Scottish Cancer Data Use at the Edinburgh Cancer Centre
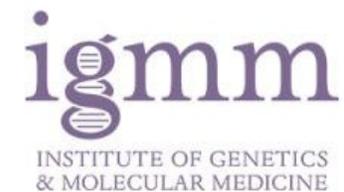
Peter Hall

Consultant Medical Oncologist

Edinburgh Cancer Centre

Email: p.s.hall@ed.ac.uk | Twitter: @peterhall001

Four Examples

- COVID-19 and Cancer Services

- New medicines adoption

- Research Feasibility

- Variation and benchmarking against other Scottish Cancer Centres

[Breast cancer focus]

Monitoring Cancer Services during the COVID-19 pandemic

Different types of disruption
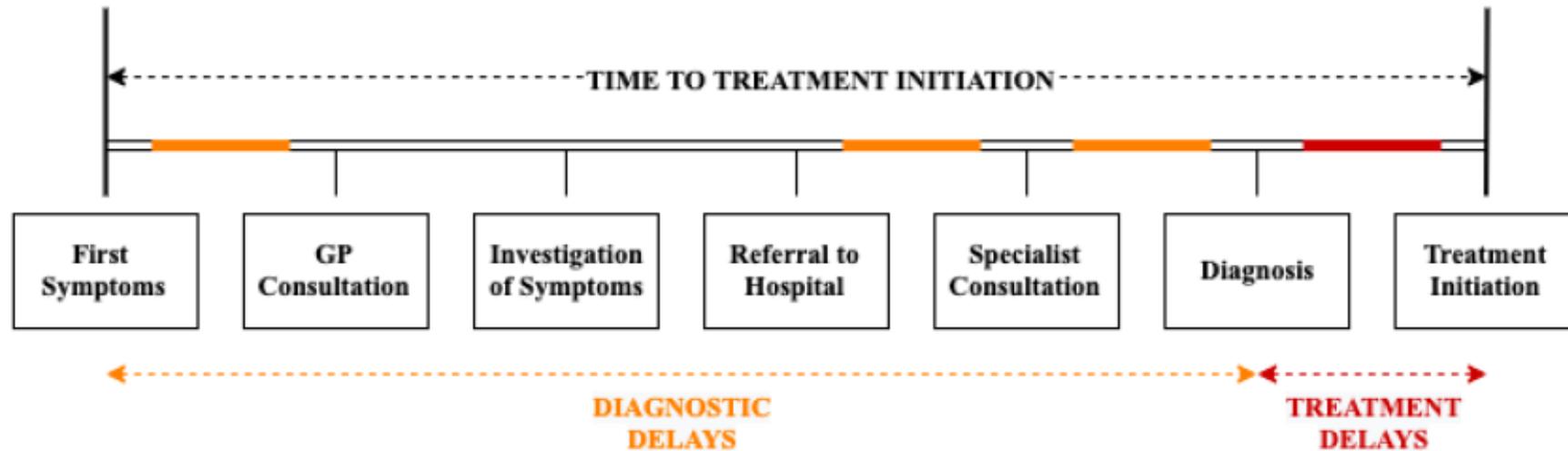
Based on Olesen et al 2009 *Br J Cancer* showing different types of delays within the care pathway that may be observed during COVID19 service disruptions.

South-East Scotland BREAST CANCER

Source of Referral - Gap

Source of Referral - Cumulative gap between 2020 actual and expected..

Cancer	Breast	Board of Re..	All		Source of R..	All	Select Com..	2019

Data shown are sourced from the PHS Cancer Waiting Times Datamart. Total counts of those recieving first treatment in each month may not match counts sourced from QPI Audit Data. As data in this sheet are based on waiting times data, they can be taken as complete. Please see summary sheet for more details.
..

Month of First Treatment

Source of Referral	Jan	Feb	Mar	Apr	May	Jun
Total Gap (sources selected only)	7	6	28	31	9	-39
National Screening	6	9	27	33	3	-41
Primary Care (USoC)	4	9	22	20	31	26
Direct Referal	-1	-1	-1	0	3	2
Primary Care (other)	-4	-9	-18	-17	-22	-25
Other	2	-2	-2	-5	-6	-1

