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Regional variation in place of death as a quality measure in patients with poor prognosis cancer

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Introduction

- There is a need to facilitate individual preferences for place of death, especially for people with terminal cancers where advance care planning (ACP) is possible.
- Regional variation in place of death may reflect inequalities in access to ACP, palliative services, and other activities representative of good-quality care.

Aim

- To assess regional variation in place of death in 'poor prognosis cancer' (PPC) populations across the South-East Scotland Cancer Network (SCAN) region.

Methods

Study design: Retrospective cohort study.

Study population:

- Patients with lung cancer and upper gastrointestinal cancer
- Diagnosed between 2015 and 2021
- Met the 'PPC' definition at diagnosis
- Lived in the SCAN region
- Died by 31 December 2022

Definition of 'Poor Prognosis Cancer':

- Stage 4 disease (M1) at diagnosis, or
- Received cancer treatment with palliative intent, or
- Did not receive cancer treatment (either surgery, radiotherapy, chemotherapy, or other therapy)

Outcome: Place of death.

- Community settings (Home or Residential home / Nursing home) vs.
- Healthcare institutions (Hospital or Hospice)

Data sources:

- Regional Electronic Health Records data from the Scottish Cancer Registry, death registration data, deprivation index, laboratory, and treatment data.

Data analysis:

- The association between place of death and Health Board was assessed using Chi-square test.
- Predicted probabilities of death in community settings were estimated using a multivariable logistic regression model adjusted for age, deprivation, inflammatory score, treatment, and tumour type, enabling comparison across Health Boards.

Results

- The total cohort included 11,607 patients. Of them, 51.1% were diagnosed in NHS Lothian, 27.9% in NHS Fife, 12.5% in NHS Dumfries and Galloway (D&G), and 8.5% in NHS Borders.
- There was a statistically significant difference in the proportion of deaths in occurring in the community among the four Health Boards. (Chi-squared statistics = 18.062, $p < 0.001$).

Table 1 – Proportion of deaths in community settings vs. healthcare institutions by Health Board

	Fife (n = 3242)	Lothian (n = 5930)	D&G (n = 1447)	Borders (n = 988)	Total (n = 11607)
Place of death					
Community Settings	1369 (42.2%)	2295 (38.7%)	558 (38.6%)	353 (35.7%)	4575 (39.4%)
Healthcare Institutions	1873 (57.8%)	3635 (61.3%)	889 (61.4%)	635 (64.3%)	7032 (60.6%)

- The adjusted predicted probabilities of dying in community settings were highest in Fife, followed by Lothian and D&G, and lowest in Borders, with a statistically significant difference between Fife and Borders. The regional average was 37.20% (95% CI: 36.0 – 38.4).

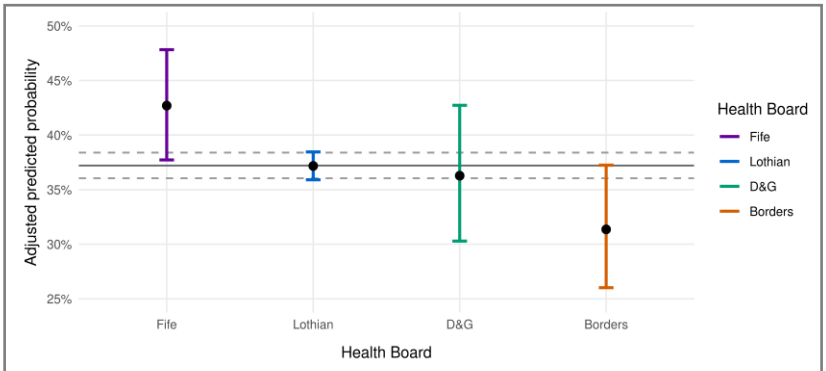

Figure – Regional variation in the adjusted predicted probabilities of death in community settings

Table 2 – Adjusted predicted probabilities of death in community settings by Health Board

	Fife (n = 3242)	Lothian (n = 5930)	D&G (n = 1447)	Borders (n = 988)	Total (n = 11607)
Deaths in community settings					
Predicted Probability	42.69%	37.17%	36.28%	31.36%	37.20%
95% Confidence Interval	37.7 – 47.8	35.9 – 38.5	30.3 – 42.7	26.0 – 37.2	36.0 – 38.4

Conclusions

- There is a regional variation in the place of death in patients with PPC across the SCAN Health Boards.
- This could provide insights into geographical inequalities in access to end-of-life care.
- The measurement of place of death offers utility as an objective and reproducible metric for quality of care that could inform shared decision-making for people with potentially poor prognosis cancer.

Recommendations

- Further research incorporating qualitative data on individuals' preferences regarding place of death could provide more relevant context to the analysis by comparing preferred versus actual place of death.

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