

NHS presentation

Key questions

1. Is there adequate **staff** and **capacity** in the networks?

2. How does the NHS **utilise its resources**?

3. Is the current infrastructure and resources sufficient or does capacity need to be increased?

Context of the problem



Image taken from Pulse Today, "The truth about GP access" (2023).

55.4%

of patients said they had avoided making an appointment in the past 12 months if they needed one.

47.3%

of patients said it was difficult to get through to their GP practice on the phone.

44.8%

of patients weren't satisfied with the appointment times available.

72.4%

rated their overall experience of their GP practice as "good".

-10.6%

from 2021.



Context of the problem

Overburdened NHS Pushes More Brits To Go Private

Share of UK respondents that have private health insurance



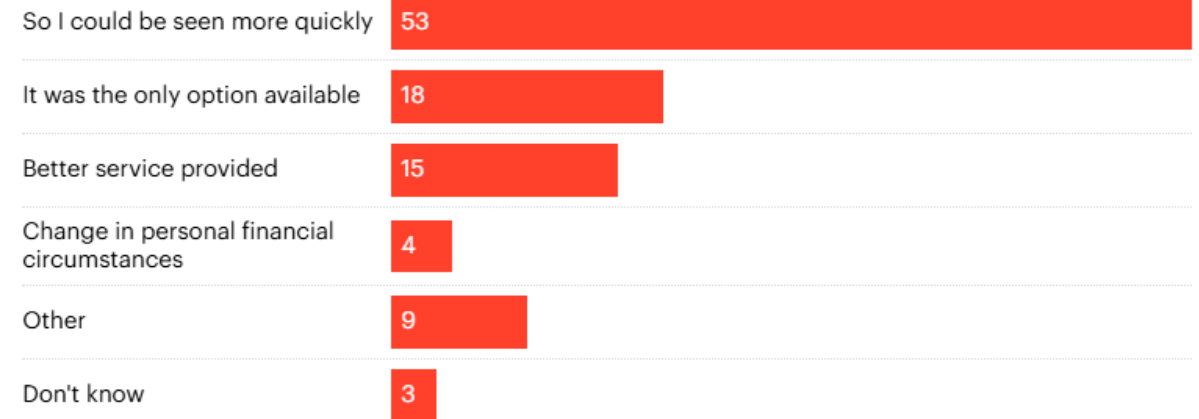
At least 1,046 UK adults (16-84 y/o) per survey

Source: Statista Consumer Insights

Image taken Statista, "Share of UK paying for private health insurance".

Most Britons who turned to private healthcare in the last year say they did so in order to be seen more quickly

You said you have used or considered using private healthcare instead of the NHS in the last year. Which of the following best describes why that is? % of 1,164 Britons who had used private healthcare in the last year for themselves or a member of their immediate household



YouGov

7-13 March 2023

Image taken YouGov, "One in eight Britons turned to private healthcare in the last 12 months".

Context of the problem

Total population increasing



Elderly population increasing

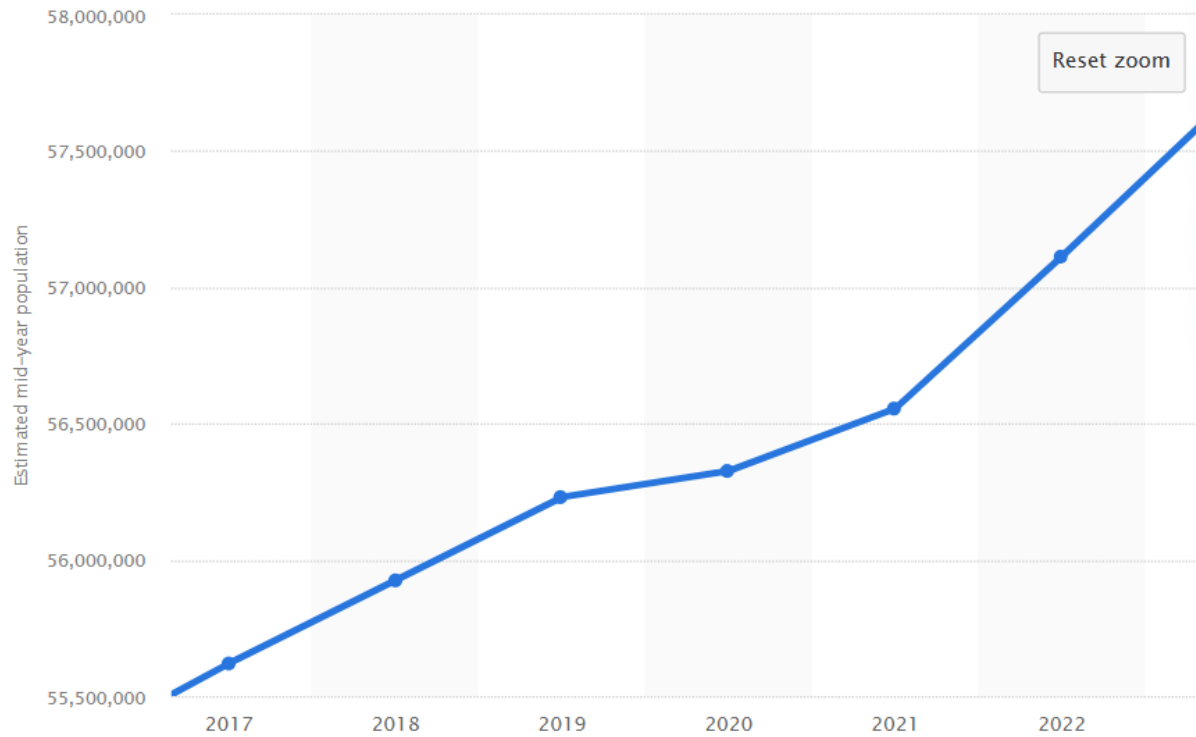


Image taken Statista, "England population 2023."

Figure 1 Actual and projected number of people aged 65+, by age group, 2020-2050, England

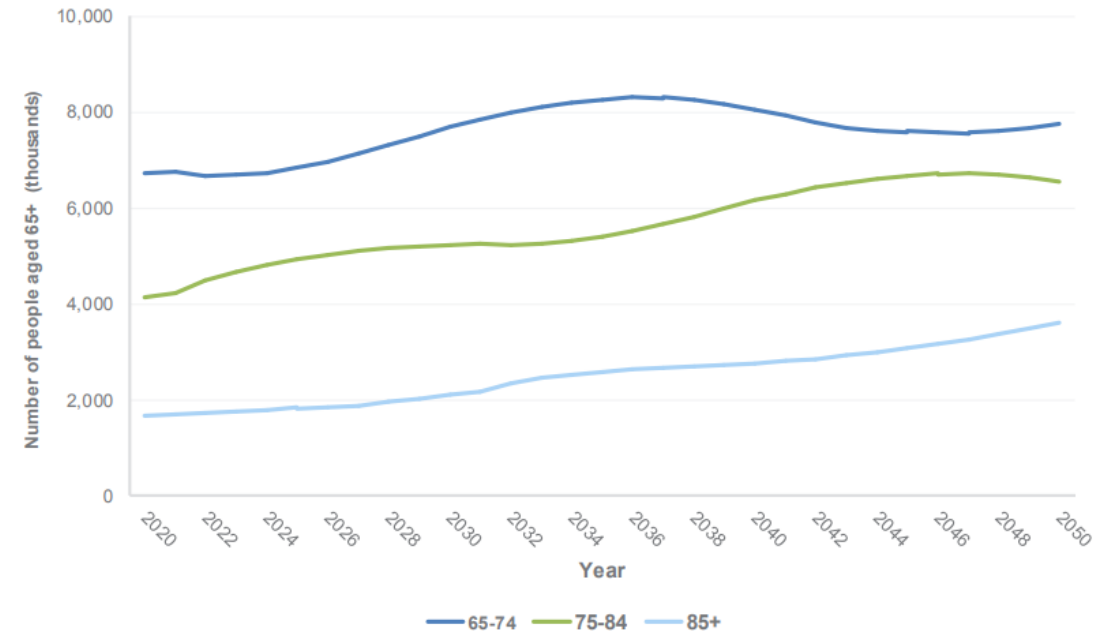


Image taken Age UK, "The State of Health and Care of Older People, 2023".

What can potentially be gained from completing an analysis of the data?

More efficient use of
NHS budget.

Better health outcomes for
patients.

Decreased staff workload.



How am I going to answer the business questions?

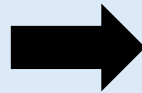
Region

Season

Month

Day of the week

Utilisation of
resources.
Especially...



- Appointment mode
- Appointment duration
- Time between booking and the appointment

England: NHS England Regions, 2022

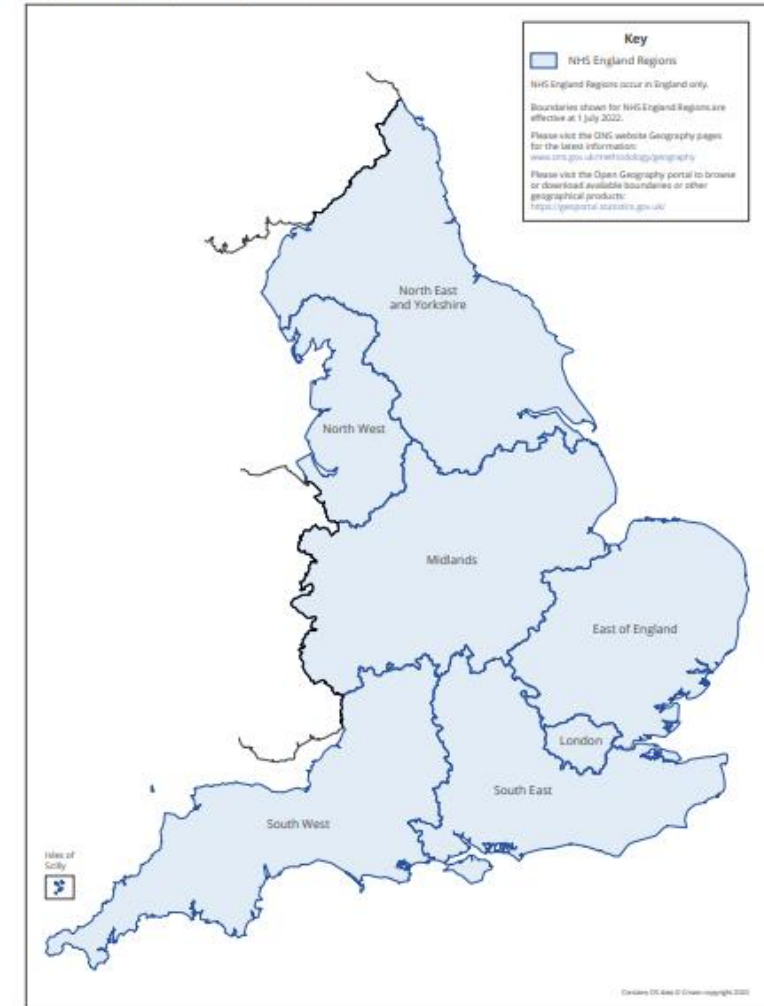
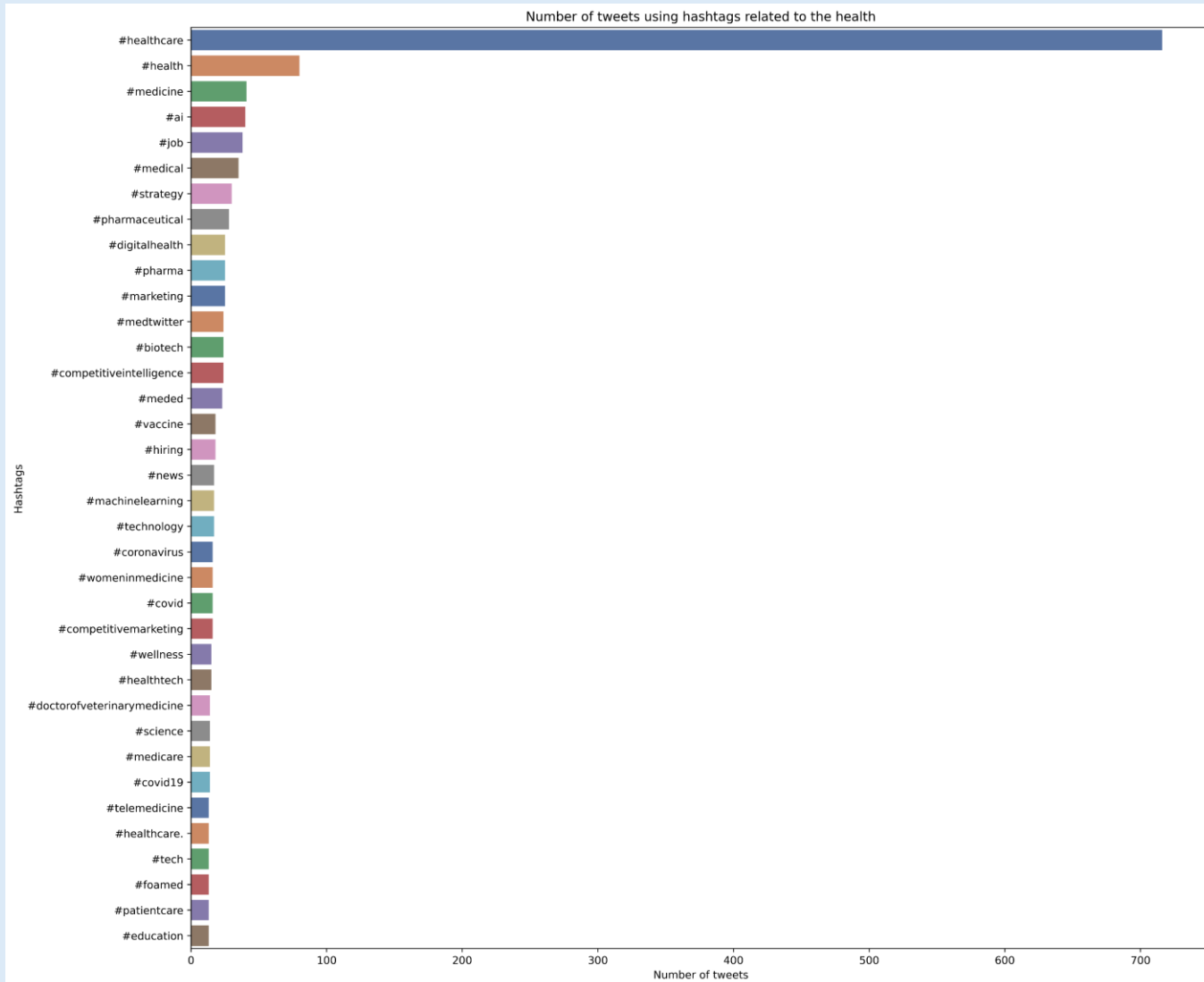


Image taken from Office for National Statistics,
"NHS England Regions (July 2022) Map in EN".