Source of Referral
- National Screening
- Primary Care (USoC)
- Direct Referal
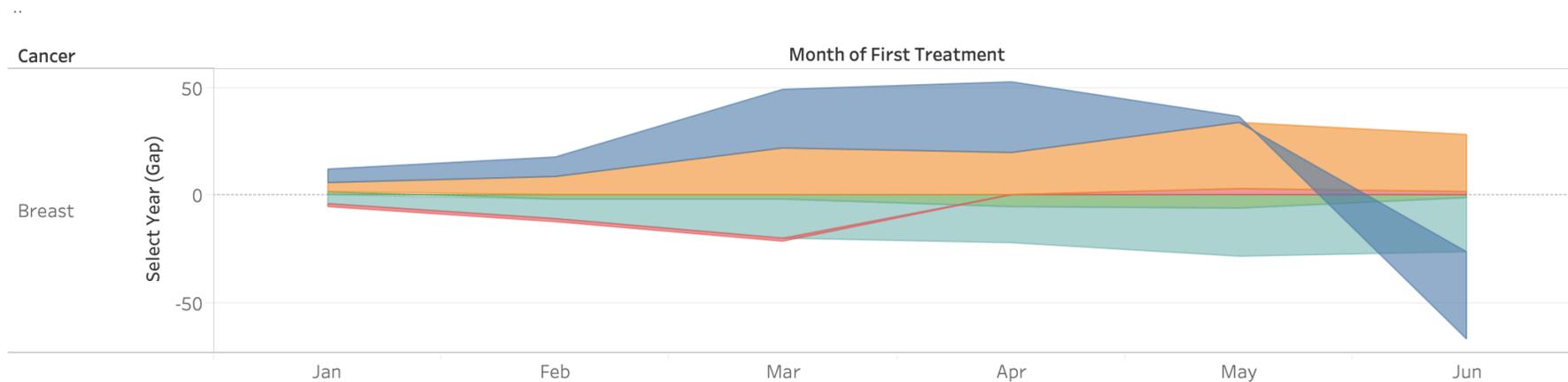- Primary Care (other)
- Other

South-East Scotland COLORECTAL CANCER

Source of Referral - Gap

Source of Referral - Cumulative gap between 2020 actual and expected..

| Cancer | Colorectal | Board of Re.. | All | | Source of R.. | All | Select Com.. | 2019 |

Data shown are sourced from the PHS Cancer Waiting Times Datamart. Total counts of those recieving first treatment in each month may not match counts sourced from QPI Audit Data. As data in this sheet are based on waiting times data, they can be taken as complete. Please see summary sheet for more details.
..

Cancer   **Month of First Treatment**

Month of First Treatment

Source of Referral	Jan	Feb	Mar	Apr	May	Jun
Total Gap (sources selected only)	**2**	**8**	**16**	**0**	**-13**	**-2**
National Screening	1	0	0	-8	-16	-22
Primary Care (USoC)	5	9	14	11	10	11
Direct Referal	7	9	10	14	6	24
Primary Care (other)	-7	-7	-4	-7	-9	-11
Other	-4	-3	-4	-10	-4	-4

Source of Referral
- National Screening
- Primary Care (USoC)
- Direct Referal
- Primary Care (other)
- Other

South-East Scotland LUNG CANCER

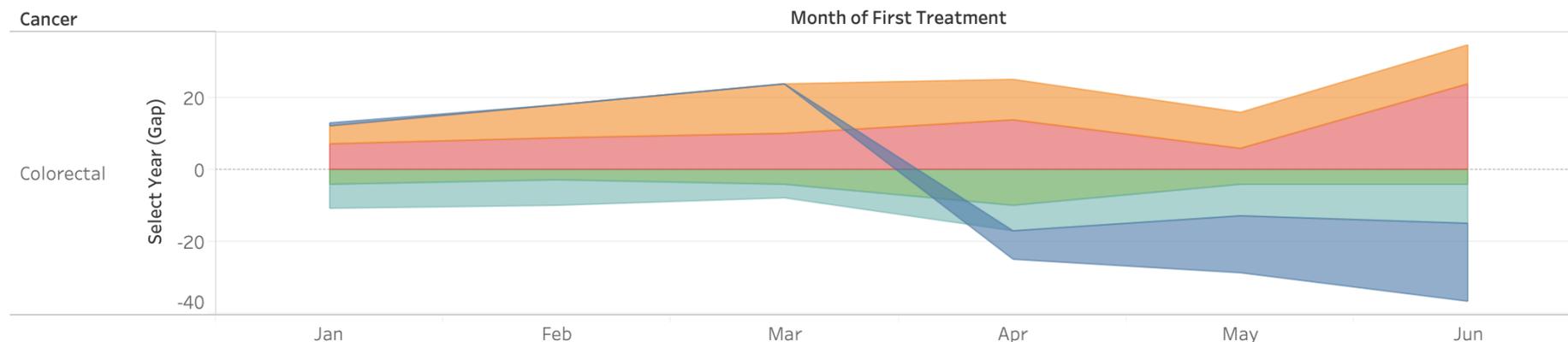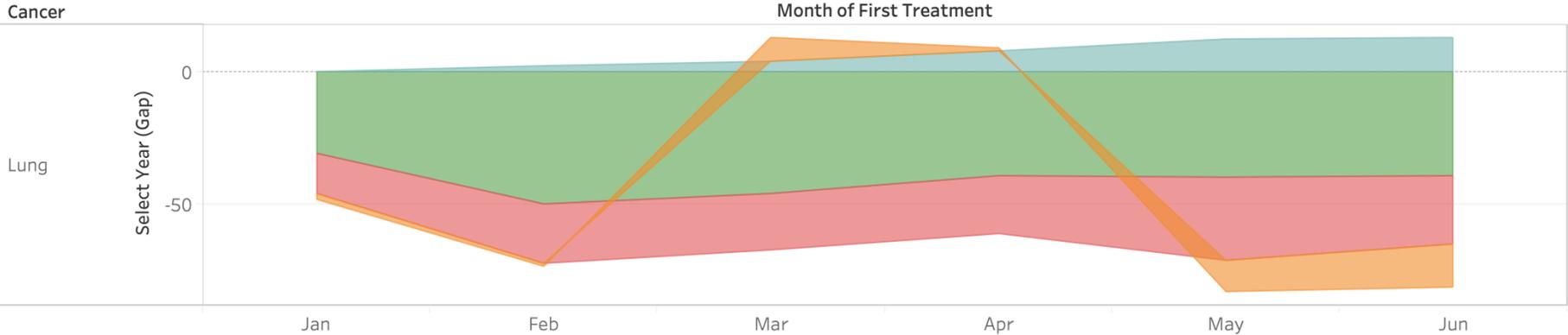## Source of Referral - Gap

