

NCAP

NATIONAL CARDIAC AUDIT PROGRAMME

NICOR

National Audit of Percutaneous Coronary Intervention (NAPCI)

2024 Summary Report
(2022/23 data)

BCIS

Percutaneous coronary intervention (PCI) - Report at a glance

2022/23 data unless otherwise stated.



89,660 percutaneous coronary interventions (PCIs) in 2022/23



3.1% fall in all PCI procedures compared with previous year



20% decline in elective PCIs since 2019/20



123 minutes median Call-To-Balloon time for higher-risk STEMI heart attack patients admitted directly to hospital, slightly longer than 2021/22



66% of higher-risk STEMI heart attack patients admitted directly to hospital treated within target CTB time (<150 minutes), same as 2021/22



89% of higher-risk STEMI heart attack patients admitted directly to hospital treated within target Door-To-Balloon (DTB) time (<90 minutes), same as 2021/22



36% of patients requiring inter-hospital transfer (IHT) for primary PCI were treated within the **150-minute target time**



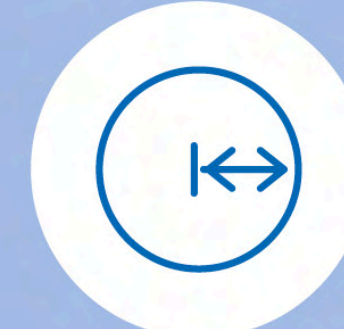
49% of higher-risk STEMI heart attack patients requiring primary PCI given newer antiplatelet drugs, an increase on previous year



6% use of prasugrel for patients with acute coronary syndrome continued slow increase of recent years



71% of elective PCI procedures carried out as a day case, though rate of growth has slowed



74% use of intracoronary imaging for left main stem PCI, up from **55%** in 2018/19.



Timeliness of treatment

1. All Integrated Care Boards, Health Boards and Cardiac Networks should review clinical pathways to reverse the continued lengthening of Call-To-Balloon (CTB) and inter-hospital transfer (IHT) times for higher-risk ST-elevation myocardial infarction (STEMI) heart attack patients requiring a primary percutaneous coronary intervention (PCI) procedure.
2. Where it is clear that primary (PCI) procedures cannot be performed within 120 minutes of first medical contact, hospital teams should give consideration to current international guidelines that recommend thrombolysis.

Use of intra-coronary imaging (ICI)

3. Centres undertaking PCI for left main or complex lesions should aim to use intra-coronary imaging in more than 75% of cases.

Use of newer antiplatelet drugs

4. Hospitals should review their clinical pathways to ensure optimal prescribing of newer antiplatelet drugs (prasugrel and ticagrelor) after PCI for an acute coronary syndrome, especially for lower-risk non-STEMI heart attack patients.
5. Hospitals should adhere to guidelines that recommend the use of prasugrel over ticagrelor (and consideration will be given to capturing contraindications to these medications in the audit).

Data submission on drug coated balloon use

6. Hospital should submit comprehensive and accurate data on the use of drug coated balloons to the audit given the significant difference between the NAPCI figures and the annual British Cardiovascular Intervention Society (BCIS) survey.



The National Audit of Percutaneous Coronary Intervention (NAPCI) is part of the National Cardiac Audit Programme (NCAP) which is run by the National Institute for Cardiovascular Outcomes Research (NICOR).

This report provides details of the percutaneous coronary intervention (PCI) procedures undertaken in England and Wales during the financial year 2022/23, along with longer-terms trends on the scale and the quality of PCI services. The number of PCI procedures dropped significantly during the COVID-19 pandemic and has not yet returned to pre-pandemic levels.

A key focus of the audit is quality assurance and improvement. The report focuses on a number of specific quality improvement (QI) [metrics](#) in relation to the delivery of PCI services derived from national and/or international standards and guidelines. It is designed to be of value to a wide range of stakeholders and importantly it allows patients and their relatives to better understand how PCI services are delivered. **The slides in the report are interactive so you can select and explore the data that interest you.**

NAPCI audit data are also used as the basis for two other outputs:

- a [comprehensive slide deck](#) published as the British Cardiovascular Intervention Society (BCIS) Audit (also with an [interactive version](#))
- the annual Clinical Outcomes Publication (COP) which provides 3-year rolling data on individual PCI operators and hospitals. This was due to be published in 2023, but has been delayed as analysis derived from the audit has shown that up to 10% of deaths during the COVID-19 pandemic were related to COVID-19 infection. The performance of the COP risk stratification model is currently being assessed and the publication date remains uncertain.

1

For most heart attack patients, optimal care includes a PCI procedure. NAPCI data are therefore also combined with that from the NCAP's Myocardial Ischaemia National Audit Project (MINAP) to create [a report that focuses on the care given to people admitted to hospital with a heart attack](#).

The audit relies on the active contribution of participating hospitals. Detailed information on almost 90,000 cases has been diligently entered by local clinical and audit teams before analysis is undertaken by the NICOR team. We are very grateful to all these staff for their contributions. We will continue to work closely with hospitals, patients and other stakeholders to improve the quality of audit data and how these are used to improve the delivery of high quality PCI services in the UK.

The NICOR NAPCI audit team



Number of procedures

- All cases
- Monthly cases
- Cases by ICB/HB/CN

Timeliness of treatment

- Definition of PPCI treatment times
- PPCI times
- PPCI times by ICB/HB/CN
- PPCI times by hospital
- Achievement of target treatment times
- Day cases
- Day cases by ICB/HB/CN
- Day cases by hospital

Use of intracoronary imaging

- ICI for complex cases
- ICI for complex cases by ICB/HB/CN
- ICI for complex cases by hospital
- ICI for LMS cases
- ICI for LMS by ICB/HB/CN
- ICI for LMS by hospital

Use of newer antiplatlet drugs

- New P2Y12
- New P2Y12 by ICB/HB/CN
- New P2Y12 by hospital
- New P2Y12 hospital rank
- New P2Y12 for STEMI
- New P2Y12 for STEMI by ICB/HB/CN
- New P2Y12 for STEMI by hospital
- New P2Y12 for STEMI hospital rank

- New P2Y12 for NSETMI
- New P2Y12 for NSETMI by ICB/HB/CN
- New P2Y12 for NSETMI by hospital
- New P2Y12 for NSETMI hospital rank

Use of drug eluting balloons

- DEB use
- DEB use by hospital
- DEB use hospital rank
- DEB without stent by hospital
- DEB without stent hospital rank
- DEB with stent by hospital
- DEB with stent hospital rank
- DEB use restenosis by hospital
- DEB use restenosis hopsital rank

References

The total number of PCI procedures has broadly remained flat other than for elective angioplasty which has fallen by 21% since 2019/20 (pre-COVID-19)



Almost 90,000 percutaneous coronary intervention (PCI) procedures were performed in England and Wales during 2022/23. **This was down 3.1% from the previous year.**

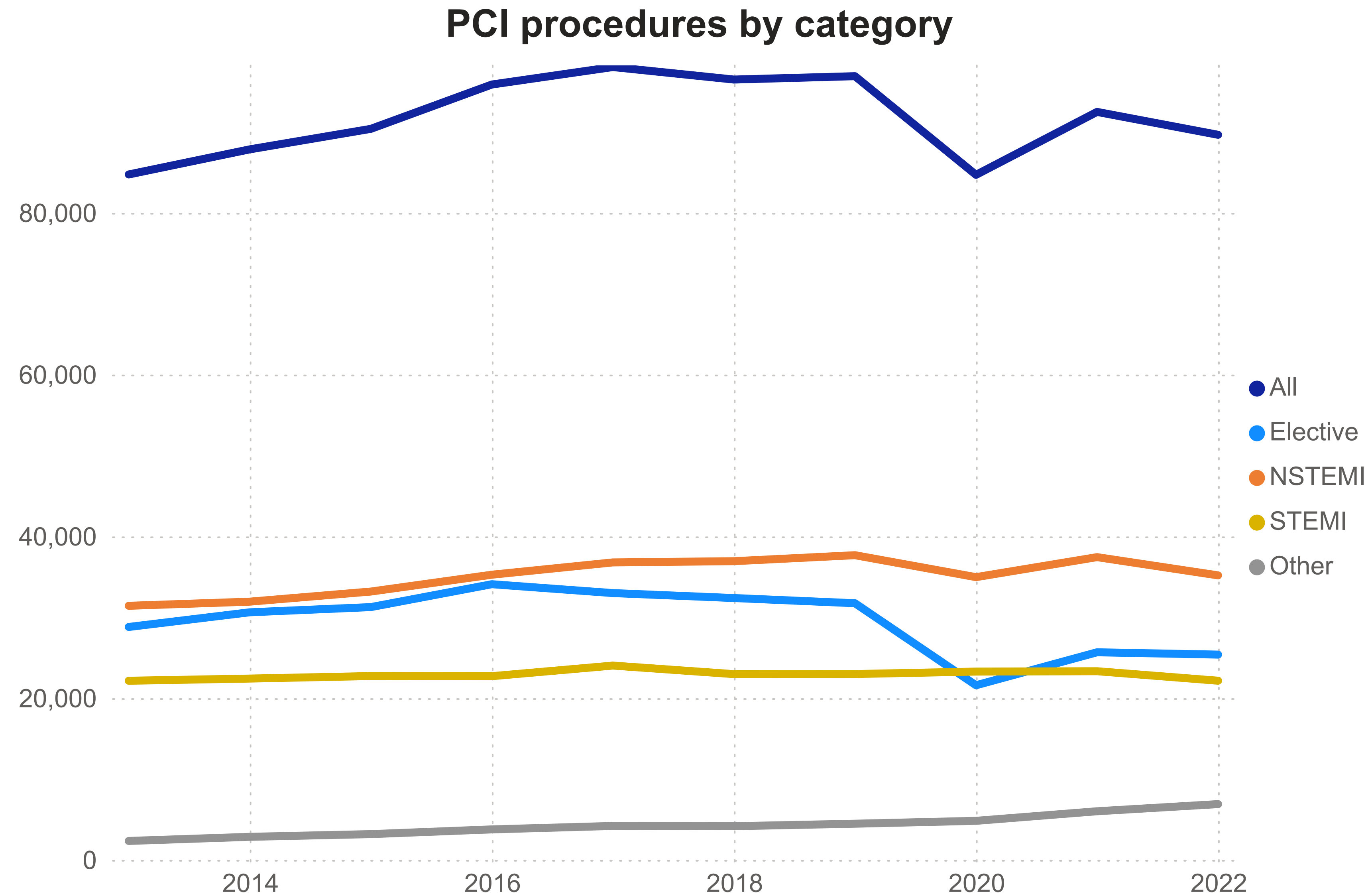
The greatest decline is for elective PCI in stable angina cases, down 20% since 2019/20 to just over 25,000 cases in 2022/23.

Some of this decrease may be the result of evolving trial evidence that elective PCI does not reduce the risk of heart attack or mortality (although it does improve the pain, breathlessness and other symptoms patients experience).

The impact of COVID-19 on waiting lists may have disrupted the delivery of elective PCI services.

Since 2021/22, there has also been a decrease in PCI for heart attacks:

- 5% for higher-risk STEMI (ST-elevation myocardial infarction)
- 6% for lower-risk non-STEMI (non ST-elevation myocardial infarction)



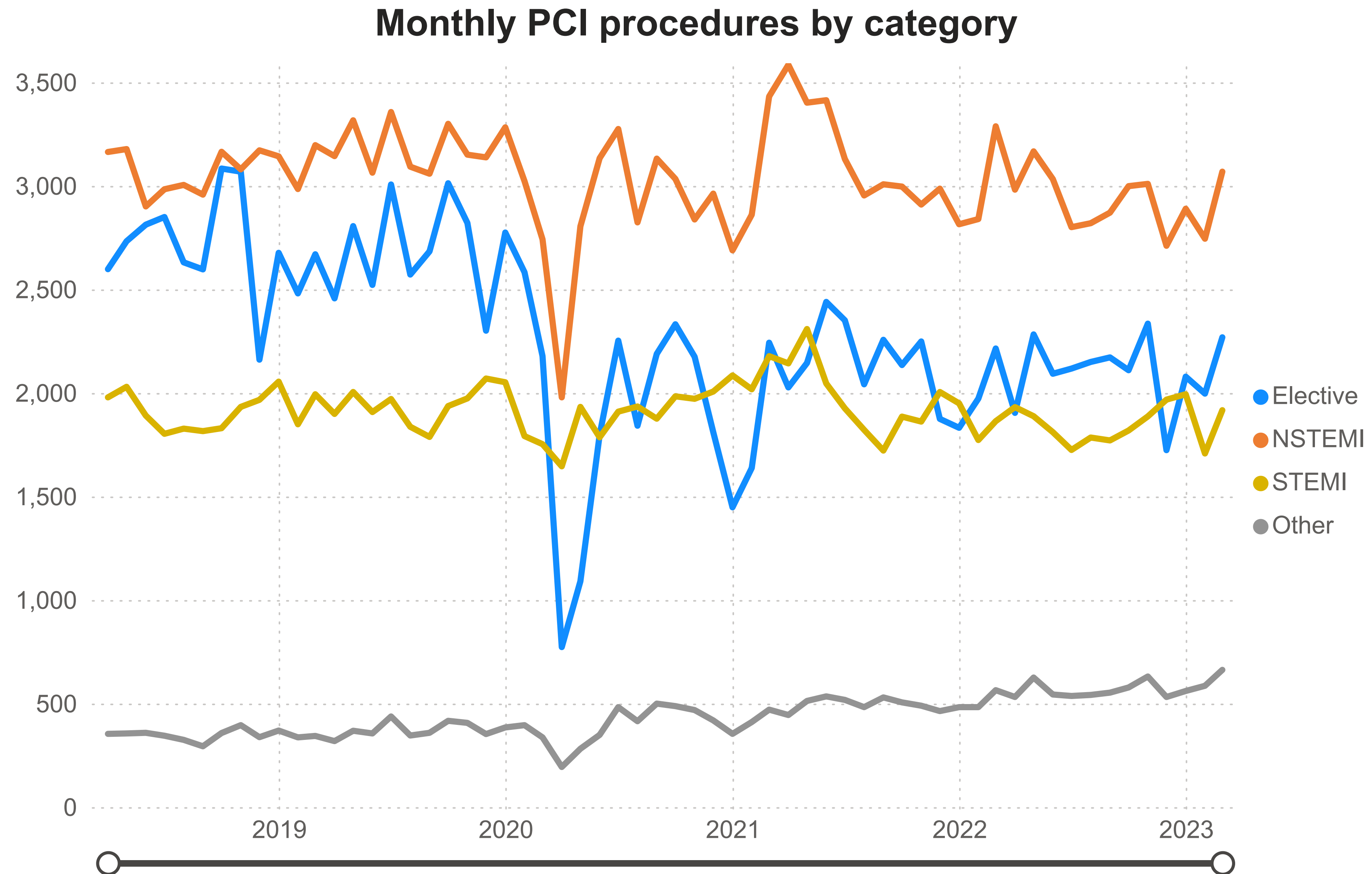
PCI procedures for heart attack cases peaked between March and June 2021, after the COVID-19 'second wave', but elective procedures remained down



The number of PCI procedures fell significantly during the COVID-19 pandemic, especially during the 'first wave', starting in March 2020, when COVID-19 hospital admissions surged.

After the 'second wave', the number of PCIs for patients with heart attacks (both higher-risk STEMI and lower-risk NSTEMI) rose higher than pre-pandemic levels. They then fell back to levels slightly lower than seen prior to 2020.

The number of elective PCIs did not show a similar rise after the 'second wave' and has remained significantly below pre-pandemic levels.



Rates of PCI per 100k population vary hugely across Integrated Care and Health Boards, and Cardiac Networks, with up to a 10-fold difference



These maps show the number of PCIs per 100k population in 2022/23 across:

- the 42 Integrated Care Boards (ICBs) in England and seven University Health Boards in Wales (these are commissioning organisations)
- the 16 Cardiac Networks (CNs) in England and Wales (these are operational delivery networks).

The maps on the left are based on the population of the area where patients live. Those on the right reflect the population in the area the hospital performing the PCI is located.

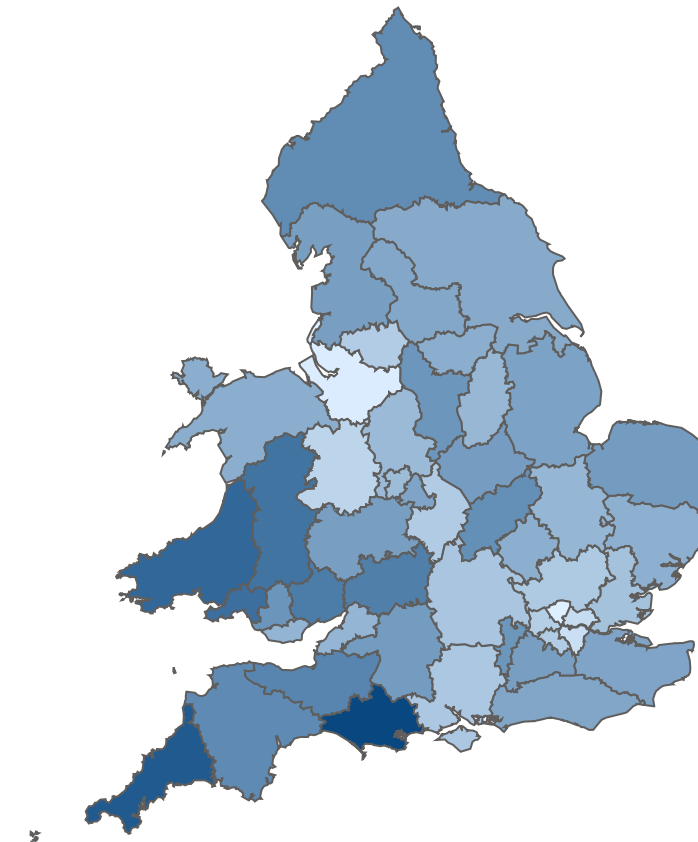
There are very marked differences in the rates of PCI per 100k population:

- The highest rate of PCI amongst ICBs/Health Boards (Swansea Bay University Health Board) is 10 times higher than the lowest (Suffolk and North East Essex ICB)
- The rate of PCIs for North London Cardiac Network is 38% of that in the West of England.

These variations may result from:

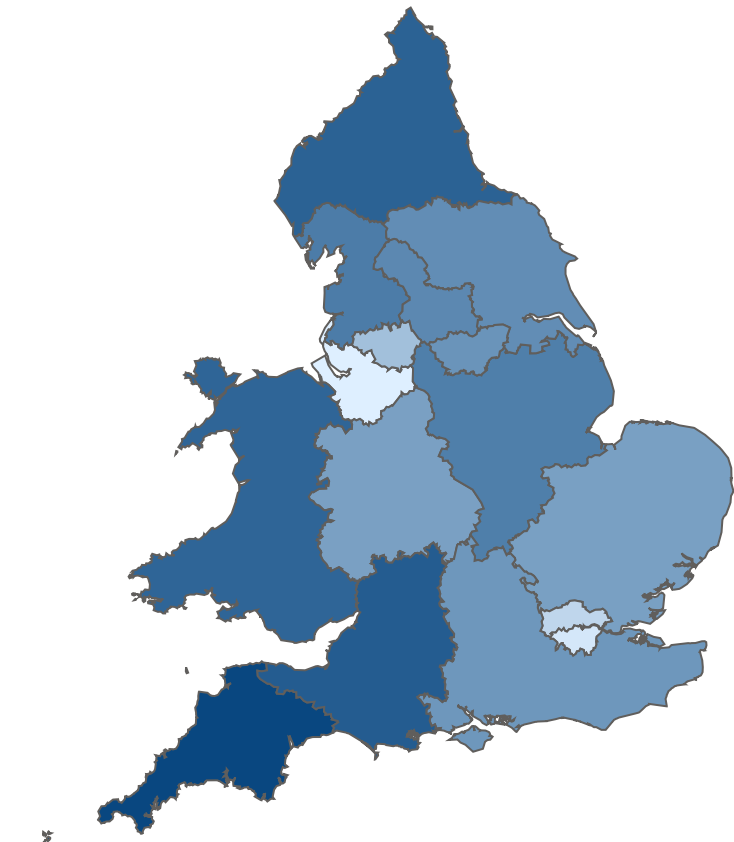
- the risk factor profiles of each population, such as age, sex and cardiovascular risk factors
- differences in practice (eg PCI for stable indications).

PCI cases per 100k population based on patient home location by ICB/HB (2022/23)

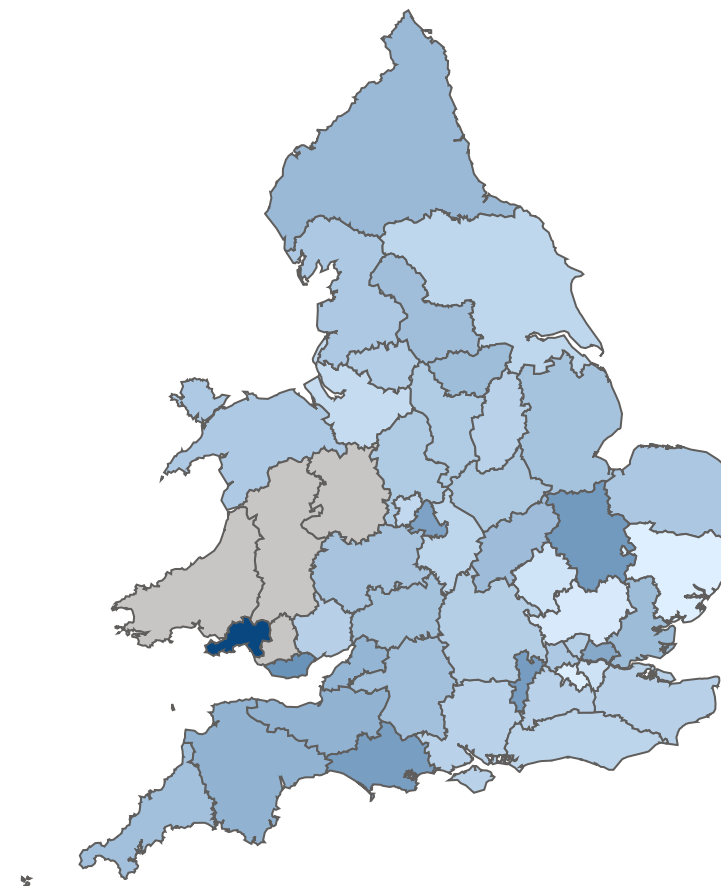


PCI cases per 100k population based on hospital location by Cardiac Network (2022/23)

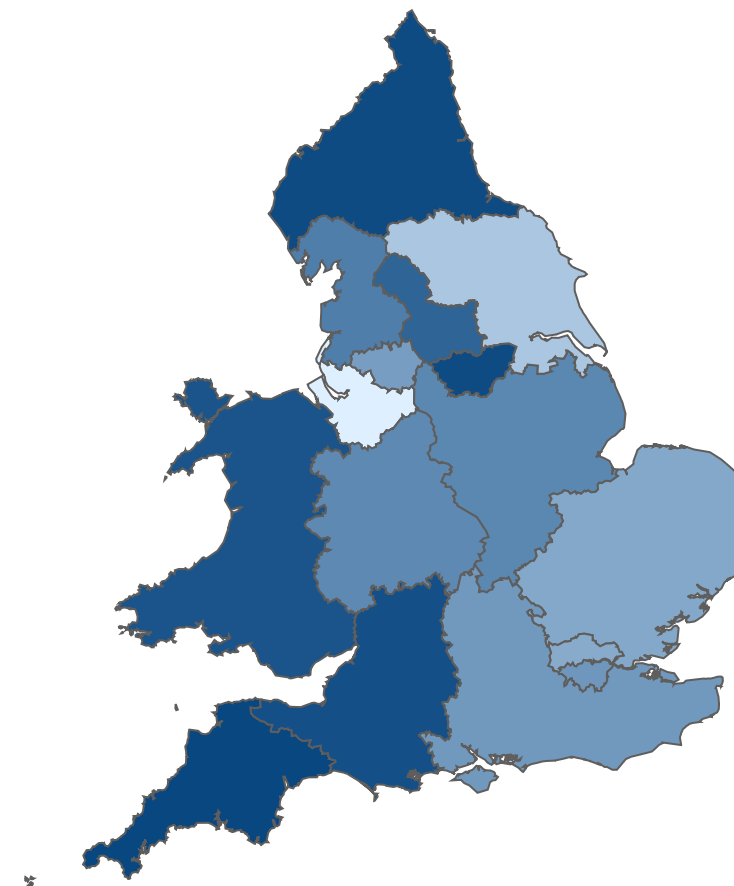
- ☐ Select all
- ☐ Elective
- ☐ NSTEMI
- ☐ STEMI
- ☐ Other



PCI cases per 100k population based on hospital location by ICB/HB (2022/23)



PCI cases per 100k population based on hospital location by Cardiac Network (2022/23)



The times taken to treat higher-risk STEMI heart attacks with primary PCI are critical to patient outcomes



To achieve the best possible outcomes, after an initial call for help or self-presentation at hospital, patients must be rapidly assessed, and an ECG performed. Patients should then receive Primary PCI (PPCI) if a 'higher risk' STEMI heart attack is confirmed.

The Call-To-Door (CTD) time covers the period when the patient is brought to hospital by the ambulance services.

The Door-To-Balloon (DTB) time measures how long it takes the hospital to admit a patient and start PPCI treatment. Hospitals not set up to deliver PPCI transfer patients directly to the catheter laboratory of the nearest PCI Centre able to do this.

For patients who present themselves to hospital (usually to the A&E department), the DTB period covers the arrival at hospital to the start of treatment.

Taken together, the CTD and DTB times comprise the overall Call-To-Balloon (CTB) time.

Emergency time periods for the treatment of high-risk STEMI heart attack patients



CTD = Call-To-Door time

From patient 999 call to arrival at hospital

DTB = Door-To-Balloon time

From arrival at hospital to re-opening of artery using reperfusion primary PCI therapy

CTB = Call-To-Balloon time

From patient 999 call to re-opening of artery using reperfusion primary PCI therapy

Patients are treated much faster if they are taken directly to a PCI centre, though the time taken for this still continues to rise



Primary PCI (PPCI) is the gold standard treatment for higher-risk STEMI (ST-elevation myocardial infarction) heart attacks. Delays in treatment lead to increased damage to the heart and greater risk of heart failure and death.

Guidelines recommend that PPCI should be performed:

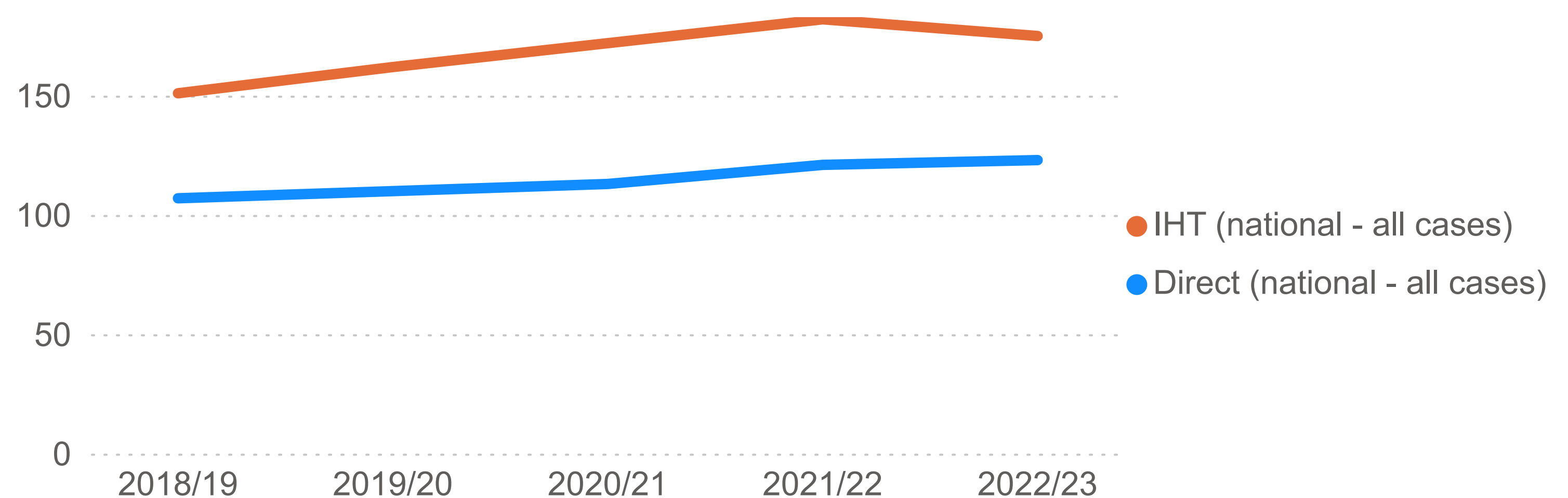
- within 90 minutes of arrival of the patient at the angioplasty centre (the Door-To-Balloon or DTB time)
- within 150 minutes of a patient's call for help (the Call-To-Balloon or CTB time).

Patients are treated much faster if taken straight to a PCI centre (the 'direct' time), but some require to be brought from another hospital, known as the 'inter-hospital transfer' time (IHT).

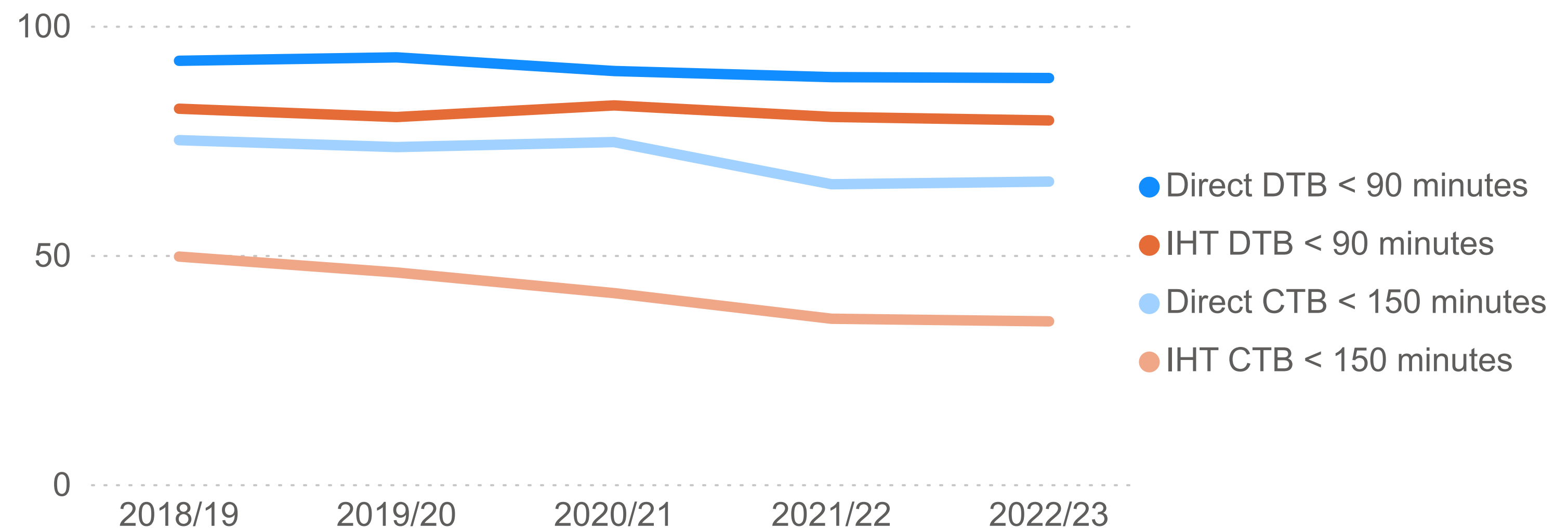
In 2022/23 the median direct CTB time continued to rise slowly, although IHT times fell by 4%.