Is using Twitter (X) data useful for the NHS?

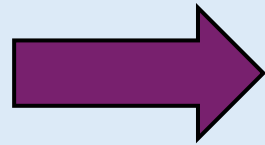


Whilst it could potentially be useful if used the right way, the tweets.csv data I was given was far too broad, covering healthcare in general around the world, not just about NHS England GP appointments.

Any analysis would have to cover hashtags that were specific to NHS England, bearing in mind that the views on Twitter (now X) might not be the views of the general public in England.

How am I going to answer the business questions?

How many appointments are there per resource, region, and time of year?



How often is the network over maximum capacity?

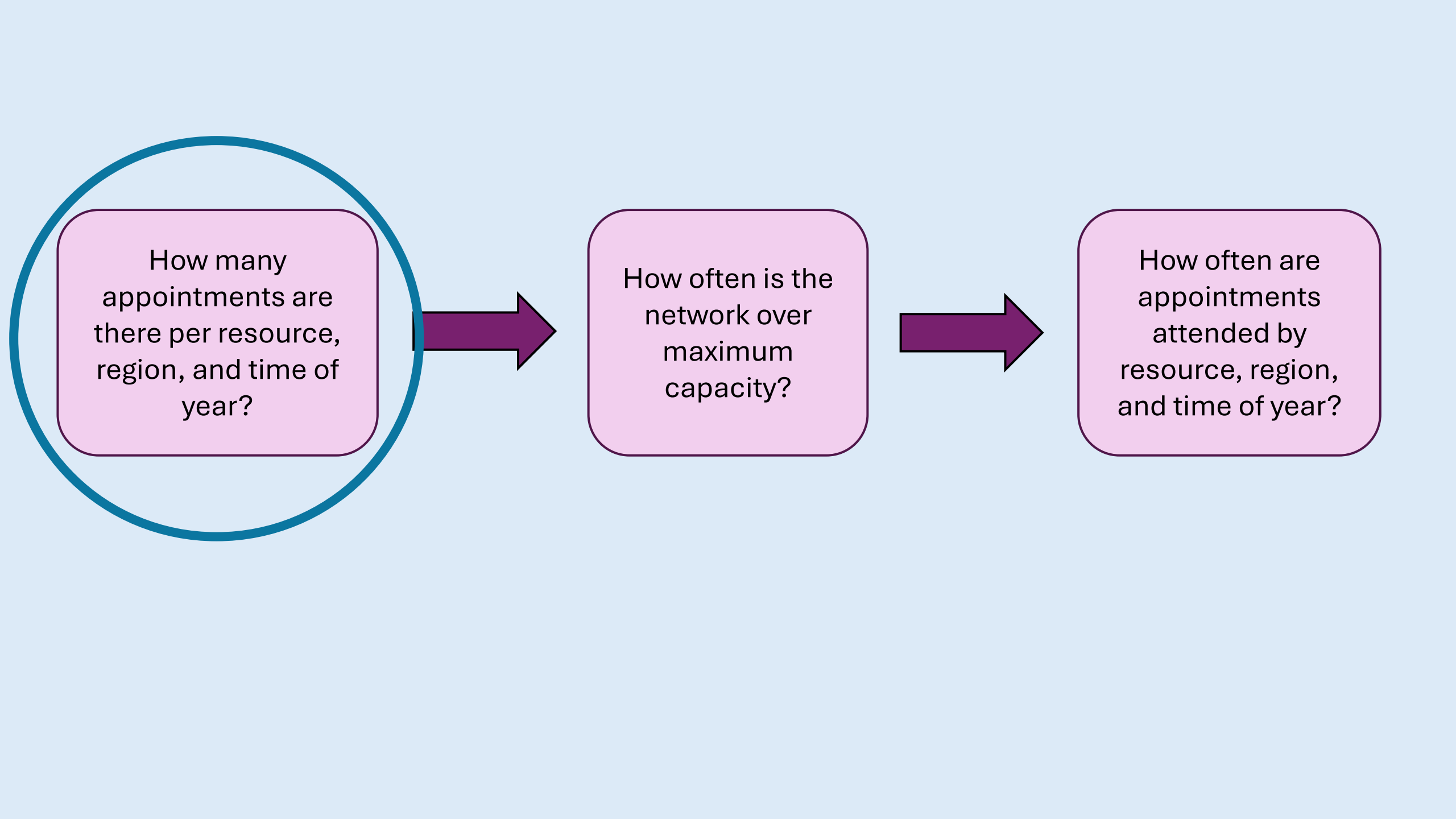


How often are appointments attended by resource, region, and time of year?

The NHS gave a guideline for maximum capacity of 1.2 million appointments per day.
However, as 95.6% of practices were included in the data and of these, 96.4% of patients are included, I used **1,105,900** as the guideline for **maximum capacity**.
 $1,200,000 * 0.956 * 0.964 = 1,105,900$ (rounded down)

Note that this figure does not take into account **appointment duration**.





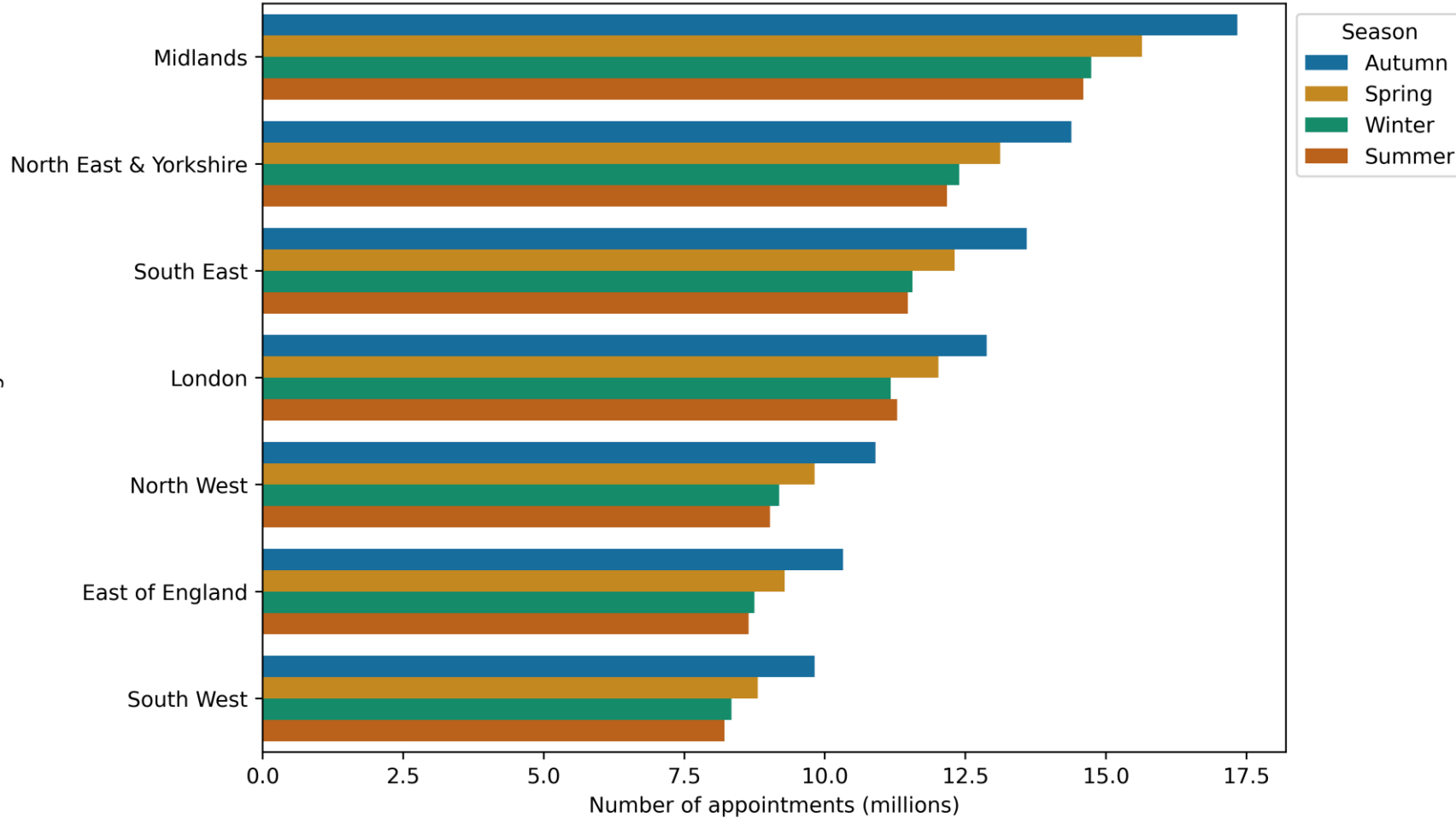
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graph LR; A[How many appointments are there per resource, region, and time of year?] --> B[How often is the network over maximum capacity?]; B --> C[How often are appointments attended by resource, region, and time of year?];
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How many appointments are there per resource, region, and time of year?

How often is the network over maximum capacity?

How often are appointments attended by resource, region, and time of year?

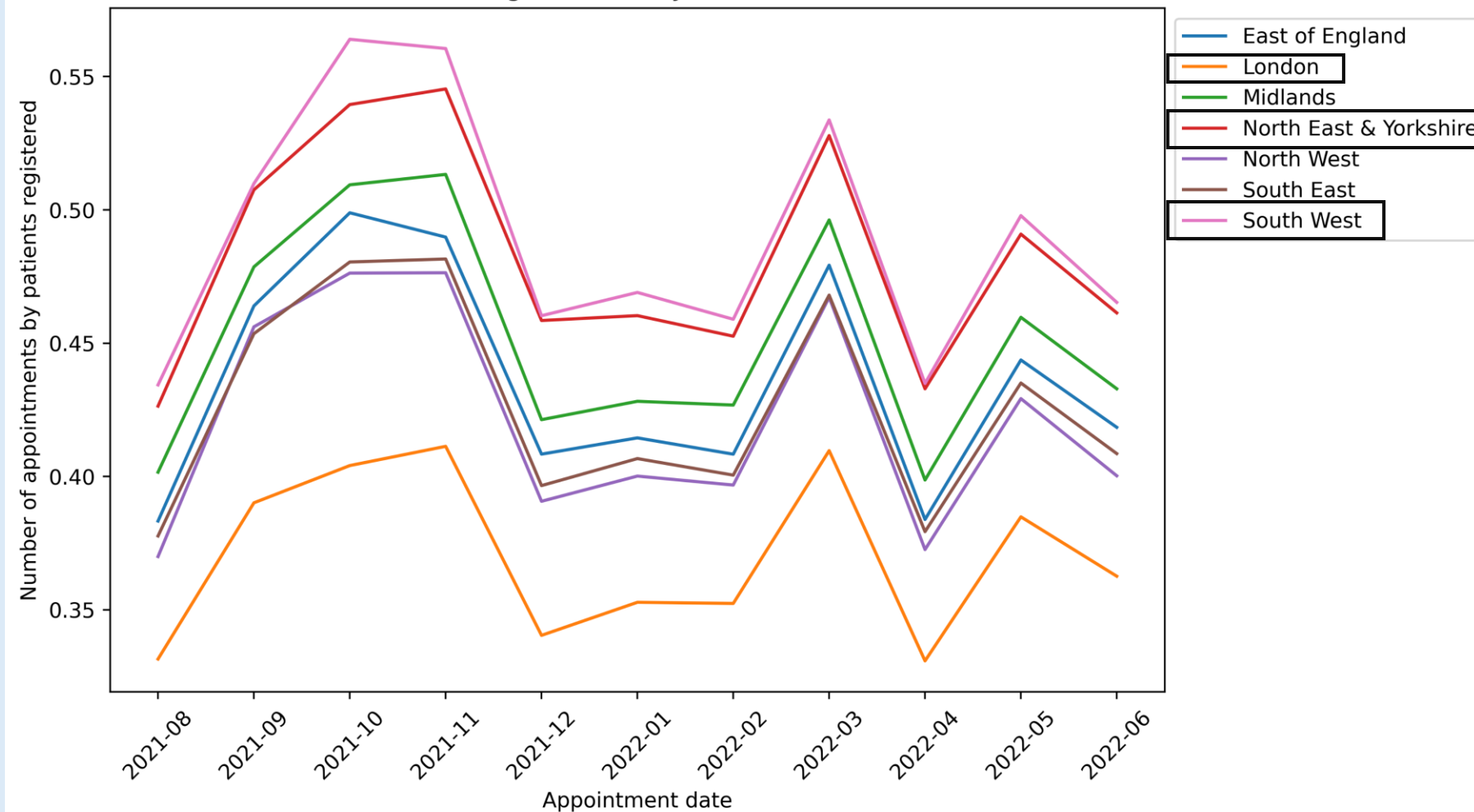
Autumn had the most appointments across all regions
(July 2021 to June 2022)



Across all regions, **Autumn**
has the **most** appointments.

Across most regions,
Summer has the **least**
appointments.