Source of Referral - Cumulative gap between 2020 actual and expected..

Cancer Lung   Board of Re.. All   Source of R.. Multiple values   Select Com.. 2019

Data shown are sourced from the PHS Cancer Waiting Times Datamart. Total counts of those recieving first treatment in each month may not match counts sourced from QPI Audit Data. As data in this sheet are based on waiting times data, they can be taken as complete. Please see summary sheet for more details.
..

Cancer   Month of First Treatment

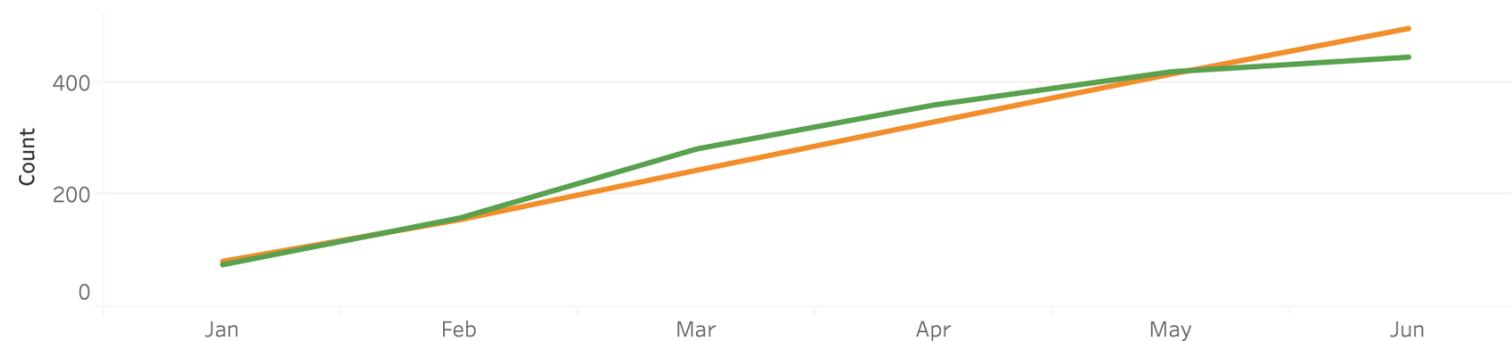| Source of Referral	Jan	Feb	Mar	Apr	May	Jun
Total Gap (sources selected only)	**-48**	**-71**	**-54**	**-52**	**-71**	**-68**
Primary Care (USoC)	-2	-1	9	1	-12	-16
Direct Referal	-15	-22	-21	-22	-31	-26
Primary Care (other)	0	2	4	8	12	13
Other	-31	-50	-46	-39	-40	-39

Source of Referral
- Primary Care (USoC)
- Direct Referal
- Primary Care (other)
- Other

Breast stage 1-2 cases

Cancer Stage at Diagnosis - Cumulative gap between 2020 actual and selected comparator year

Indicator
○ First MDM Discussion
● First Treatment

Cancer
Breast

Board
All

Stage
☐ All
☐ 0
☑ 1

Select Compar..
2019

Legend
🟩 2020 Cuml..
🟧 Comparator

Referral Route
● All
○ Non Screening Referrals ..