Equally, a **significant proportion of patients are still not being treated within guideline times**. For example, 65% of patients requiring a hospital transfer are not treated within the 150 minute CTB time target.

Median CTB time (minutes) for PPCI by route of admission



Percentage of cases meeting CTB and DTB targets by route of admission



There is more than a fivefold difference in median Call-To-Balloon times at Integrated Care Board/Health Board level



The maps show the median Call-to-Balloon (CTB) times for:

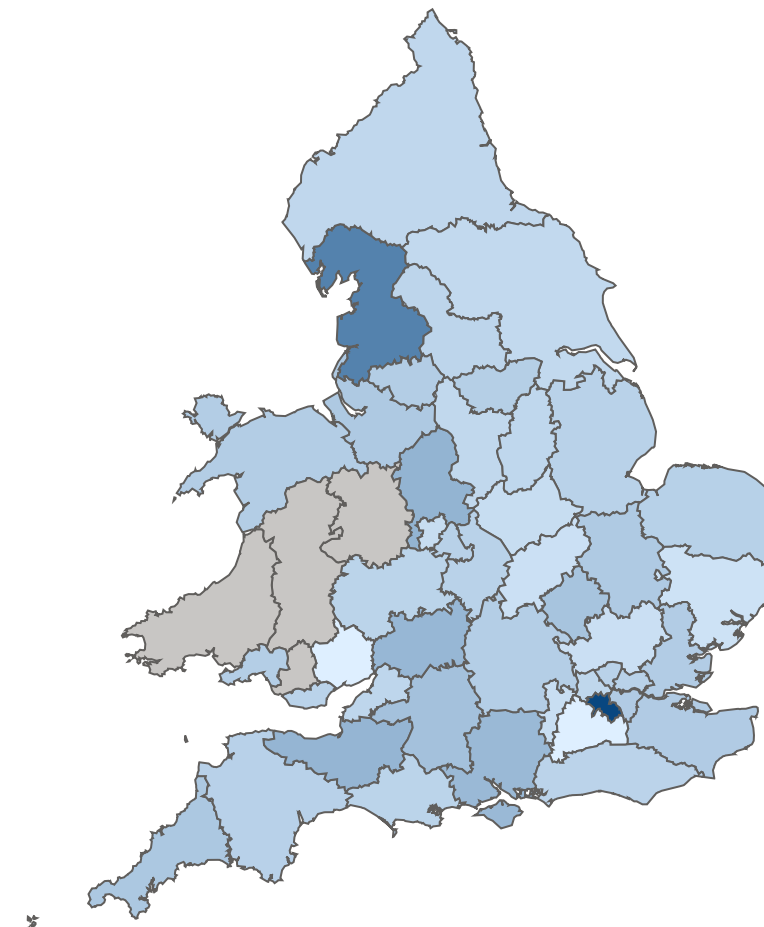
- the 42 Integrated Care Boards in England and seven Welsh University Health Boards (commissioning organisations)
- the 16 Cardiac Networks (operational delivery networks).

In 2022/23, the median CTB time worsened slightly for all direct transfer cases and improved slightly for inter-hospital transfers (IHT). There is also wide variation across ICB and HB CTB times, from 71 to 397 minutes.

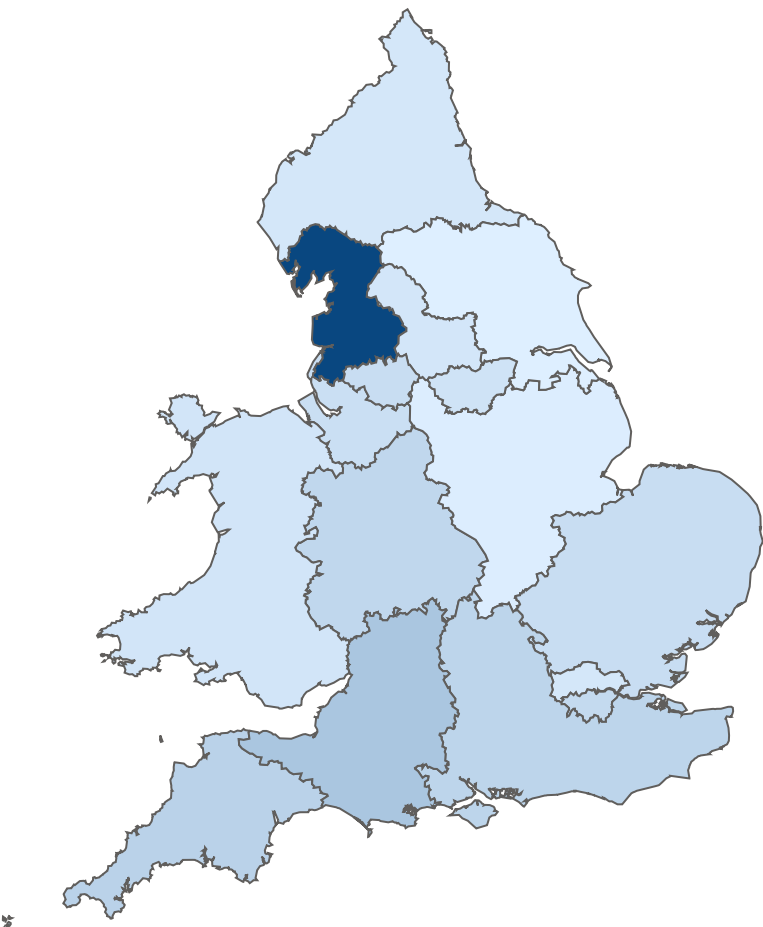
This is even the case within Cardiac Network areas. For example, in the East of England Cardiac Network, Cambridgeshire and Peterborough ICB has a median CTB time that is 40% longer than the neighbouring Hertfordshire and West Essex.

Note: The ICB median is based on the average of the hospital medians in that area. More information on CTB and DTB times can be found in the ['heart attack' audit report](#).

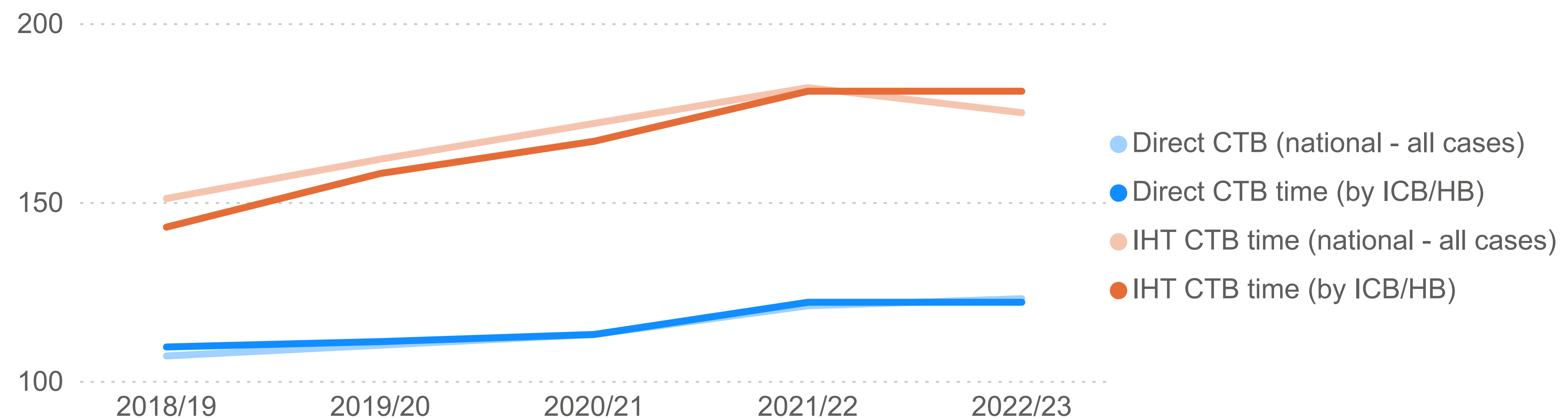
Median CTB for PPCI based on hospital location by ICB/HB (2022/23)



Median CTB for PPCI based on hospital location by Cardiac Network (2022/23)



Median PPCI CTB times (minutes) by ICB/HB



There is more than a threefold difference in median Call-To-Balloon times between hospitals offering a primary PCI service



Timeliness of treatment is critical for patients being treated with primary PCI (PPCI) for ST-elevation myocardial infarction (STEMI).

There is considerable variation between hospitals offering a PPCI service in the median Call-To-Balloon (CTB) times for patients with STEMI.

Work at a Cardiac Network level is required to reduce the Call-To-Door (CTD) component. Hospitals can also optimise care pathways to reduce the Door-To-Balloon (DTB) component.

For patients who present to a hospital that does not have offer PPCI, rapid diagnosis and transfer to a hospital with a PPCI service is essential.

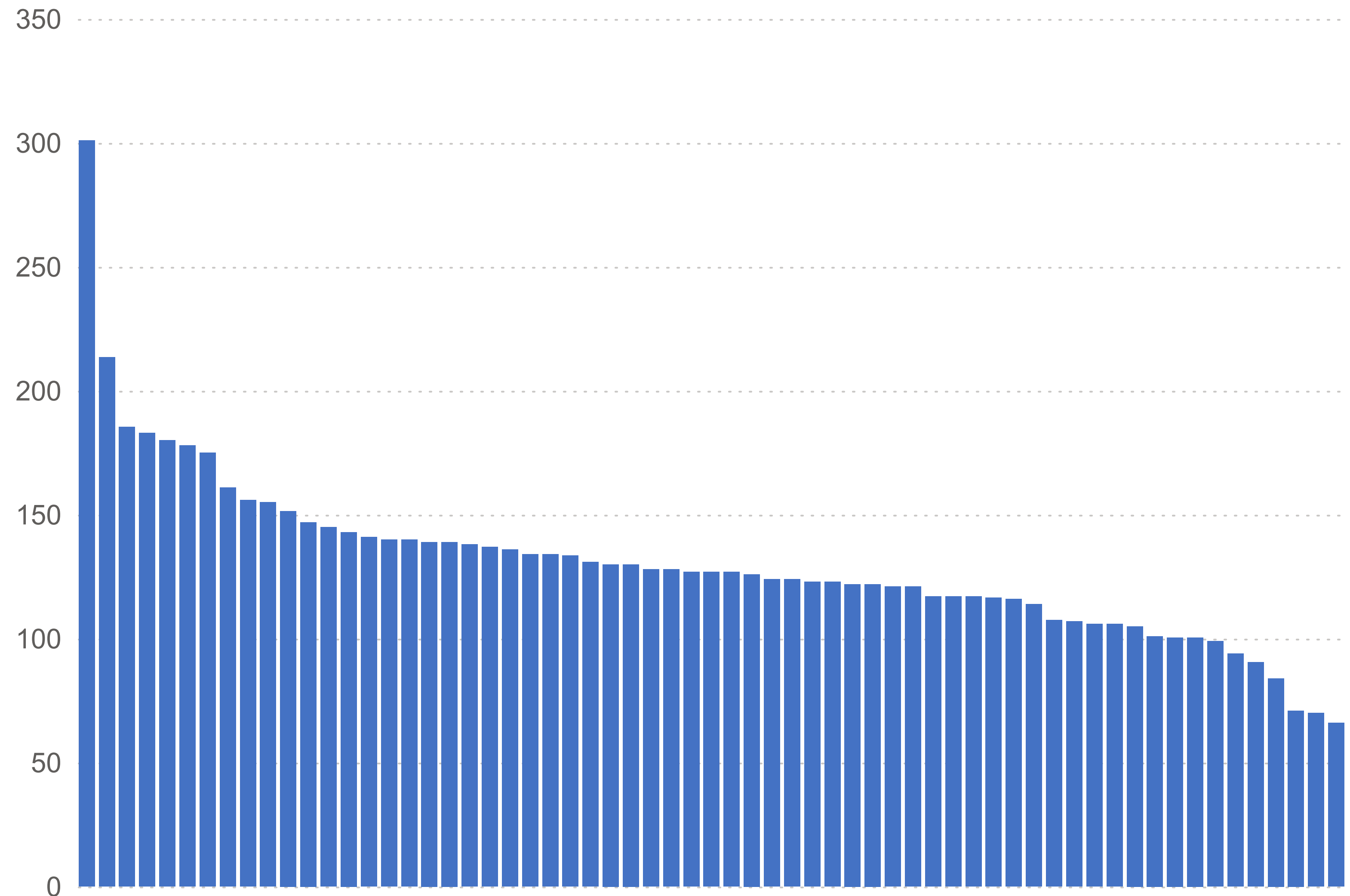
Select a Cardiac Network or hospital below to see its data.

Note: The times shown here are for all patients, regardless of whether they arrive directly to the hospital in question, or are transferred from another hospital.

Select Cardiac Network

Select hospital

Median CTB times (minutes) for PPCI by hospital (2022/23)



A significant percentage of cases continue not to meet the national Call-To-Balloon and Door-To-Balloon targets



Guidelines recommend that primary percutaneous intervention (PPCI) should be performed:

- within 90 minutes of arrival of the patient at the angioplasty centre (the PCI Centre Door-To-Balloon or DTB time)
- within 150 minutes of a patient's call for help (the Call-To-Balloon or CTB time).

In 2022/23 a significant percentage of cases did not meet the national Call-To-Balloon and Door-To-Balloon target times:

- For CTB times, 41% of direct and 62% of IHT cases took longer than the target.
- For DTB times, 31% of direct and 10% of IHT cases took longer than the target.

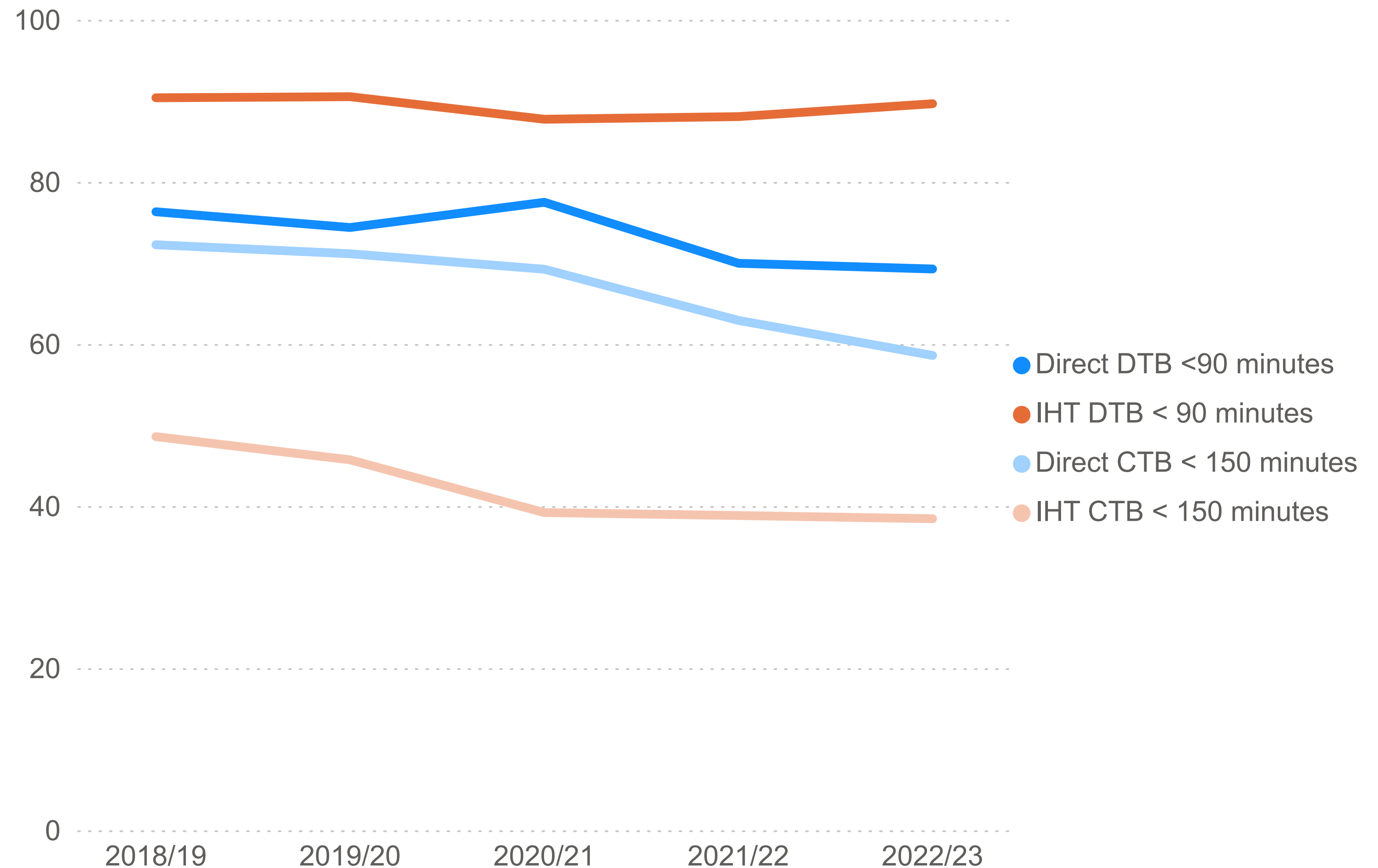
Select a hospital below to see its data.

Note: More information on CTB and DTB times can be found in the ['heart attack' audit report](#). The denominator for the NAPCI hospital report has slightly different denominator from MINAP which reports on England & Wales only.

Select hospital

All 

Percentage of PPCI cases meeting CTB and DTB targets



Over two thirds of patients undergoing elective PCI are treated as a day case



When percutaneous coronary intervention (PCI) was first introduced, patients were kept in hospital because of a small risk of serious complications. Now, the PCI technique has evolved and has been demonstrated to be much safer for patients with stable symptoms requiring uncomplicated procedures.

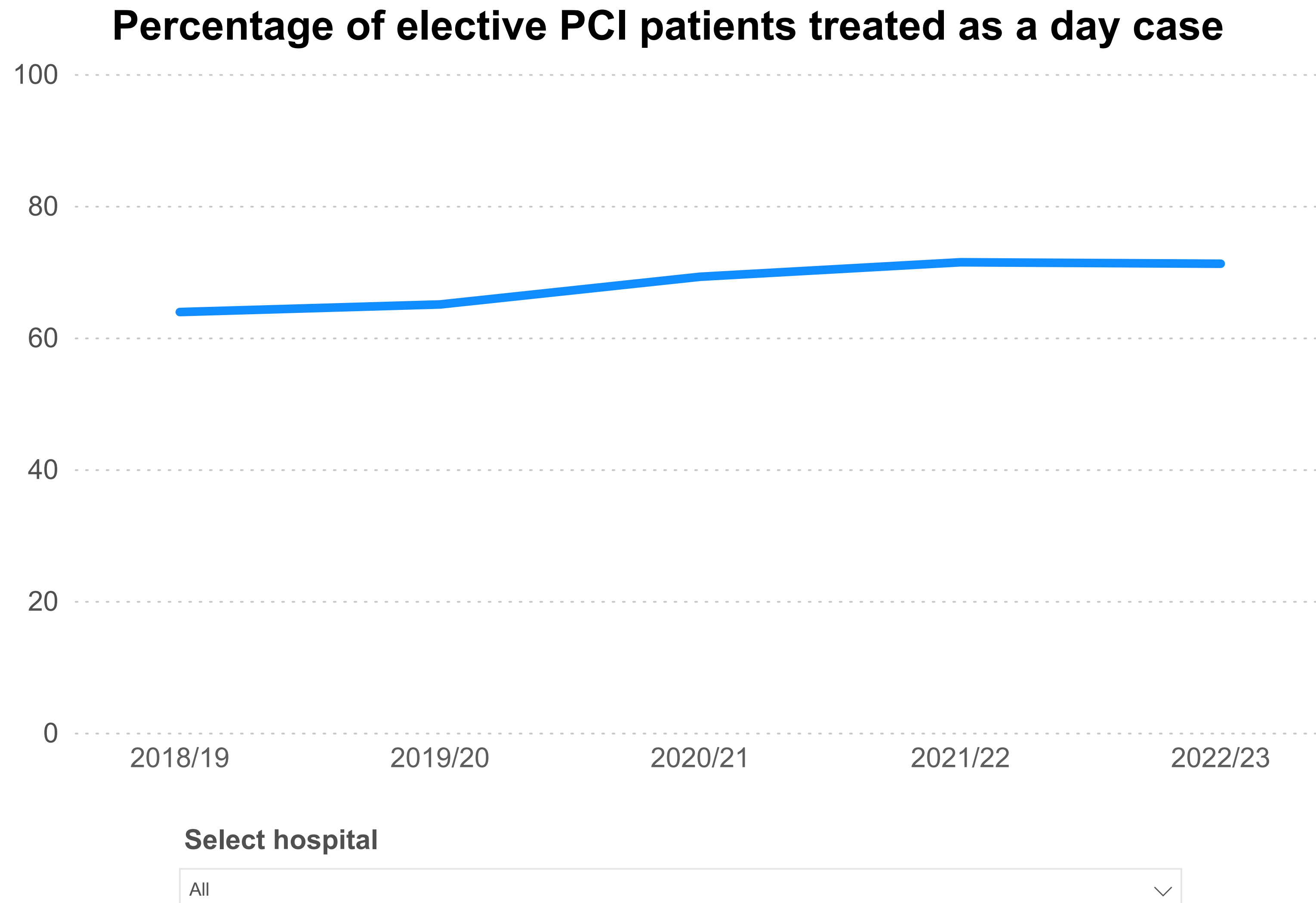
Studies have shown that any complications following elective PCI tend to occur quickly (in the first four hours following the procedure) or then more than 24 hours later. Consequently, monitoring of patients overnight would not capture the bulk of complications.

Discharging patients on the same day has the potential to save money, improve patient satisfaction and increase bed availability without an impact on patient safety.

The proportion of elective PCI undertaken as a day case procedure has climbed steadily over time, even through the COVID-19 pandemic.

In 2022/23, 71% of cases were done as day cases, unchanged from the previous year, although there are very considerable variations in this between PCI centres.

Selecting a hospital shows its data.



There is almost a threefold difference between the highest and lowest rates for day case elective PCI at an Integrated Care Board level



The maps show the percentage of patients undergoing elective percutaneous coronary intervention (PCI) who were treated as a day case in 2022/23 for:

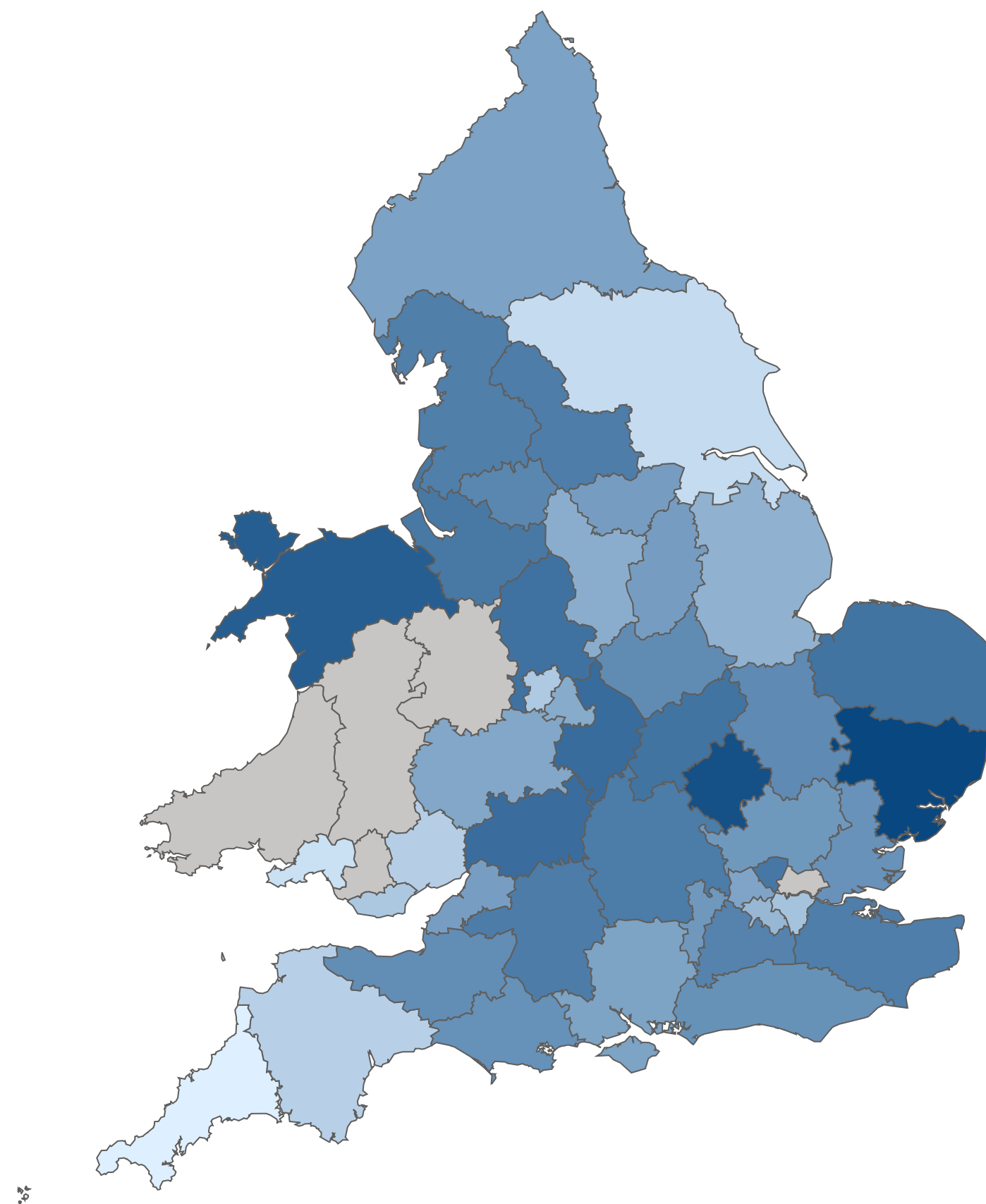
- the 42 Integrated Health Boards in England and the seven University Health Boards in Wales (commissioning organisations)
- the 15 Cardiac Networks (service delivery networks) in England and Wales.

Compared with the national average of 71%, the rate of day case treatment for elective PCI ranged between 99% for Suffolk and North East Essex ICB to 38% for Cornwall and the Isles of Scilly ICB.

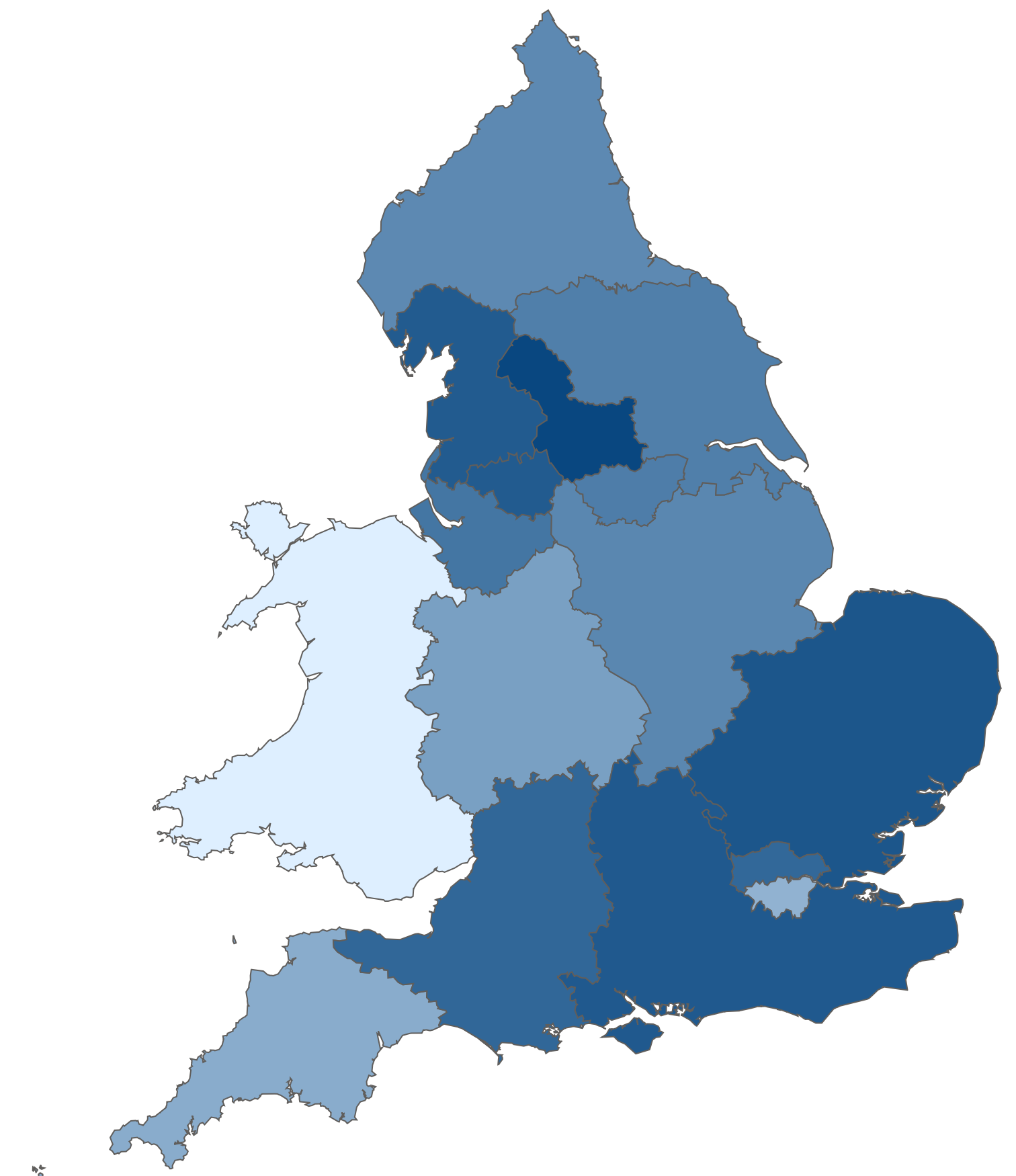
For Cardiac Networks in 2022/23, the range was between 84% for West Yorkshire and 58% for South London CN.