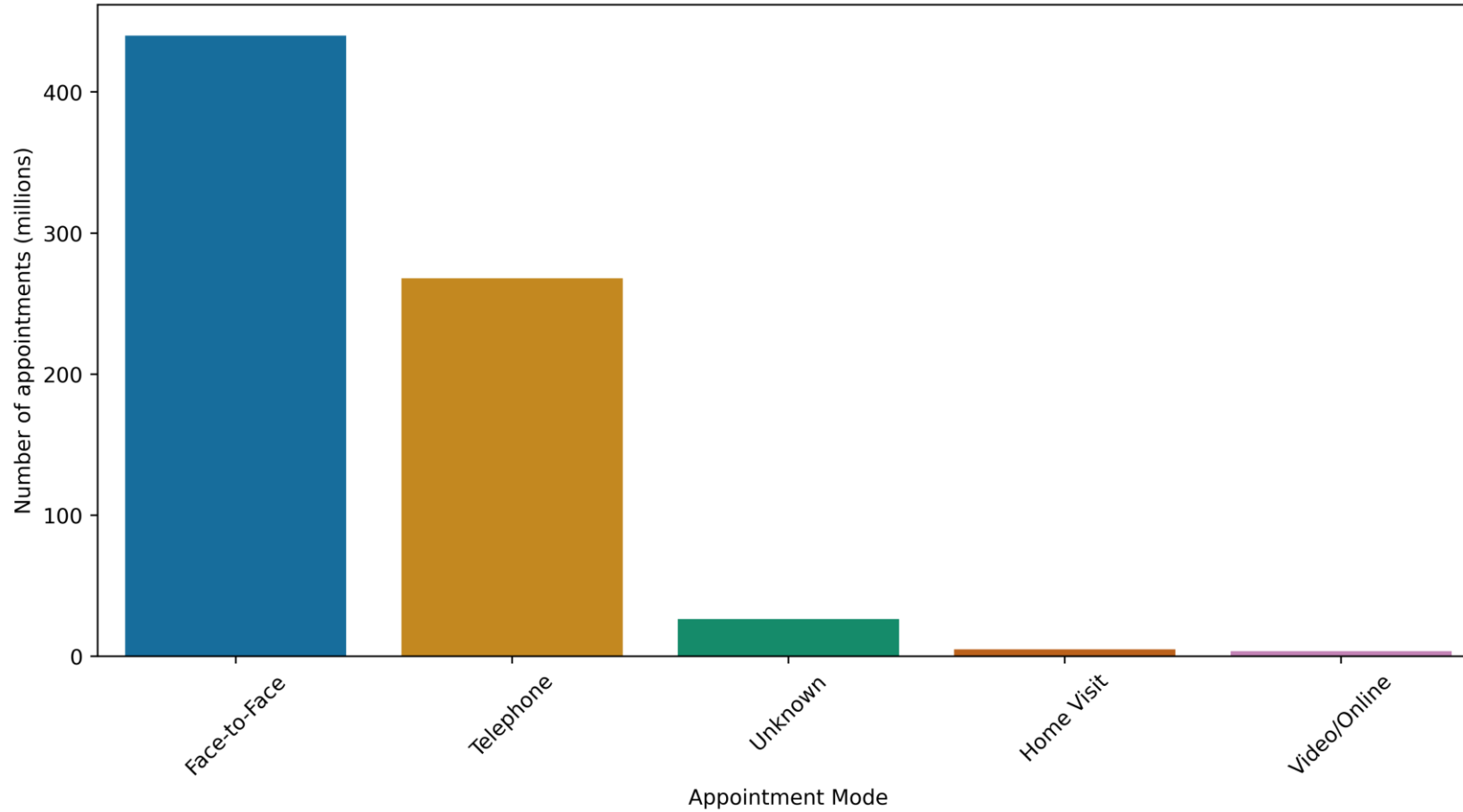
Number of appointments by patients registered per region
(August 2021 to June 2022)



Throughout the year, the **South West** and the **North East & Yorkshire** had the **highest** number of appointments per patient registered.

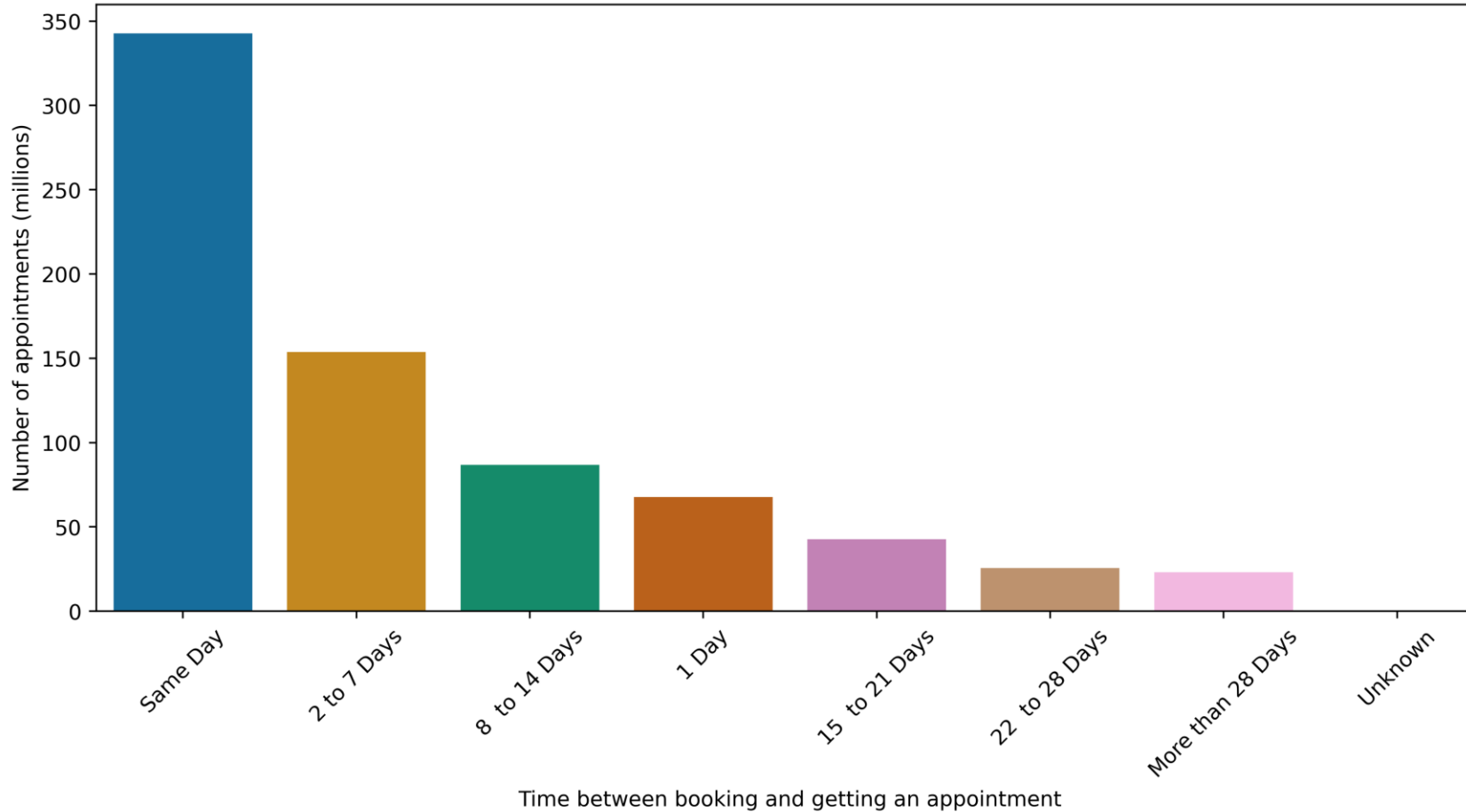
London had the least number of appointments per patient registered.

Face to face and telephone appointments are the most popular appointment modes
(January 2020 to June 2022)



Face-to-face and
telephone appointments
have the **highest** number of
appointments.

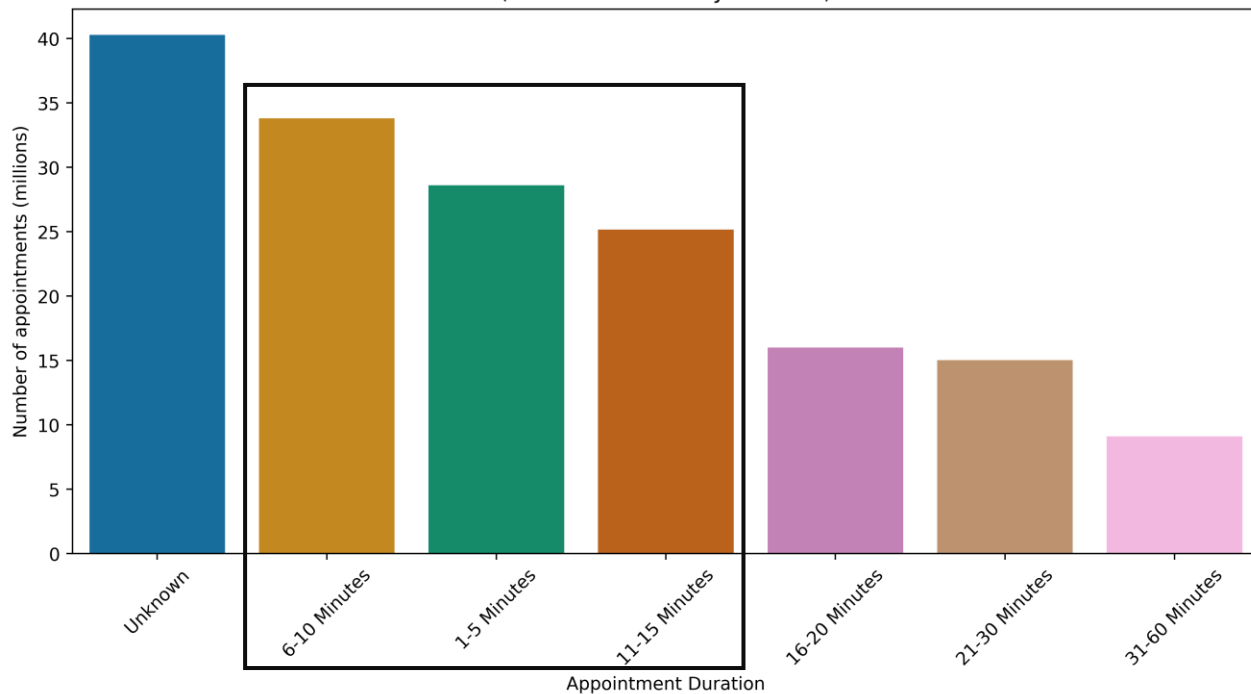
Most appointments are same day appointments
(January 2020 to June 2022)



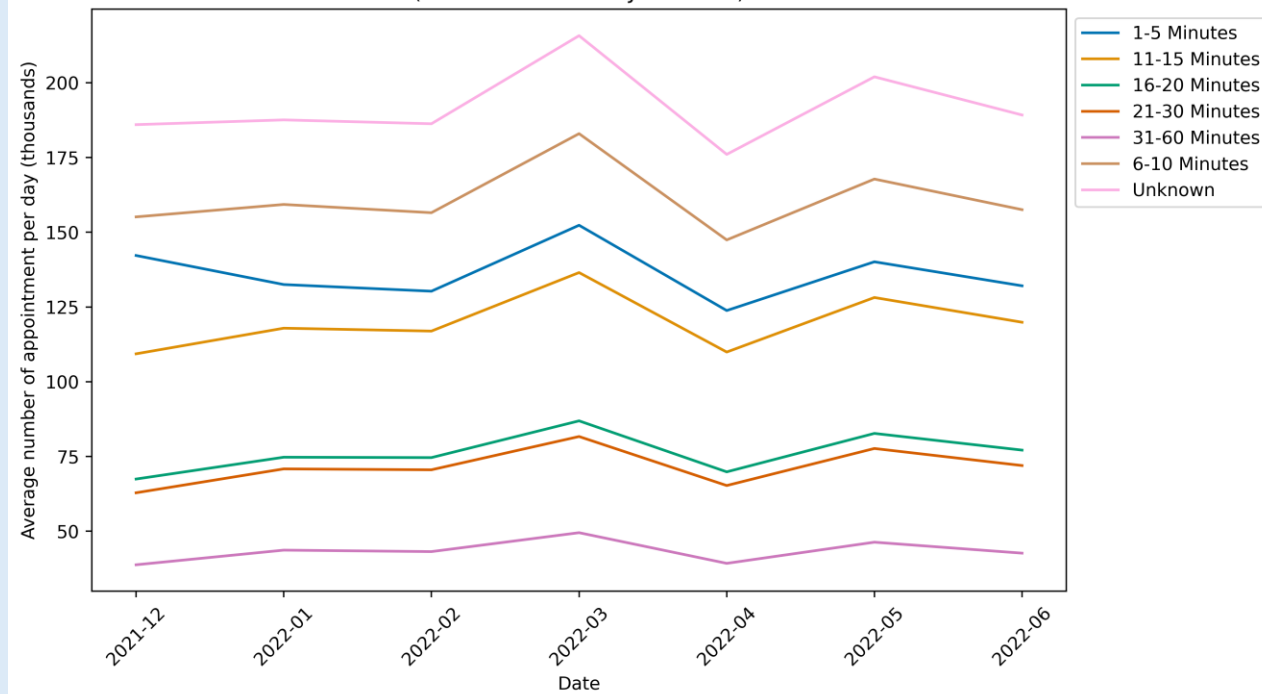
Most appointments are
same day appointments.

Most appointments take
place **within 7 days** of
booking.

Of the appointment durations that are known, most appointments last between 1 to 15 minutes
(December 2021 to June 2022)



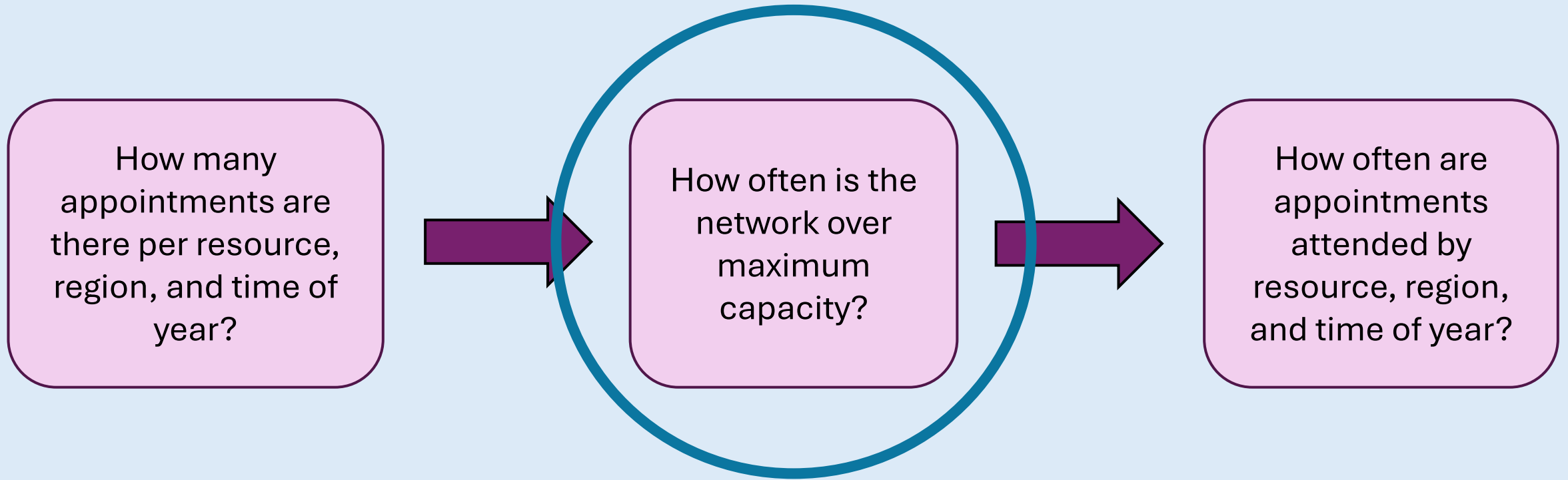
Average number of appointments per day by duration of appointment
(December 2021 to June 2022)



Lots of appointment durations **are not known**.

Of all the appointment durations that are known, **most** appointments last **between 1 to 15 minutes**.