Cumulative Cases - 2020 vs. 2019

Cumulative Difference in Individuals between 2020 and 2019

Notes:

Data shown are sourced from QPI Audit Data collections. Counts of patients may not match counts sourced from Waiting Times Data for each month. Please see summary sheet for more details. Care should be taken in interpreting these figures as completeness will affect the results shown.
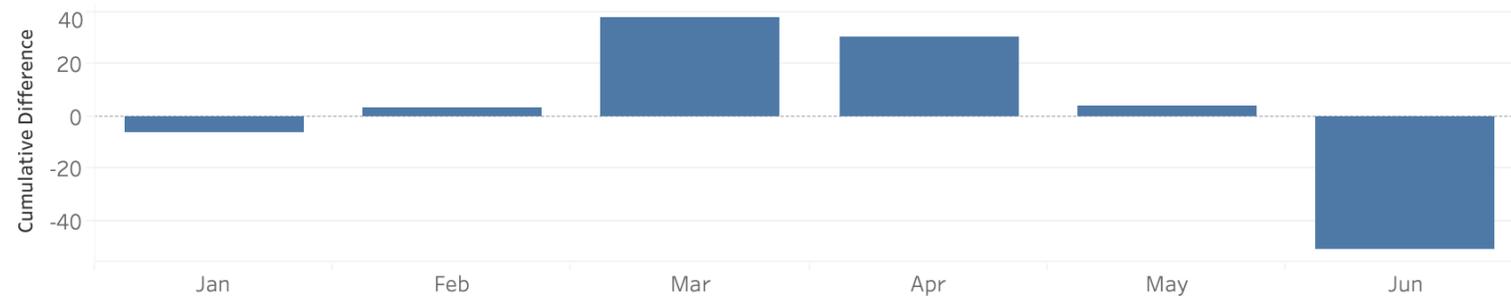
