

Travelling Time between Home and the Dialysis Unit for Scottish Patients, 1982-2002: Preliminary Report

Mark S. MacGregor¹, Jillian Campbell², Marion Bain², Gordon J. Prescott¹, Robert A. Mactier¹, Brian J.R. Junor¹, Annemarie A.H. Schalkwijk¹, Joanne Boyd¹, Jackie A. MacDonald¹ & Keith Simpson¹

1. Scottish Renal Registry, Walton Building, Royal Infirmary, Glasgow, G4 0SF, Scotland

2. Information & Statistics Division, Common Services Agency, NHS Scotland, Trinity Park House, South Trinity Road, Edinburgh, EH5 3SQ, Scotland

Introduction

Hospital haemodialysis is time-consuming for patients, and further time is spent waiting for treatment to start, for transport and travelling between home and dialysis unit. Travelling time has been identified as a key issue by patients. The Scottish Government has set a target that dialysis should be available within 30 minutes of all patients' homes, allowing for geography and population density.

Methods

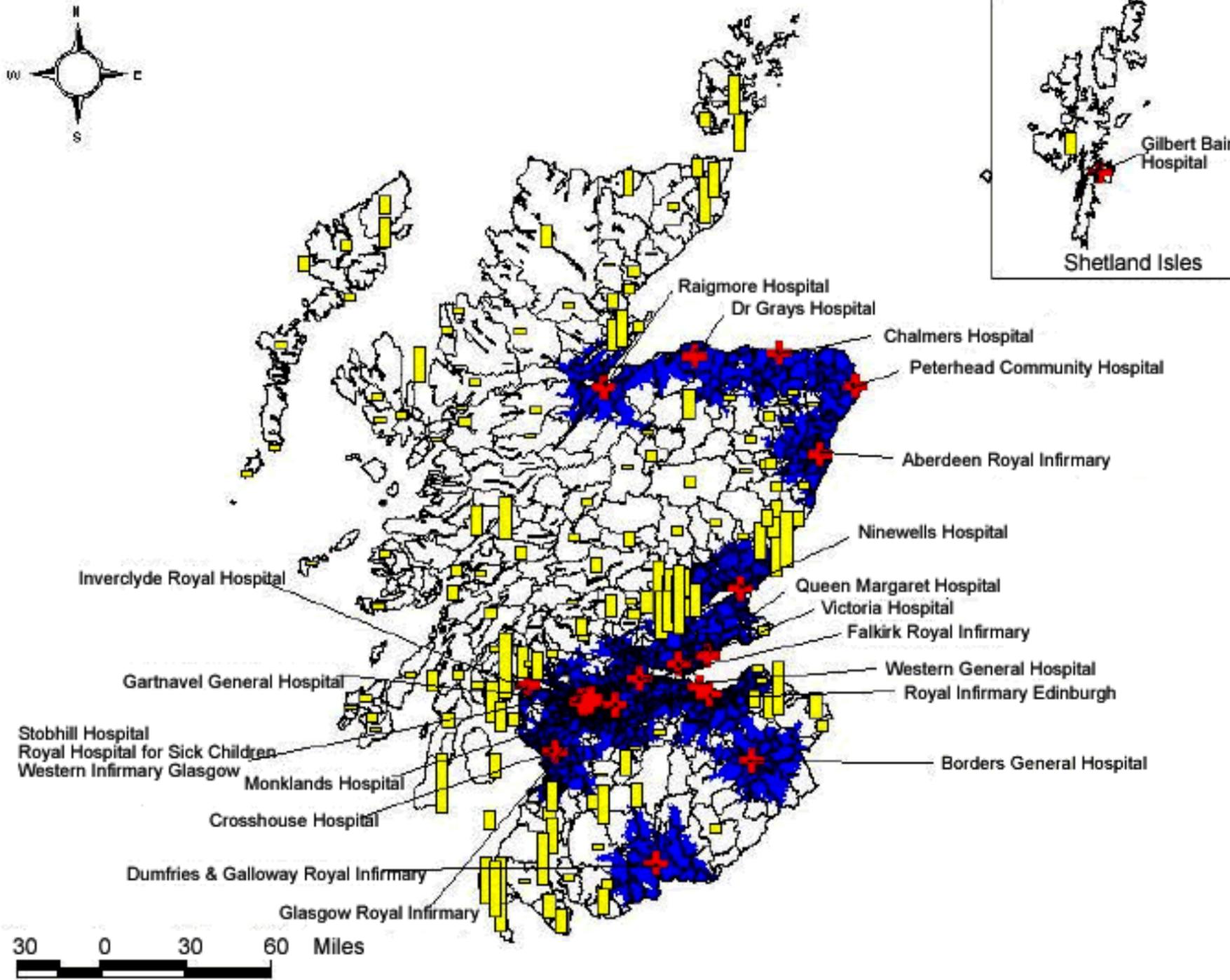
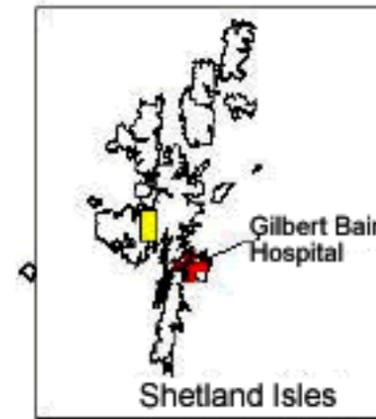
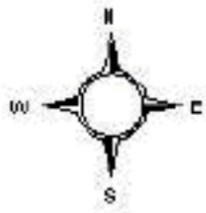
We extracted postcodes from the Scottish Renal Registry for all patients starting renal replacement therapy from 1982 to 2002, and for all 23 dialysis units. Using ArcView GIS v3.3 / ProTERRITORY v2.2 software we calculated the travelling time for all patients to all units. We extracted data on renal replacement therapy modality and on the NHS Board and institution providing treatment. All data are presented as median and interquartile range.

Results

7882 patients started renal replacement therapy. Valid postcodes were obtained for 7651 patients (97.1%). 97 patients (1.3%) lived on islands and could not have travelling time estimated by the software. The median time to the closest unit was 12; 7-19 mins. 762 patients (9.7%) lived >30 minutes from a unit (median 42; 34-75 mins). The NHS boards had a range of 0-48% patients outwith the 30 mins target. This correlated inversely with population density (Spearman's R 0.91), but there were several outliers. Patient clusters >30 minutes from a unit could be identified on a map. Patients who had never been on hospital haemodialysis lived further from a unit than those who had (13; 8-20 mins vs. 11; 7-18 mins; Mann-Whitney $p < 0.0005$). For most recent modality, there was a hierarchy of travelling time (home haemodialysis > peritoneal dialysis > transplant > hospital haemodialysis, Kruskal-Wallis $p < 0.0005$).

Discussion

A tenth of Scottish patients live more than 30 minutes from a dialysis unit. This affects their quality of life, but perhaps also morbidity and mortality. Choice of modality is related to the distance patients live from a unit rather than just to clinical need or personal choice. Our method assumes patients travel to the closest unit, and that transport is efficient. It thus identifies excess travel time which cannot be addressed by expanding existing facilities or improving transport. Our method has not assessed the impact of the presence or absence of a dialysis unit on incidence. This approach to registry data can be of use for the planning of new dialysis facilities on a local or national scale.



Map of Scotland with all dialysis units open on 31/12/2002 (red crosses). Blue shading shows a 30 minute travelling boundary around each unit. Yellow bars represent the number of patients in each postcode sector who live more than 30 minutes from a dialysis unit.