The proportion of appointments in each duration category remains **similar throughout the year**.



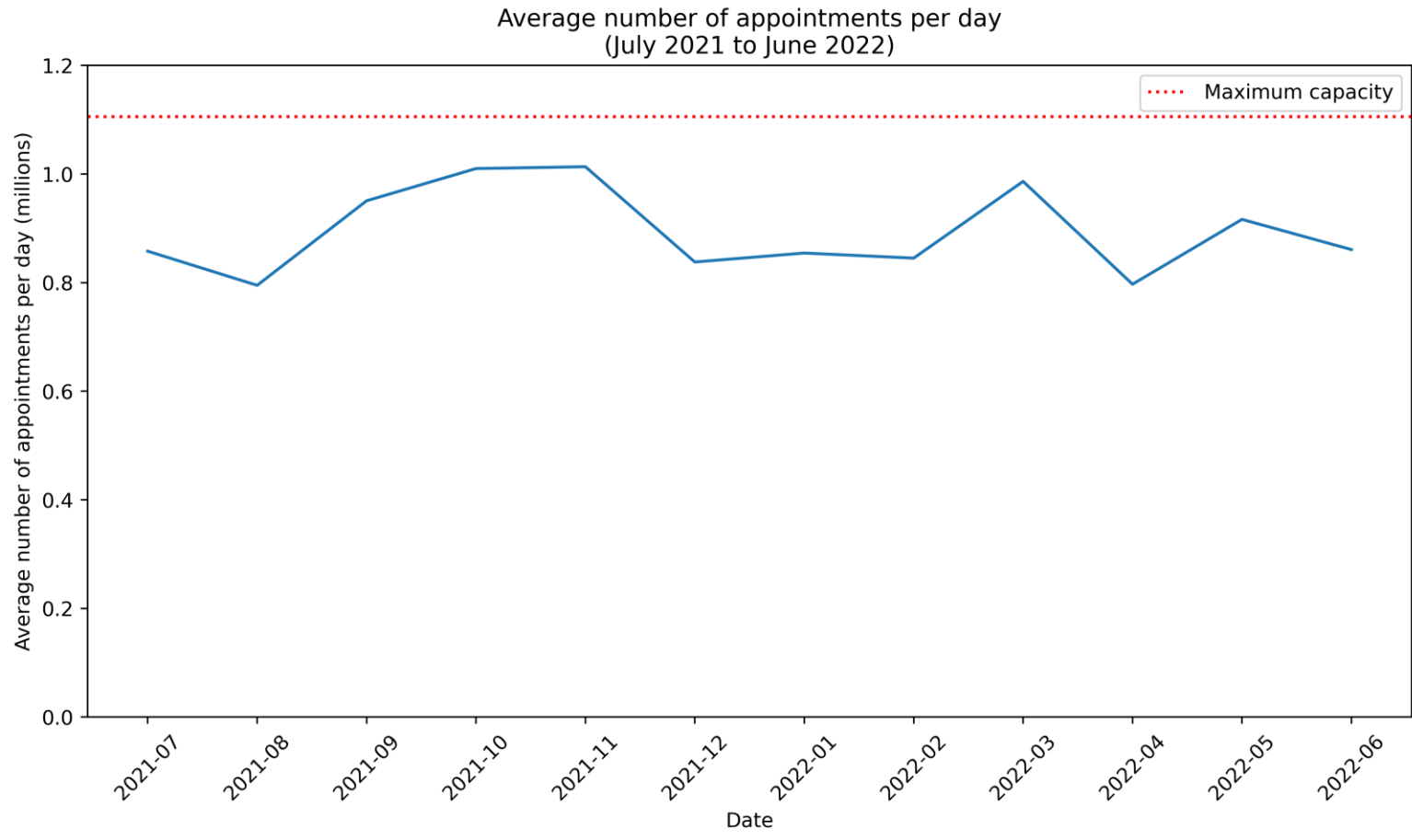
When the weekends are included in the data they heavily skew the data down as there are few appointments available at the weekend.

However, note that weekends most likely have a **lower capacity** e.g. fewer staff working and fewer appointments available.

1. Including weekends

2. Excluding weekends

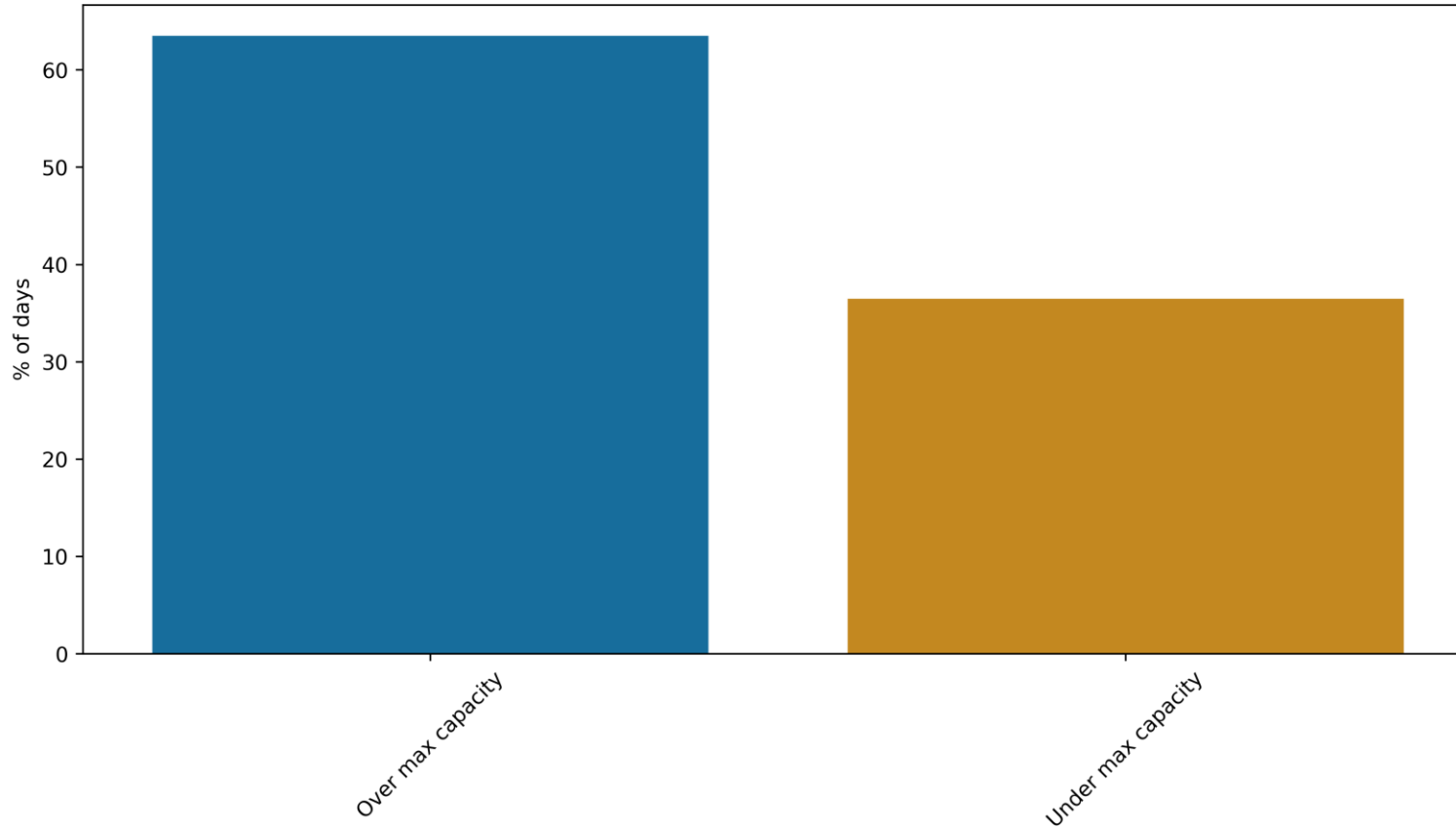
Including weekends



Taken as an **average**
across the month, **no**
months seems at first
to have days that are
over max capacity.

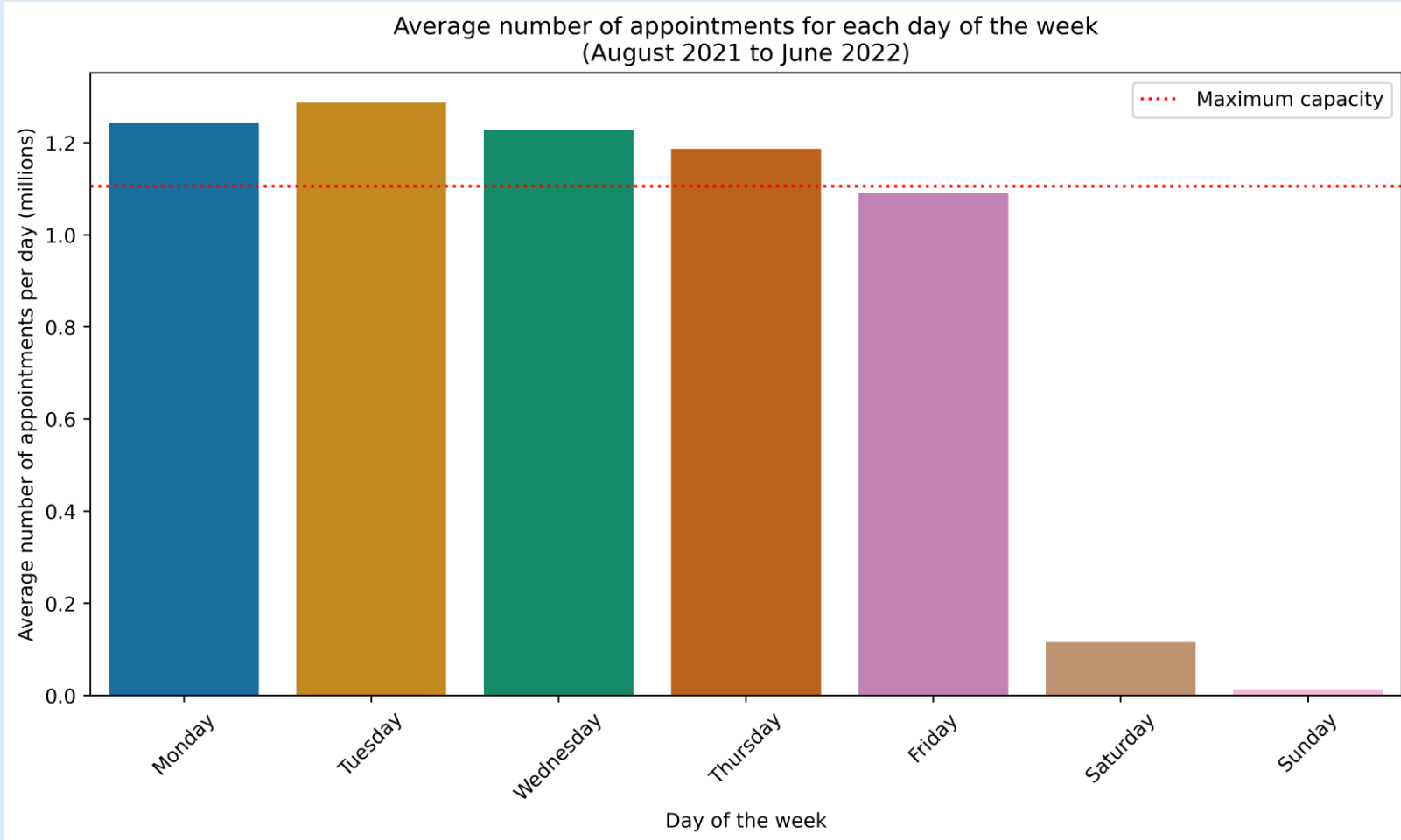
Including weekends

Most days were over maximum capacity between August 2021 and June 2022



However, counting the number of days which are **over or under max capacity** reveals that a **majority of days are over max capacity...**

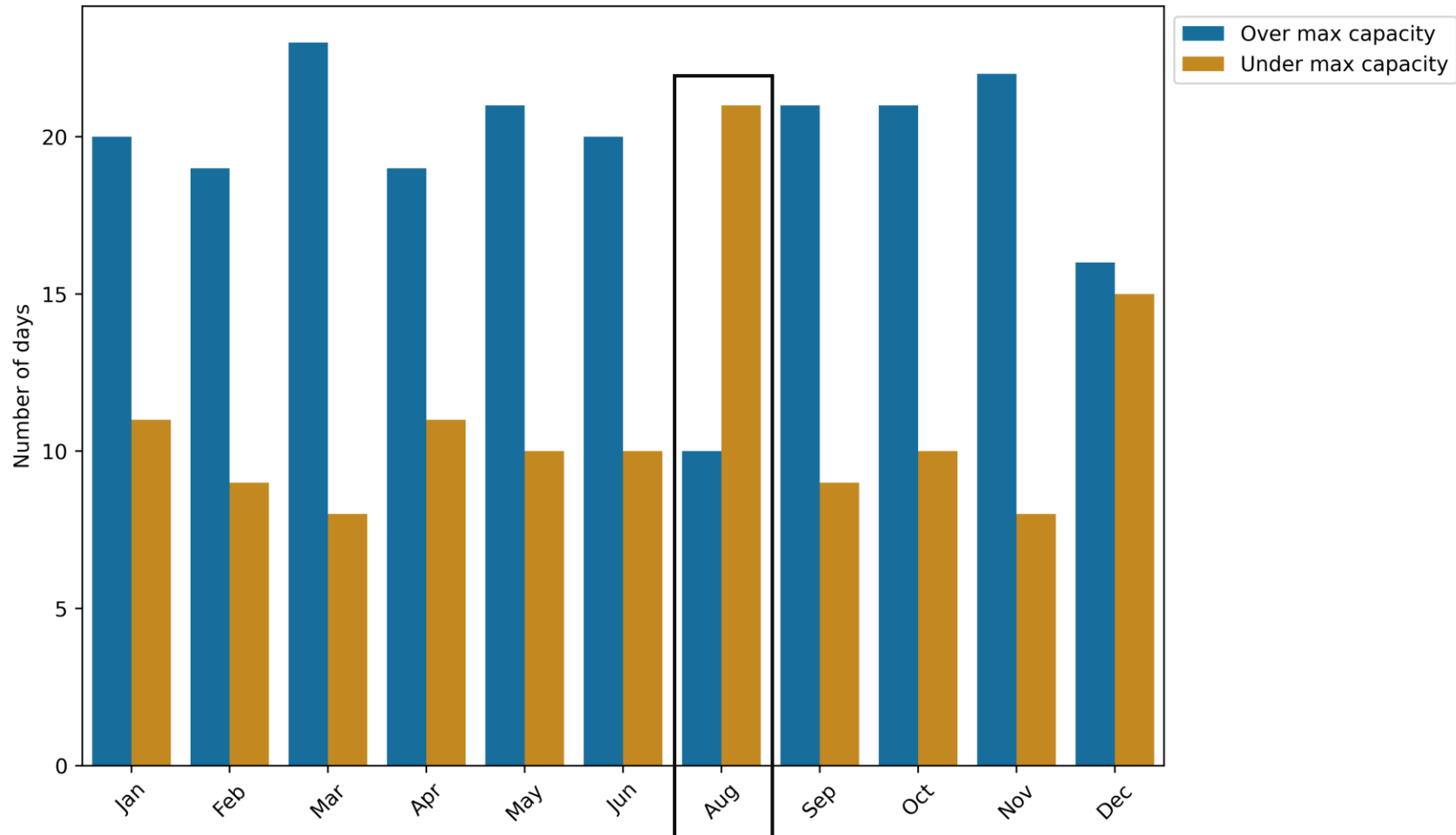
Including weekends



...and looking at the average number of appointments per day of the week reveals that **weekends are heavily skewing the data down.**