Note: Area data are based on the location of the hospital rather than the patient home location

Percentage of patients undergoing elective PCI treated as a day case by ICB/HB (2022/23)



Percentage of patients undergoing elective PCI treated as a day case by Cardiac Network (2022/23)



Some centres perform elective PCI as a day case in fewer than 10% of patients whereas others offer day case treatment to virtually all patients



There was wide variation across hospitals in the percentage of elective percutaneous coronary intervention (PCI) procedures that were done as day cases.

Some hospitals discharged most or all of their patients on the same day while other units did this for less than 10% of their cases.

This variation may relate to differences in infrastructure (eg the extent to which there is an established day case unit) but also to the personal preferences of physicians.

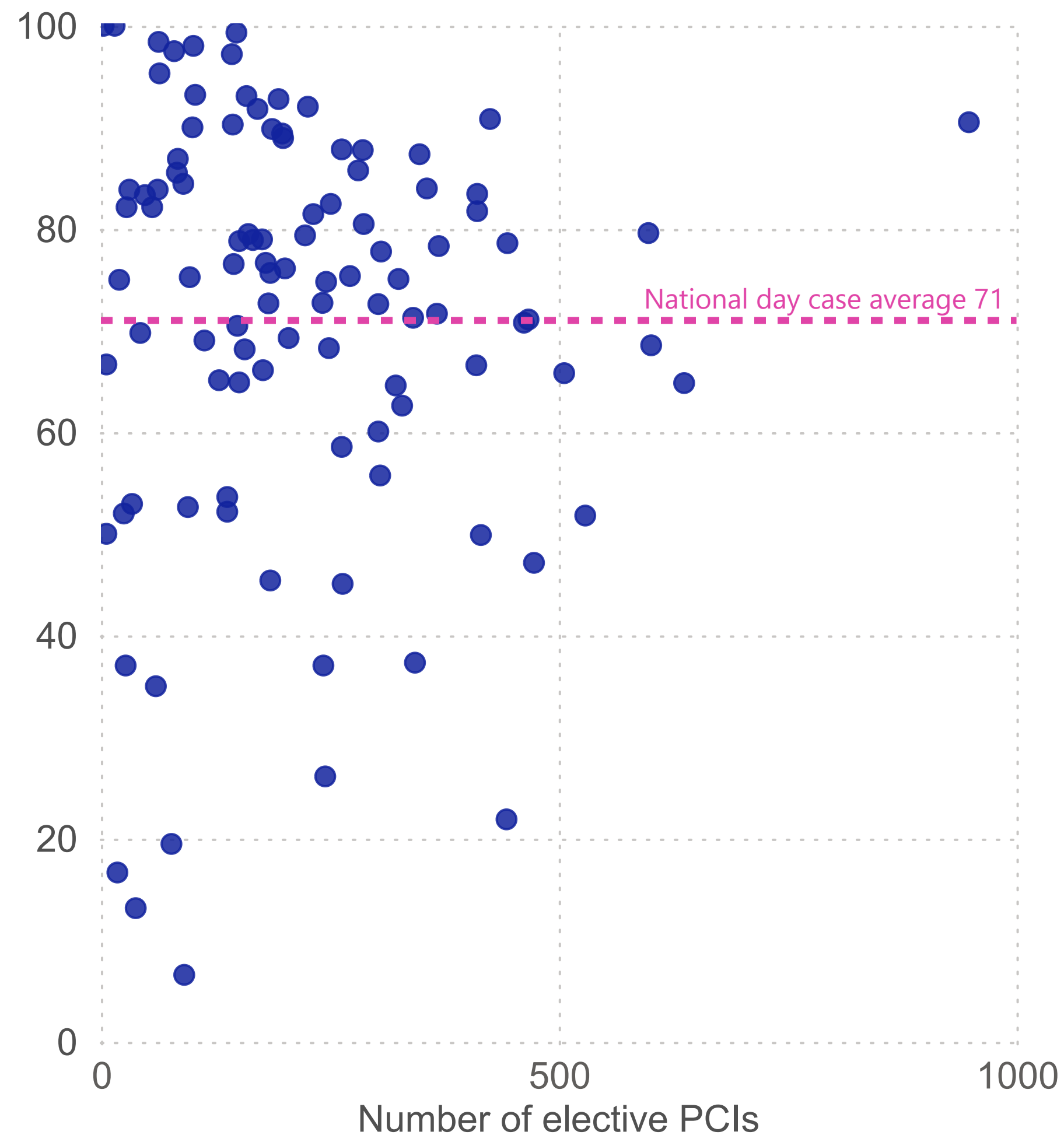
Previous work derived from the NAPCI dataset suggest that differences in patient characteristics and case mix are unlikely to contribute substantially to these differences.

Selecting a hospital below or on the scatter plot (left graphic) shows its data.

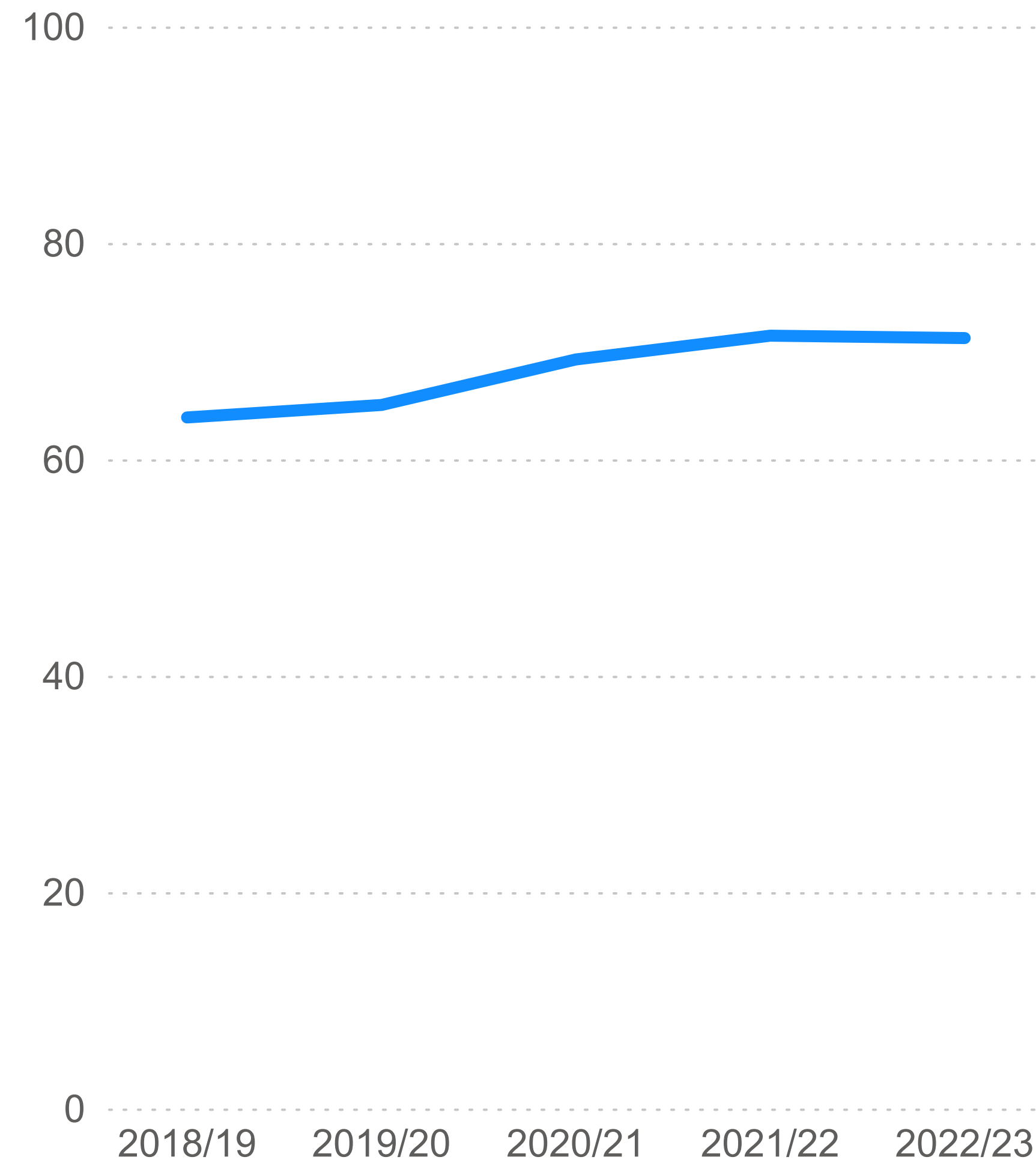
Select hospital

All

Percentage of elective PCI patients treated as a day case, by hospital (2022/23)



Percentage of elective PCI patients treated as a day case



The use of intracoronary imaging for complex PCI procedures has increased to 26%



During a percutaneous coronary intervention (PCI), the risk of both acute and late complications is minimised by ensuring that the stent is well-expanded and well-opposed to the vessel wall.

Intracoronary imaging (ICI) with either intravascular ultrasound (IVUS) or laser, known as optical coherence tomography (OCT), provides a means of doing this. This is particularly relevant for complex lesions and for lesions in the left main stem (LMS) of the coronary arteries, where the risk of complications is greater or potentially more serious.

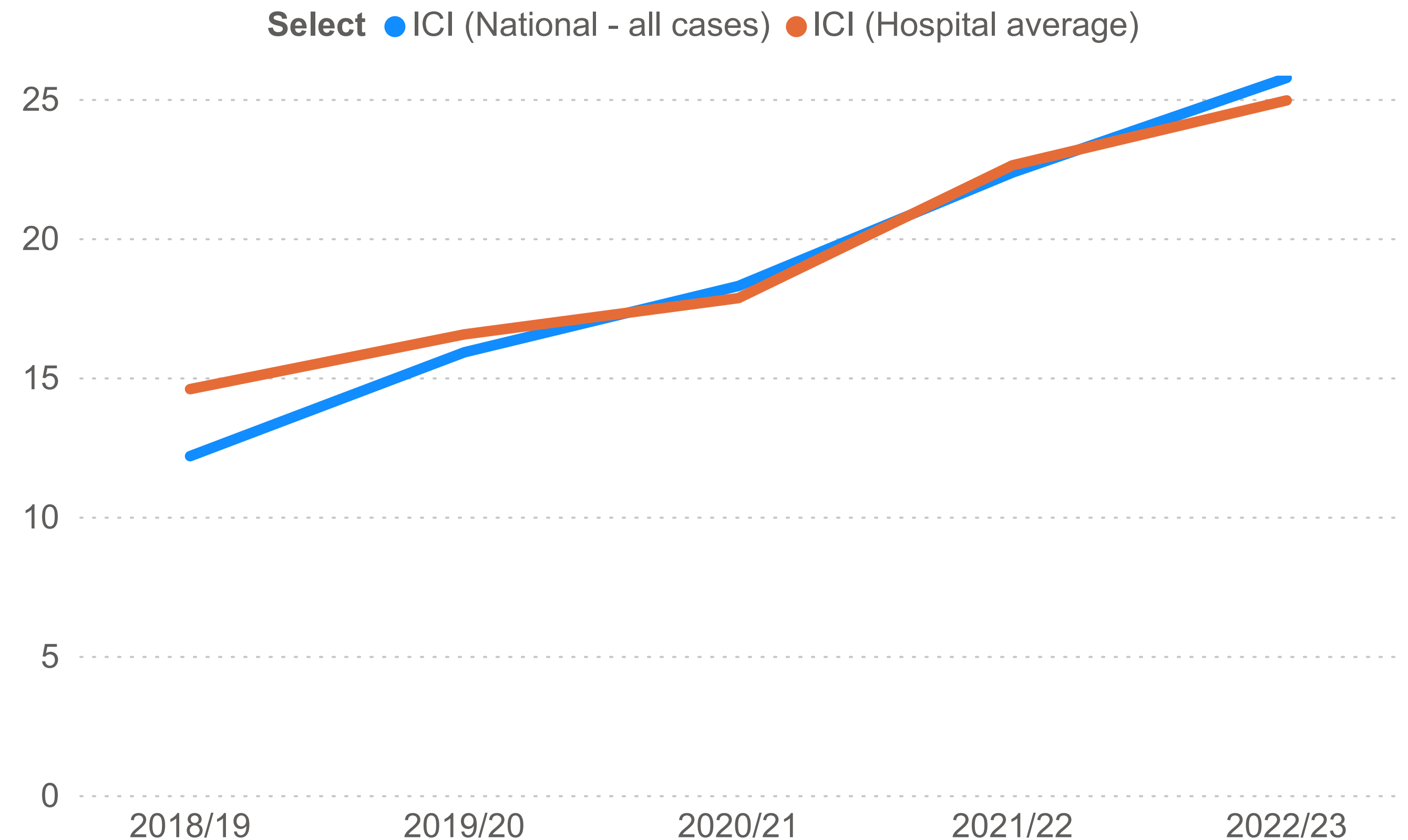
A recent randomised controlled [trial](#) has shown that intracoronary imaging use is associated with a 36% reduction in the risk of cardiac death, target-vessel myocardial infarction, or clinically driven target-lesion revascularization in the medium-term compared to relying only on angiography.

Increased recognition of the importance of ICI has led to a steady growth in the use of these techniques in complex PCI from 12% in 2018/19 to 26% in 2022/23. Again, there is very wide variation in the use of ICI between hospitals.

Selecting a hospital shows its data.

Key:
The ICI (Hospital average) line shows the average of the hospital averages or the trend for a selected hospital.

Percentage of complex PCI cases where intracoronary imaging was used



Select hospital

All



The use of intracoronary imaging during complex PCI varies from 4% to 58% between Integrated Care and Health Boards



The maps show use of intracoronary imaging (ICI) during complex and left main stem (LMS) percutaneous coronary intervention (PCI) for:

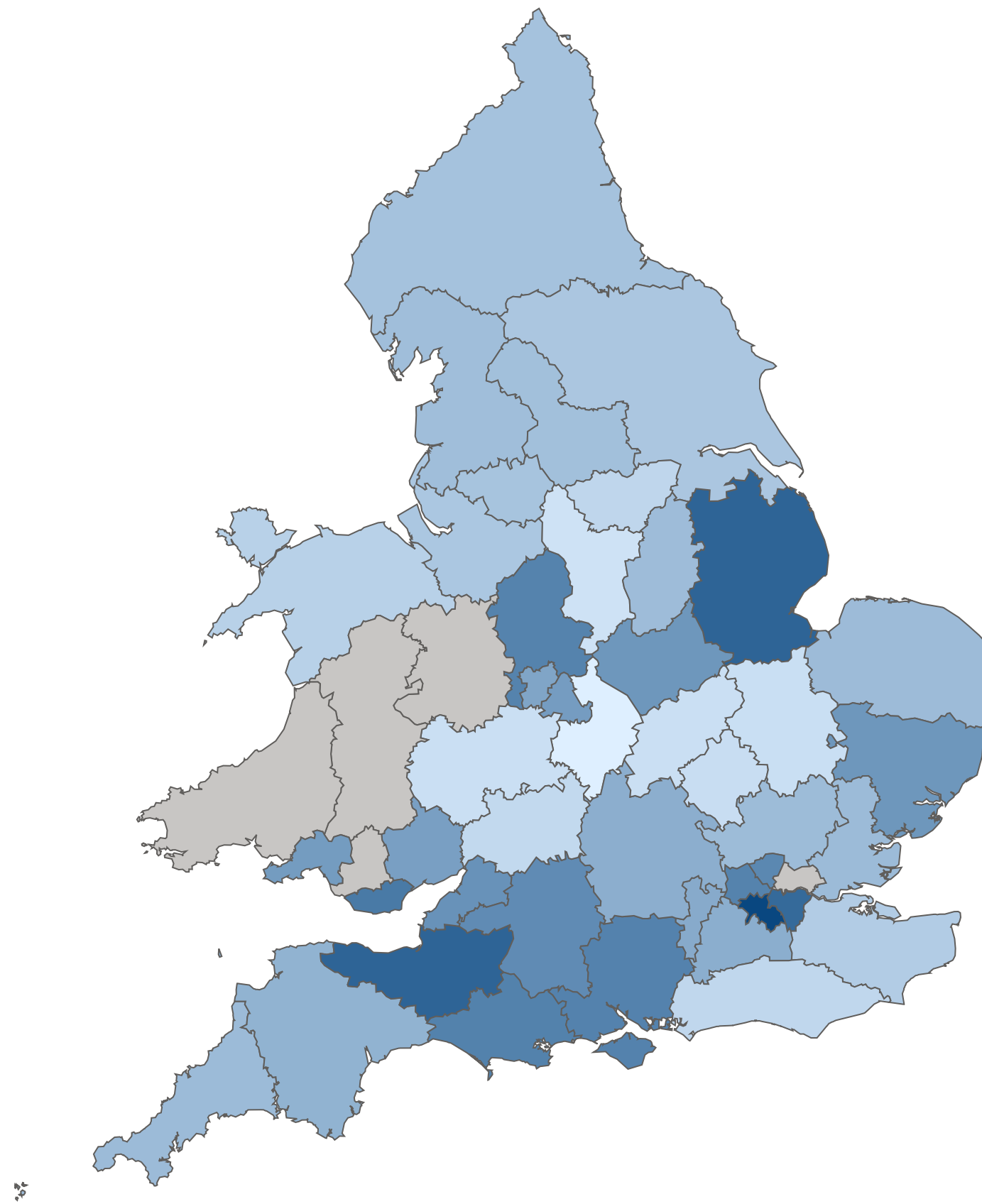
- the 42 Integrated Health Boards (ICBs) in England and 7 University Health Boards in Wales (commissioning organisations)
- the 16 Cardiac Networks in England and Wales (service delivery networks).

In 2022/23, the rate of use of ICI varied from 4% in Coventry and Warwickshire ICB to 58% in South West London ICB.

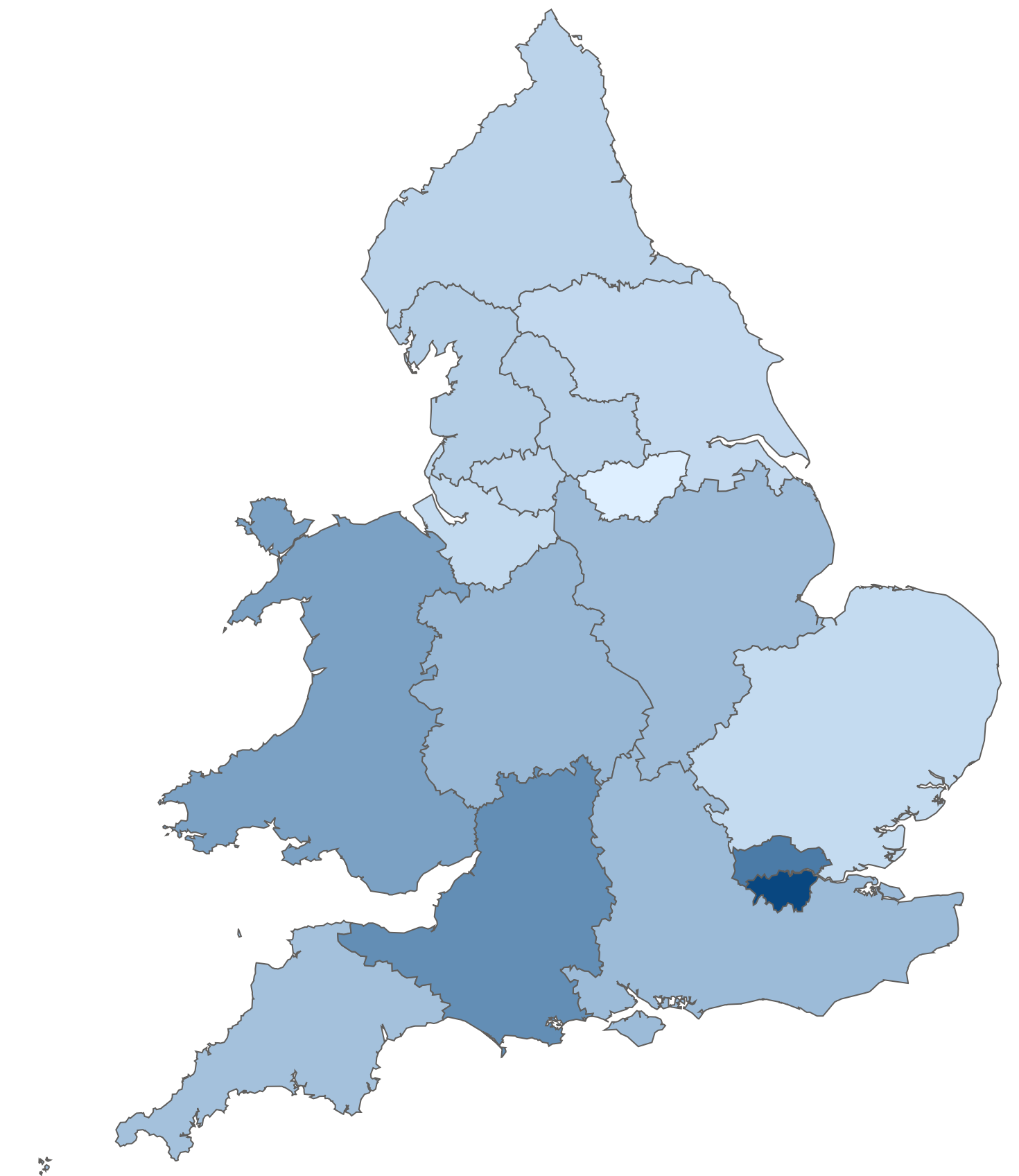
For the Cardiac Networks, ICI usage ranged from 39% in South London to 9% in Humber and North Yorkshire CN.

Note: Area data is based on the location of the hospital rather than the patient home location

Percentage use of intracoronary imaging in complex PCI by ICB/HB (2022/23)



Percentage use of intracoronary imaging in complex PCI by Cardiac Network (2022/23)



Some hospitals use intracoronary imaging in the majority of complex PCI cases but some centres hardly ever use it



This slide shows the percentage use of intracoronary imaging for complex PCI in each centre, in several ways, with local trends.

Data for an individual centre can be shown by selecting the centre on the right, or by hovering over a dot in the scatter plot (upper right).

Across individual hospitals in 2022/23, the rate of intracoronary imaging (ICI) use during complex percutaneous coronary intervention (PCI) ranged from less than 1% of cases to 100%.

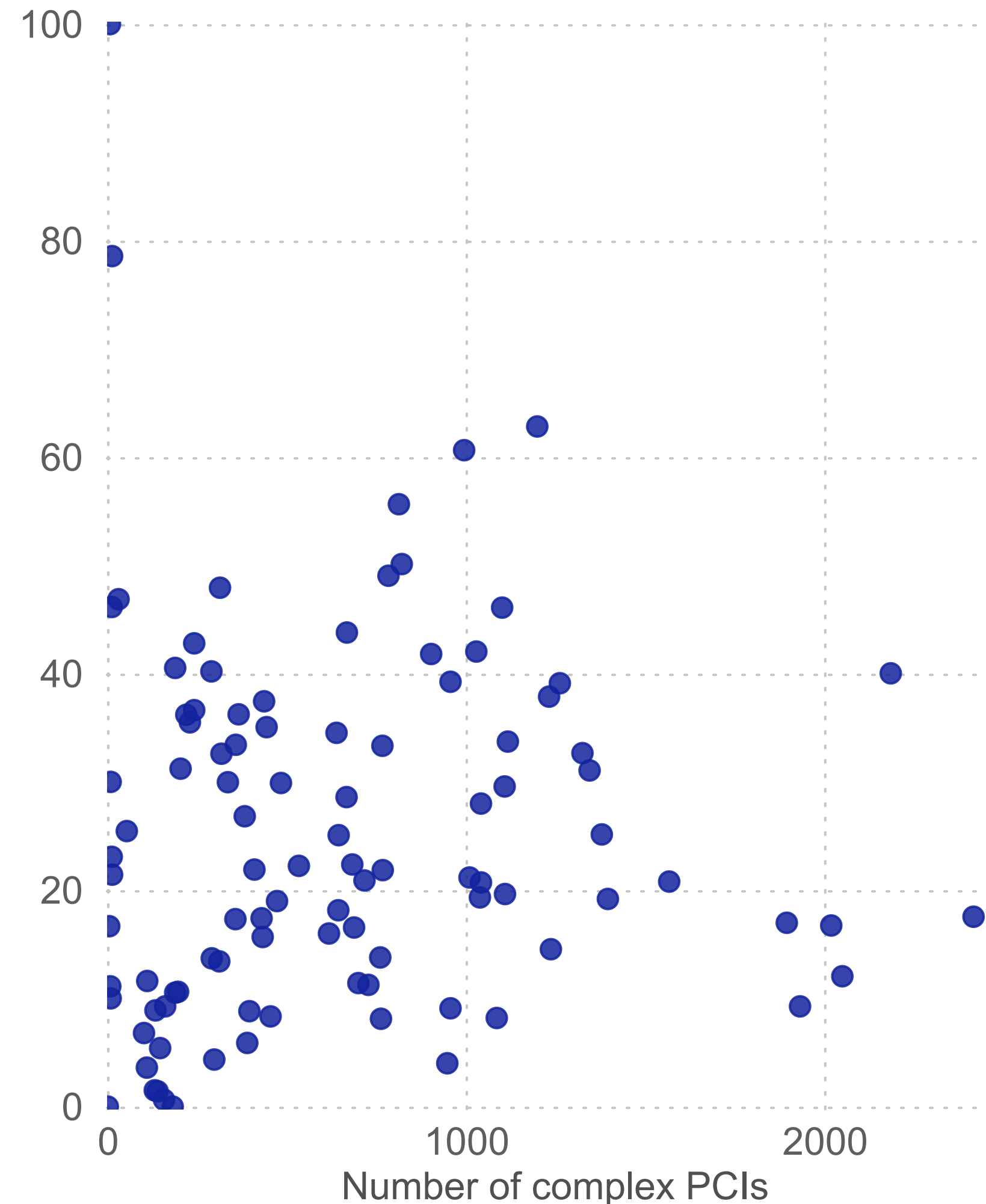
Selecting a hospital below or on the scatter plot (left graphic) shows its data.

Key:
The ICI (Hospital average) line shows the average of the hospital averages or the trend for a selected hospital

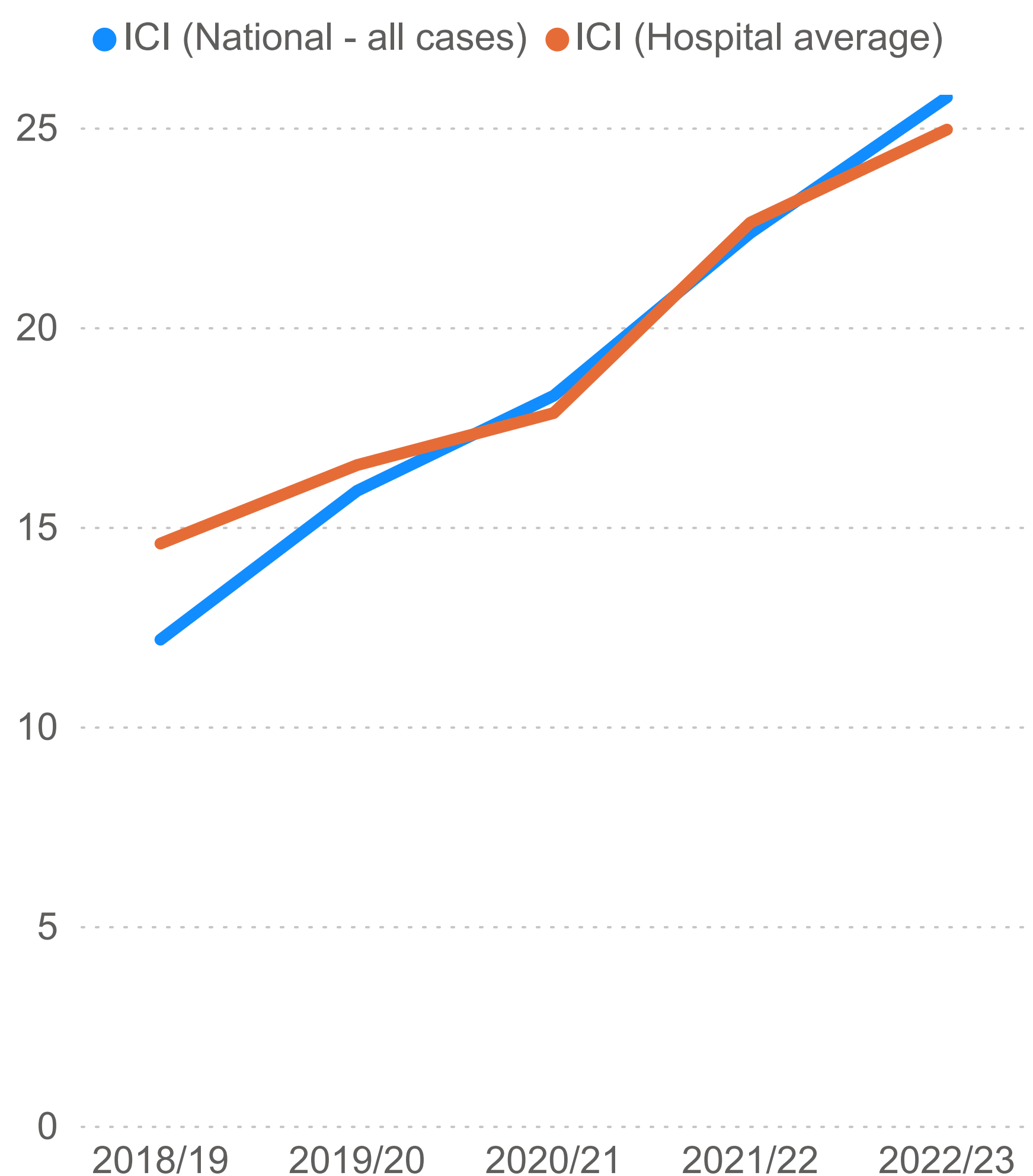
Select hospital

All

Percentage use of intracoronary imaging during complex PCI, by hospital (2022/23)



Percentage use of intracoronary imaging during complex PCI



Intracoronary imaging is used in nearly three quarters of all left main stem percutaneous coronary intervention procedures



The left main stem (LMS) coronary artery supplies blood to the left ventricle and atrium. Having the LMS sufficiently open is critical as it provides the blood supply to most of the heart. Abrupt closing or blockage of the LMS is almost always fatal.

