

Using national SACT data to determine the impact of COVID-19 on cancer services in Scotland

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Introduction and objectives

COVID-19 affected cancer services significantly.¹ Understanding its impact on the delivery of systemic anti-cancer therapies (SACT) is a crucial part of determining short-and long-term consequences for patients. Public Health Scotland (PHS) was tasked with developing a tool to centralise reporting and standardise definitions using data from the five electronic prescribing systems for SACT in Scotland.

The dashboard uses innovative techniques to present complex treatment data in a way that is easily understood by decision-makers and the public, adding a new layer of transparency. This first application of national SACT data uses a 'Once for Scotland' approach, easing pressure on local teams to provide these data for government monitoring and service planning. Cancer network managers, clinicians and the government continuously used the SACT activity dashboard to monitor the effects of COVID-19 on SACT delivery. This helped to interpret how cancer services responded to COVID-19 measures and serving as an early warning system.

Methodology

The national SACT data platform was built by PHS's Scottish Cancer Registry and Intelligence Service (SCRIS) project. It is used to access and combine raw data from the five prescribing systems in Scotland.

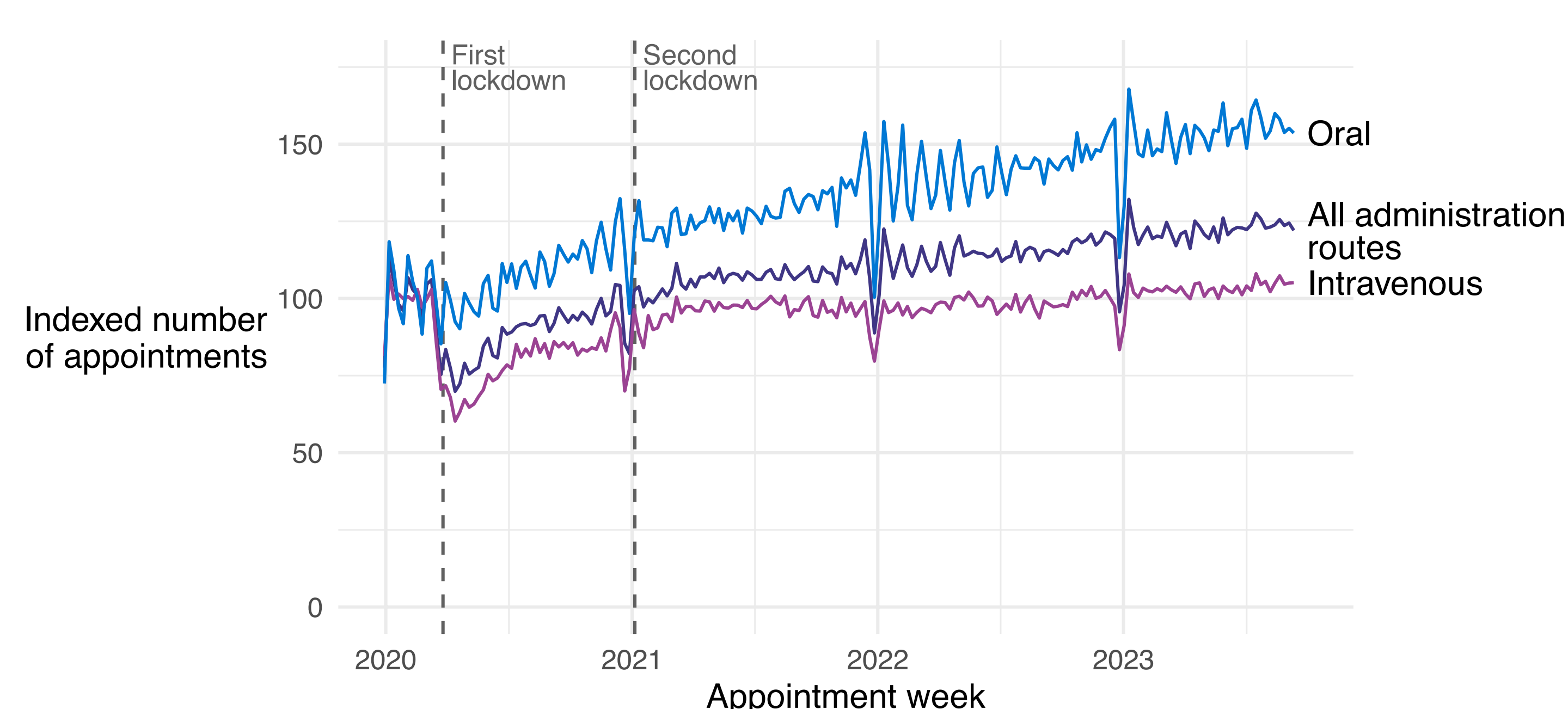
Local values were used for some analysis. However, known differences in recording practices were addressed through standardisation for the purpose of presenting comparable national data. Centralising data analysis enabled standardisation of definitions.

R Shiny was used to build a publicly available dashboard, presenting appointment and patient numbers which are updated weekly. This enabled analysis by location, tumour type, drug type and treatment administration route. Monthly and annual data are available from 2014, which is the earliest date available with consistent electronic prescribing.

The dashboard is available at:

<https://scotland.shinyapps.io/phs-sact-activity>

Figure 1: The indexed change in weekly appointments by administration route (pre-COVID-19 reference period = 100)



Note: Treatment activity declined following the first national lockdown and recovered afterwards. Appointments shifted from intravenous to less invasive oral administration.