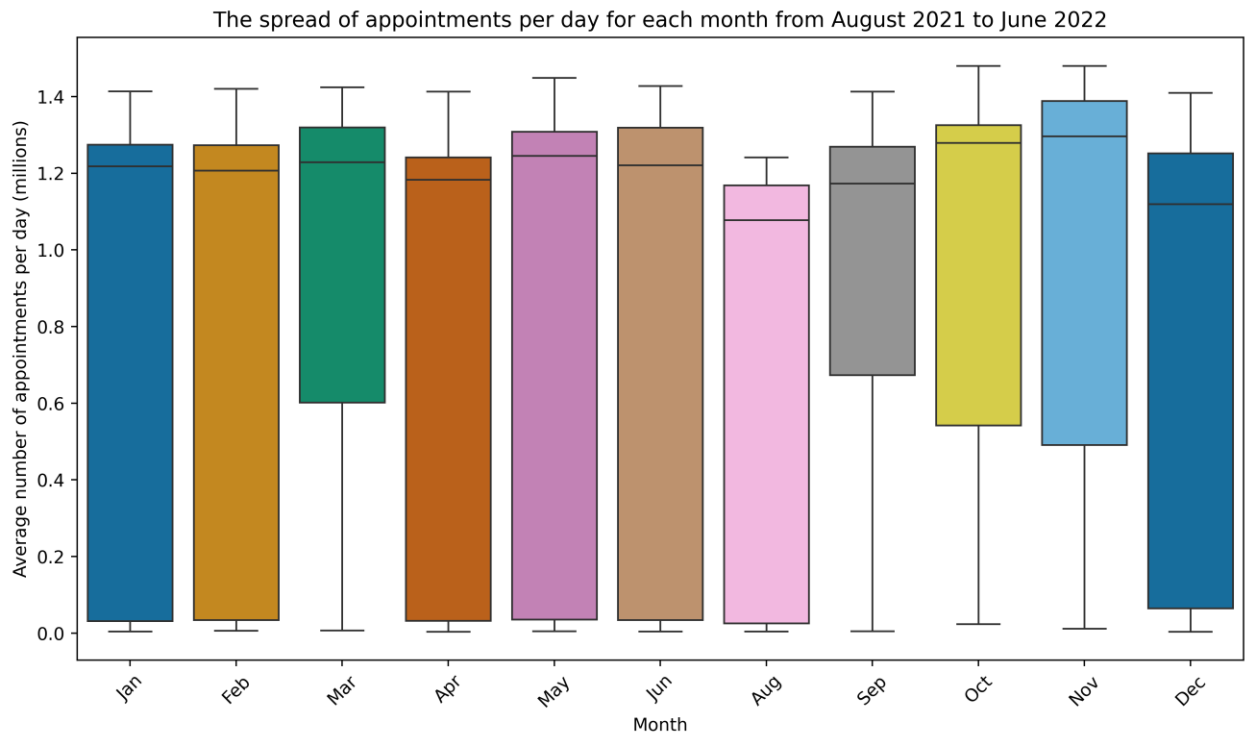
Including weekends

Most months were over maximum capacity between August 2021 and June 2022



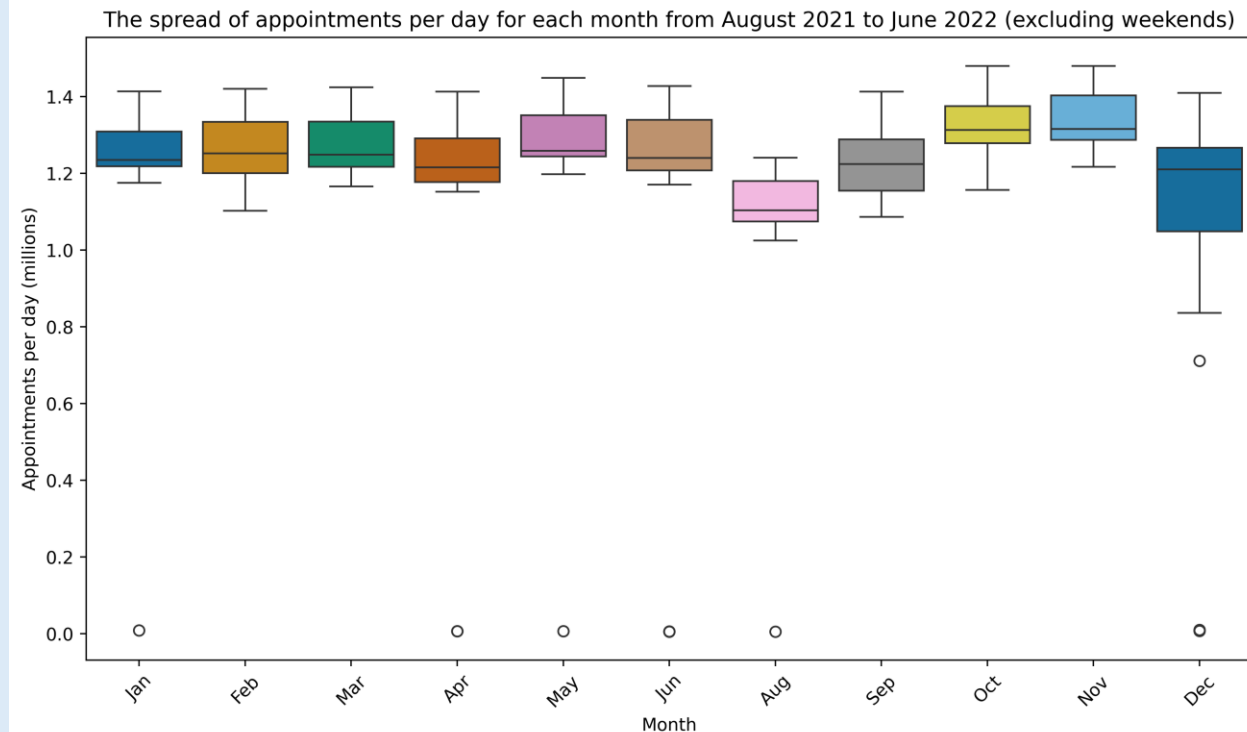
A majority of days over capacity for all months **apart from August,** and this would still be the case if we excluded weekends.

Including weekends



Huge range in number of appointments!

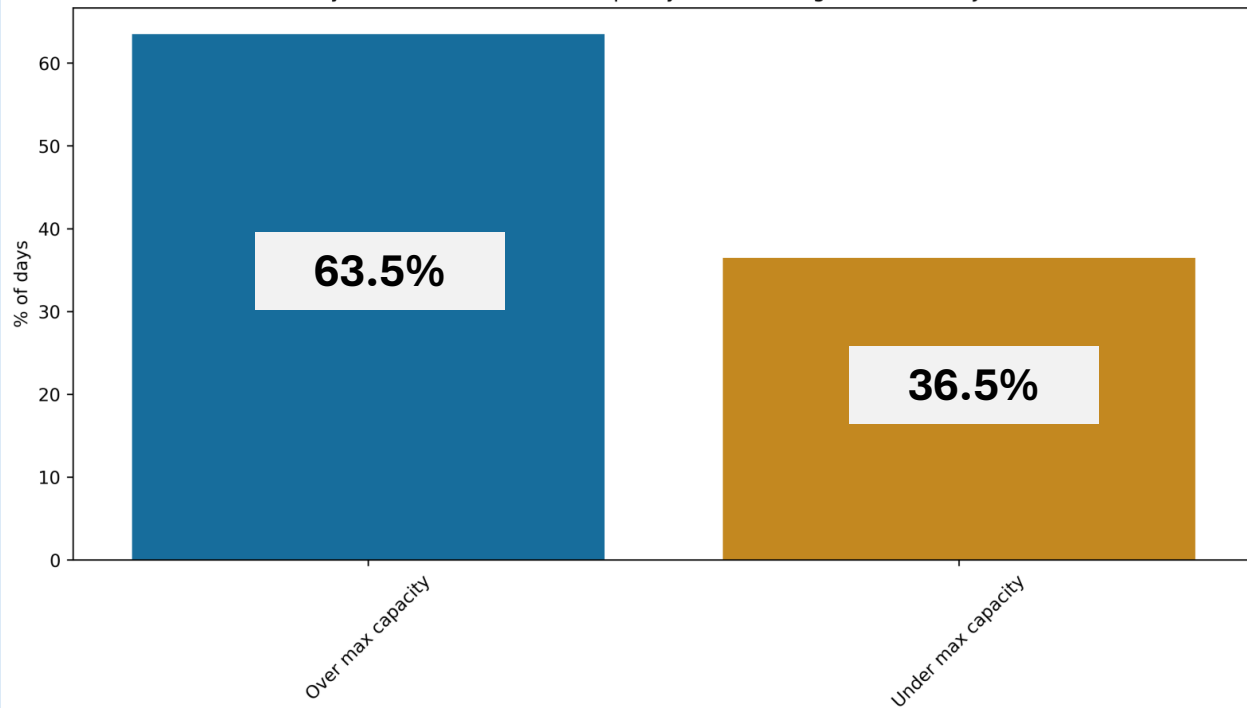
Excluding weekends



Much smaller range in number of appointments.

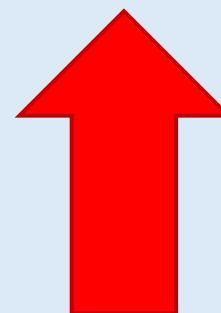
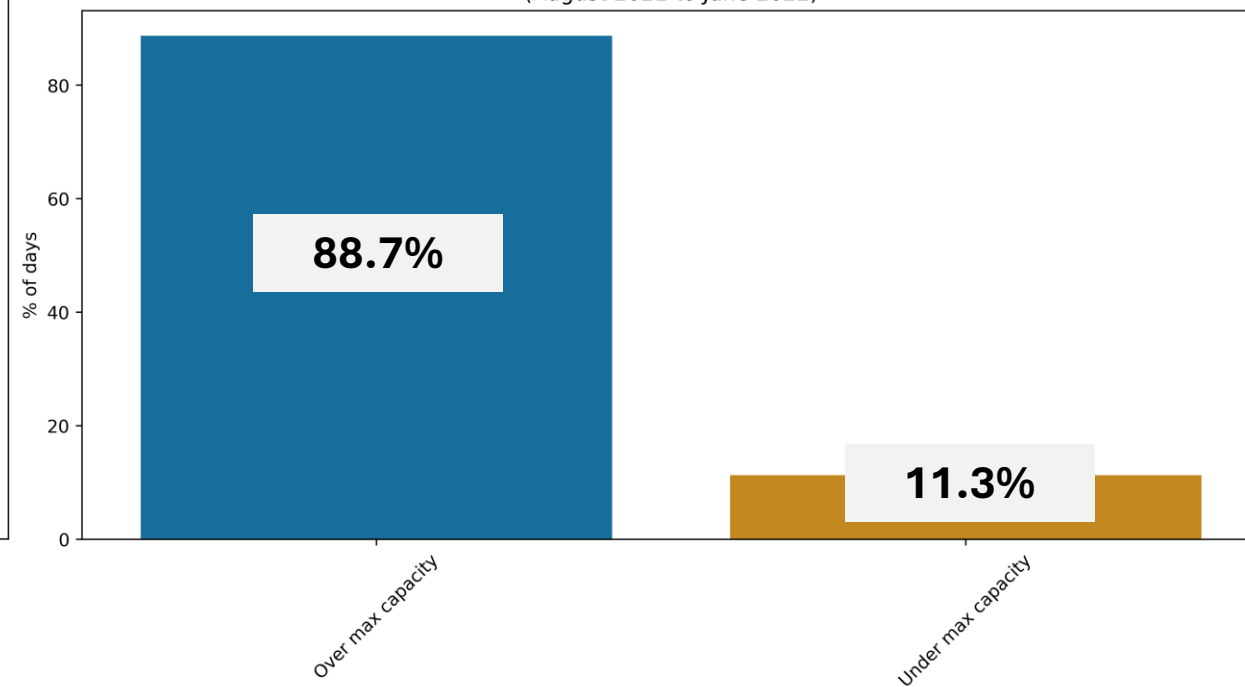
Including weekends