The technique for treating the LMS depends on exactly how the coronary disease is present within a patient. This can be better determined by intracoronary imaging (ICI) than angiography alone. Moreover, ICI enables optimal evaluation of the results of the percutaneous coronary intervention (PCI) to treat the LMS.

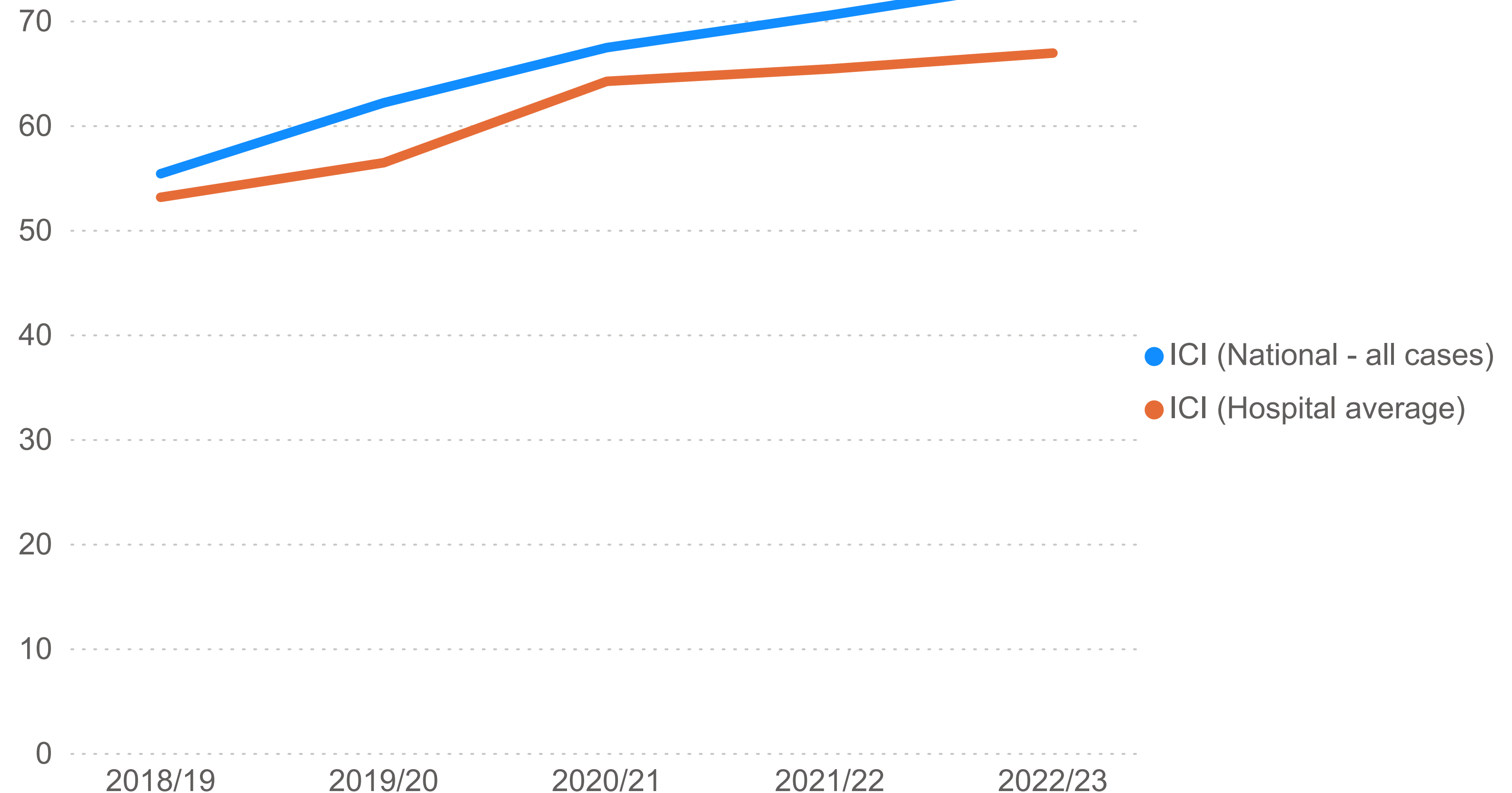
Recent research showed that intracoronary imaging is associated with a 30% decrease in mortality one year following LMS PCI. The international guidance on the use of ICI for LMS PCI can be seen [here](#).

The use of ICI for LMS PCI has increased from 55% in 2018/19 to 74% in 2022/23. There is significant variation amongst units in the proportion of cases that utilise ICI.

Selecting a hospital shows its data.

Key:
The ICI (Hospital average) line shows the average of the hospital averages or the trend for a selected hospital

Percentage use of intracoronary imaging for LMS PCI



Select hospital

All

There is considerable difference between regions in use of intracoronary imaging for left main stem PCI



This slide shows the rate of use of intracoronary imaging (ICI) during left main stem (LMS) percutaneous coronary intervention (PCI) for:

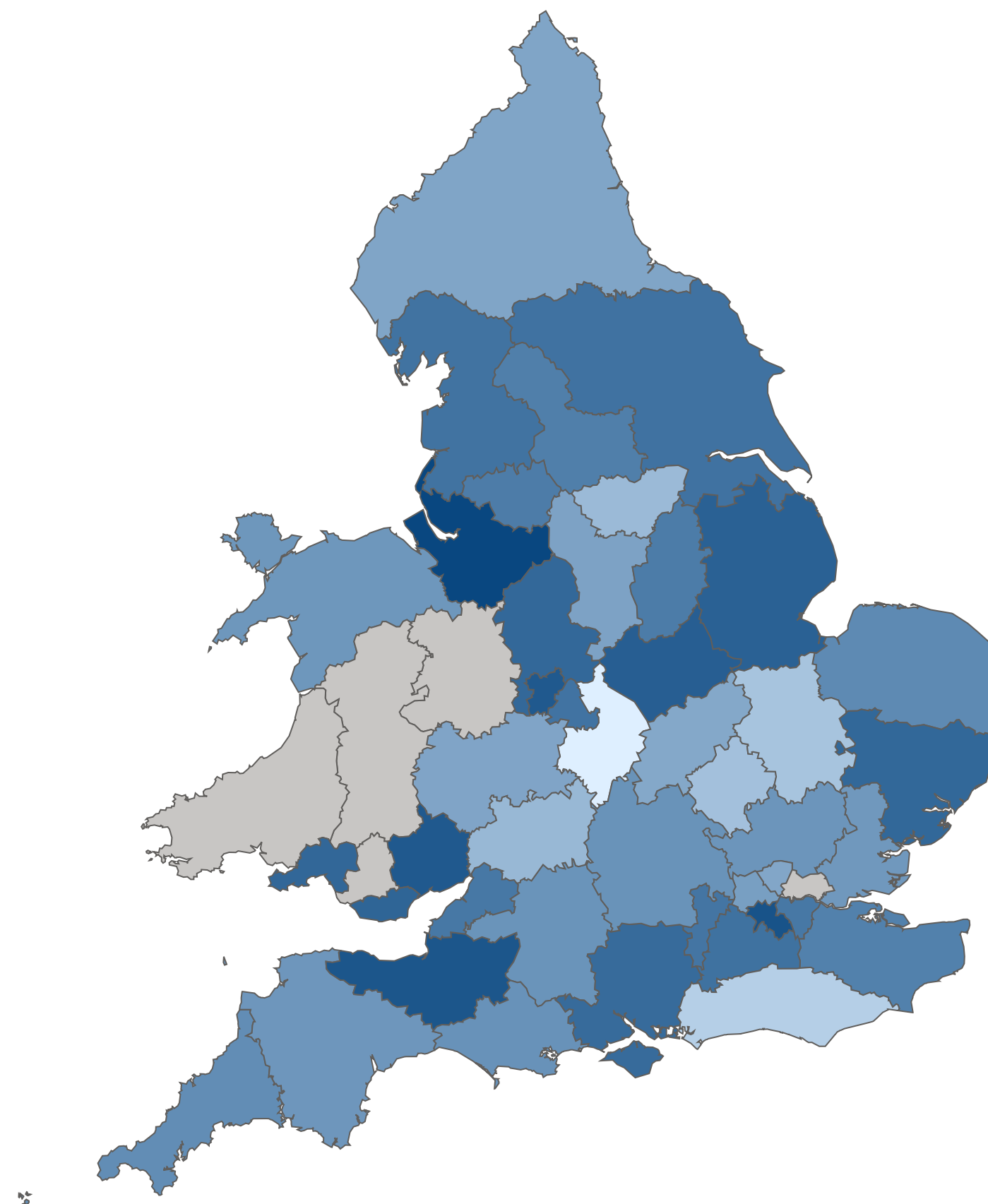
- the 42 Integrated Health Boards (ICBs) in England and 7 University Health Boards in Wales (commissioning organisations)
- the 16 Cardiac Networks in England and Wales (service delivery networks).

In 2022/23, the rate of use of ICI for this procedure varied from 26% in Coventry and Warwickshire to 100% in Cheshire and Merseyside.

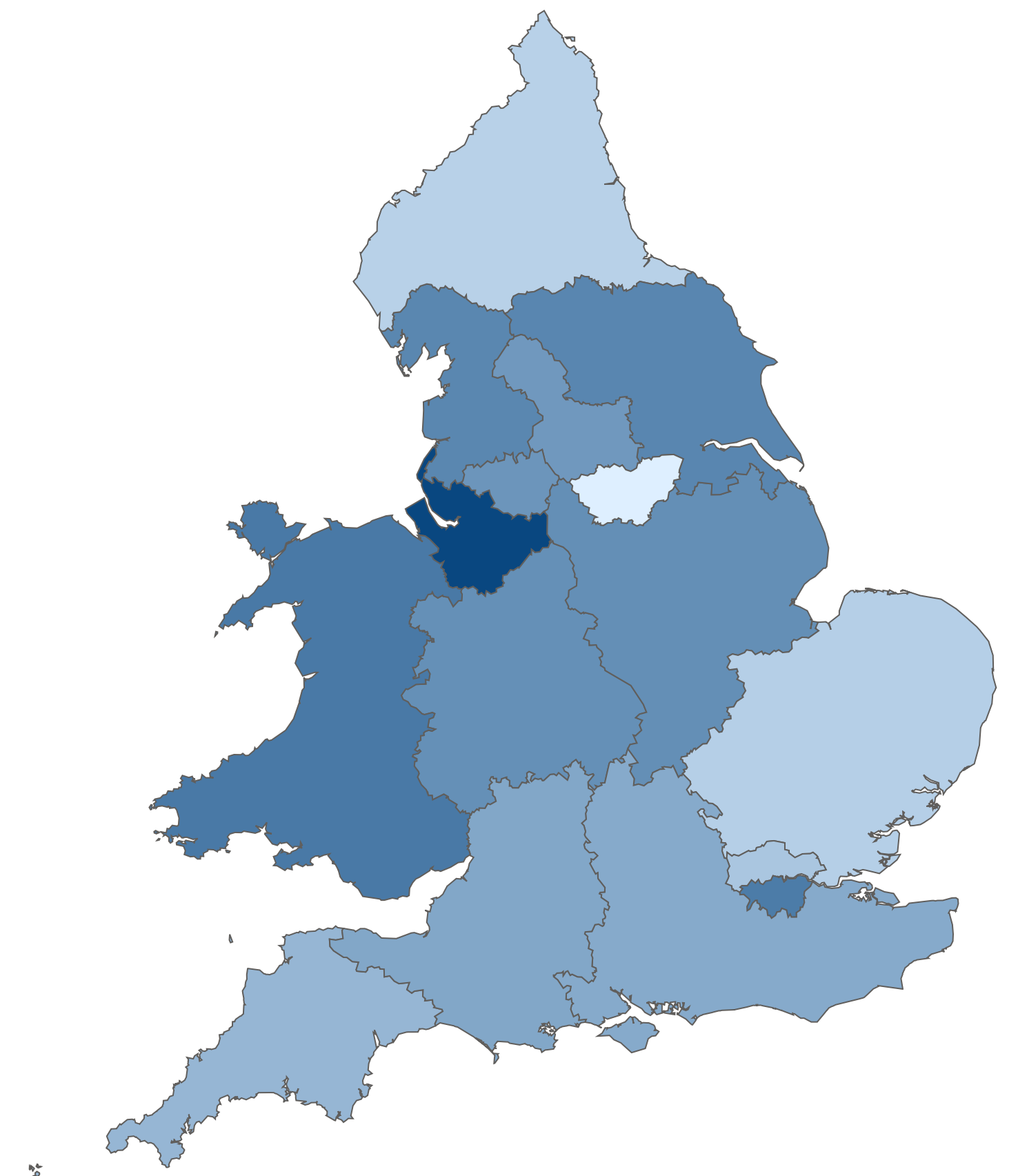
Amongst Cardiac Networks, ICI use ranged from 50% in South Yorkshire to 100% in Cheshire and Merseyside.

Note: Area data is based on the location of the hospital rather than the patient home location

Percentage use of intracoronary imaging during LMS PCI by ICB/HB (2022/23)



Percentage use of intracoronary imaging during LMS PCI by Cardiac Network (2022/23)



The use of intracoronary imaging during left main stem PCI by different hospitals ranges from 10% to 100% of cases



Data for an individual centre can be shown by selecting the centre bottom left, or by hovering over a dot in the scatter plot (left graphic).

In 2022/23, there was huge variation between hospitals in the use of intracoronary imaging (ICI) during left main stem (LMS) percutaneous coronary intervention (PCI), from 10% to 100%.

Thirty hospitals used this in more than 80% of their cases while 15 used it in less than half of cases.

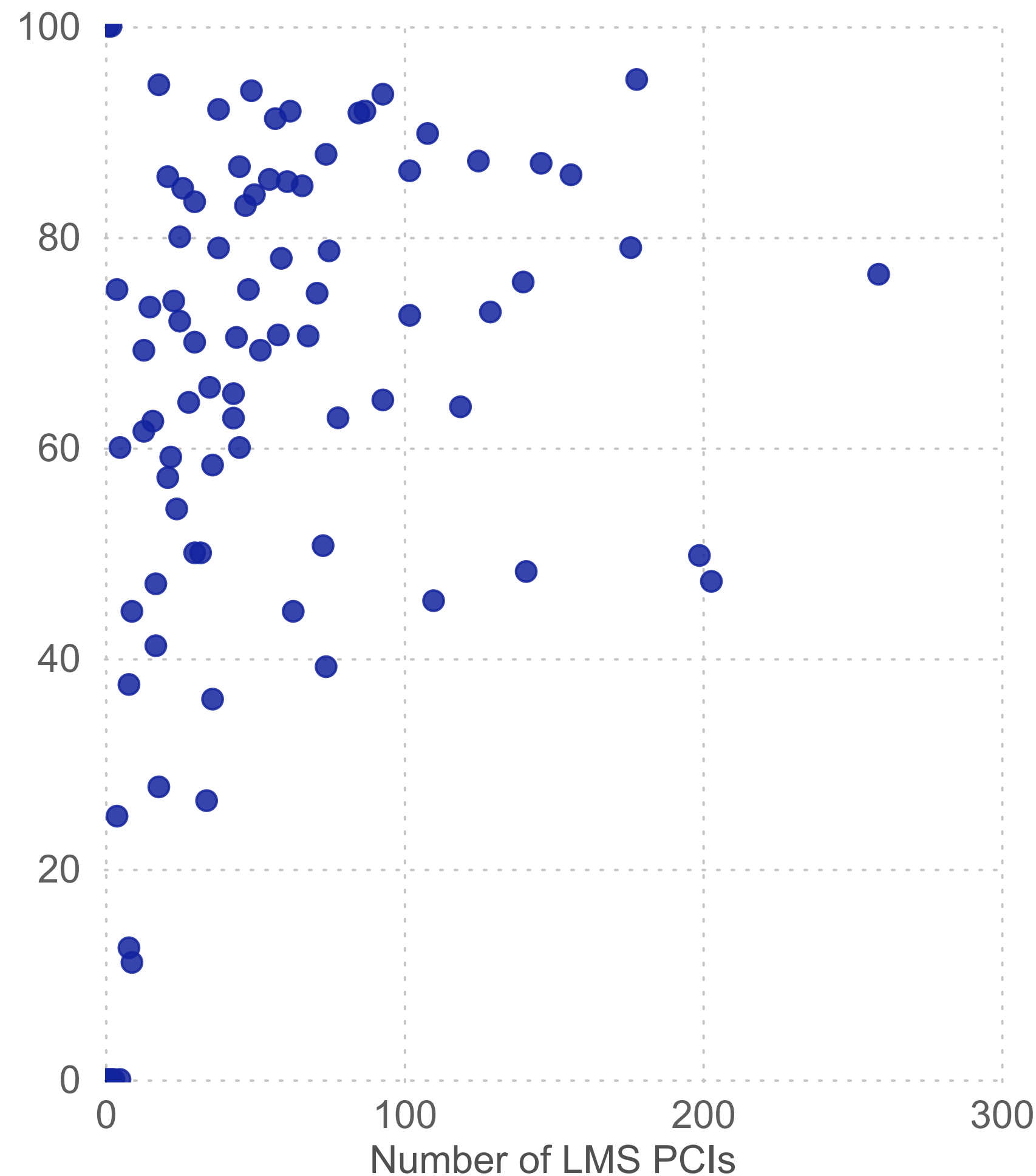
Selecting a hospital below or in the scatter plot (left graphic) shows its data.

Key:
The ICI (Hospital average) line shows the average of the hospital averages or the trend for a selected hospital

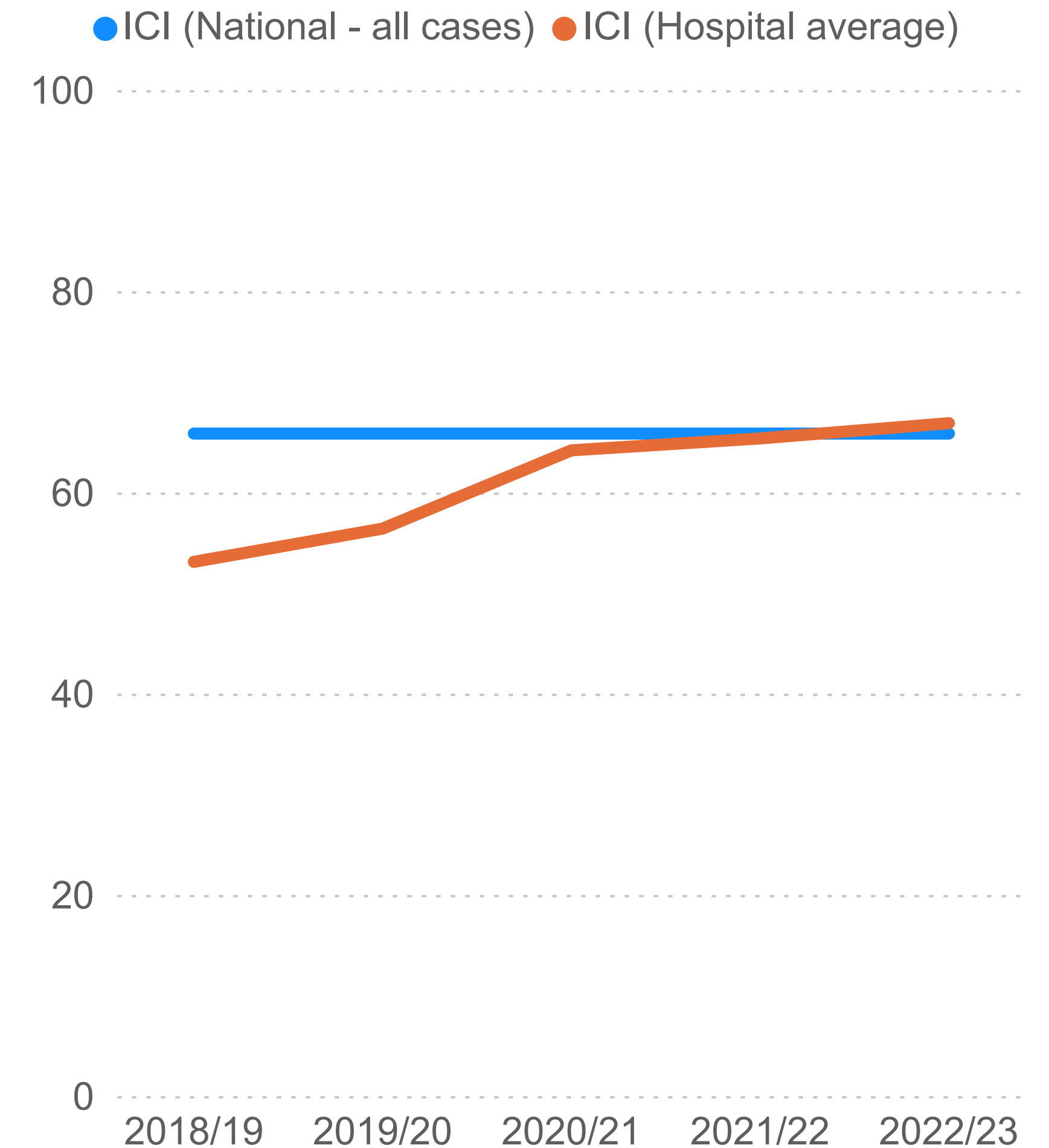
Select hospital

All 

Percentage use of intracoronary imaging for LMS PCI, by hospital (2022/23)



Percentage use of intracoronary imaging for LMS PCI



Newer P2Y12 antiplatelet drugs are only used in 40% of acute coronary syndrome cases treated by PCI



Antiplatelet drugs are used in acute coronary syndromes (ACS) and following percutaneous coronary intervention (PCI) to reduce the risks of further cardiovascular events.

Two different types of antiplatelet are used, aspirin and a P2Y12 inhibitor. Traditionally the P2Y12 inhibitor that has been used is clopidogrel, but recent trials have shown that prasugrel and ticagrelor are associated with better outcomes.

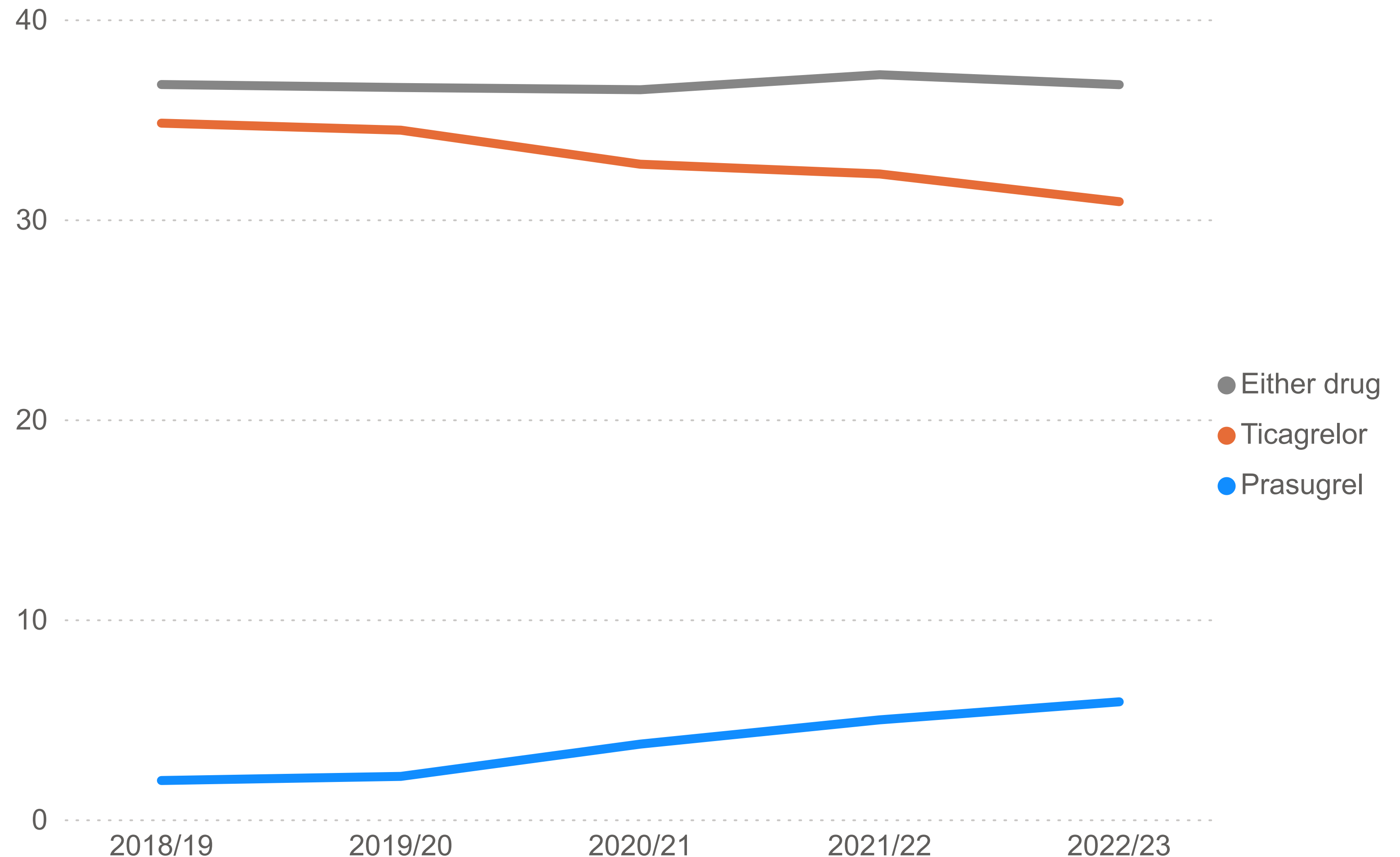
One trial has shown better outcomes with prasugrel compared to ticagrelor. For more details, see references.

Current [European Society of Cardiology guidelines](#) recommend that prasugrel or ticagrelor are used in preference to clopidogrel in patients undergoing PCI in whom there are no contra-indications, and prasugrel in preference to ticagrelor.

The use of either ticagrelor or prasugrel has remained relatively stable in PCI for ACS over the last few years (at around 40%).

There has been a gradual increase in the prescription of prasugrel, offset by a decline in the prescription of ticagrelor.

Percentage use of prasugrel and ticagrelor for PCI in acute coronary syndromes



Several areas are not using the newer P2Y12 antiplatelet drugs for acute coronary syndromes treated by PCI



The maps show the use of newer P2Y12 antiplatelet drugs in patients with an acute coronary syndrome (ACS) treated by percutaneous coronary intervention (PCI) for:

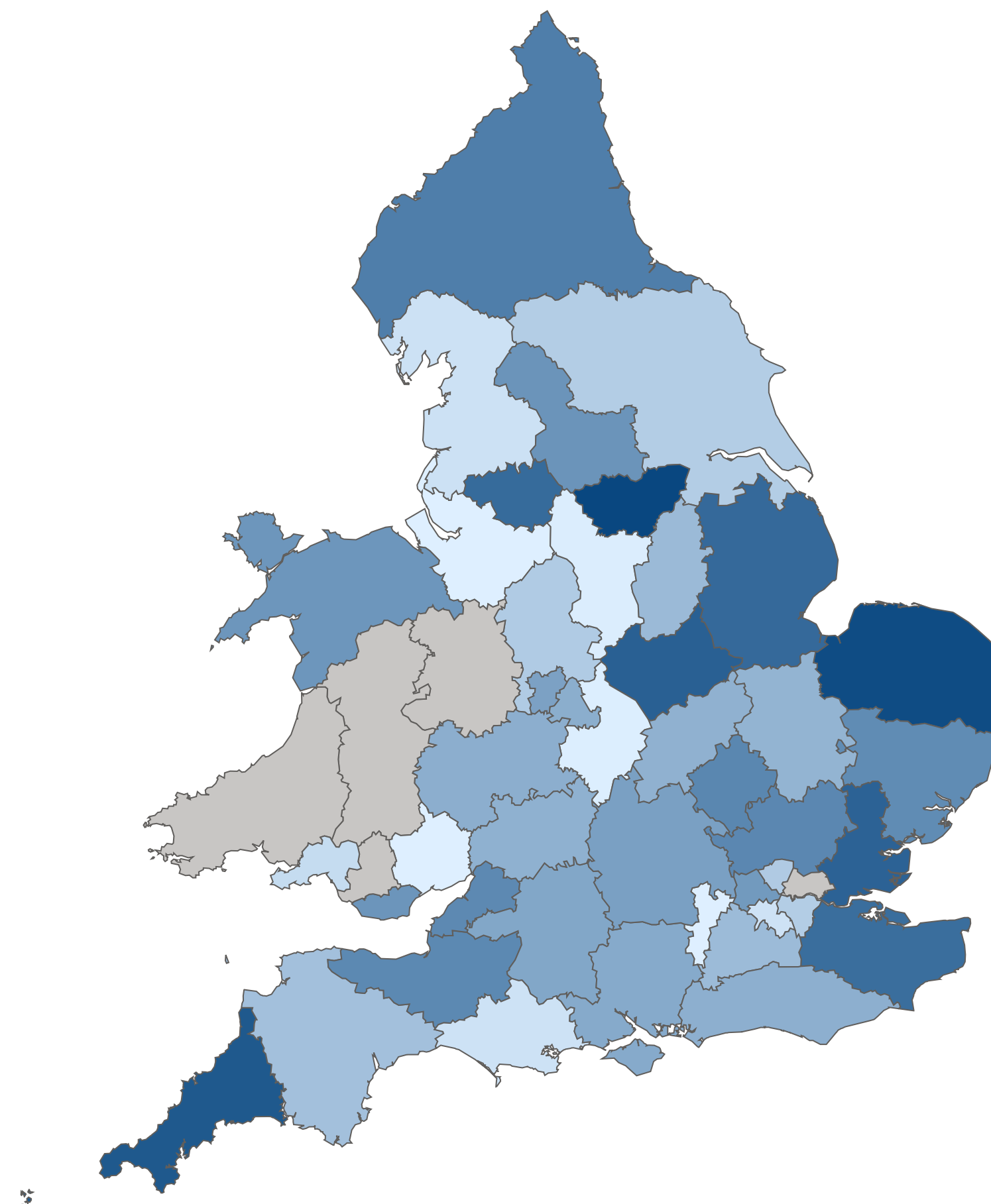
- the 42 Integrated Health Boards (ICBs) in England and 7 University Health Boards in Wales (commissioning organisations)
- the 16 Cardiac Networks in England and Wales (service delivery networks).

