



Geographical Variation in Hospital Mortality – Does where you live determine how you die?

Philip Lyons (philip.lyons@swpho.nhs.uk) , Julia Verne, South West Public Health Observatory

1. Introduction

This study investigates the geographical variation at Local Authority (LA) level for the proportion of hospital deaths with regard to the underlying causes (UL) of death. Previous studies ^{1&2} indicate that individuals near the end of their life have increasing need of hospital services. By identifying and investigating variation in the services for; Cancer, Stroke, Cardiovascular and Respiratory deaths, this study will inform policy and planning decisions concerning the nature of patients needs in their final month of life.

2. Methodology

A dataset was used that links mortality information from the Office of National Statistics (ONS) made up from death certificates to Hospital Episode Statistics (HES). Our cohort includes deaths in England 2004-08 where death occurred in hospital following an admission in the last month of life (≤30 days). Approximately 58% of all deaths occur in hospital and approximately 45% die in hospital following an admission in the last month of life (≤30 days). We analysed variation by cause of death and LA of residence. We calculated the age-standardised proportion (ASP) of hospital deaths for each LA from the above mentioned cohort.

3. Results

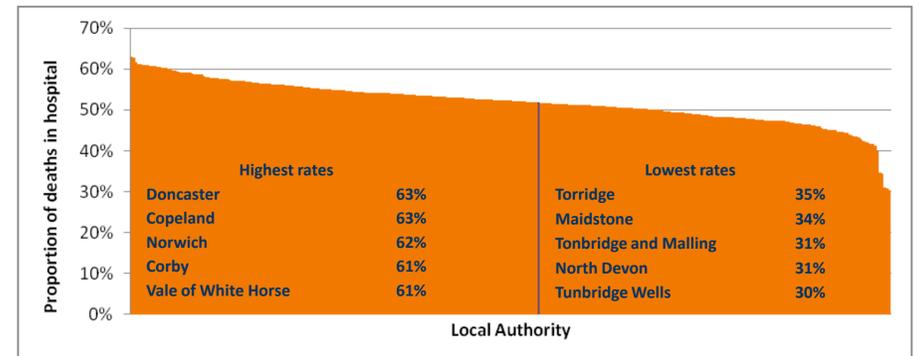
For each cause of death category there is large variation between LAs for the proportion of people who die in hospital: Cancer (23-68%), Cardiovascular (31-64%), Stroke (27-66%) and Respiratory (36-72%). The maps in Figures 2-5 show that there is a distinct difference in the pattern of ASPs for hospital deaths when comparing the causes of death.

Table 1: Highest and lowest proportions of deaths in hospital following an admission in the last month of life by Local Authority and underlying cause (proportions are standardised for age and sex), England 2004-08

Proportion of deaths in hospital following an admission in the last month of life (0-30 days)			
Underlying cause of death	Local Authority	Age Standardised Rates	England Average
All causes	Highest	Doncaster	63%
	Lowest	Tunbridge Wells	30%
Cancer	Highest	Doncaster	68%
	Lowest	Tunbridge Wells	23%
Cardiovascular disease	Highest	North Dorset	64%
	Lowest	Tunbridge Wells	31%
Respiratory disease	Highest	Harlow	72%
	Lowest	Torridge	36%
Stroke	Highest	Southend-on-Sea	66%
	Lowest	Torridge	27%
Other	Highest	Portsmouth	62%
	Lowest	North Devon	29%

Source: Linked Mortality File, Office for National Statistics, annual mortality file and NHS Information Centre, Hospital Episode Statistics

Figure 1: Proportions of deaths (all causes) that occur in hospital following an admission in the last month of life, by Local Authority, England 2004-08



Source: Linked Mortality File, Office for National Statistics, annual mortality file and NHS Information Centre, Hospital Episode Statistics

Figure 2: Proportion of all cancer deaths that occurred in hospital following an admission in the last month of life, England 2004-08