Most days were over maximum capacity between August 2021 and June 2022



Excluding weekends

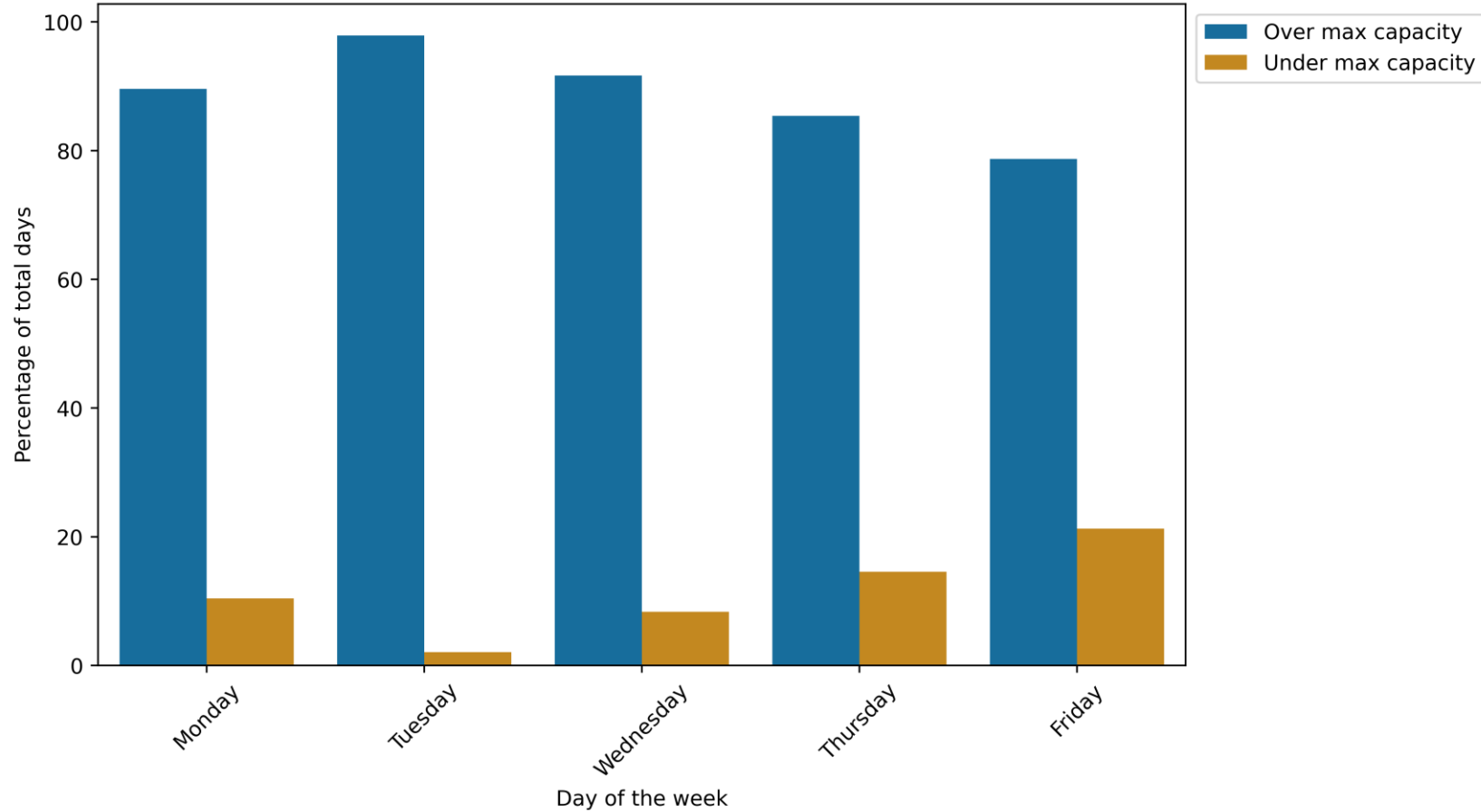
Most weekdays were over maximum capacity (August 2021 to June 2022)



**Days over max
capacity**

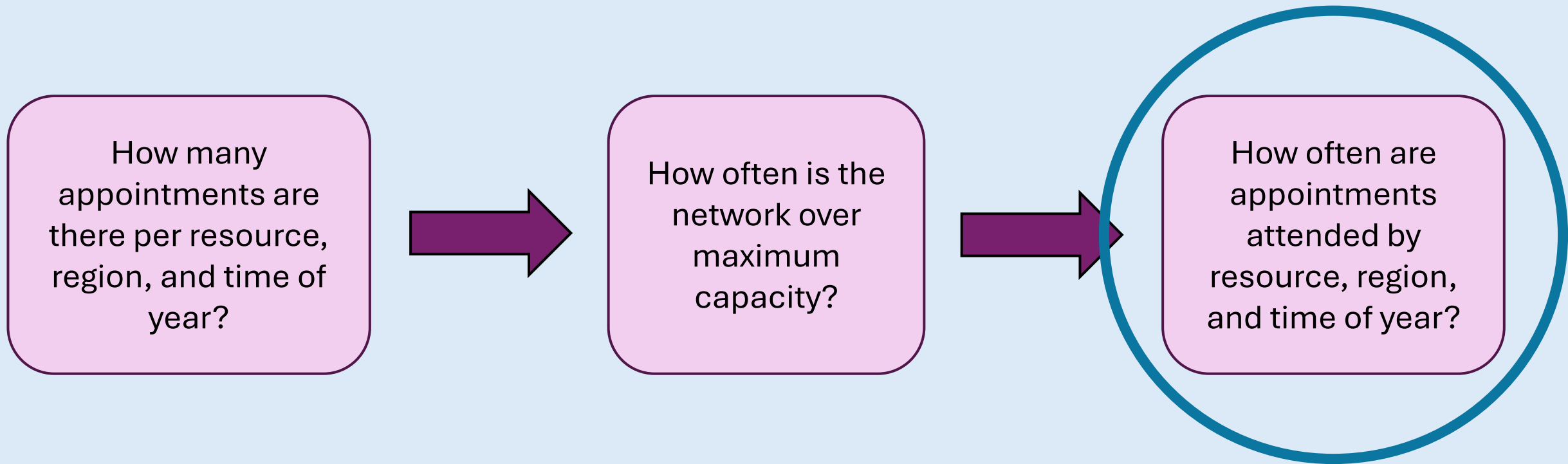
Excluding weekends

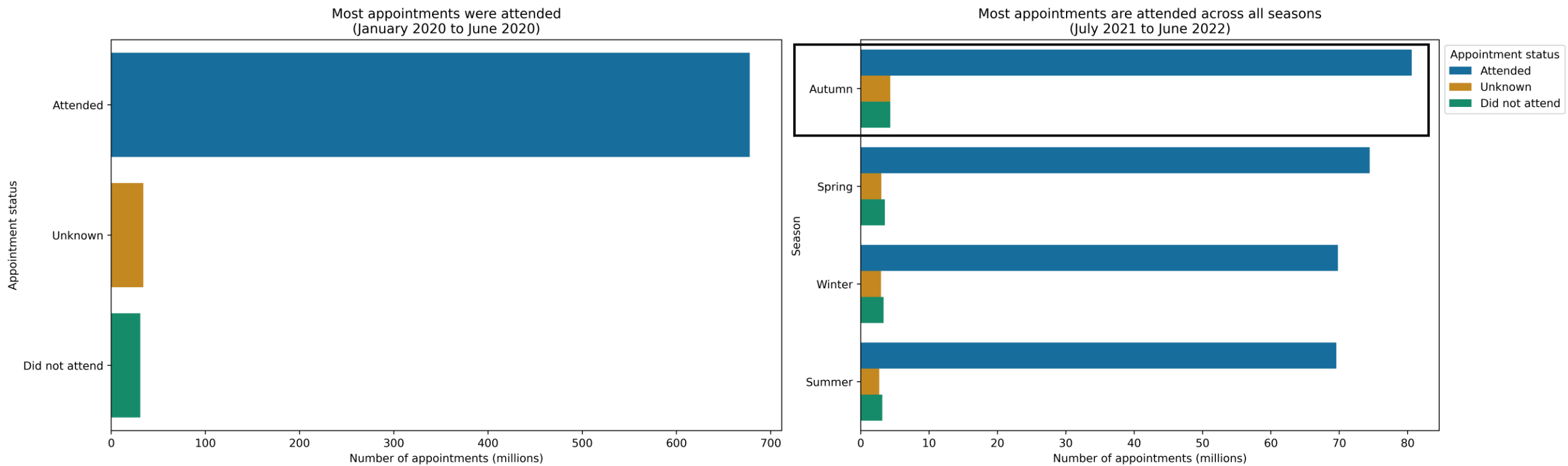
Most days (weekdays) are over maximum capacity
(August 2021 to June 2022)



All weekdays have **majority over**
max capacity days but...

... **Friday** has the **least** and
Tuesday has the **most**.



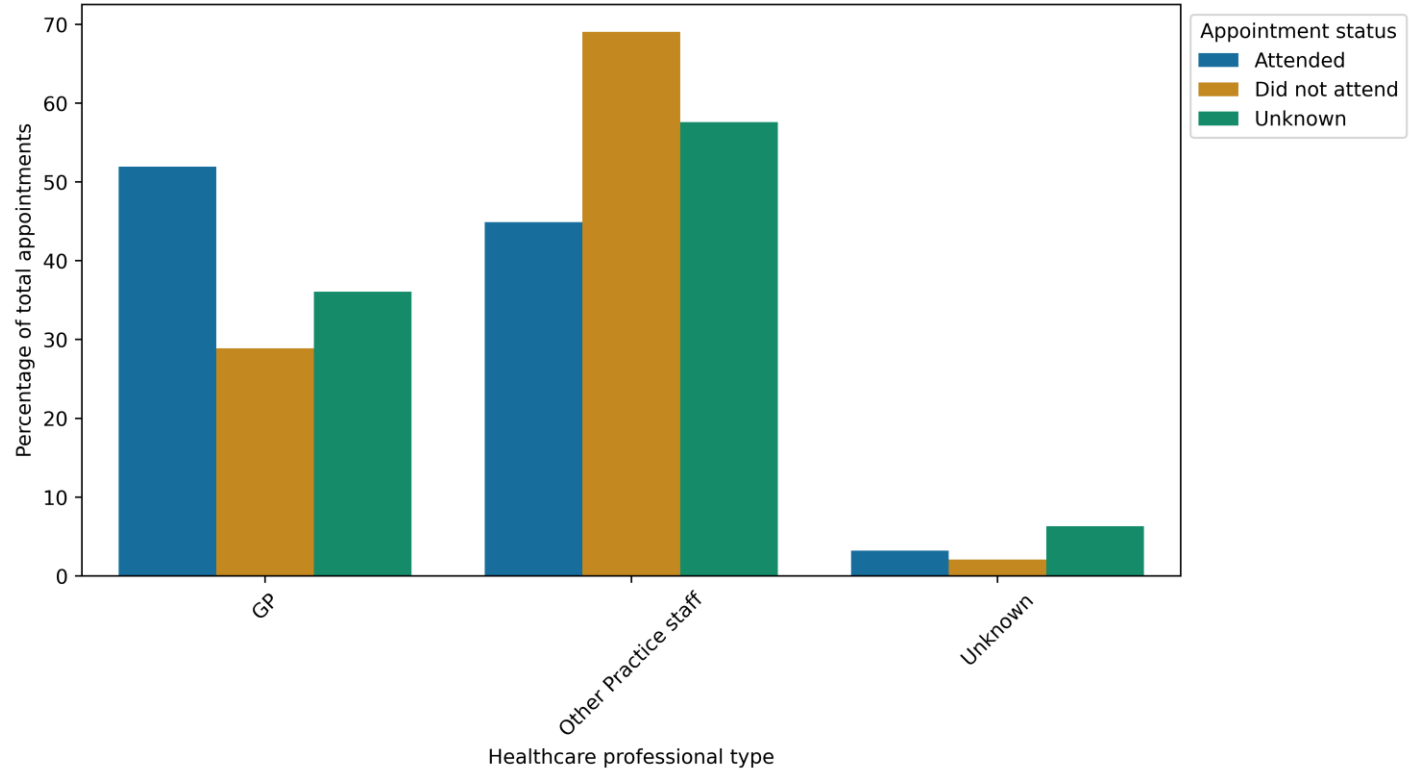


Most appointments were
attended...

...with the **largest percentage**
attended during the **autumn...**

...and the **smallest percentage**
attended in the **winter** and **summer.**

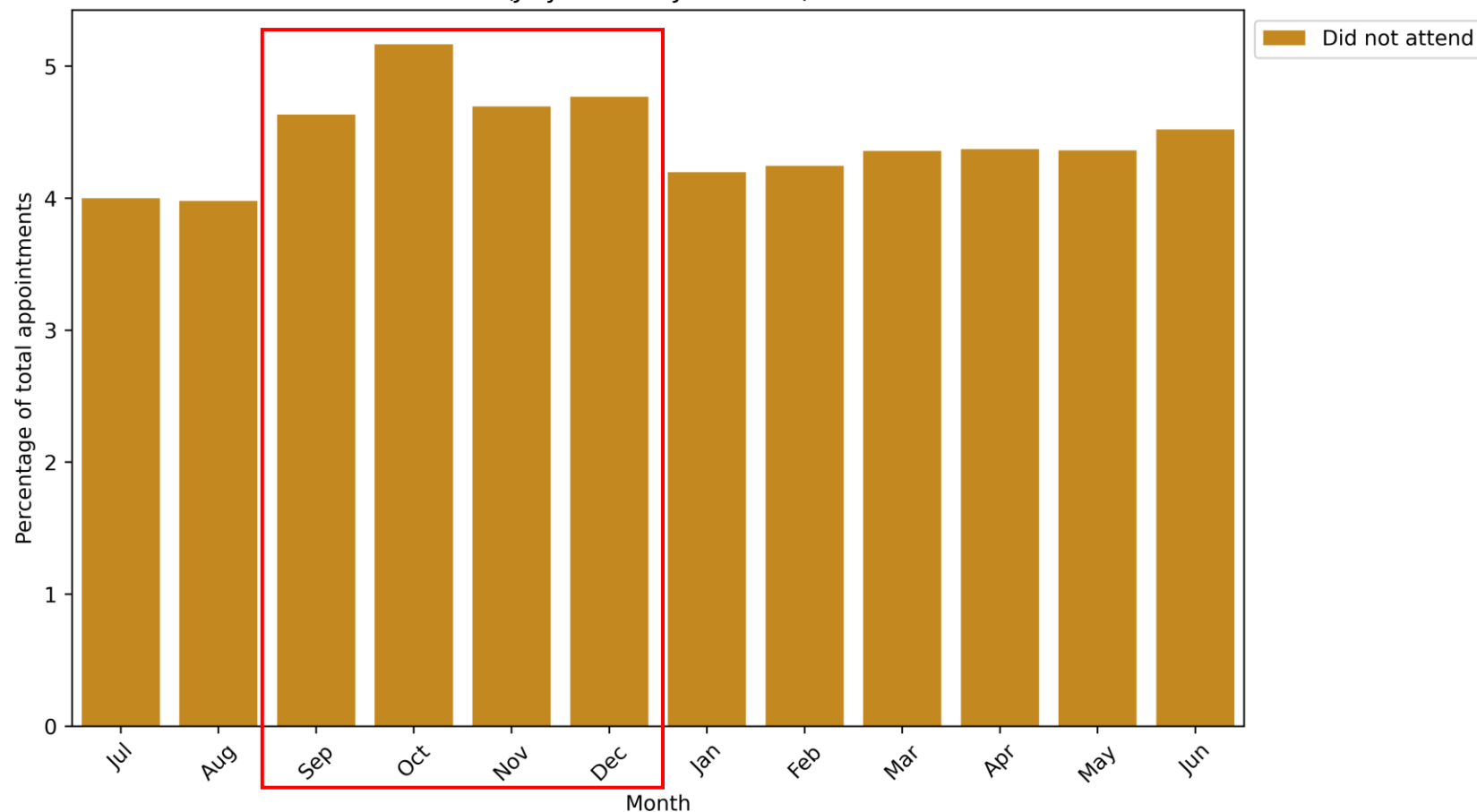
Percentage of appointments that were attended or not for each healthcare professional type
(July 2021 to June 2022)



Appointments with a **GP** may be **better attended** than those with **other practice staff.**

There are too many **“Unknown”** values to be certain about this.