In 2022/23, the rate of use of either prasugrel or ticagrelor in ICBs varied from 0% for several ICBs to 87% in South Yorkshire.

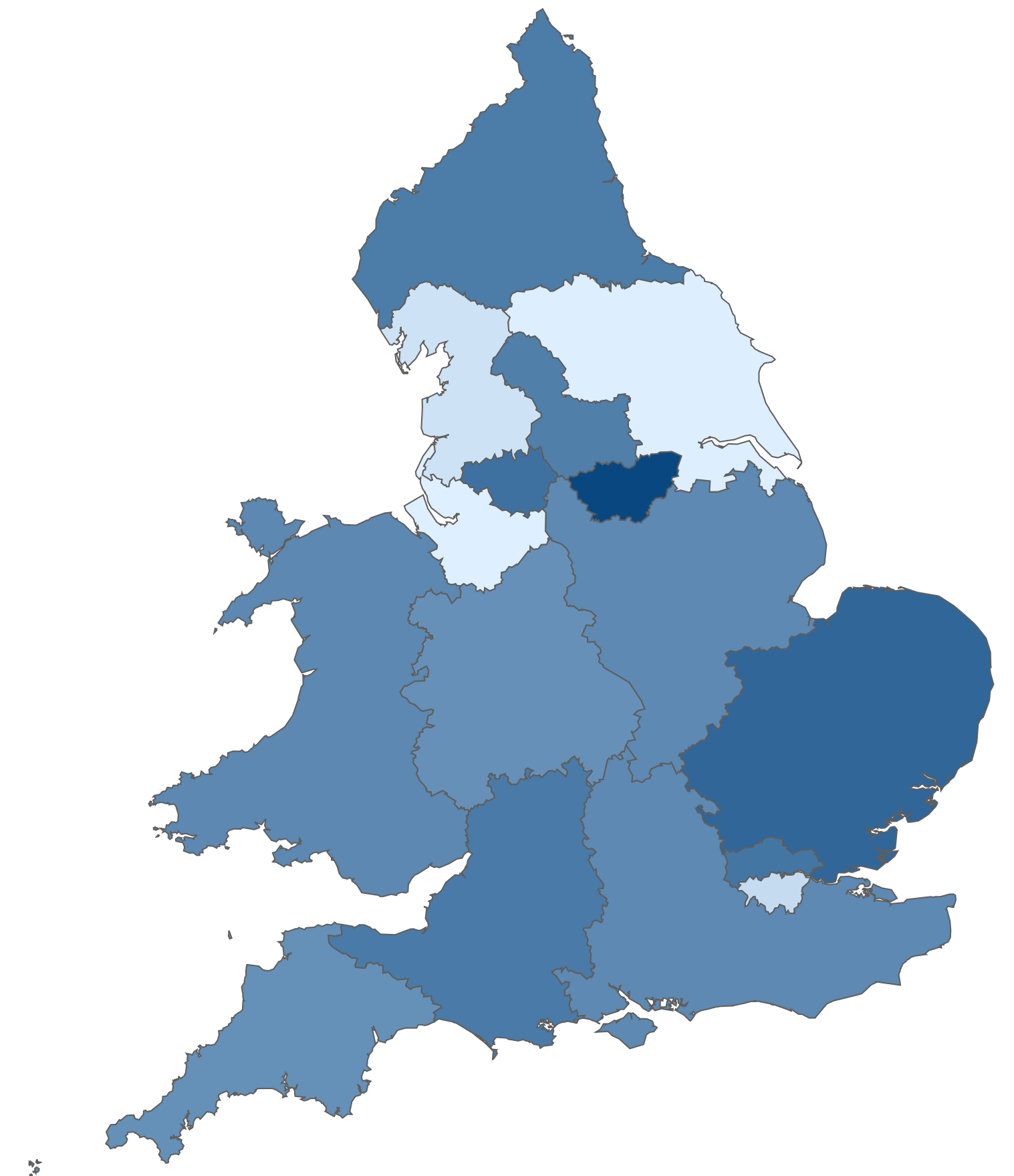
For Cardiac Networks, these drugs were used in 87% of cases in South Yorkshire but in no cases in Cheshire and Merseyside.

Note: Area data are based on the location of the hospital rather than the patient home location

Use of prasugrel or ticagrelor in acute coronary syndromes treated by PCI by ICB/HB (2022/23)



Use of prasugrel or ticagrelor in acute coronary syndromes treated by PCI by Cardiac Network (2022/23)



There is huge variation between hospitals in the use of newer P2Y12 antiplatelet drugs for cases with acute coronary syndromes treated by PCI



In 2022/23, there was very wide variation between hospitals in their use of newer P2Y12 antiplatelet drugs in patients with an acute coronary syndrome (ACS):

- the highest rate of use was 95%
- the lowest rate of use was 0%

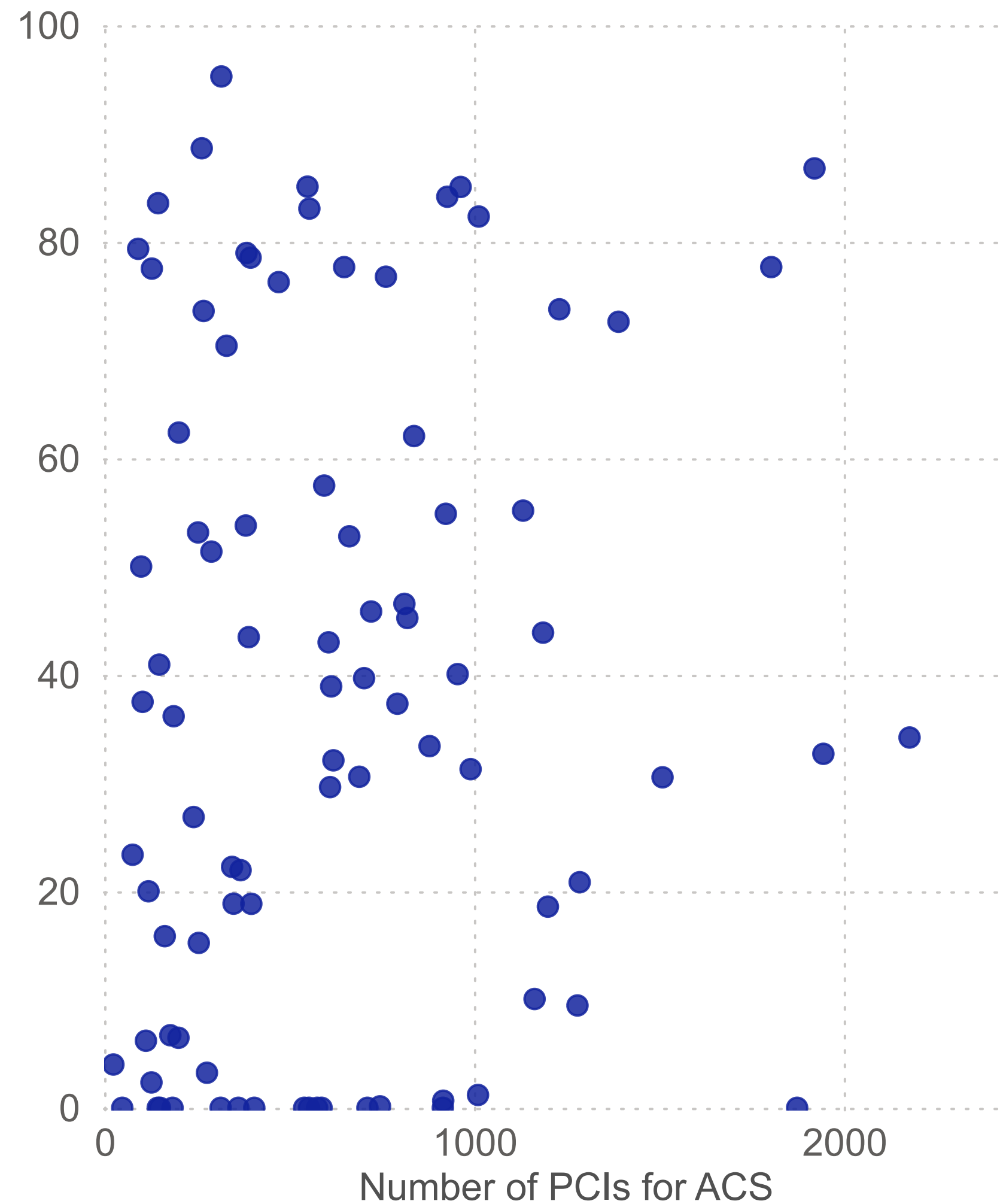
There is no correlation between the use of the drugs and the number of PCIs for ACS performed by a hospital.

Selecting a hospital below or in the scatter plot (left graphic) shows its data.

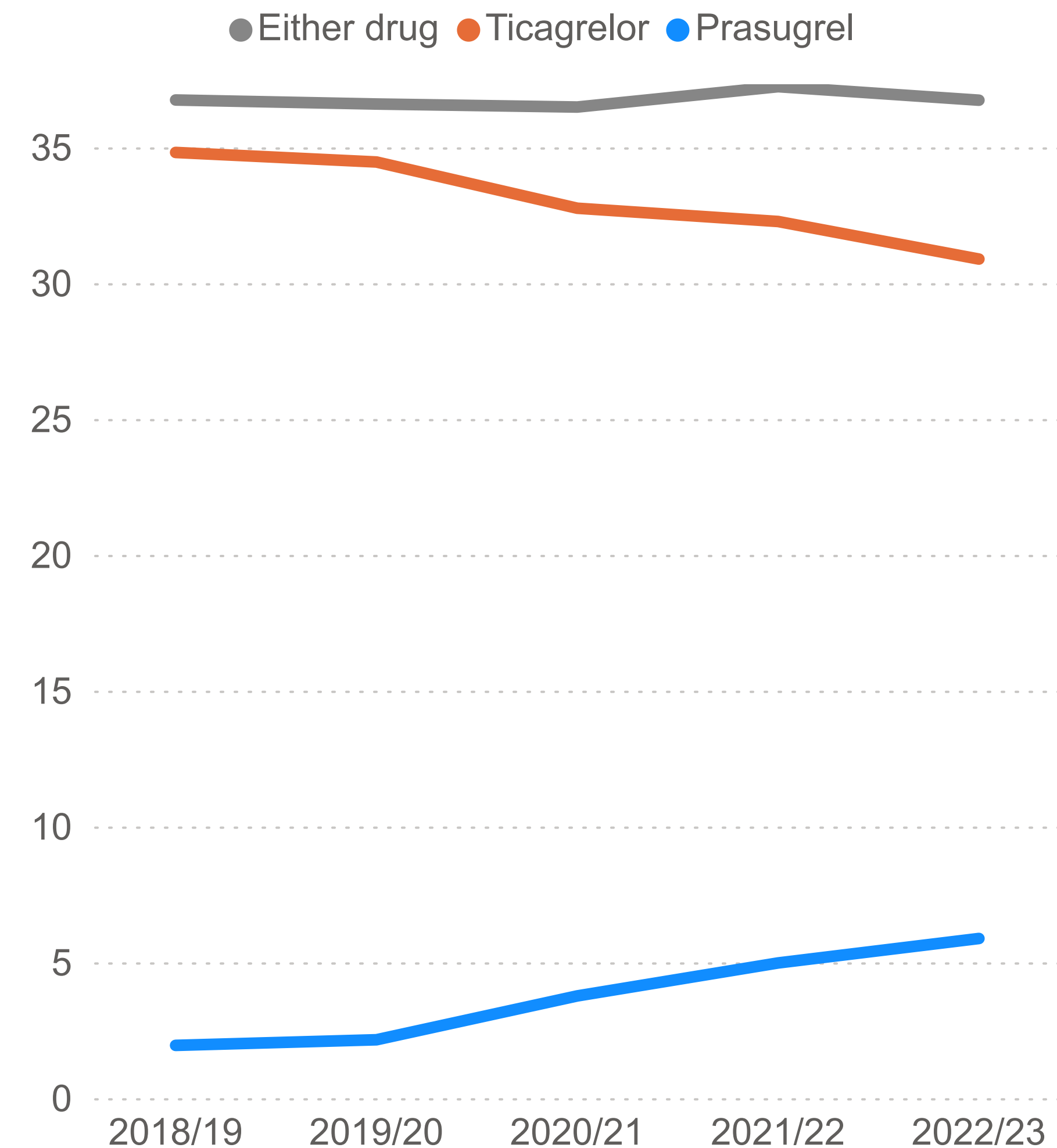
Select hospital

All

Percentage use of prasugrel or ticagrelor for ACS, by hospital (2022/23)



Percentage use of prasugrel and ticagrelor for ACS



Individual hospitals either use the newer P2Y12 antiplatelet drugs in most cases with acute coronary syndromes treated by PCI or use them infrequently



In 2022/23, 21 hospitals used either prasugrel or ticagrelor in over 70% of cases with acute coronary syndromes (ACS) treated by percutaneous coronary intervention (PCI).

A significant number of centres do not use the newer P2Y12 drugs. This is presumably because clinicians in these centres are choosing clopidogrel instead.

Selecting a hospital or Cardiac Network below shows its data.

Select hospital

All

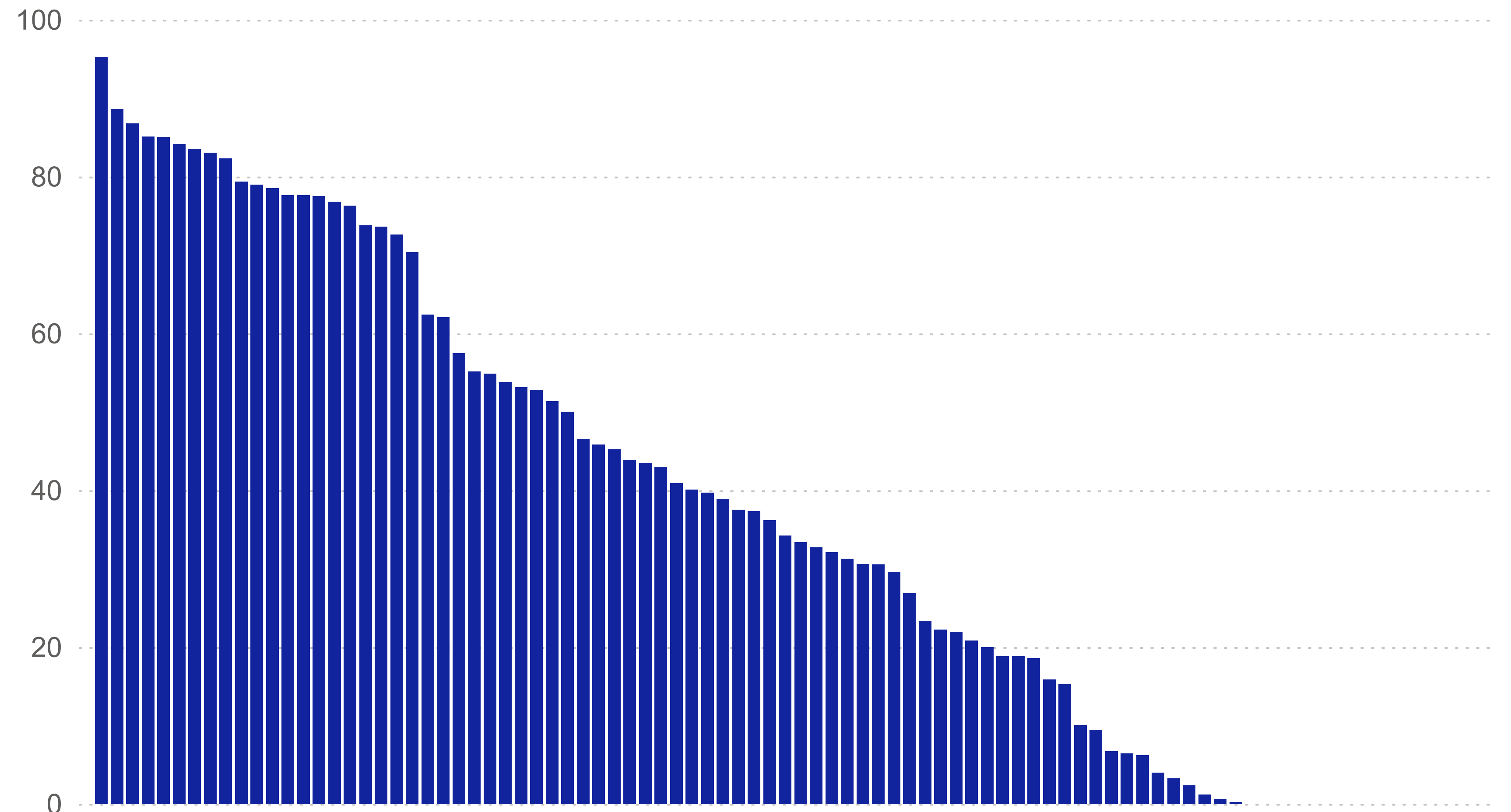
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Select Cardiac Network

All

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Percentage of patients receiving either prasugrel or ticagrelor for ACS, by hospital (2022/23)



Around half of patients with ST-elevation myocardial infarction treated with primary PCI are prescribed a new P2Y12 antiplatelet agent

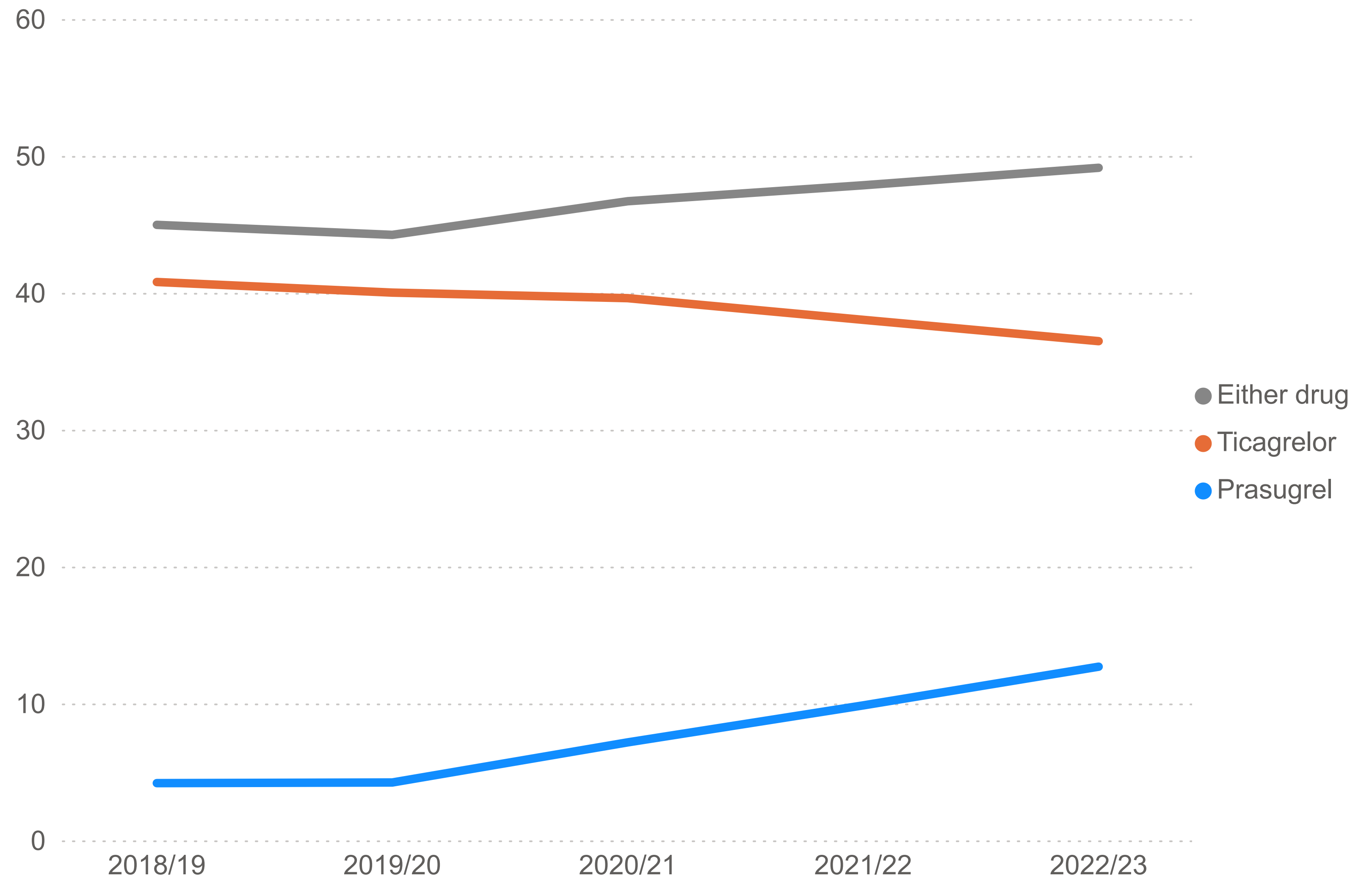


The overall use of newer P2Y12 antiplatelet drugs has increased slightly from 44% of cases in 2019/20 to 49% in 2022/23.

Since 2020, [European Society of Cardiology guidelines](#) have recommended the use of prasugrel over ticagrelor in primary percutaneous coronary intervention (PCI) for patients with acute coronary syndromes.

The use of prasugrel has increased from 4% to 13% during this period, whilst ticagrelor use has decreased from 40% to 36%.

Percentage use of prasugrel and ticagrelor in PPCI for STEMI



The use of newer P2Y12 antiplatelet drugs for primary PCI during ST-elevation myocardial infarction ranged from 0 to nearly 90% in different ICBs



The maps show the use of new P2Y12 antiplatelet drugs in patients with ST-elevation myocardial infarction (STEMI) treated by primary percutaneous coronary intervention (PPCI) for:

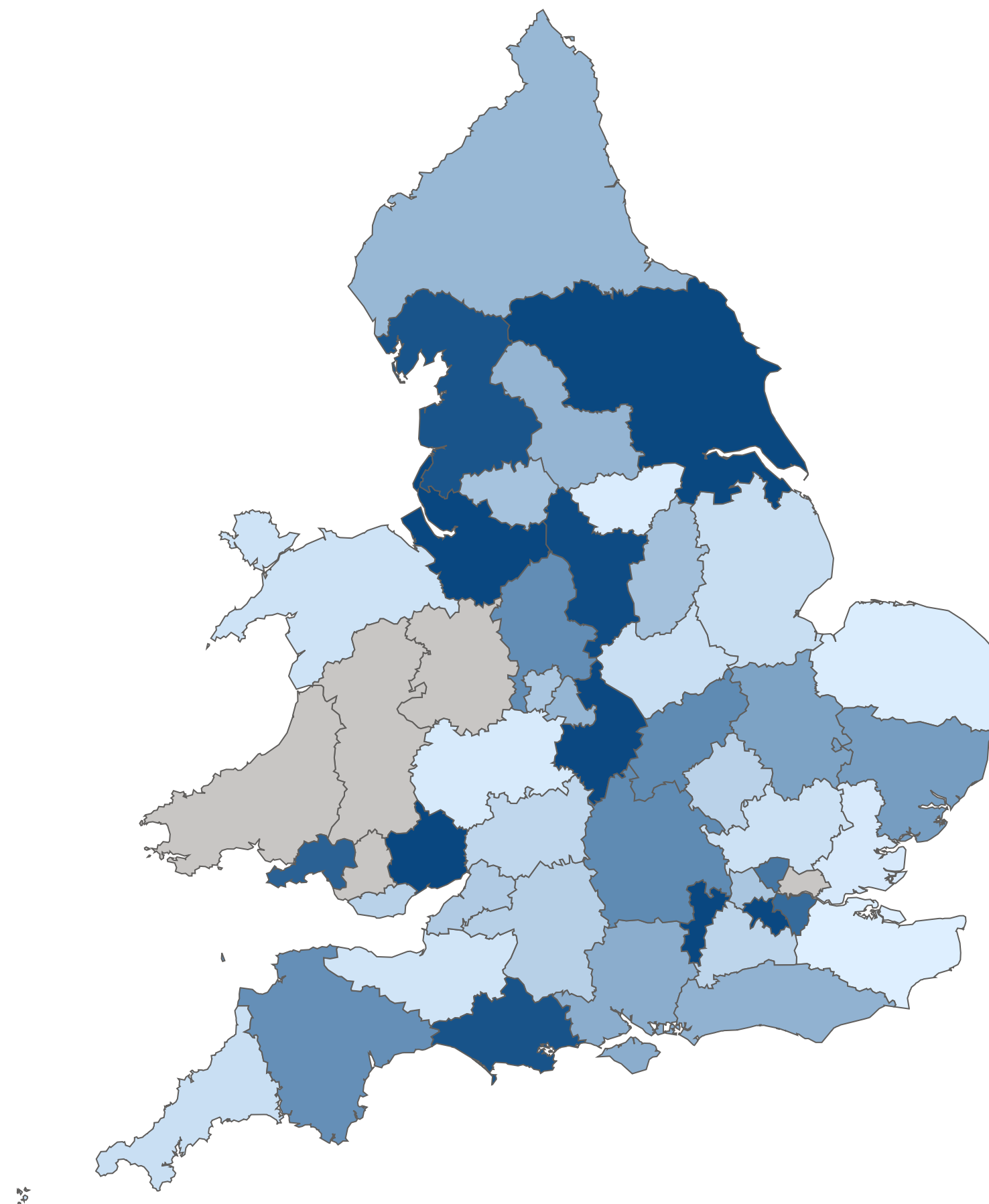
- the 42 Integrated Health Boards (ICBs) in England and 7 University Health Boards in Wales (commissioning organisations)
- the 16 Cardiac Networks in England and Wales (service delivery networks).

In 2022/23, the rate of use of either prasugrel or ticagrelor in ICBs varied from 0% in several ICBs to 87% in South Yorkshire.

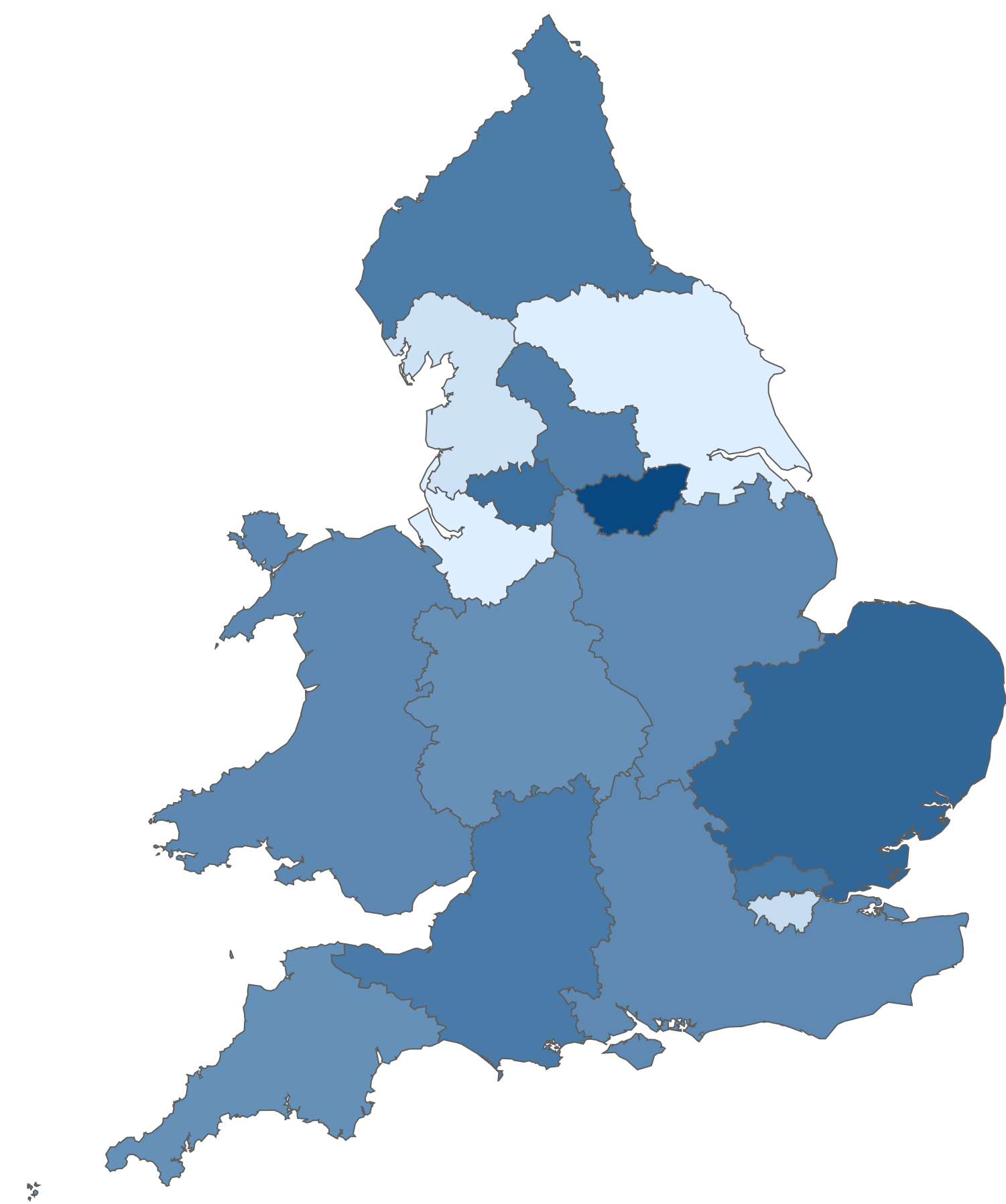
For the Cardiac Networks, these drugs were most used in used in South Yorkshire (87%) and least used in Cheshire and Merseyside (0%). Several other networks also had very low prescribing rates.

Note: Area data are based on the location of the hospital rather than the patient home location.

Prasugrel and ticagrelor use in PPCI by ICB/HB (2022/23)



Prasugrel and ticagrelor use in PPCI by Cardiac Network (2022/23)



Some hospitals use newer P2Y12 antiplatelet drugs in all primary PCI cases and some do not use them at all



There are wide variations between hospitals in prescription patterns for the use of newer P2Y12 drugs in ST-elevation myocardial infarction (STEMI) treated by primary percutaneous coronary intracoronary (PPCI).

Some hospitals do not use these drugs (presumably preferring to use clopidogrel) but some use them in all cases.