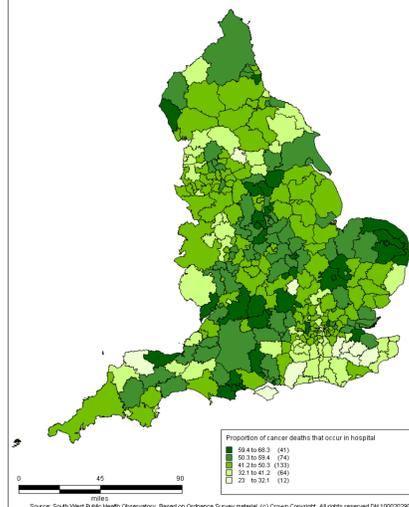


Figure 4: Proportion of all stroke deaths that occurred in hospital following an admission in the last month of life, England 2004-08

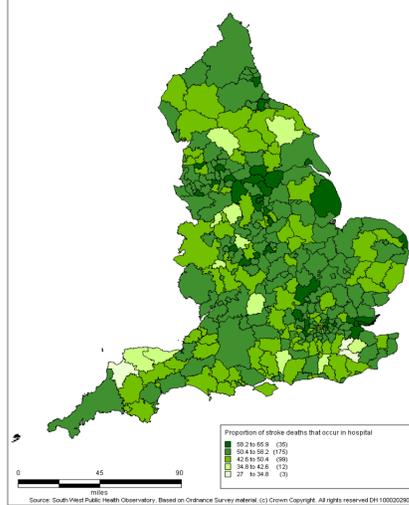


Figure 3: Proportion of all cardiovascular disease deaths that occurred in hospital following an admission in the last month of life, England 2004-08

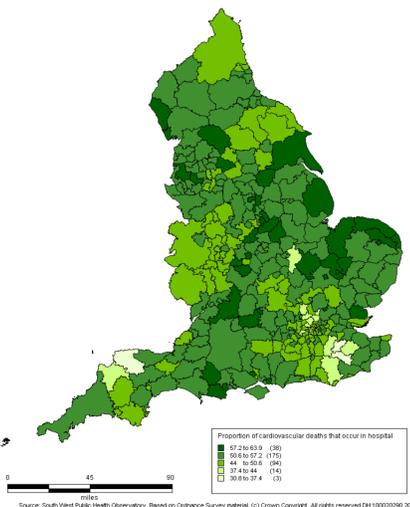
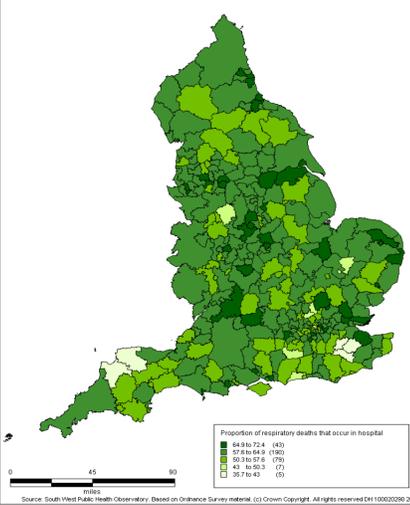


Figure 5: Proportion of all respiratory disease deaths that occurred in hospital following an admission in the last month of life, England 2004-08



4. Discussion

If the healthcare services in all Local Authorities were equally effective at planning for different types of chronic illness, we would expect the proportions of deaths in hospital to follow a similar pattern across different causes of death. However, with the significant variation between different causes of death shown in this analysis, it suggests that there is inequality in the type/quality of services available to an individual depending on where they live in the country. A lower rate of hospital deaths may indicate a better ability to manage certain types of illness. For example, Mid Sussex have relatively low rates of hospital deaths following an admission in the final month of life for people who die from cancer, stroke, cardiovascular disease and other diseases. However, people who live in Mid Sussex and die from a respiratory disease are more likely to die in hospital following an admission in the final month of life when compared to other Local Authorities in England. While there will always be variation in the nature of care required across the population, two individuals suffering from the same condition but living in different places have a right to the same level of care as each other. Improved care in will turn give people more control over where they die, whether that is in a hospital or other type of establishment.

References

¹ Dixon T, Shaw M, Frankel S & Ebrahim S (2004) – *Hospital admissions, age, and death: retrospective cohort study*, BMJ 38072.481933.EE
² Van den Block L, Deschepper R, Driessens K, Bauwens S, Bilsen J, Bossuyt N & Deliens L. (2007) – *BMC Health Services Research 2007*, 7:69 doi:10.1186/1472-6963-7-69