September - December have the highest proportion of appointments that aren't attended
(July 2021 to June 2022)

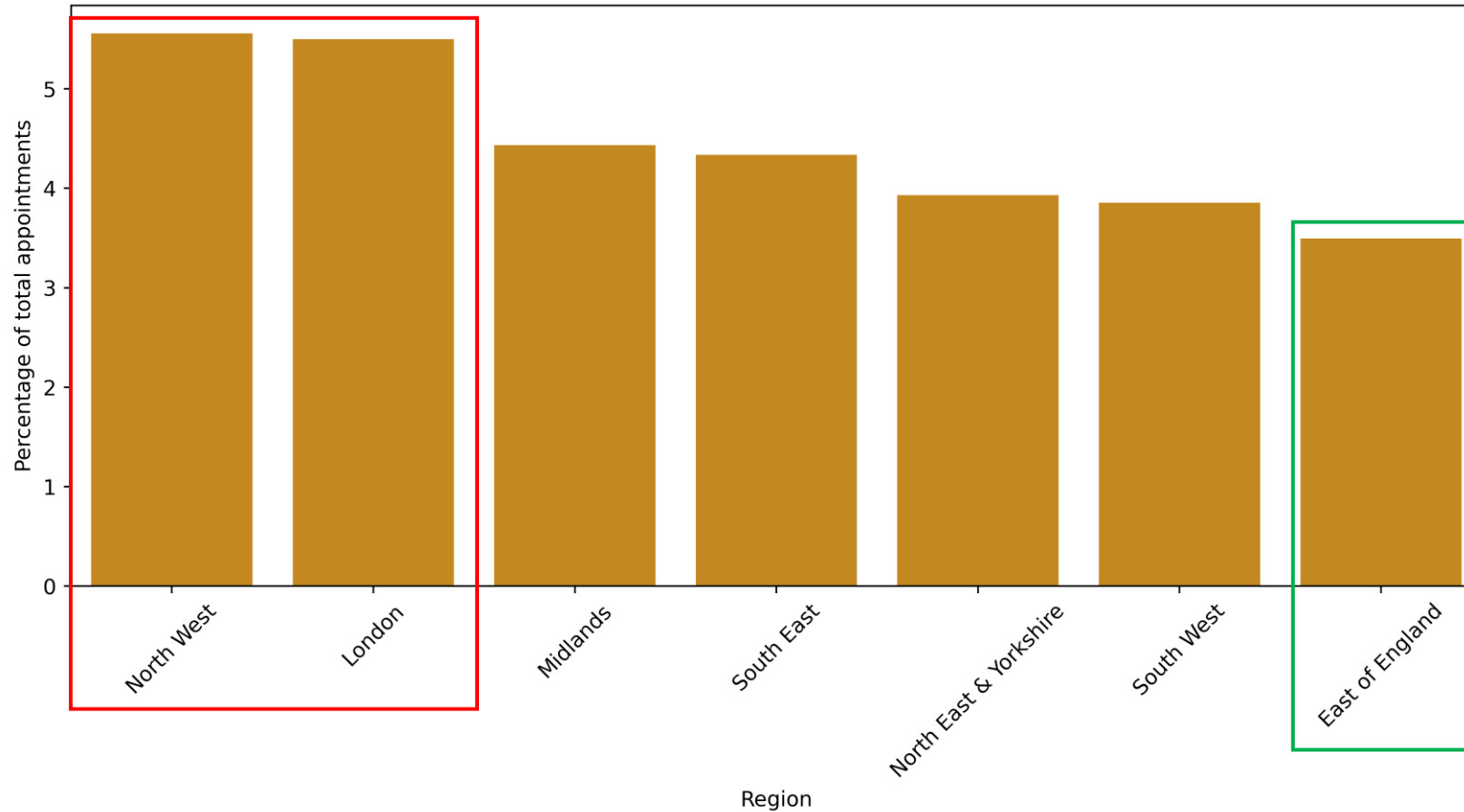


September – December

The percentage of appointments that **are not attended** increases.



The North West and London had the largest proportion of appointments that weren't attended
(July 2021 to June 2022)



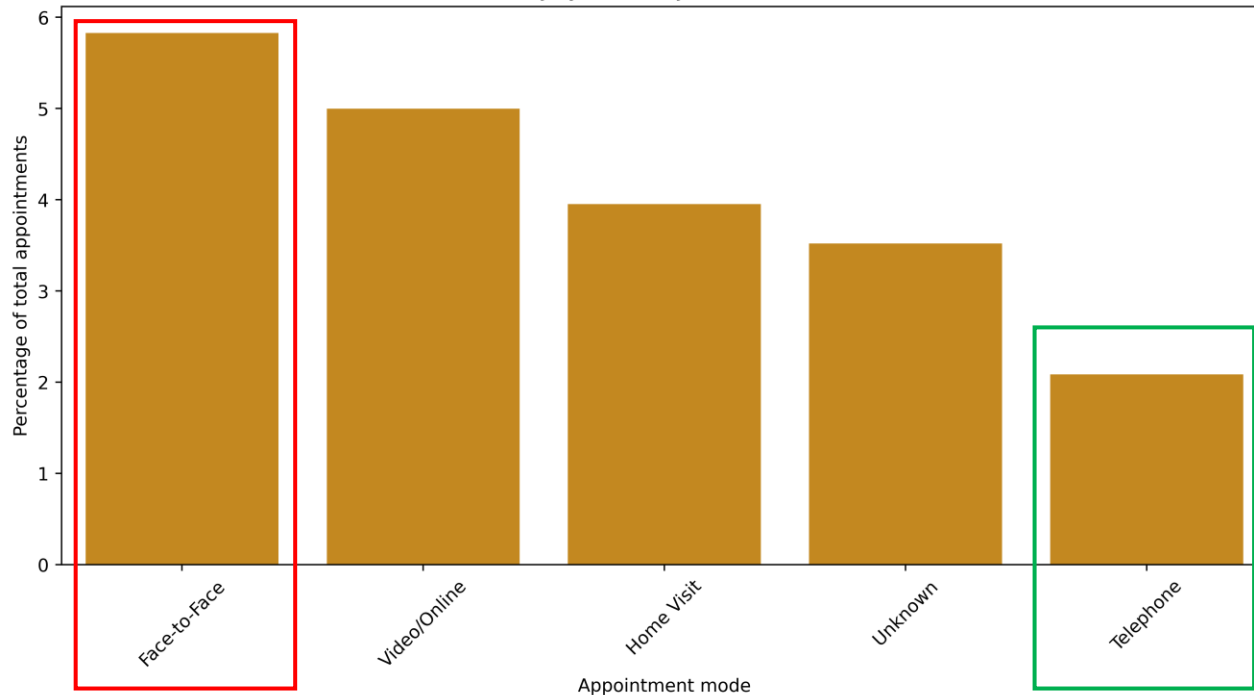
North West and London

The percentage of appointments that **are not attended** is higher.

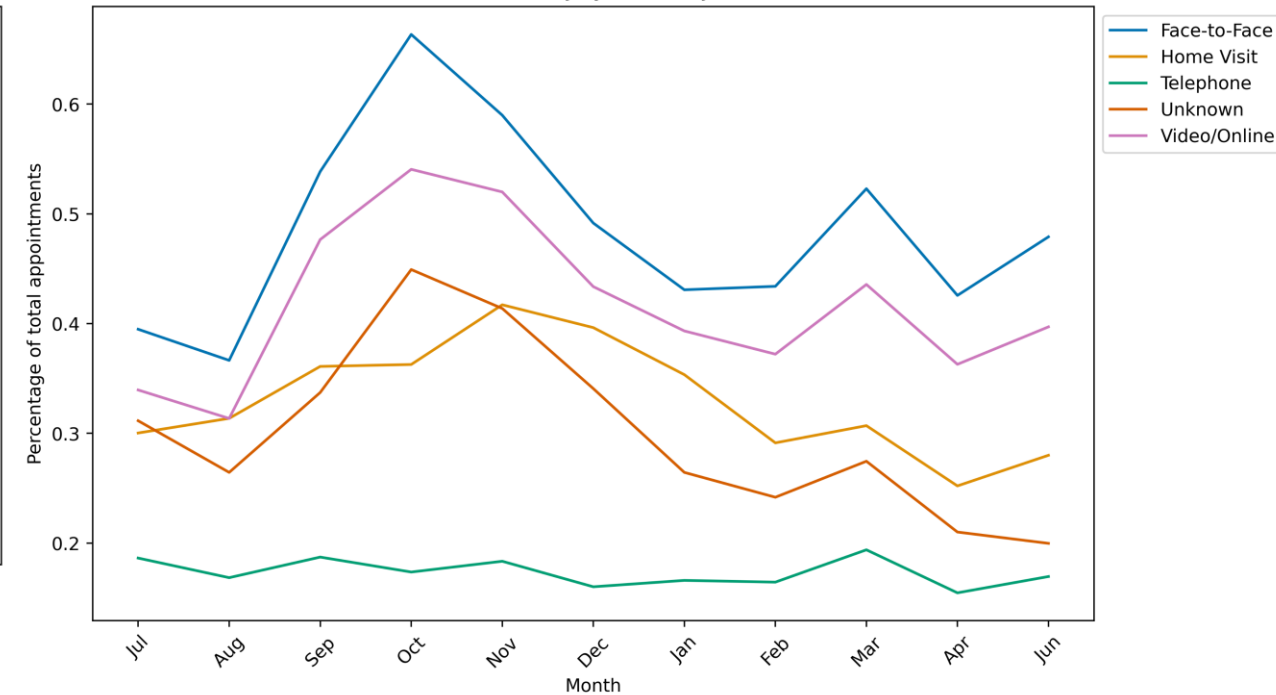
East of England

The percentage of appointments that **are not attended** is lower.

Percentage of appointments that weren't attended for each appointment mode
(July 2021 to June 2022)



Average percentage of appointments that weren't attended for each appointment mode
(July 2021 to June 2022)



Face-to-face appointments

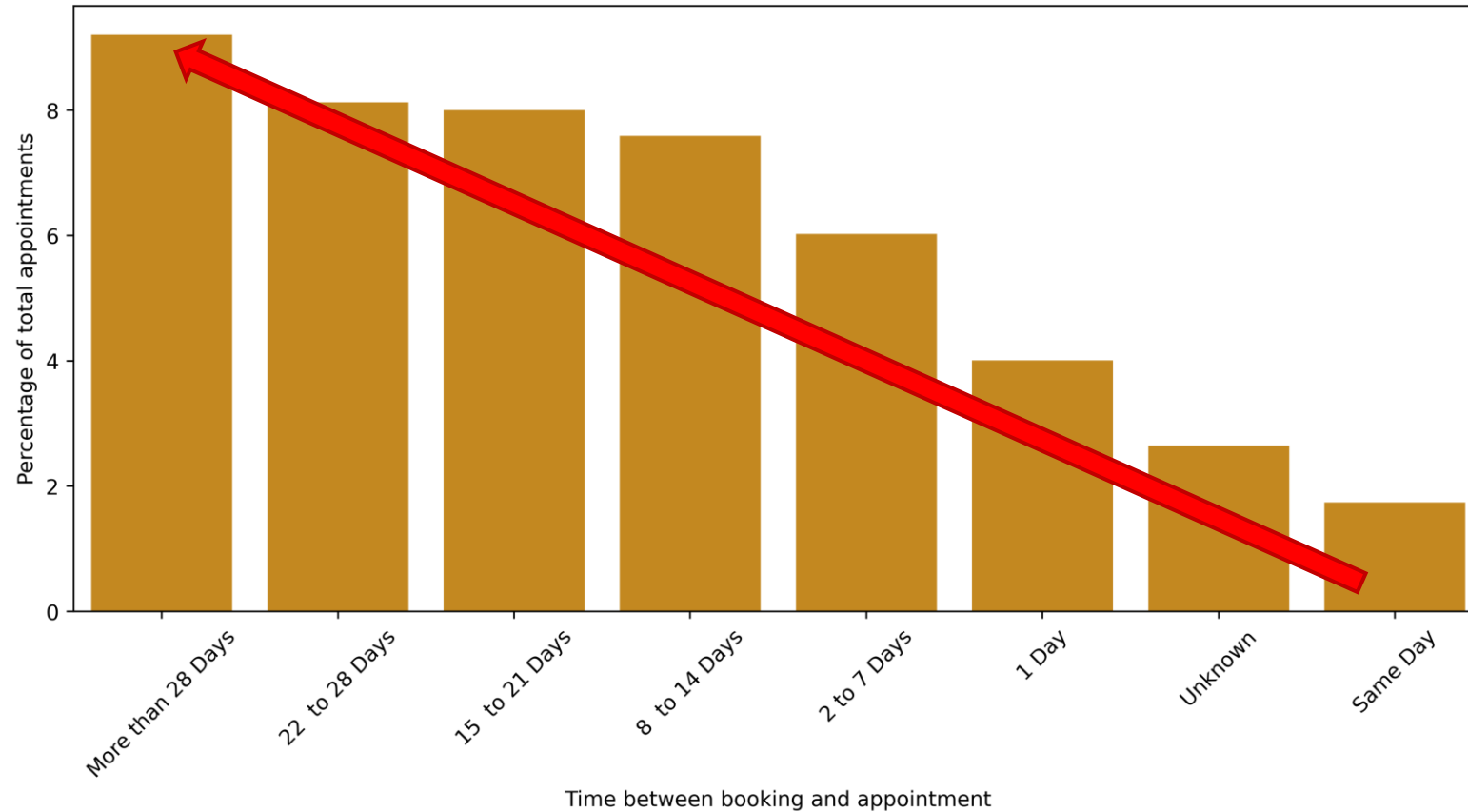
have the **highest** percentage of appointments
that **aren't attended**.

Telephone appointments

have the **lowest** percentage of appointments
that **aren't attended**.

Most appointment
categories have a similar
trend to each other over the
year, but **telephone
appointments** remain
stable.

Appointments are more likely to not be attended if the waiting time between booking and appointment is longer
(July 2021 to June 2022)



As the **time between booking and the appointment increases**, the percentage of appointments that **aren't attended increases**.

Is the current infrastructure and resources sufficient or does capacity have to be increased?

Looking at the data I was provided with, the current capacity and resources are most likely **not sufficient** and the capacity has to increase, especially to keep up with the increasing population.

However, as the NHS has a limited budget, increasing capacity sufficiently will not necessarily be possible but there are some ways that the NHS can **improve** how they utilise their resources....

Assuming the NHS budget
doesn't increase.