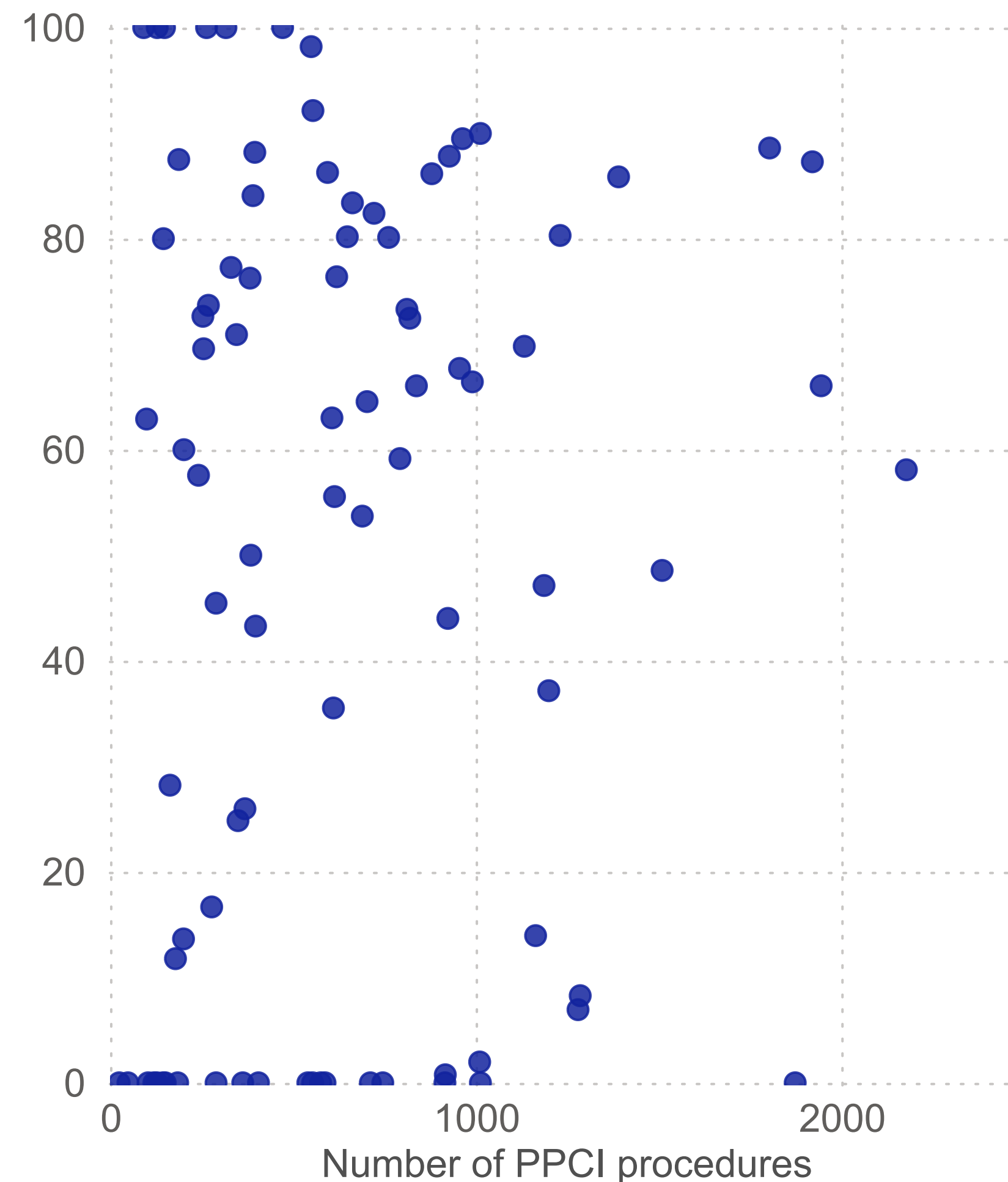
Selecting a hospital below or in the scatter plot (left graphic) shows its data.

Select hospital

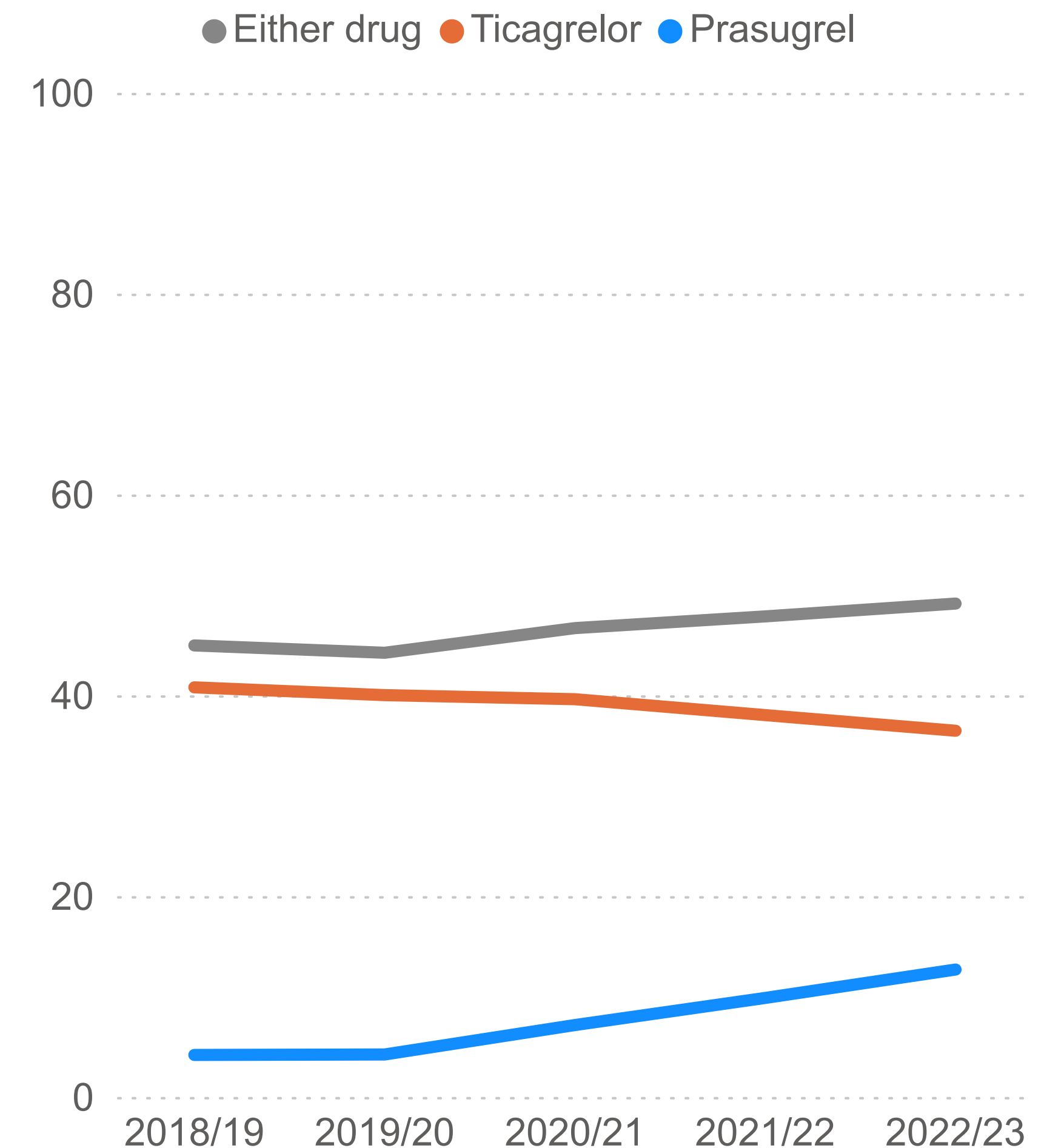
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Percentage use of prasugrel or ticagrelor for PPCI, by hospital (2022/23)



Percentage use of prasugrel and ticagrelor for PPCI



Some hospitals use newer P2Y12 antiplatelet drugs in all primary PCI cases and some do not use them at all



There are wide variations in prescription patterns between hospitals for the use of newer P2Y12 drugs in ST-elevation myocardial infarction (STEMI) treated by primary percutaneous coronary intervention (PPCI).

Six hospitals use them in all cases while 23 do not use these drugs at all (presumably preferring to prescribe clopidogrel).

Selecting a hospital or cardiac network below shows its data.

Select hospital

All

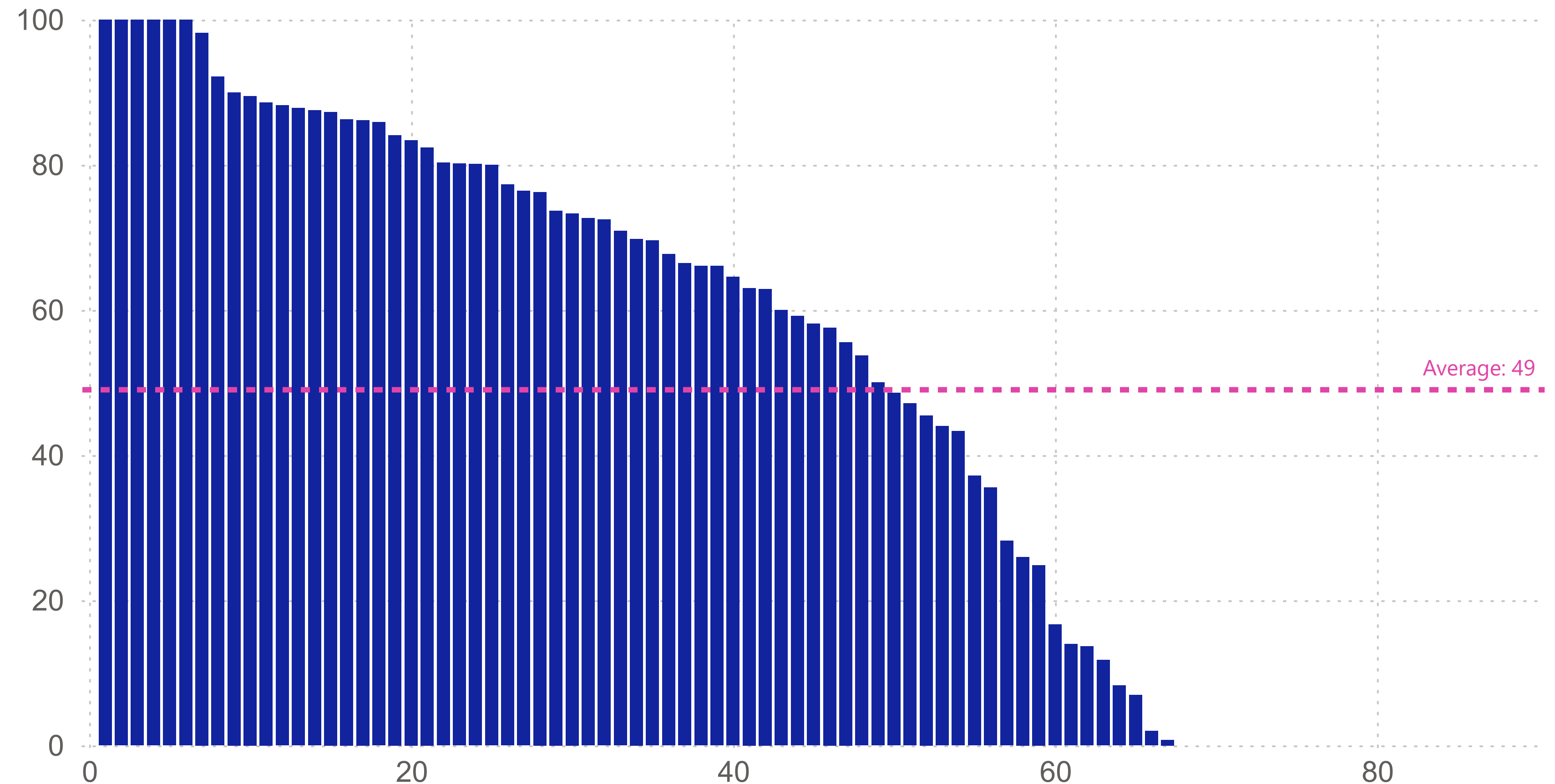
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Select Cardiac Network

All

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Percentage use of prasugrel or ticagrelor in patients undergoing PPCI, by hospital (2022/23)



Fewer than a third of patients with non-ST-elevation myocardial infarction treated by PCI are prescribed a newer P2Y12 antiplatelet drug



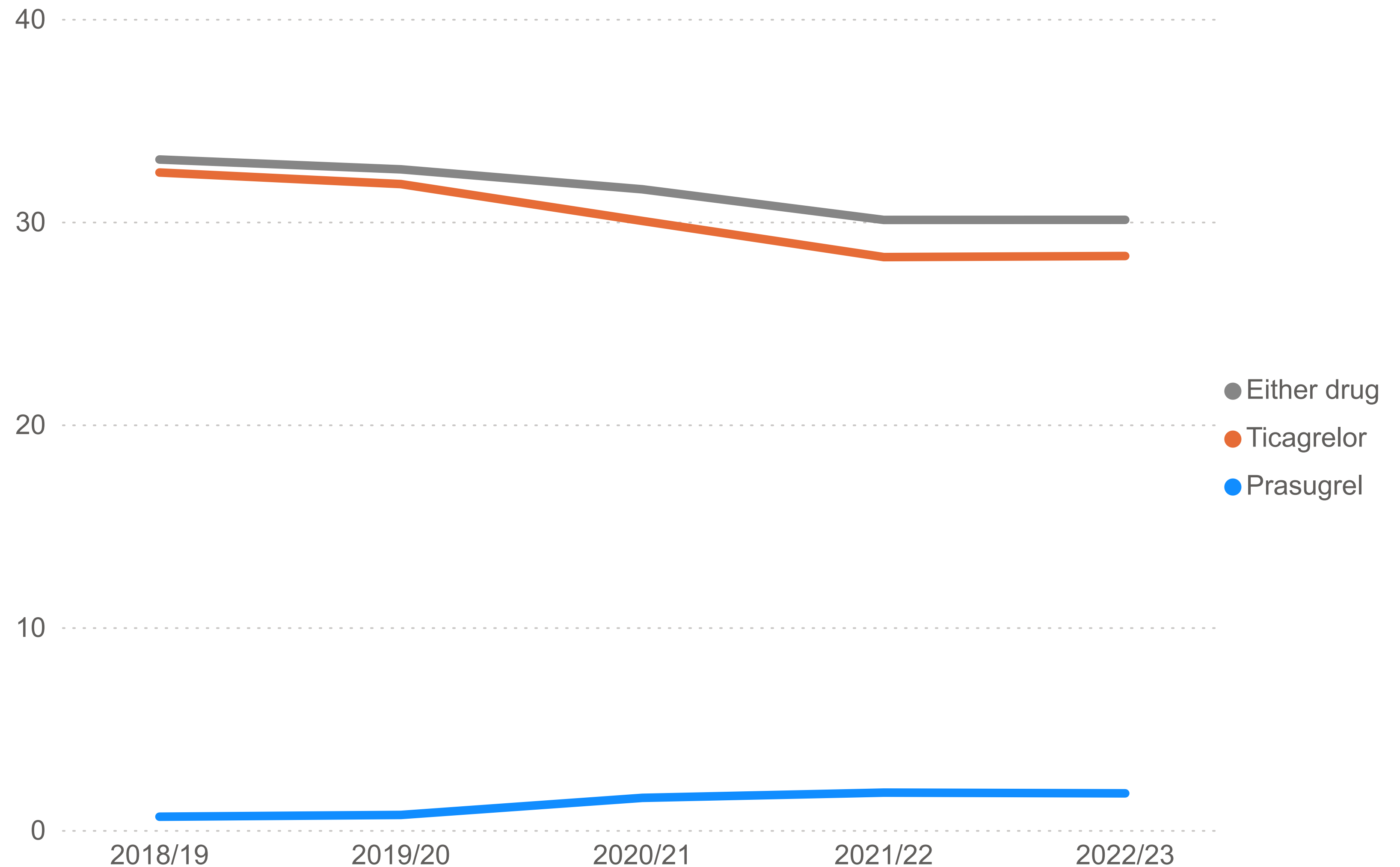
In 2022/23, the use of newer antiplatelets such as prasugrel or ticagrelor during percutaneous coronary intervention (PCI) for non-ST-elevation myocardial infarction (NSTEMI) has remained unchanged at 42%.

The [European Society of Cardiology guidelines](#) have recommended the use of prasugrel over ticagrelor since 2020.

However, only 1.8% of NSTEMI PCI cases were treated with prasugrel in 2022/23.

This is unlikely to be because prasugrel is not appropriate in more cases and more likely reflects deviation in practice from guideline recommendations.

Percentage use of prasugrel and ticagrelor in PCI for NSTEMI



There is considerable variation between regions in the use of newer P2Y12 antiplatelet drugs after PCI for NSTEMI



The maps show the use of newer P2Y12 antiplatelet drugs in patients with non-ST-elevation myocardial infarction (NSTEMI) treated by percutaneous coronary intervention (PCI) for:

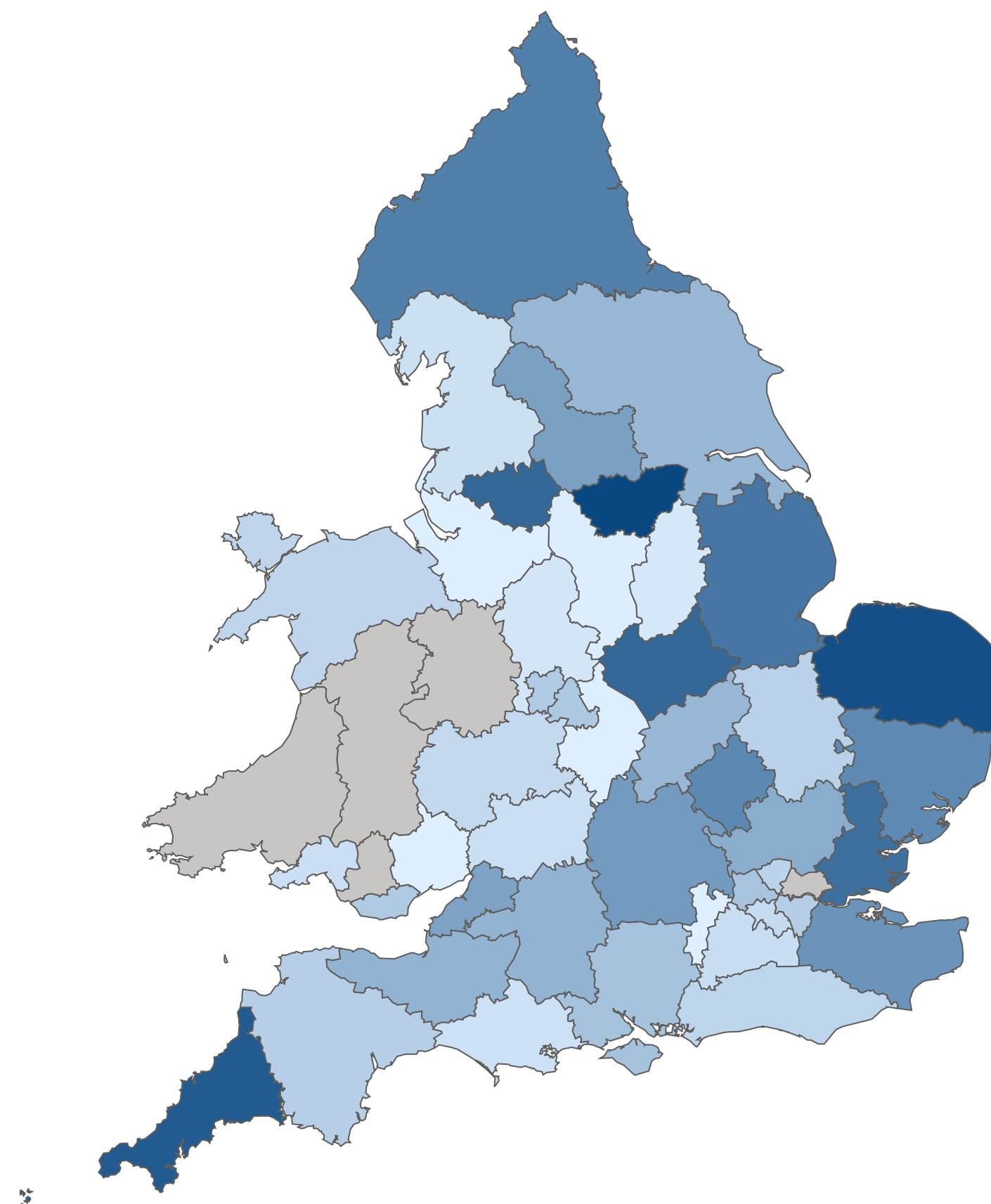
- the 42 Integrated Health Boards (ICBs) in England and 7 University Health Boards in Wales (commissioning organisations)
- the 16 Cardiac Networks in England and Wales (service delivery networks).

In 2022/23, the rate of use of either prasugrel or ticagrelor for NSTEMI patients ranged from 86% in South Yorkshire ICB to 0% in several ICBs.

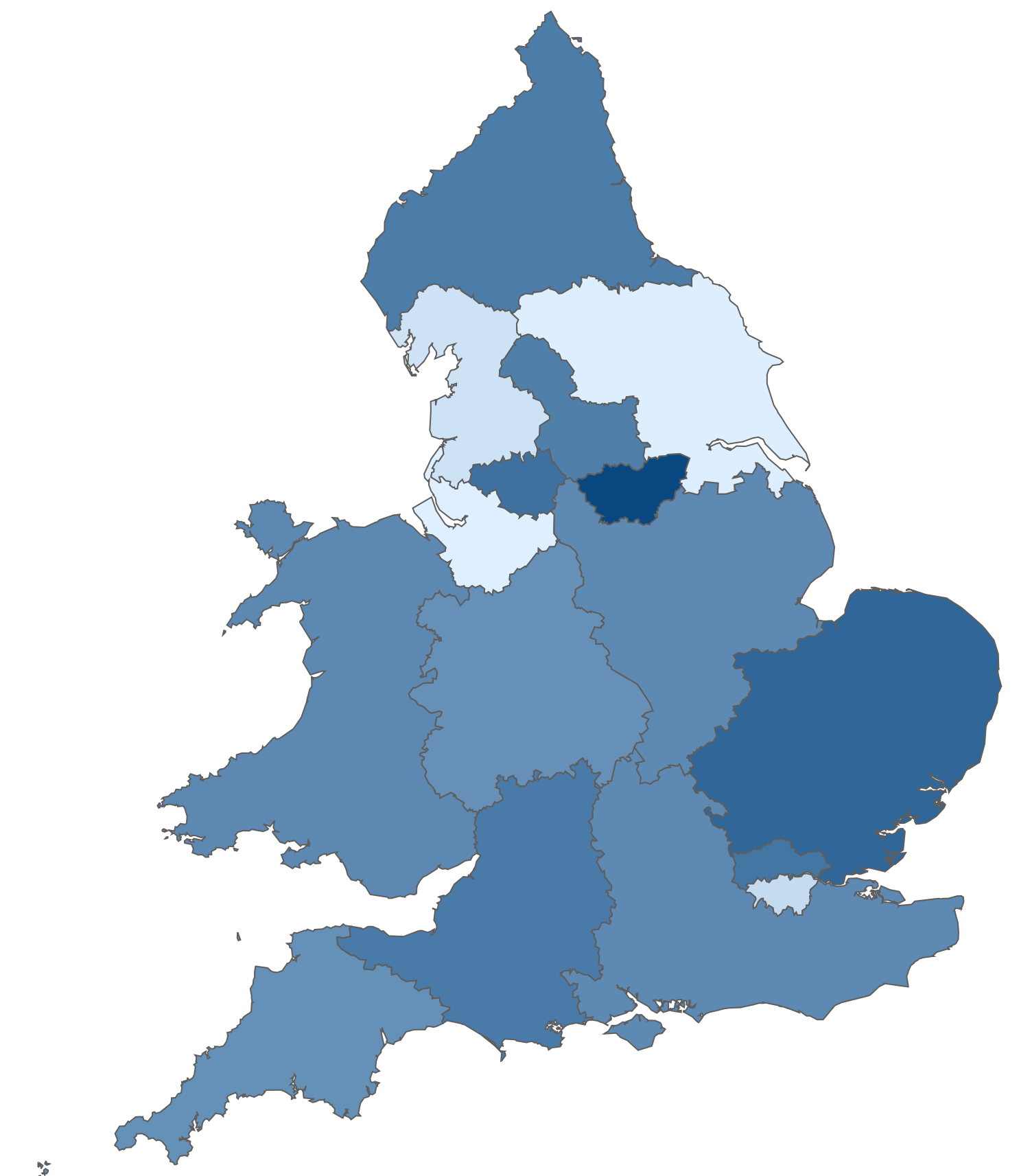
For Cardiac Networks, the range was from 87% in South Yorkshire to 0% in Cheshire and Merseyside. Several other CNs also had very low prescribing rates.

Note: Area data are based on the location of the hospital rather than the patient home location.

Percentage use of prasugrel and ticagrelor in PCI for NSTEMI by ICB/HB (2022/23)



Percentage use of prasugrel and ticagrelor in PCI for NSTEMI by Cardiac Network (2022/23)



Some hospitals hardly ever use newer P2Y12 antiplatelet drugs after PCI for NSTEMI whereas others use them in most cases



This slide shows the variation in the prescribing of newer P2Y12 antiplatelet drugs after percutaneous coronary intervention (PCI) in cases of non-ST-elevation myocardial infarction (NSTEMI).

Data for an individual centre can be shown by selecting the centre, bottom left, or by hovering over a dot in the scatter plot (left graphic).

Despite the international recommendations, there is considerable variation in the use of these newer antiplatelet agents between hospitals.

Some hospitals use these drugs in most or all cases while other do not use them at all.

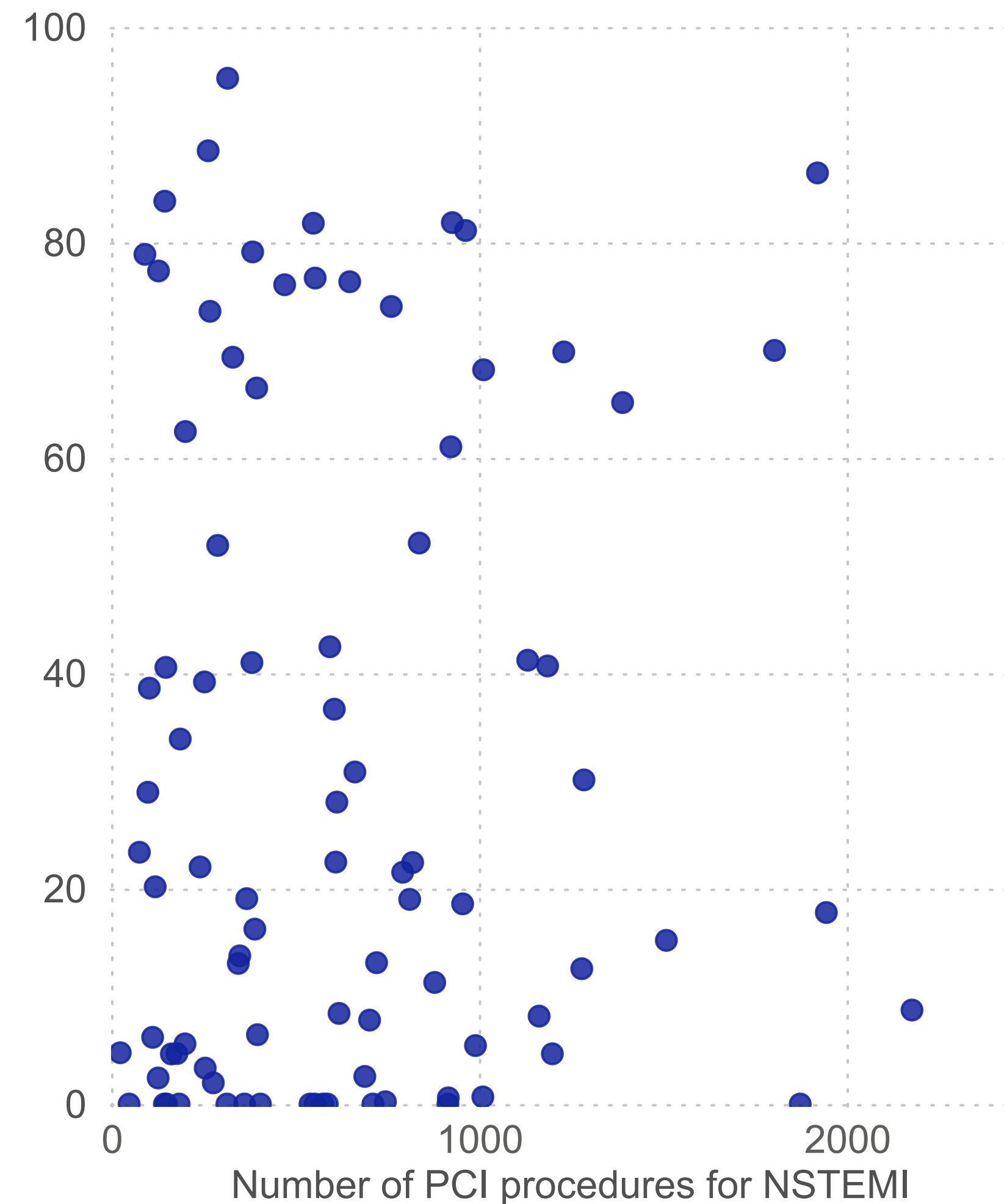
Selecting a hospital or Cardiac Network below or in the scatter plot (left graphic) shows its data.