A negative difference indicates that the number of cases in 2020 is below that of its comparator.

Median numbers are calculated from the median number of case..

Chemotherapy (SACT) Activity
weekly treatments
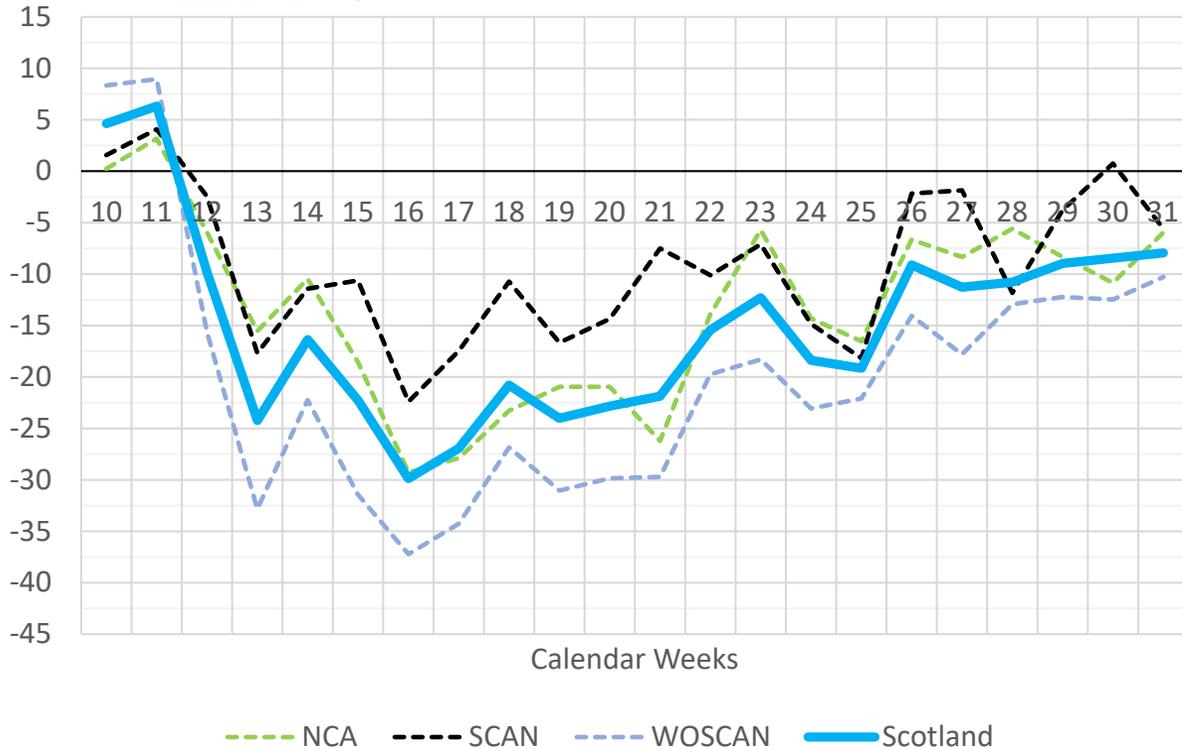
Percentage change in mothly SACT patient attendances (2019 vs 2020)
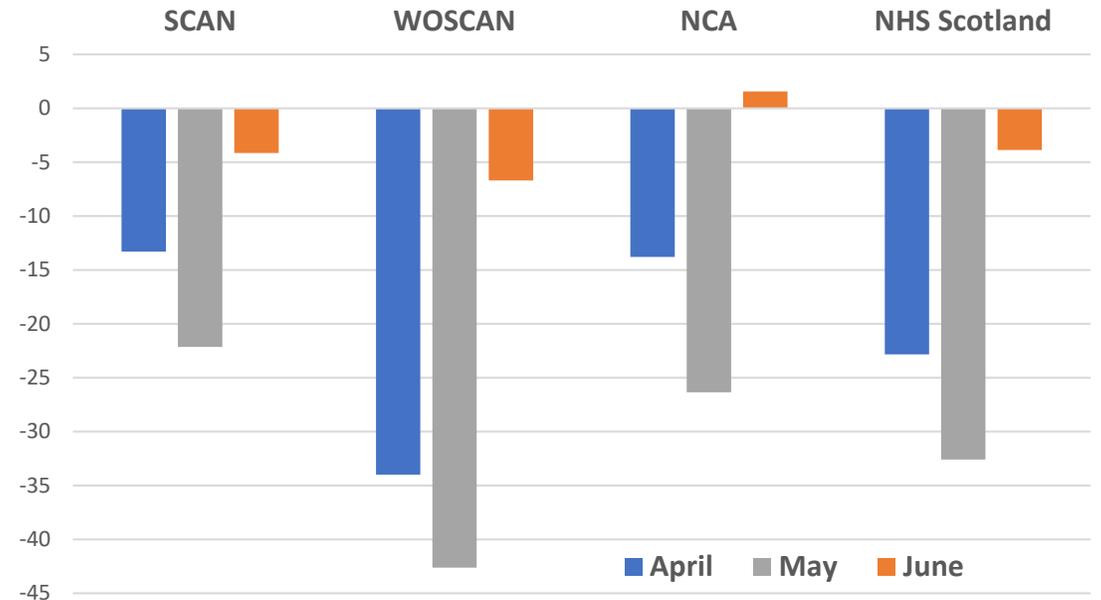
COVID-19 infection rates in cancer patients