Results

The data showed a significant impact of COVID-19 (Figure 1 and 2):

- Up to 29.9% decline in activity following the first national lockdown compared to a pre-COVID-19 reference period.
- Recovery to pre-COVID-19 levels in treatment activity differed between tumour types. Breast cancer activity recovered by summer 2020. Others, like haematology and lung cancers, recovered by November 2020; this is partially attributed to the vulnerability of patient groups.
- Since the start of 2021, treatment activity has been consistently higher than before the pandemic, reflecting the demand on cancer services.
- Analysis revealed an increase in treatments administered orally and subcutaneously, with a decline in more invasive methods (e.g. intravenous), and longer intervals between treatments, allowing for more patients to be treated. This was seen consistently across tumour groups, reflecting changes in practice in line with guidance from the National Cancer Medicines Advisory Group.

Conclusion

The PHS SACT activity dashboard has demonstrated the usefulness of standardised national SACT data to address local and national needs by providing timely data ready for interpretation. It shows the response of SACT services to changing demand as a result of COVID-19. This information reassures clinicians and patients about the impact of new approaches to treatment and supports decision-making. The SACT activity data continue to be used by stakeholders for a variety of purposes.

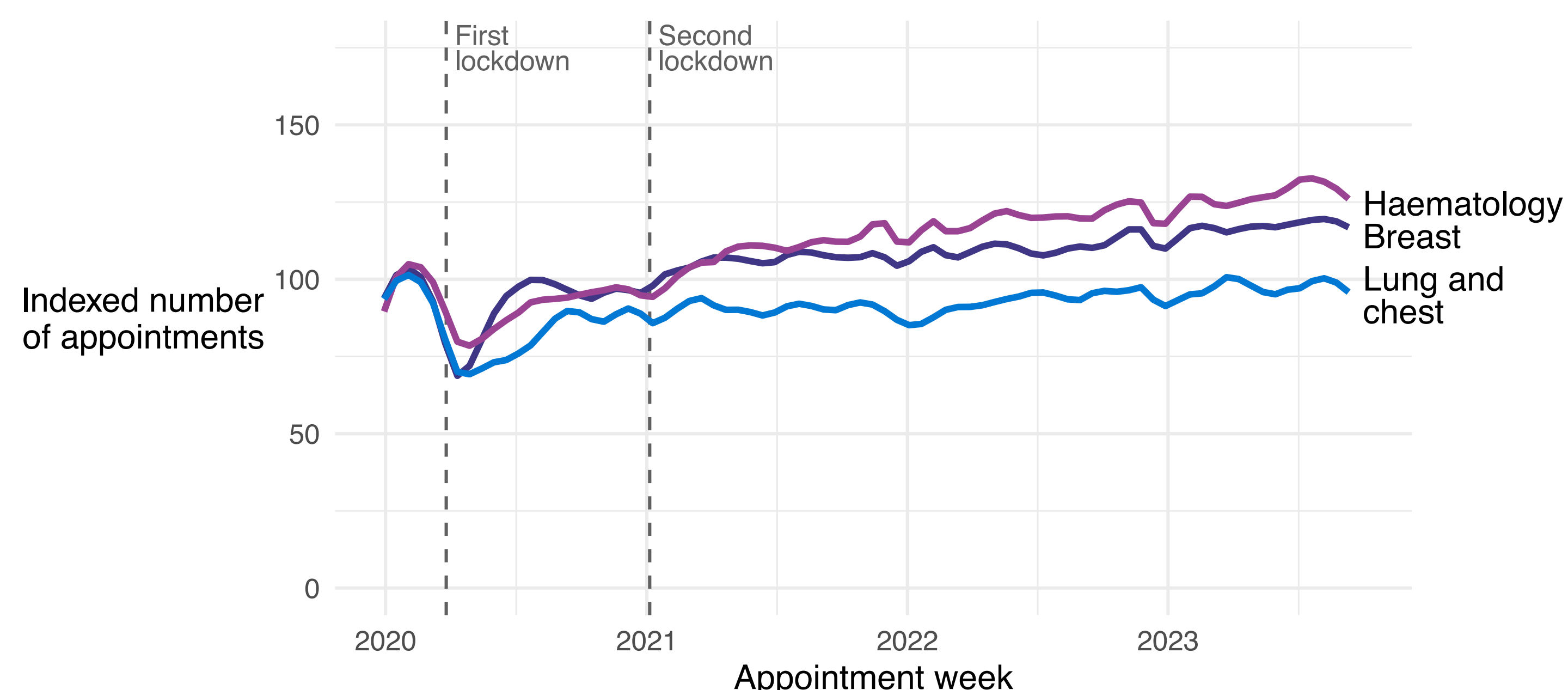
Acknowledgements

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Reference

1. Lai AG, Pasea L, Banerjee A et al. Estimated impact of the COVID-19 pandemic on cancer services and excess 1-year mortality in people with cancer and multimorbidity: near real-time data on cancer care, cancer deaths and a population-based cohort study. *BMJ Open* 2020;10(11):e043828.

Figure 2: The indexed change in weekly appointments by tumour group (pre-COVID-19 reference period = 100)



Note: Activity recovered differently in breast cancer, haematological cancers and lung and chest cancers following the introduction of the first national lockdown.