Select hospital

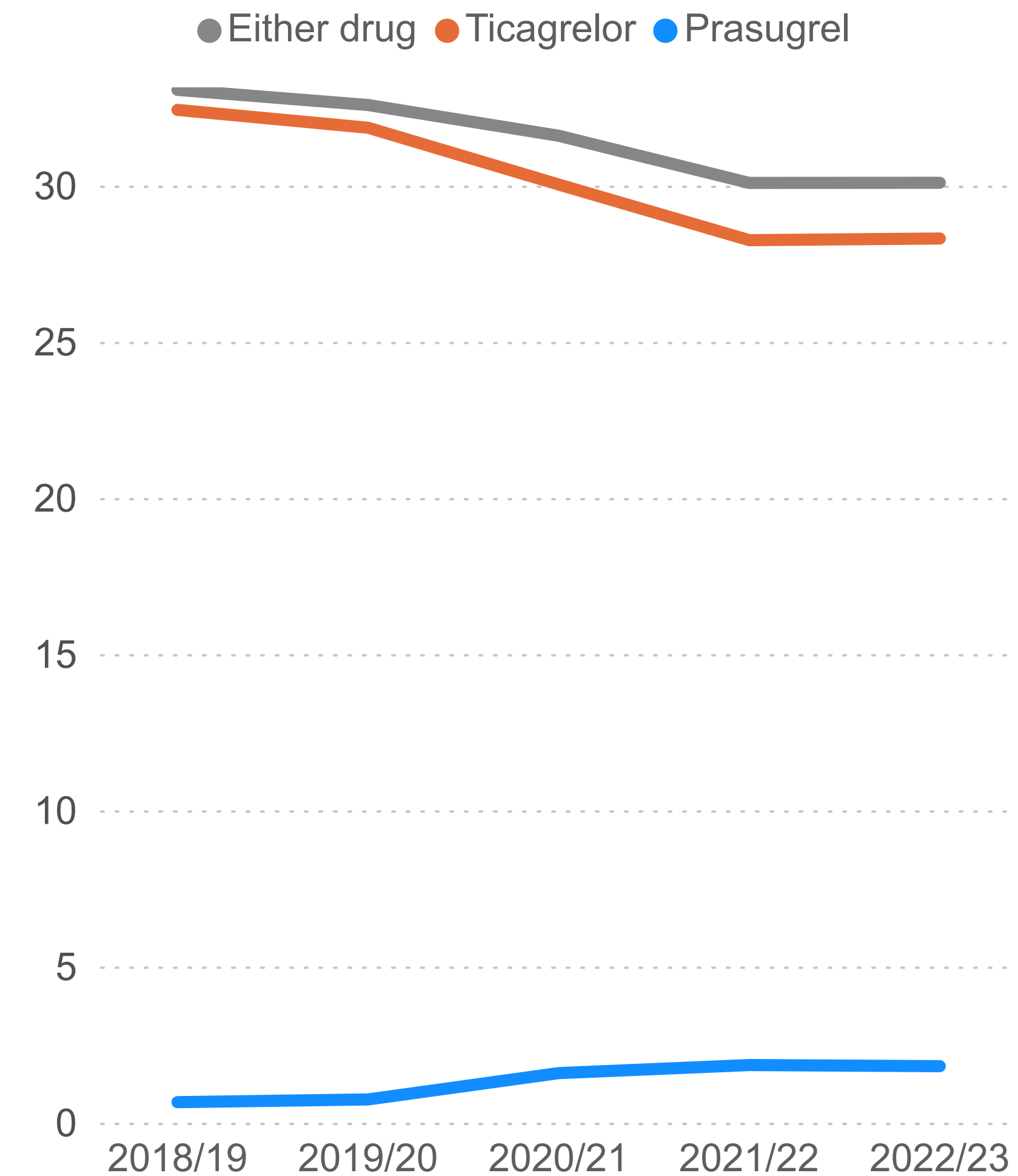
All



Percentage use of prasugrel or ticagrelor after PCI for NSTEMI, by hospital (2022/23)



Percentage use of prasugrel and ticagrelor after PCI for NSTEMI



Less than half of hospitals use newer P2Y12 antiplatelet drugs after PCI for NSTEMI in at least 50% of cases



Twenty five hospitals use newer P2Y12 antiplatelet drugs for at least half of cases involving percutaneous coronary intervention (PCI) for non-ST-elevation myocardial infarction (NSTEMI).

136 hospitals use the drugs in at least 25% of cases and 16 hospitals do not prescribe the drugs at all.

Selecting a hospital or Cardiac Network below shows its data.

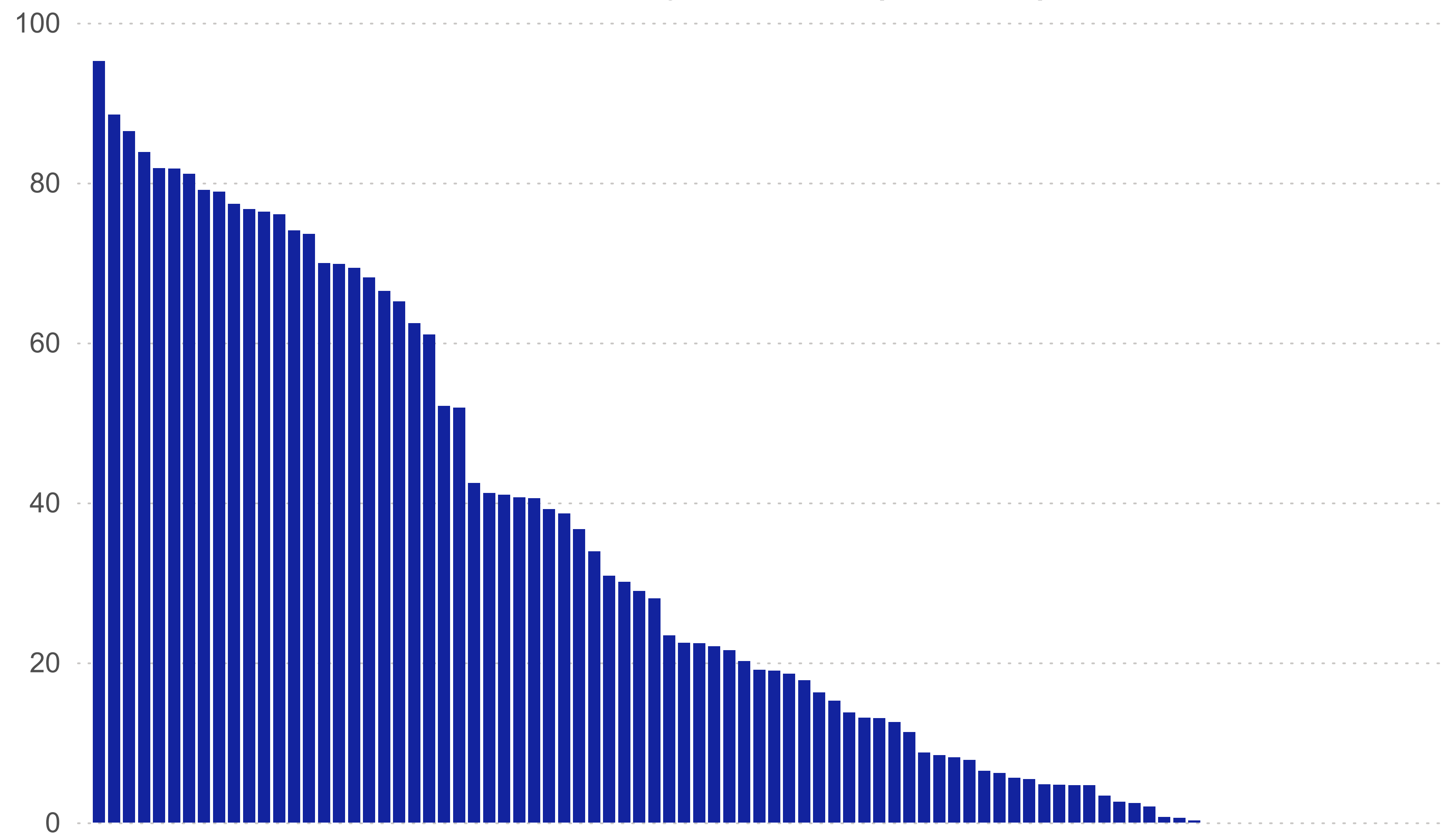
Select hospital

All

Select Cardiac Network

All

Percentage of patients receiving either prasugrel or ticagrelor after PCI for NSTEMI by hospital (2022/23)



The use of drug eluting balloons during PCI procedures has grown steadily over the last five years



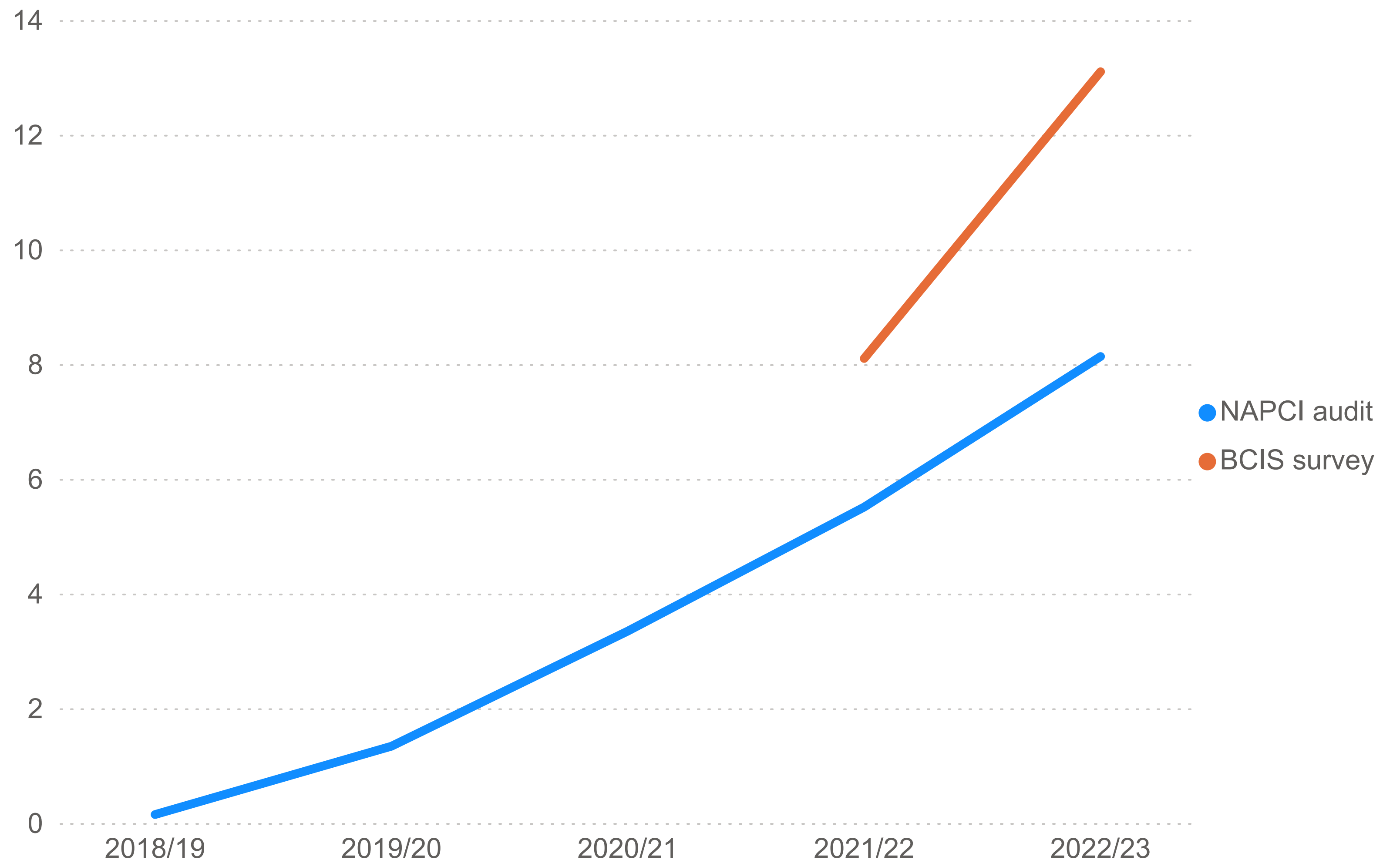
Drug eluting balloon (DEB) use during percutaneous coronary intervention (PCI) in centres in England and Wales (E&W) has increased from less than 1% of cases in 2018/19 to over 8% in 2022/23.

Data from the parallel British Cardiovascular Intervention Society (BCIS) survey suggests that DEB use has grown to over 13% of cases.

Some of the difference may be a result of hospitals recording DEBs as regular balloons.

The data in subsequent figures use the NAPCI data and may therefore represent an under-estimate of drug eluting balloon use.

Percentage use of drug eluting balloons during PCI procedures in England and Wales



The use of drug eluting balloons during PCI varies between hospitals from 0-26% of all PCI procedures



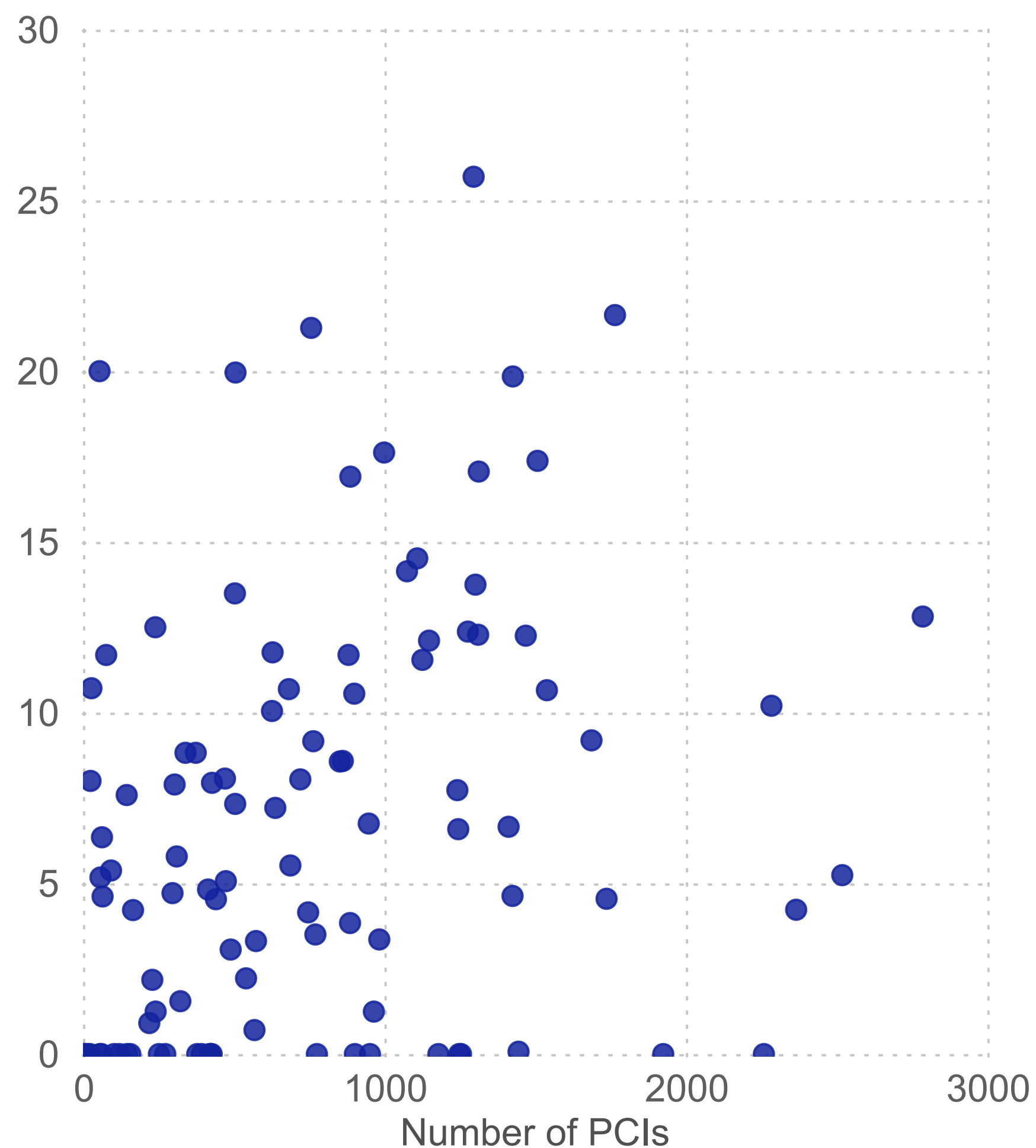
Compared with the national average of 8%, the use of a drug eluting balloon (DEB) during percutaneous coronary intervention (PCI) by individual hospitals varied from 0% to 26%.

Selecting a hospital below or in the scatter plot (left graphic) shows its data.

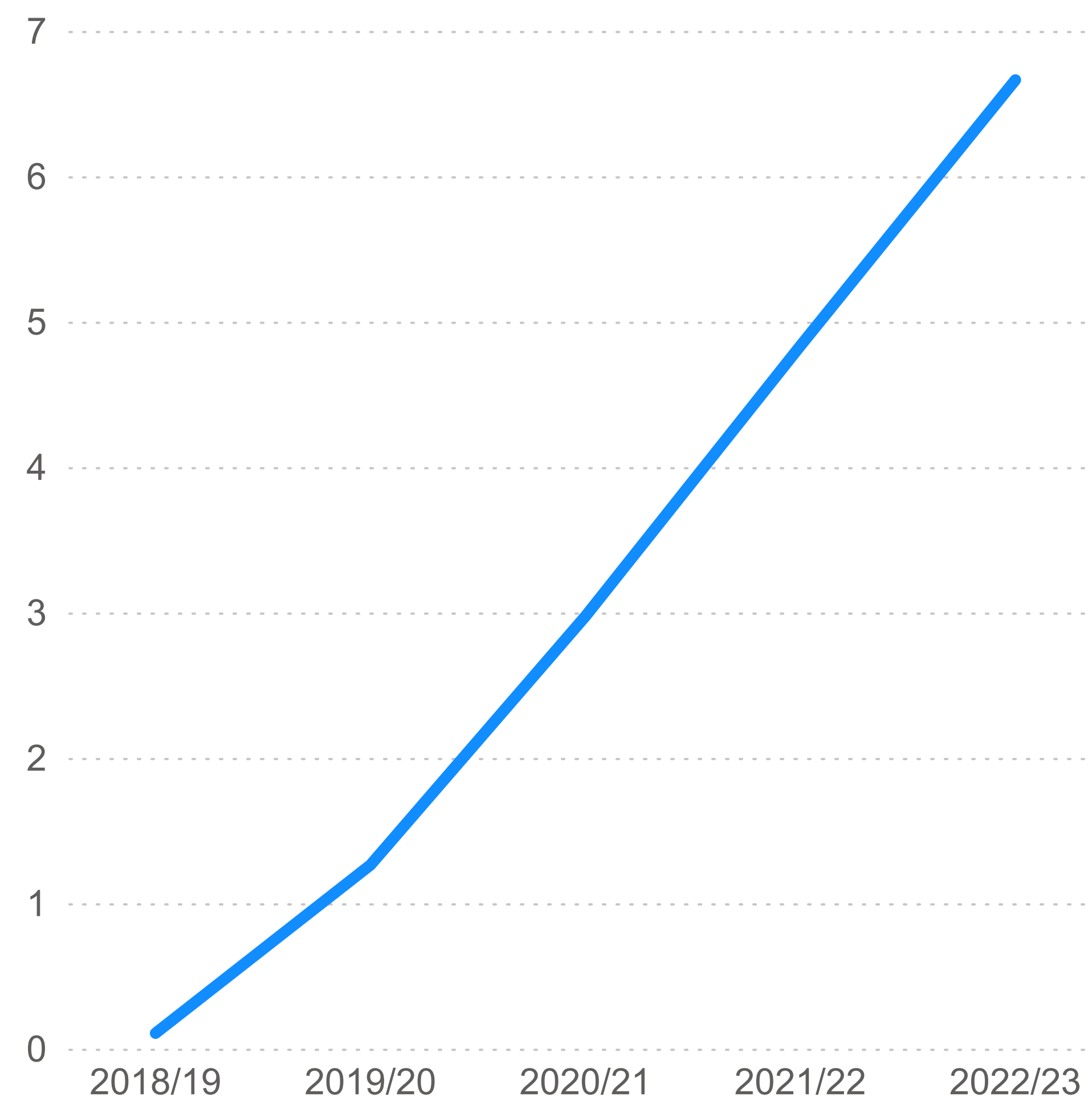
Select hospital

All

Percentage use of drug eluting balloons during PCI, by hospital (2022/23)



Percentage use of drug eluting balloons during PCI



The use of drug eluting balloons during PCI procedures varies between hospitals from 0-26% of all PCI procedures



Thirty hospitals used drug eluting balloons in over 10% of their PCI cases during 2022/23.

Drug eluting balloons can be used in conjunction with a stent, or can be used by themselves to treat a lesion.

The following slides break down the use of DEB alone and with a stent.

Selecting a hospital or Cardiac Network below shows its data.

Select hospital

All

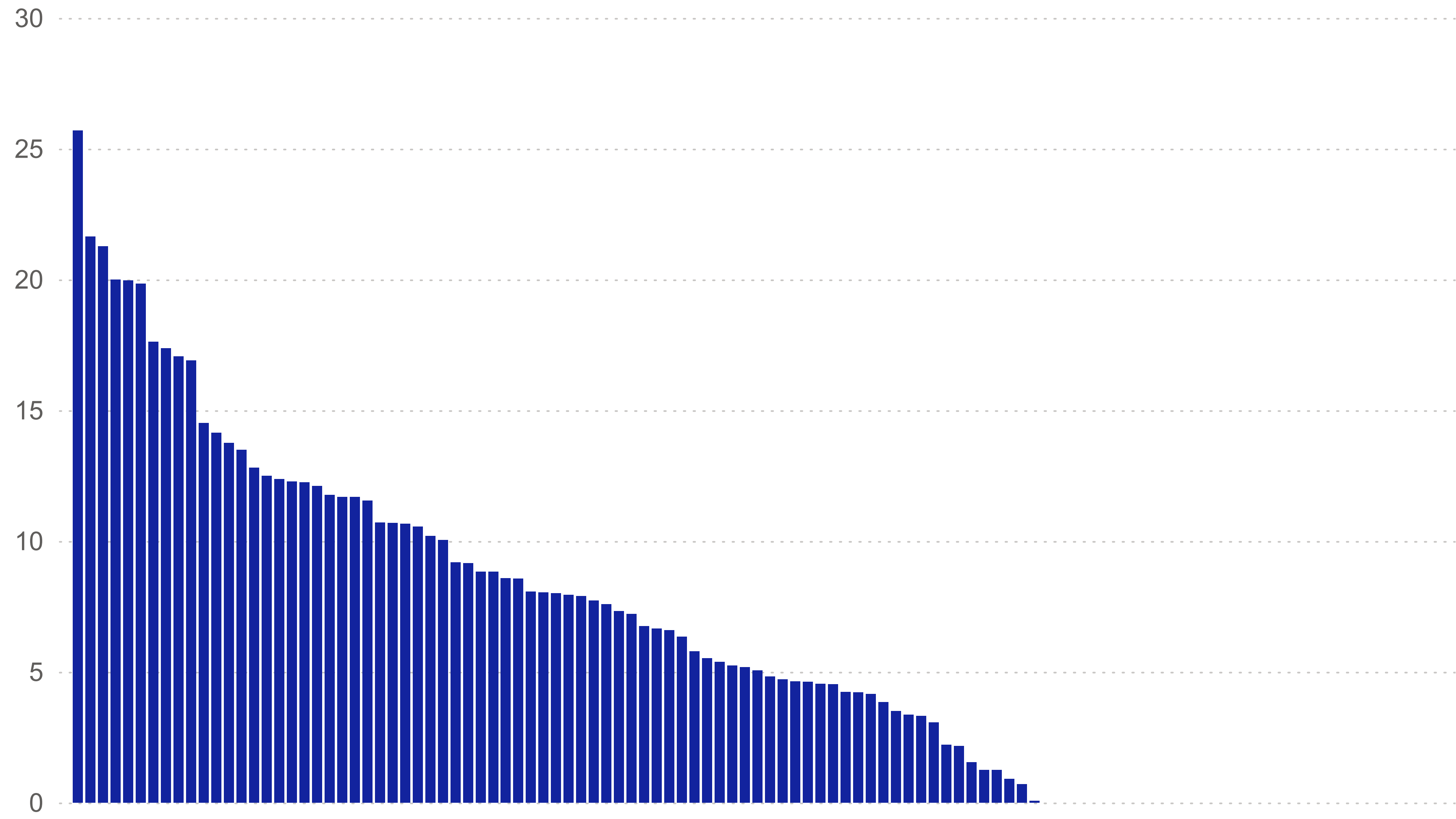
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Select Cardiac Network

All

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Percentage use of drug eluting balloons during PCI by hospital (2022/23)



Three percent of PCI cases are performed using drug eluting balloons as a stand-alone treatment (without a stent)



In 2022/23, drug eluting balloon (DEB) were used as a stand-alone treatment (without additional stents) in 2.9% of all PCI procedures.

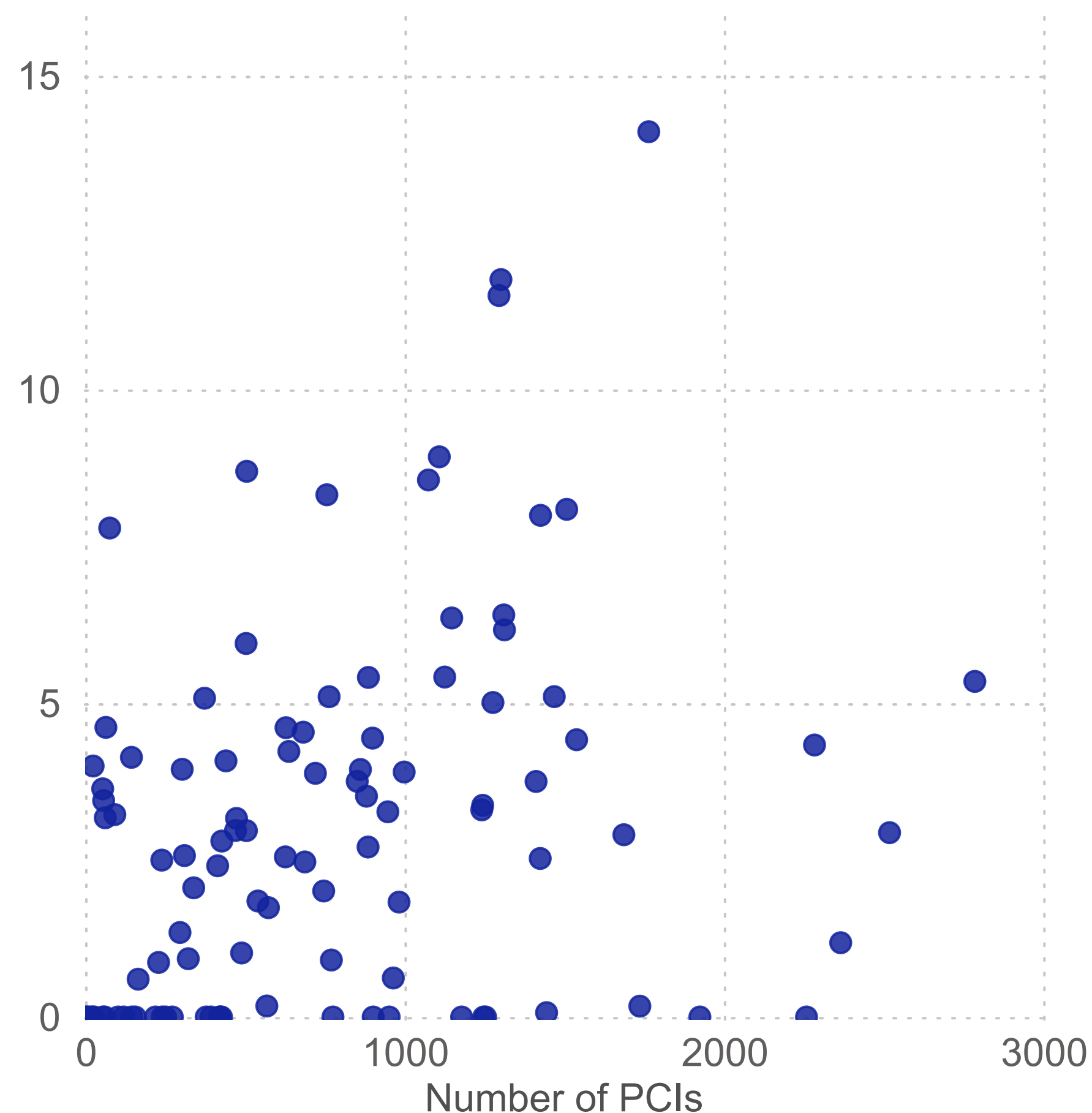
There was significant variation between units, with the highest value recorded at 14.1%.

Selecting a hospital below shows its data.

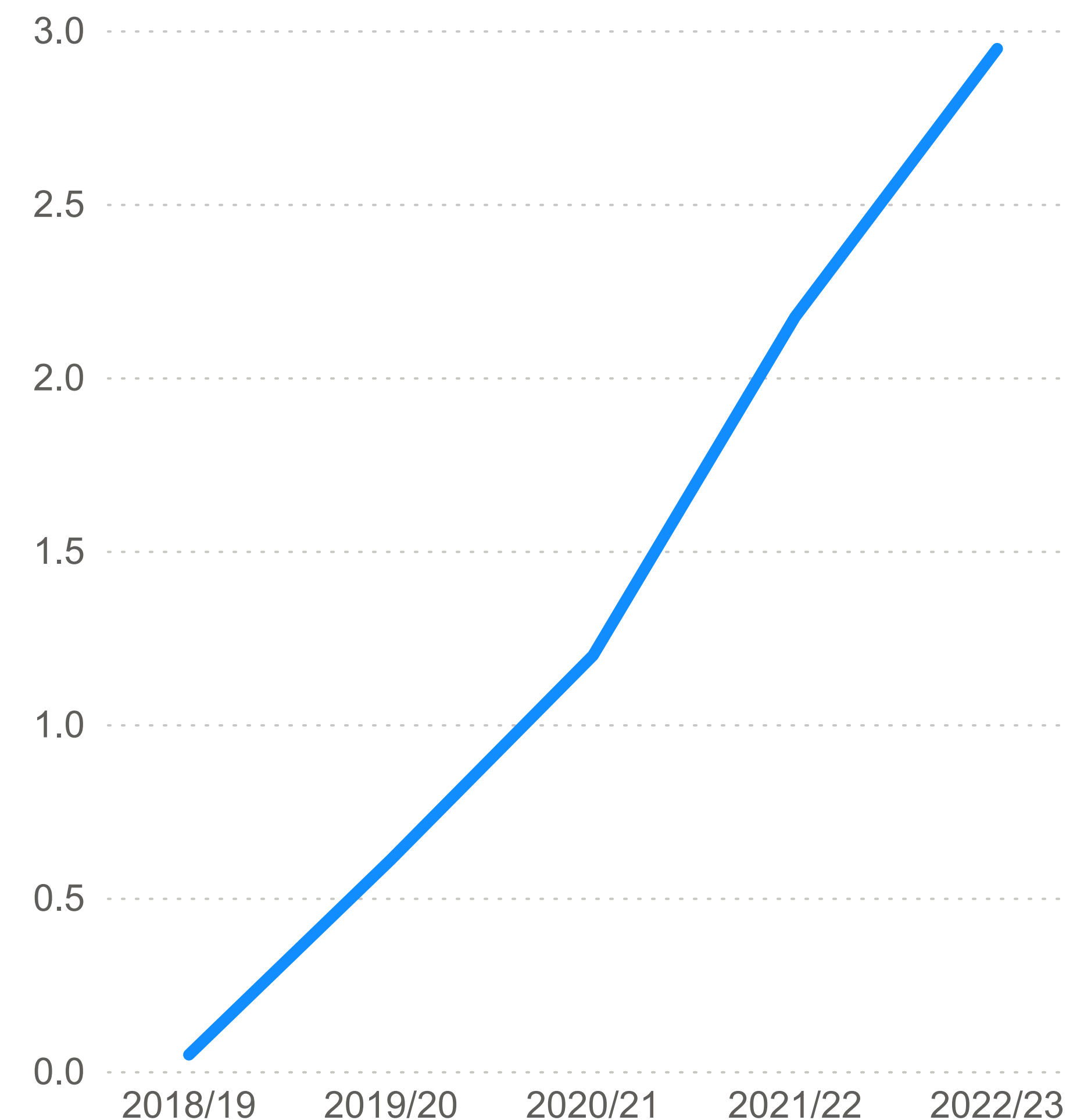
Select hospital

All

Percentage use of drug eluting balloons during PCI without stent use by hospital (2022/23)



Percentage use of drug eluting balloons during PCI without stent use



Most hospitals used drug eluting balloon (DEB) as a stand-alone treatment (without additional stents) in less than 5% of their PCI cases



In 2022/23, twenty one hospitals used drug eluting balloon (DEB) as a stand-alone treatment (without additional stents) in at least 5% of their cases.