- As of 11th Jan 2021 in NHS Lothian
  - 618 cancer patients have tested positive for COVID-19 of which:
    - 126 (20%) have died
    - 255 admitted to hospital +/- 1 month of positive test
    - 11 admitted to ICU +/- 1 month of positive test
    - 69 were on active anti-cancer therapy
- Enabled contribution to a national audit of outcomes in cancer patients after COVID-19 infection
  - UK-CCMP https://ukcoronaviruscancermonitoring.com/

Need vaccination data

New Medicines Adoption

Treatment sequencing for metastatic breast cancer
(ER+/HER2-) n=350
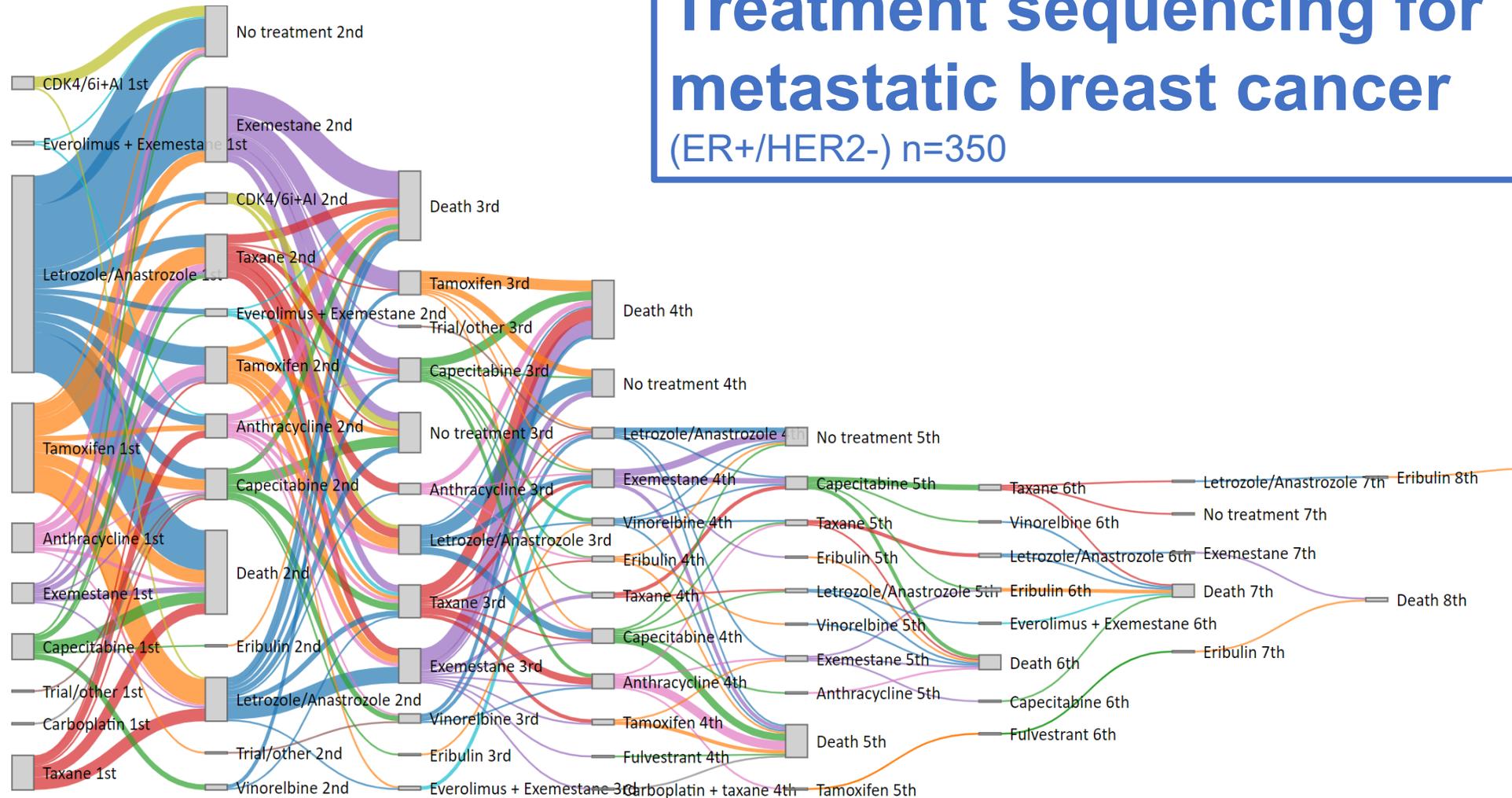
SACT Activity and Future Modelling Tool

Lois Pollock and Judith Fraser

Onc and Haem regimes DEMO			CSW	RGN	CSW & RGN	CHAIR	TOXICITY ASSSES.	ADMIN STAFF	PRESCRIBER TIME	PHARM
REGIMEN	TUMOUR GROUP	No. of Episodes (pln, auth, given)	Total CSW time (mins)	Total RGN Time (mins)	TOTAL NURSING & CSW TIME (mins)	TOTAL CHAIR TIME (mins)	Total Toxicity Asses TIME	Total Admin Staff (mins)	Total prescribe time	Total Clin pharm time
ABIRATERONE DC	PROSTATE		0	0	0	0	0	2	0	0
ABIRATERONE PROS	PROSTATE	100	0	0	0	0	0	2	0	1200
ABIRATERONE STUD	BREAST		0	0	0	0	0	2	0	0
ABVD	LEUKAEMIA	75	975	6000	6975	13500	1125	1127	1125	900
ACTINOMYCIN D	GYNAE		0	0	0	0	0	2	0	0
AFATINIB	NSCLC		0	0	0	0	0	2	0	0
AFATINIB EGFR+	NSCLC	36	0	0	0	0	540	542	540	432
AFLIB IRMDG IP	COLORECTAL		0	0	0	0	0	2	0	0
AFLIB IRMDG OP	COLORECTAL	11	143	1001	1144	2640	165	167	165	132
ALECTINIB R874	NSCLC	9	0	0	0	0	0	2	0	108

Research Feasibility

International research registry for male breast cancer

- Single site, regional or national??

