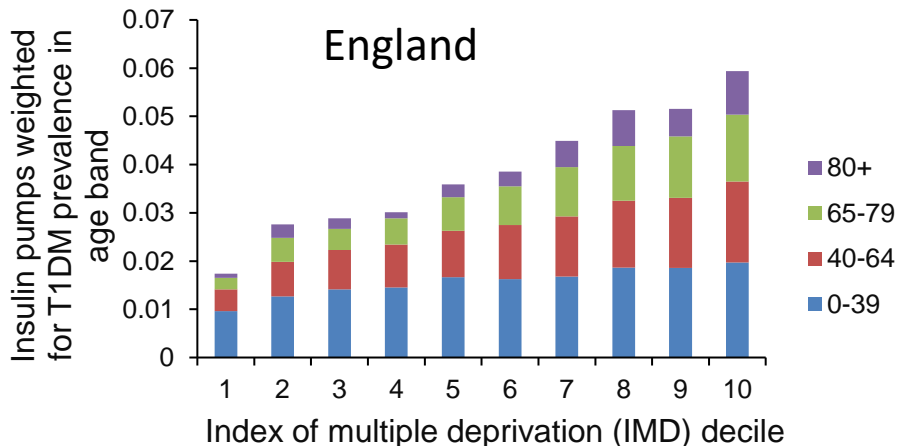
# Insulin pump use in T1DM; Age of patient



- % of the total number of T1DM registrations (unweighted)
- % of the total number of patients with an insulin pump (unweighted)
- % of T1DM registrations in age band with an insulin pump (weighted)

Data source: National Diabetes Audit, 2020-21, Type 1 Diabetes-open data.

- Prescribing by patient specific IMD.

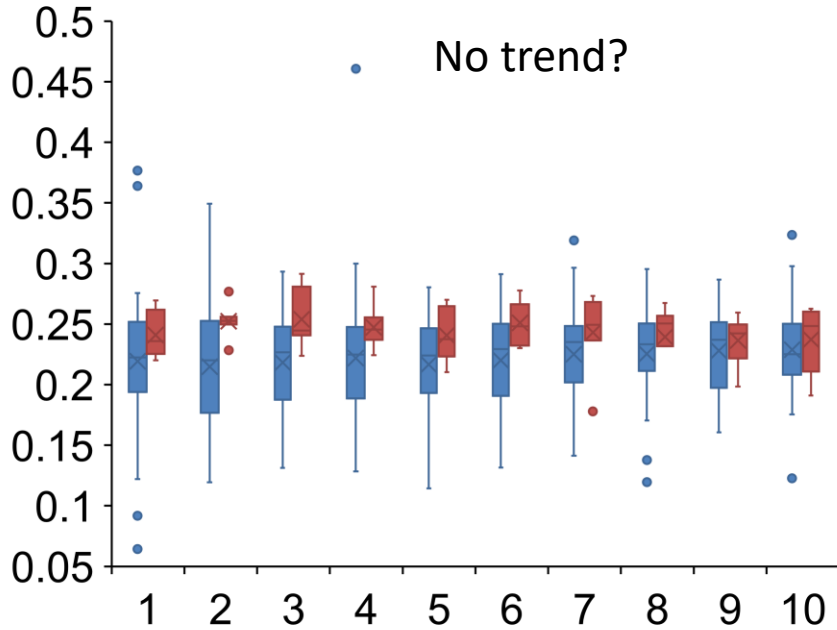


- Data source: RDTG (PROVISIONAL DATA ANALYSIS): ePACT2 (NHS BSA, Jul-Sept 2022) filtered using GP Practice IMD based on registered population (OHID). T1DM registrations: National Diabetes Audit, 2022-23 Quarterly report, January to December 2022.



# Antibiotic metrics & deprivation

## Abx items/List size in IMD decile



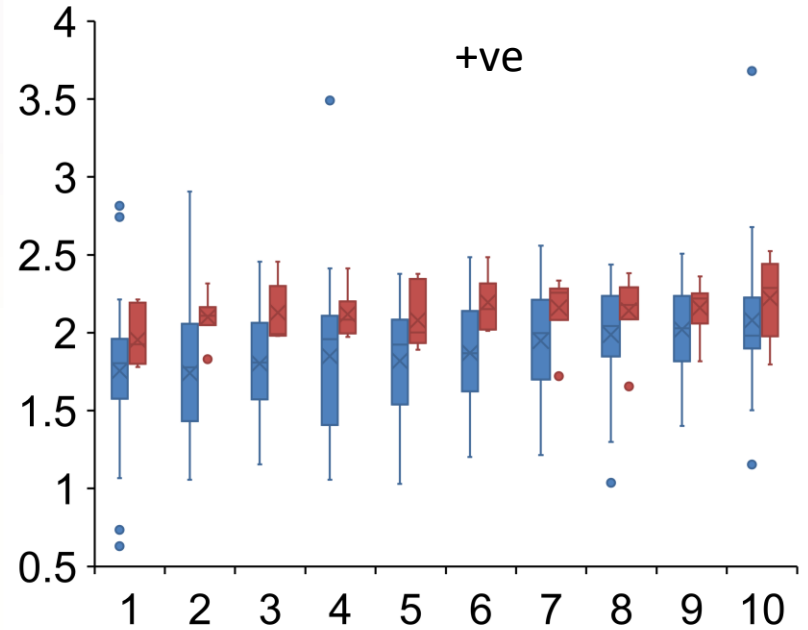
### Index of multiple deprivation (IMD) decile

■ England ■ NoE

England is represented here as the mean and distribution of 42 ICSSs, their respective prescribing and weightings, reflecting variation between geographies.

