

Farr@Aberdeen Research Theme: Cancer Research Programme  
(leveraged funding)

**Does access to health services influence provider delay, stage, treatment and survival from eight common cancers: analysis of a linked dataset based on the NASCAR (Northeast and Aberdeen Scottish Cancer and Residence) Cohort.**

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Rurality and distance from cancer treatment centres appear to worsen cancer outcomes, but the mechanisms remain obscure. We analysed the impact of travel time to key healthcare facilities and mainland/island residency on the cancer diagnostic pathway (treatment within 62 days of referral, and within 31 days of diagnosis) and one-year survival using a data linkage study. A population based cohort Northeast and Aberdeen Scottish Cancer and Residence (NASCAR) was created from linkage between an NHS Grampian Cancer Care Pathway database, the Scottish Cancer Registry, SMR01, death registry data and geographic information systems (GIS) for travel and distance derived from postcodes. Data extraction and linkage for patients with one of eight common cancers diagnosed from 2007-2013 in NHS Grampian (n=12,339) was carried out by Information Services Division (ISD) Scotland and Grampian Data Safe Haven (DaSH). Controlling for important confounders, mainland patients with more than 60 minutes travelling time to their cancer treatment centre [OR 1.42; CI 1.25 to 1.61] and island dwellers [OR 1.32; CI 1.09 to 1.59] were more likely to commence cancer treatment within 62 days of GP referral and within 31 days of their cancer diagnosis compared to those living within 15 minutes. Island-dwellers patients were more likely to have their diagnosis and treatment started on the same or next day [OR 1.72; 95%CI 1.31 to 2.25]. Increased travelling time to a cancer treatment centre was associated with reduced survival to one year (30-59 minutes [HR 1.21; 95%CI 1.05 to 1.41], >60 minutes [HR 1.18; 95%CI 1.03 to 1.36], island-dweller [HR 1.17; 95%CI 0.97 to 1.41]. Island-dwelling and greater mainland travel burden was associated with more rapid cancer diagnosis and treatment following GP referral even after adjustment for advanced disease, however these patients also experienced a survival disadvantage compared to those living nearer. Cancer services may need to be better configured to suit the different needs of dispersed populations. Future work involves extending NASCAR to include diagnosis from 2014 to 2016 and extending linkage to include data about use of hospital services and prescriptions. This will afford us the opportunity to explore the mechanisms underpinning our paradoxical findings.

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1. Friends of ANCHOR (£10,000) to support a University of Aberdeen Elphinstone PhD student, Romi Carriere, to investigate the influence of post-treatment care on survival of individuals within the North of Scotland Cancer and Residence (NASCAR) dataset.
2. Scottish Government's Detect Cancer Early Programme to address the following research question: *Does increased distance to services lead to different treatment and follow-up for cancer in Scotland?* (SG801712: 01/03/17 to 31/12/2019; £45,000)

**Publications:**

Murchie, P., Smith, S., Yule, M., Adam, R., Turner, ME., Lee, AJ. & Fielding, S. (in press). 'Does emergency presentation of cancer represent poor performance in primary care? Insights from a novel analysis of linked primary and secondary care data'. *British Journal of Cancer*.

## **The role of pelvic examination in primary care in diagnosing gynaecological cancer**

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Annually, 2800 women are diagnosed with gynaecological cancer in Scotland, while the survival rates are lower than other comparable countries. Despite guidelines that recommend pelvic examination in primary care prior to secondary care referral in those patients with a suspected gynaecological cancer and evidence that such an examination reduces diagnostic delay, there is evidence which shows that pelvic examination is not always done.

### **Objectives:**

1. To determine the association between pelvic examination and the cancer stage at diagnosis
2. To explore the perceptions of GPs, practice nurses, consultant gynaecologists and patients' views of pelvic examination in primary care.

### **Design:**

1. Analysis of routinely held primary and secondary care data to map the diagnostic pathway of women diagnosed with gynaecological cancer. Data will be extracted from primary care records and from the Grampian cancer care pathway for eligible and consenting patients. Each data set will be stored separately on an Excel spreadsheet on an encrypted computer with linkage to allow appropriate statistical analysis.
2. Qualitative interviews with healthcare professionals and patients.