- Using SCRIS Dashboard estimates ~10 per year

- Drill down within NHS Lothian to check eligibility

Need molecular pathology and genetics data for clinical trials scoping

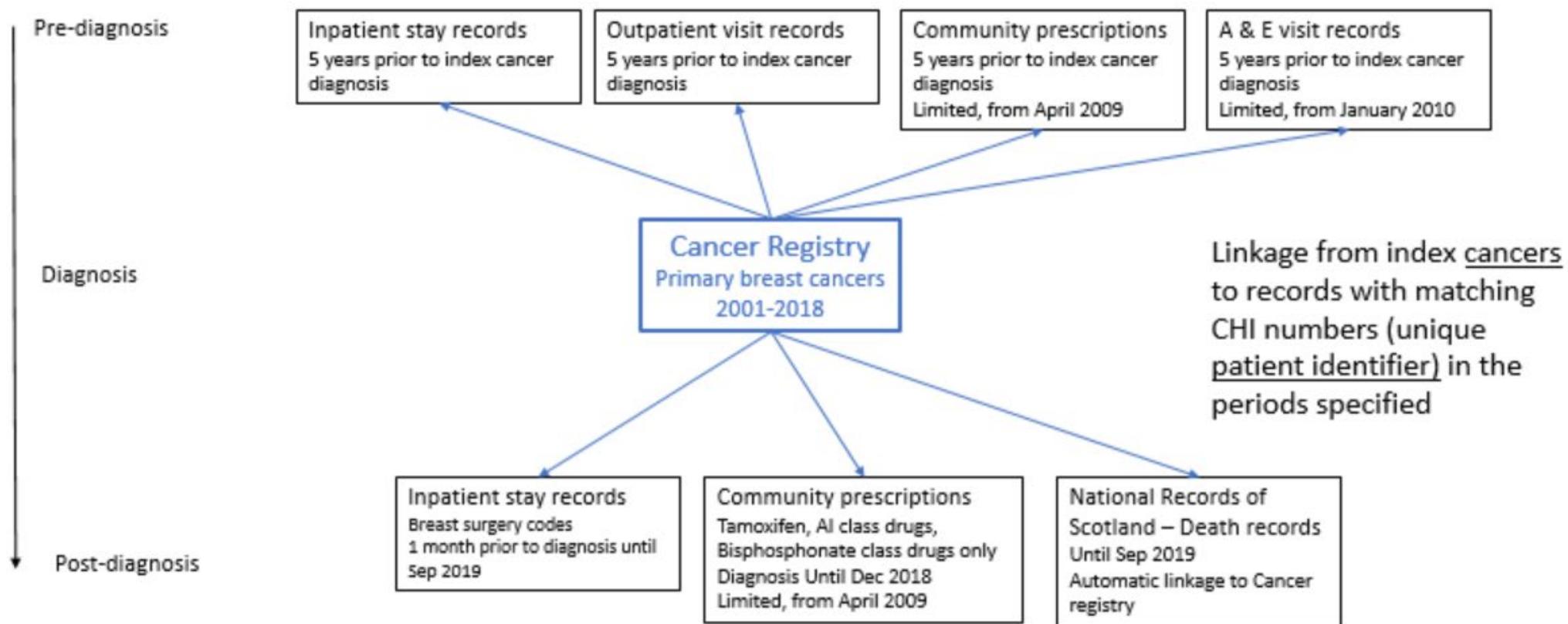# Variation in chemotherapy for curable breast cancer

In 2019 a HIS report identified possible variation between Health Boards in adjuvant chemotherapy use after surgical treatment for early breast cancer

Warranted or unwarranted variation?
**Affect on outcomes?**
→ Needs casemix adjustment

Data linkage

Proportion receiving chemotherapy

Network/ Health board	Proportion chemotherapy (unadjusted)	95% CI	Proportion chemotherapy (Adjusted)	95% CI
Network				
North of Scotland (NCA)	0.397	[0.388,0.405]	0.393	[0.388,0.399]
South East Scotland (SCAN)	0.398	[0.390,0.407]	0.415	[0.410,0.421]
West of Scotland (WoSCAN)	0.437	[0.430,0.443]	0.428	[0.424,0.432]
Health Board				
A&A				
Borders				
D&G				
Fife				
Forth Valley				
Grampian				
GGC	**0.438**	**[0.428,0.448]**	**0.425**	**[0.419,0.432]**
Highland				
Lanarkshire				
Lothian	**0.405**	**[0.394,0.417]**	**0.424**	**[0.416,0.431]**
Orkney				
Shetland				
Tayside				
Western Isles				

CI: Confidence Interval, NoS: North of Scotland, SCAN: South East Cancer Network, WoSCAN: West of Scotland Cancer Network, A&A: Ayrshire and Arran, D&G: Dumfries and Galloway, GGC: Greater Glasgow and Clyde Adjustment variables: age (5-year age bands), year of diagnosis, prognosis (NHS Predict 10-year predicted survival as well as component risk factors), comorbidities (log total inpatient bed days and log total number of outpatient appointments in 5 years prior to diagnosis)