The majority of hospitals recorded rates under 5%.

Selecting a hospital or Cardiac Network below shows its data.

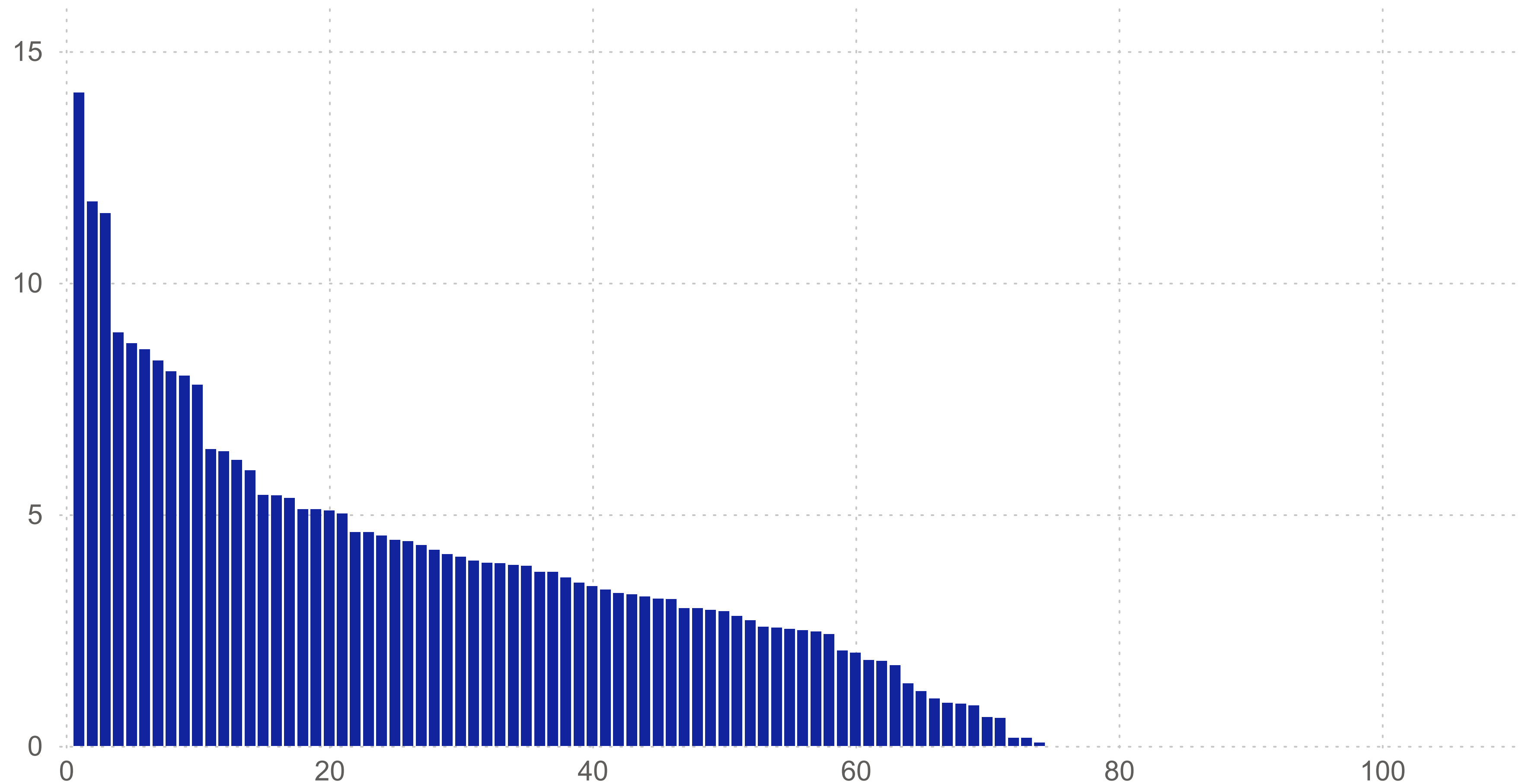
Select hospital

All

Select Cardiac Network

All

Percentage use of drug eluting balloons during PCI without stent use by hospital (2022/23)



For individual hospitals, a drug eluting balloon was used as an adjunct to stenting in 0-16% of PCI procedures



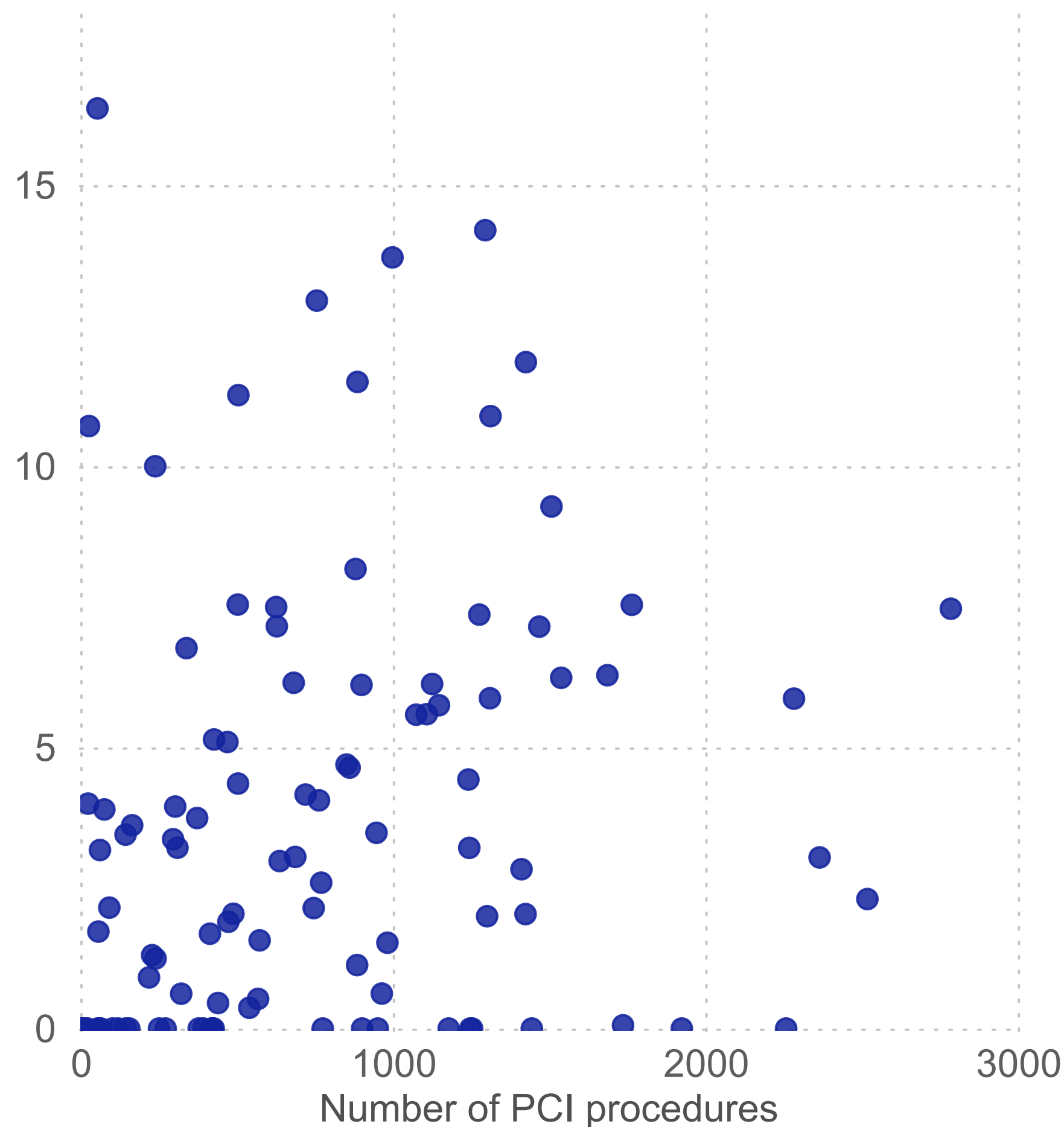
There was considerable variation in the use of a drug eluting balloon (DEB) during percutaneous coronary intervention (PCI) as an adjunct to stenting, varying from 0-16% of cases.

Selecting a hospital below or in the scatter plot (left graphic) shows its data.

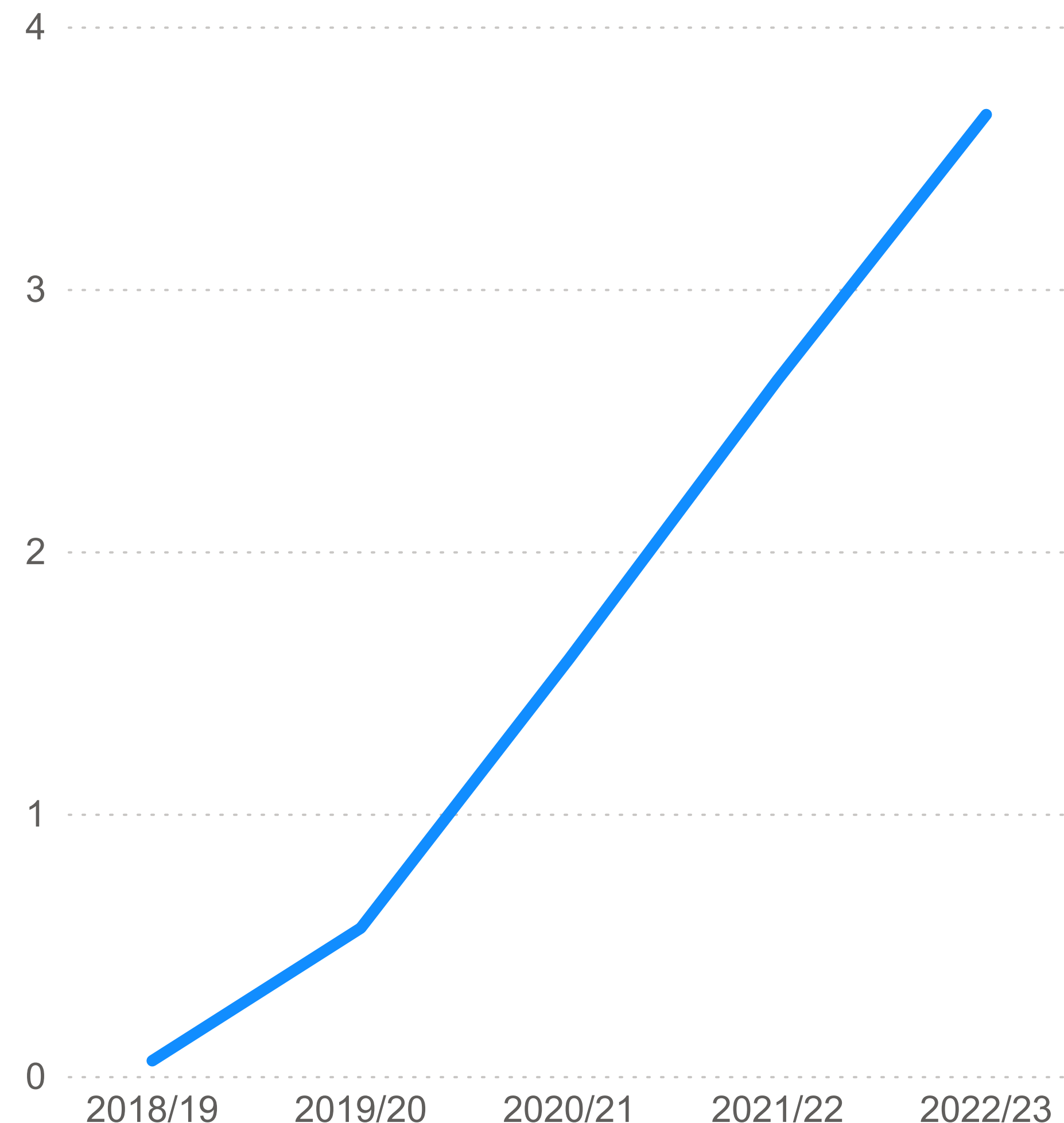
Select hospital

All

Percentage use of drug eluting balloons during PCI when a stent was also used by hospital (2022/23)



Percentage use of drug eluting balloons during PCI when a stent was also used



Ten hospitals used a drug eluting balloon as an adjunct to stenting in more than 10% of their PCI procedures



Percentage use of drug eluting balloons during PCI when a stent was also use, by hospital (2022/23)

Ten hospitals used a drug eluting balloon as an adjunct to stenting in more than 10% of their PCI procedures.

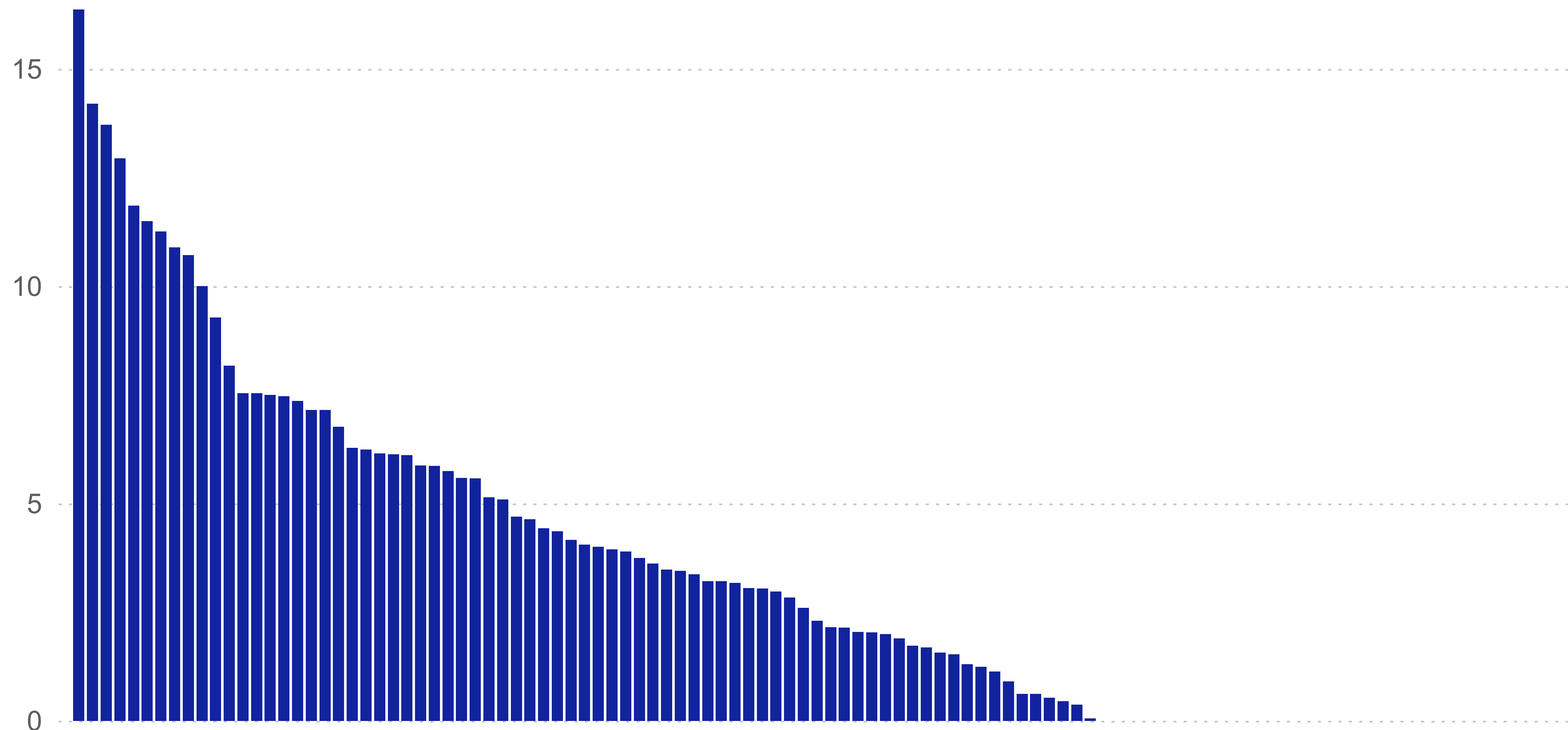
Selecting a hospital or Cardiac Network below shows its data.

Select hospital

All

Select Cardiac Network

All



A drug eluting balloon is used in over a quarter of PCI procedures for in-stent restenosis



A longer-term complication of any percutaneous coronary intervention (PCI) procedure is restenosis (later re-narrowing of the vessel).

Traditionally this was treated with further stents although, for the latter, there was a slight increase in the risk of complications such as stent thrombosis and further restenosis because of multiple layers of stents in a vessel.

Drug eluting balloons (DEBs) are increasingly used to treat in-stent restenosis following favourable trial data, resulting in a class 1A recommendation in the [European Society of Cardiology 2018 guidelines](#) on myocardial revascularization.

There has been a rise in the use of DEBs for this over the last few years, reaching 28% of all such cases in 2022/23 (up from 19% in 2021/22). There was significant variation by hospital but 18 hospitals use them in 50% or more of such cases.

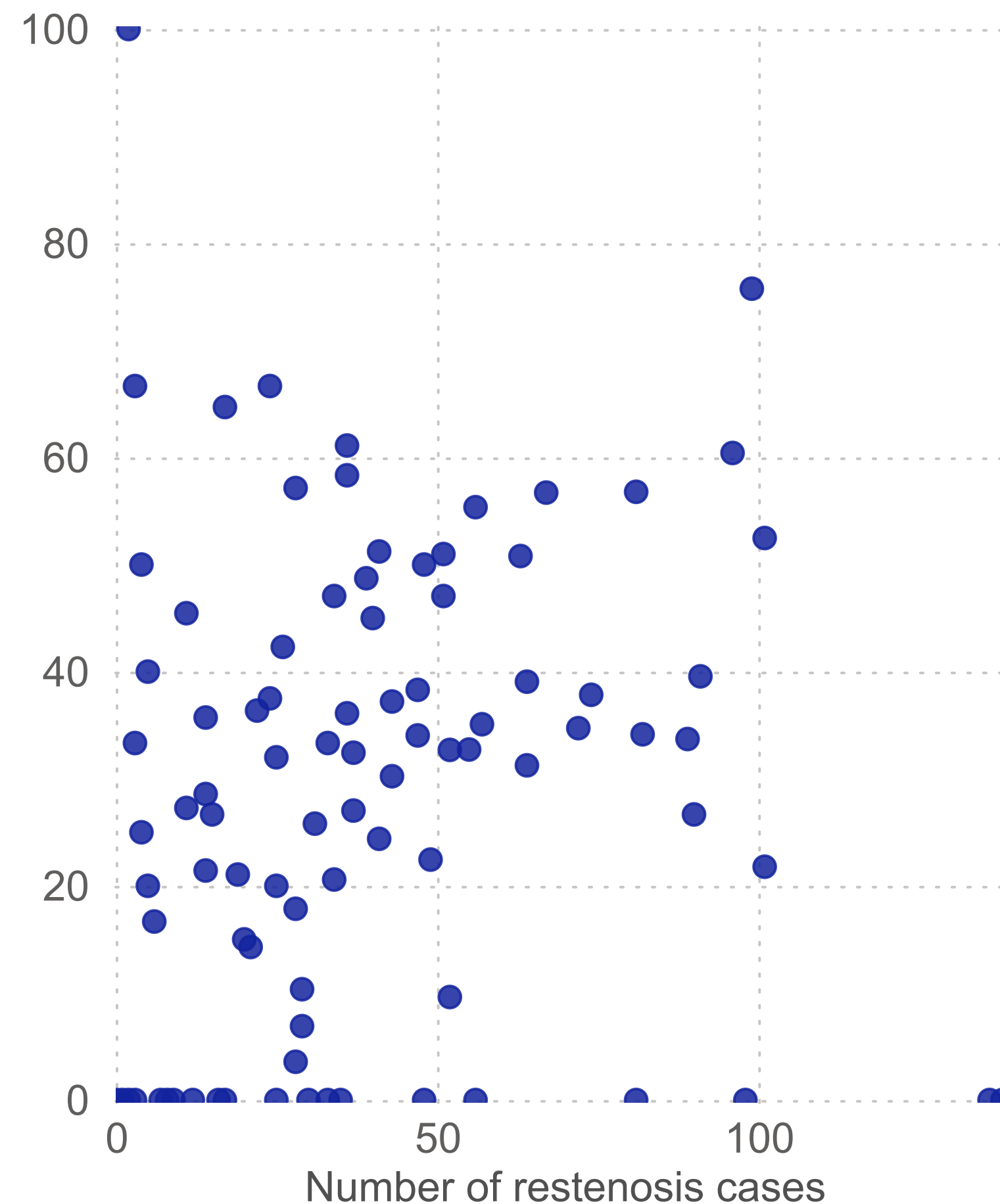
Selecting a hospital below or in the scatter plot

Select hospital

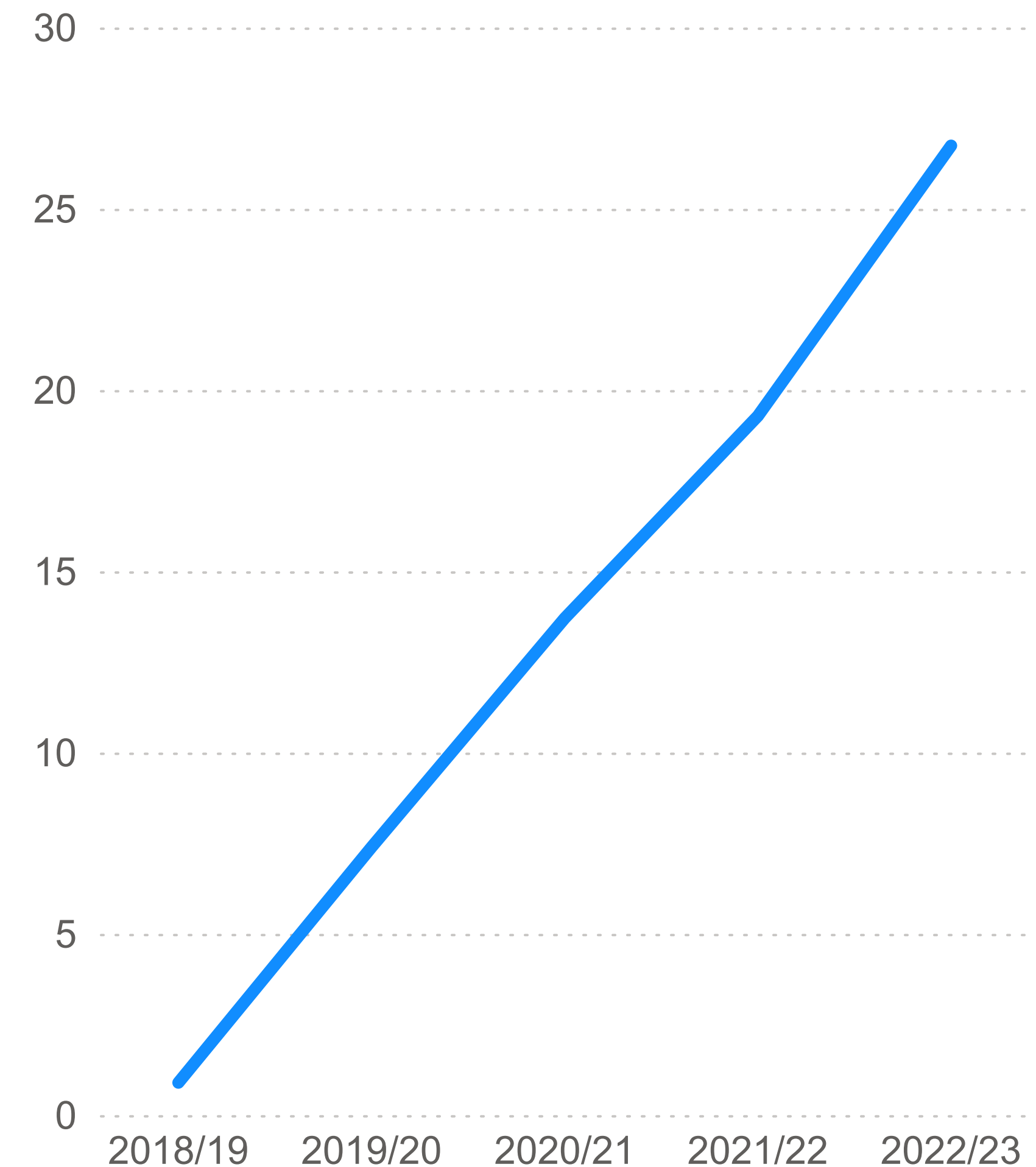
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Percentage use of drug eluting balloons in restenosis cases by hospital (2022/23)



Percentage use of drug eluting balloons in restenosis cases



Twenty six hospitals used drug eluting balloon in more than 40% of their PCI procedures for in-stent restenosis



Twenty six hospitals used drug eluting balloons (DEBs) in more than 40% of their cases to treat in-stent restenosis.

Nine hospitals used it in fewer than 20% of such cases and 31 hospitals did not use DEBs at all for this purpose.

Selecting a hospital or Cardiac Network below shows its data.

Select hospital

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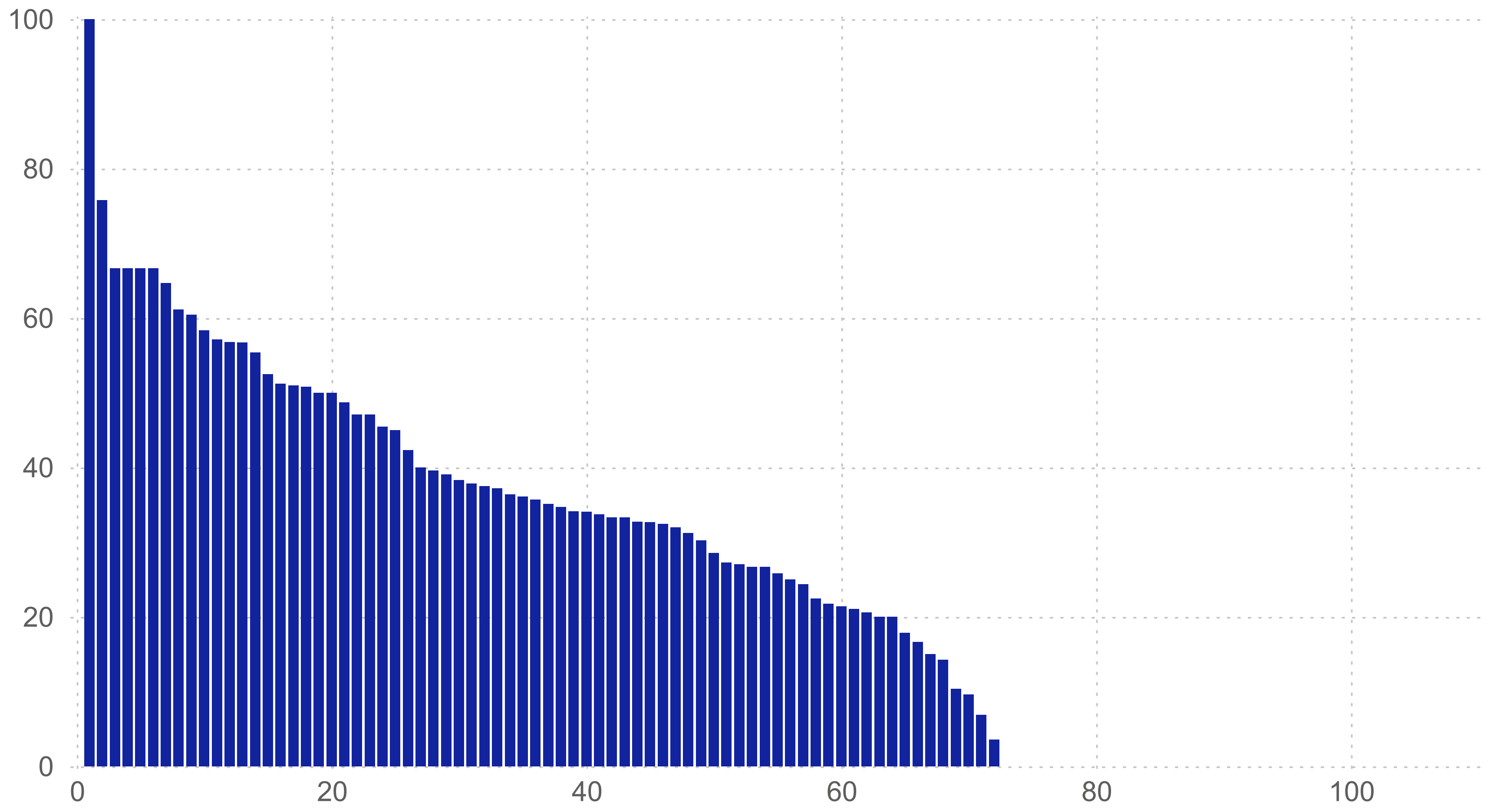
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Select Cardiac Network

All

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Percentage use of drug eluting balloons in restenosis cases by hospital (2022/23)



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Introduction

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