England; not significant between most & least deprived. (slope = 0.001)  
NoE; not significant (slope=-0.001)

## Abx DDDs/List size in IMD decile

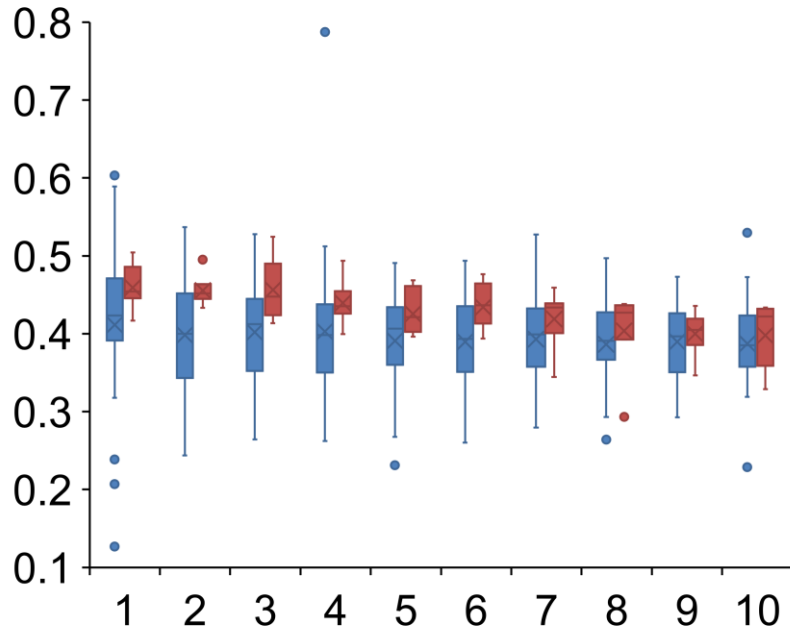


England; significant between most & least deprived. (p=0.004, slope = 0.038)  
NoE; significant (p=0.046, slope=0.019)

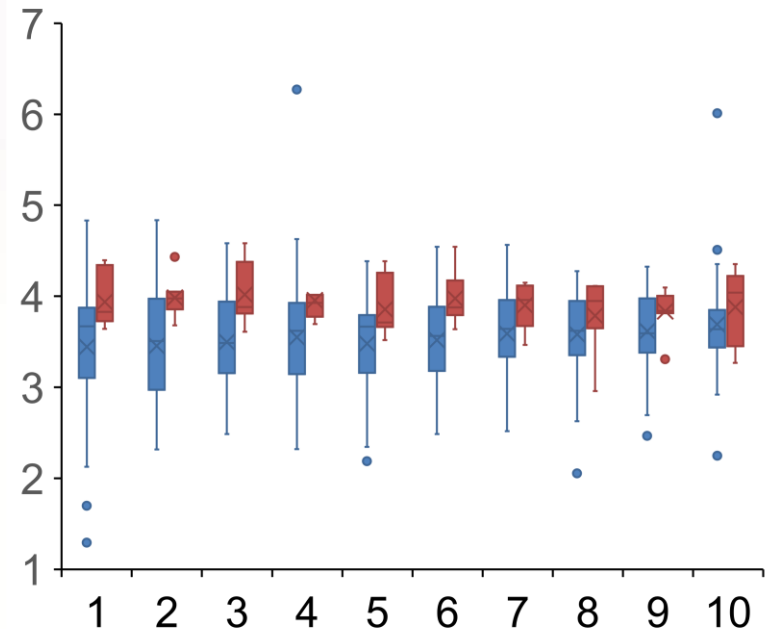


## Antibiotic metrics & deprivation

Abx items per STAR-PU/List size in IMD decile



Abx DDDs per STAR-PU/List size in IMD decile



Index of multiple deprivation (IMD) decile

■ England ■ NoE

England is represented here as the mean and distribution of 42 ICSs, their respective prescribing and weightings, reflecting variation between geographies.

England; not significant between most & least deprived. (slope = -0.002)

NoE; significant (p=0.007, slope=-0.008)

England; significant between most & least deprived. (P=0.049, slope = 0.024)

NoE; not significant (slope=-0.019)



<https://rdtc.nhs.uk/>

[Prescribing for Population Health - RDTC](#)

Providing a range of services to promote the safe, effective and economical use of medicines in the NHS across the North of England.

**When you need help and advice, we'll point you in the right direction.**