Proportion receiving chemotherapy
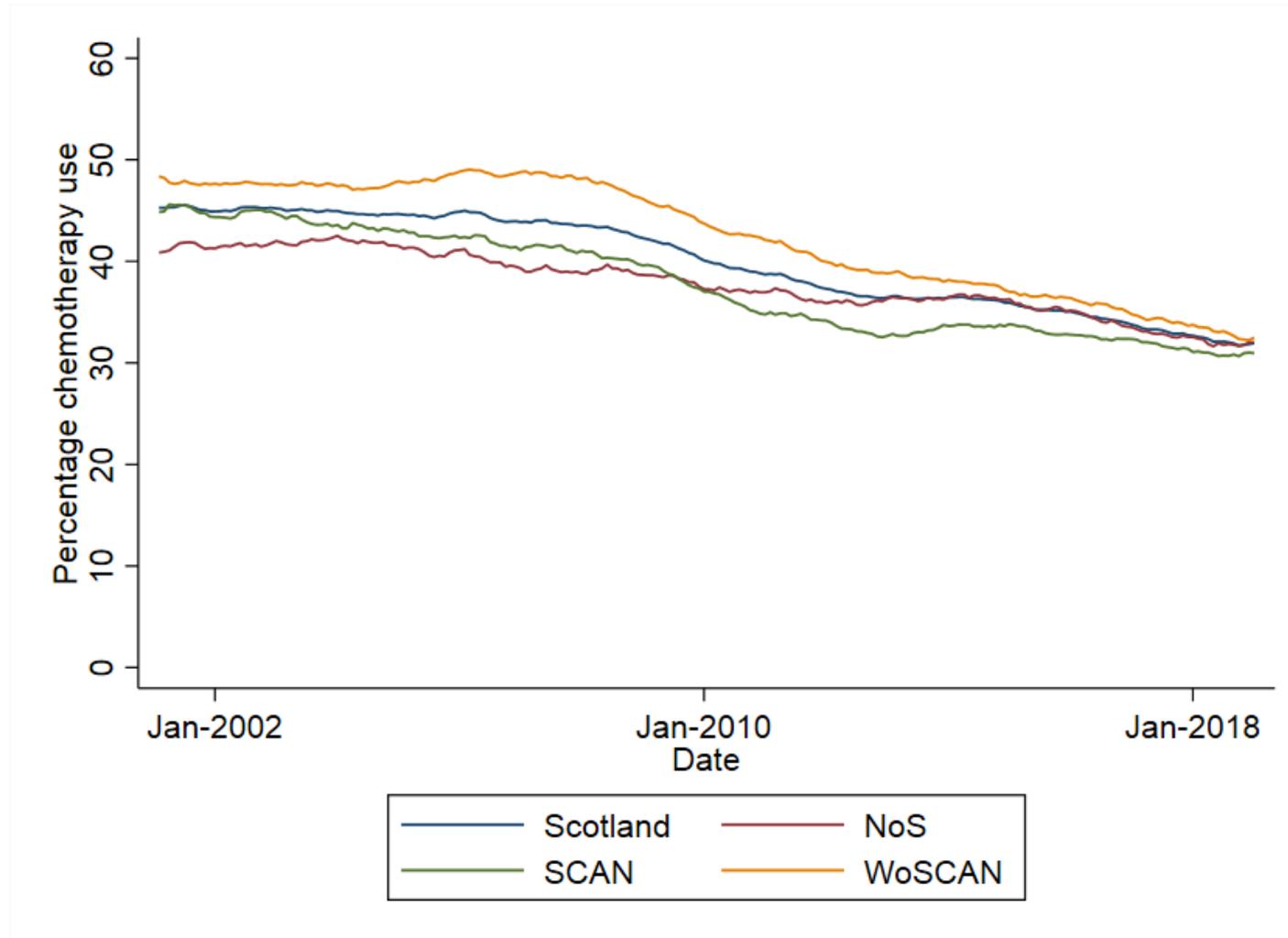
Survival

	All-cause mortality			
	Unadjusted	Unadjusted	Adjusted	Adjusted
Network vs. mean	**HR**	95% CI	**HR**	95% CI
North of Scotland (NCA)	**0.995**	[0.964,1.028]	**1.028**	[0.991,1.066]
South East Scotland (SCAN)	**0.941**	[0.911,0.972]*	**0.976**	[0.944,1.009]
West of Scotland (WoSCAN)	**1.041**	[1.019,1.064]*	**0.999**	[0.975,1.023]

Learn more about the SATURNE project: https://cancer-data.ecrc.ed.ac.uk/saturne/

Gray E, Marti J, Brewster DH, Wyatt JC, Piaget-Rossel R, Hall PS and the SATURNE project advisory group. **Document title: Real-world evidence was feasible for estimating effectiveness of chemotherapy in breast cancer: a cohort study**. **Journal of clinical epidemiology**. 2019 May 1;109:125-32.

Gray E, Marti J, Brewster DH, Wyatt JC, Hall PS and the SATURNE project advisory group. **Document title: Independent validation of the PREDICT breast cancer prognosis prediction tool in 45,789 patients using Scottish Cancer Registry data**. **Br J Cancer** 119, 808–814 (2018)

Gray E, Marti J, Brewster DH, Wyatt JC, Hall PS and the SATURNE project advisory group. **Document title: Real-world evidence for chemotherapy effectiveness in trial under-represented groups with early breast cancer; a retrospective cohort study. PLOS Medicine**

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