Recommendations

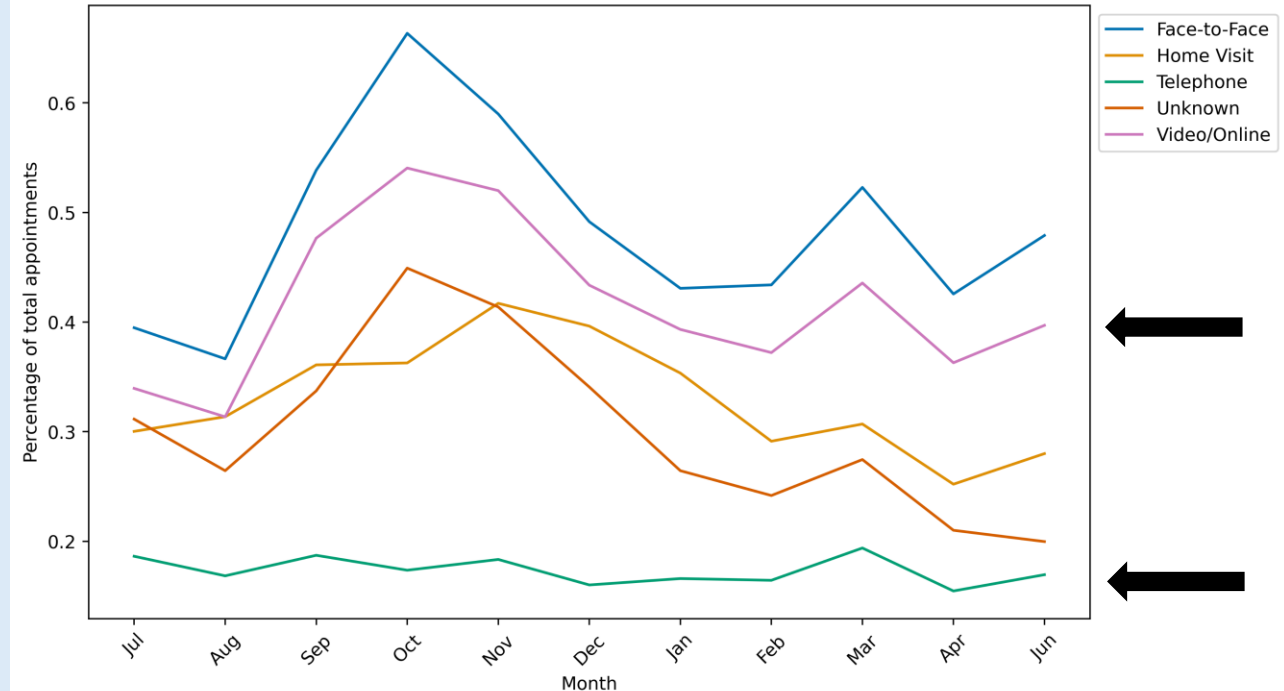
Recommendation 1

To improve the number of appointments that are attended, consider increasing telephone and online appointments for some minor health issues and mental health issues and that do not require a face-to-face appointment.

According to research conducted by Imperial College London, there is some evidence that remote appointments “reduced financial costs and saved time for doctors” and could be as effective as in-person appointments for mental health problems.

NIHR. (2023). *Study demonstrates remote GP appointments as effective as in-person for some conditions* – NIHR Imperial Biomedical Research Centre. [online] Available at: <https://imperialbrc.nihr.ac.uk/2023/09/05/study-demonstrates-remote-gp-appointments-as-effective-as-in-person-for-some-conditions/>

Average percentage of appointments that weren't attended for each appointment mode (July 2021 to June 2022)



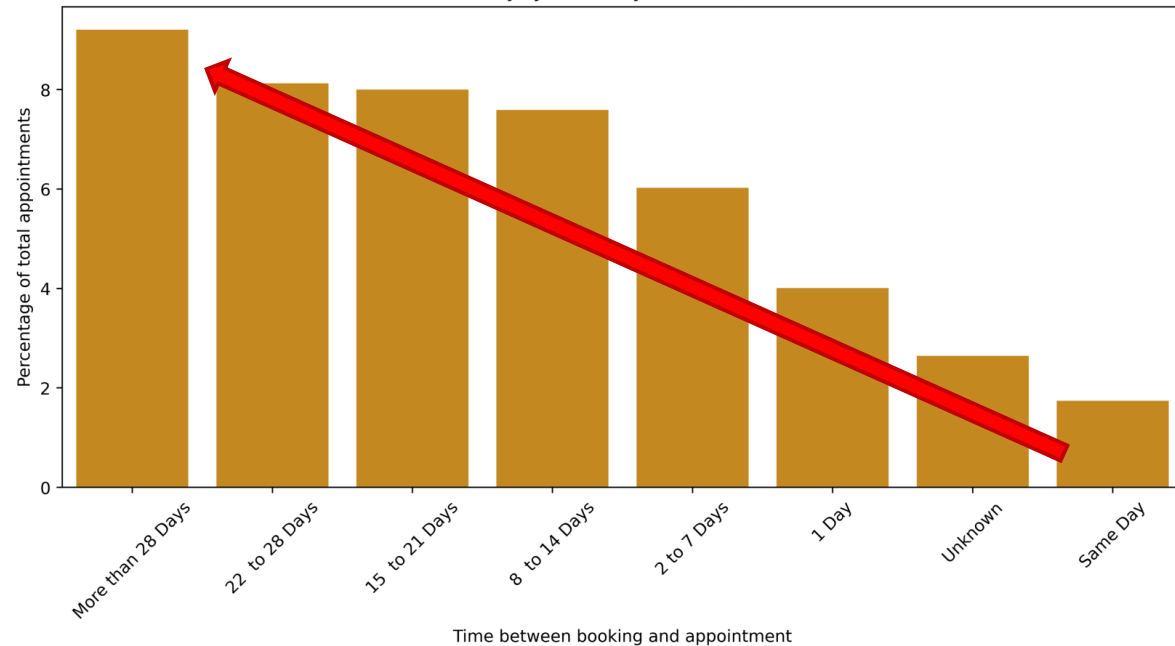
Use more of your advertising budget to advertise telephone and online appointments during the autumn particularly in the North West and London when the percentage of appointments that aren't attended is higher.

Recommendations

Recommendation 2

Consider sending out more reminders about appointments and providing a simple online/text option to respond “No” if the appointment is no longer needed as appointments that take place sooner after booking are better attended.

Appointments are more likely to not be attended if the waiting time between booking and appointment is longer
(July 2021 to June 2022)



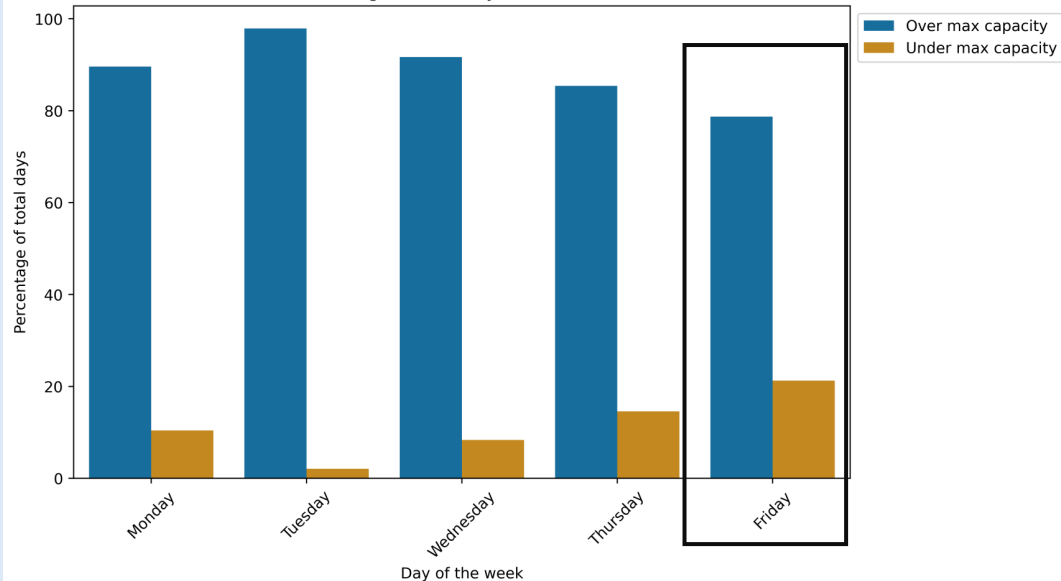
Recommendations

Recommendation 3

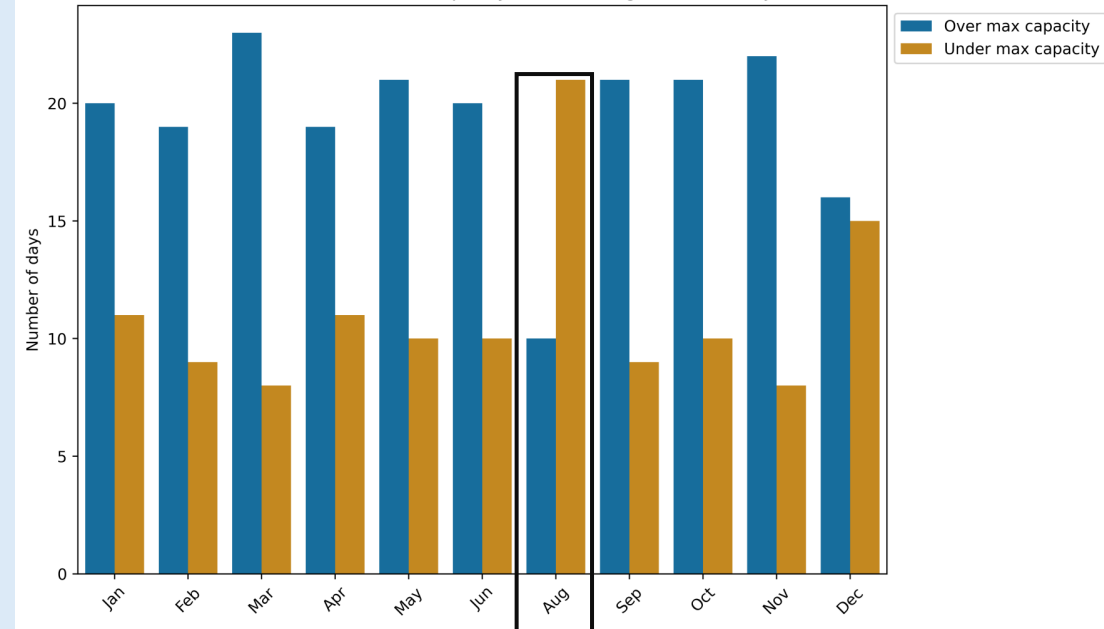
Whilst August still has lots of days that are over capacity, it's the only month that has more under capacity days than over capacity days (even when taking into account weekends), whilst March has lots of days over capacity.

Consider moving some routine appointments (such as cervical screenings) to August on its “under capacity” days, especially Fridays when demand is lower than other weekdays.

Most days (weekdays) are over maximum capacity
(August 2021 to June 2022)



Most months were over maximum capacity between August 2021 and June 2022



Recommendations

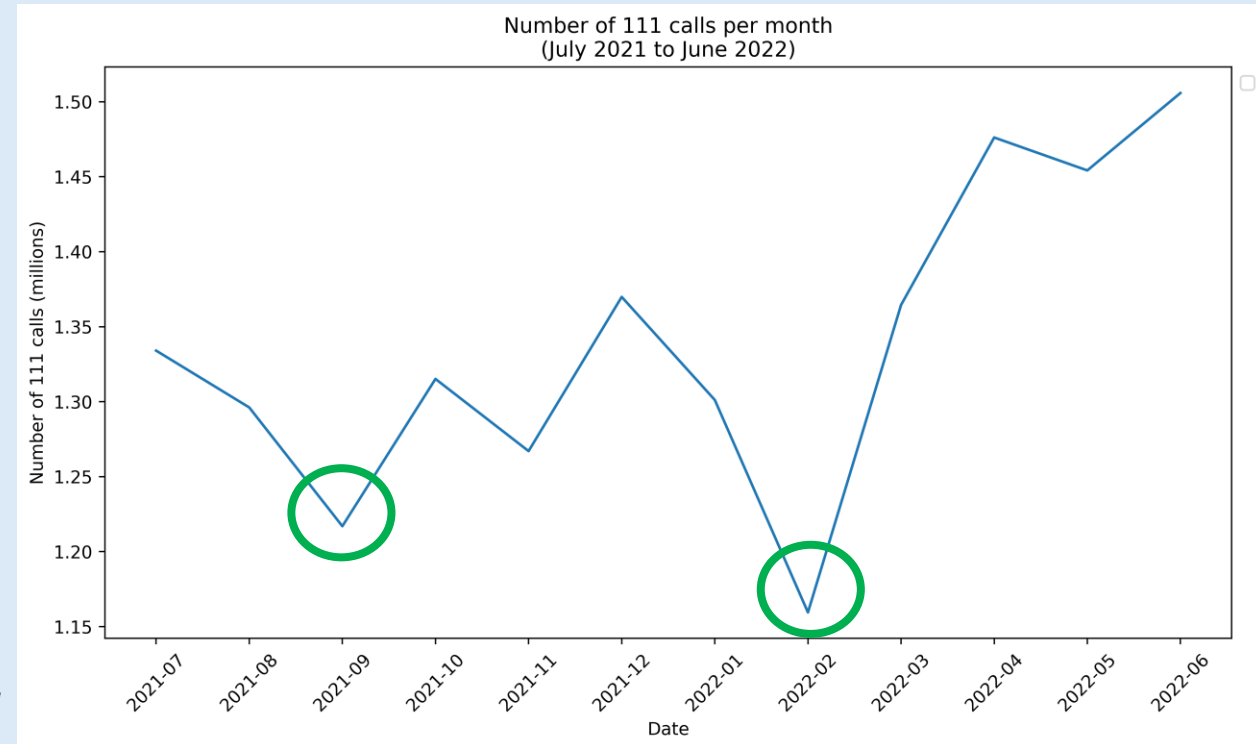
Recommendation 4

Increase capacity by diverting more people into using pharmacies and the 111 service (if this has enough capacity), particularly during September and February when there are currently fewer 111 calls.

According to research conducted on behalf of NHS

England in 2023:

- **89%** of people would feel comfortable being referred to the pharmacy to treat a minor illness, having spoken to a GP receptionist.



Limitations/further data needed

- No guideline for maximum appointment duration capacity across the practices, so it's difficult to determine definitively how many days and practices are truly over capacity.
- No data on number of each type of staff in each practice and what each practice thinks they require.
- Lack of consistency in data collection led to lots of unknowns and potentially some data being inconsistently reported across practices. **I recommend standardising data collection practices across England with incentives to enter all relevant appointment data.**

Q & A

References

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