

## INTRODUCTION

The first Compendium NHS Atlas of Healthcare Variation in England, published in 2010 and updated with 101 indicators in 2015, showed wide variation in healthcare. Specialist Atlases, for example Liver Disease (2013), have also been published<sup>1</sup>. The National End of Life Care Intelligence Network in England, since 2010, has published End of Life Care Profiles<sup>2</sup> for Health and Local Government Administrative Districts showing wide geographical variation in every indicator. Almost half a million people die each year in England and one third of National Health Service (NHS) costs are spent on care in the last year of life, so an Atlas of Variation in End of Life Care is considered to be a national priority.

## METHODS

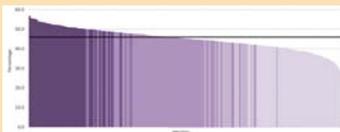
30 indicators were selected for face validity, importance for patients, government, health services providers and commissioners of health and social care summarised in Table 1. Each indicator was compiled for the 209 local health (Clinical Commissioning Group (CCG)) areas where possible and alternative geographies otherwise, together with England as a whole. Statistical differences between local area and England values were calculated. Maps of England show statistical and absolute variation in indicators. Column charts show magnitude of variation across localities and box and whisker charts show trends in the England median value and extent of variation.

| Place of death                            | Hospital, Home, Care home, Hospice, death in usual place of residence (home or care home).   |
|---|--|
| Underlying cause of death                 | Cancer, Chronic Renal disease, Heart disease, Liver disease, Stroke.   |
| Underlying or contributory cause of death | Chronic obstructive pulmonary disease, Dementia and Alzheimer's disease.   |
| Hospital admission during last 90 days    | People admitted, Time spent in hospital, Emergency admissions, admissions ending in death and 8 days or longer.  |
| Care of the dying in hospital audit       | Recognition that death was imminent, communication with family, holistic assessment of patient needs, hospitals providing access to specialist care 7 day a week.  |
| Others                                    | General practitioner use of palliative care registers, deaths in care homes who are temporary residents, permanent care home residents who die in a care home, deaths in hospice with a cause of cancer. |
| Context                                   | Projection of deaths in 2030, Elderly living alone, People with carer responsibilities, Care home population, Care home beds, nursing home beds, delayed transfers of care from hospital, age at death.  |

Table 1 : Summary of indicators

## RESULTS

### 1a : Distribution (column chart) of proportion of deaths in usual place of residence

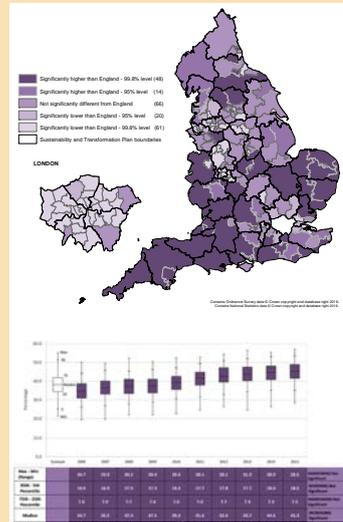


Every one of the 30 indicators shows marked geographical variation: demographic characteristics, place and causes of death or median length of final admission to hospital. Trend data shows deaths in hospital reducing and the community increasing, age at death increasing and dementia related conditions as a cause of death increasing. Widening and narrowing of variation with time is seen across the indicators.

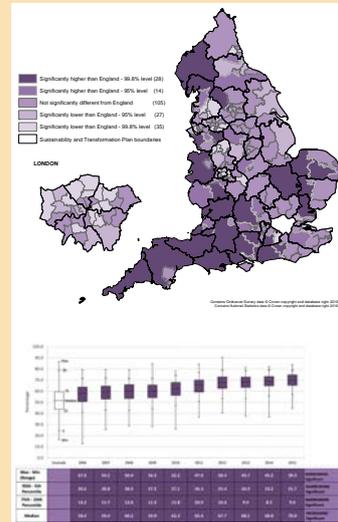
Atlas results are presented as a column chart (Fig 1a) showing the local absolute value of the indicator in the most recent year colour coded by whether the value is significantly different from the national value, a box and whisker chart illustrating the both temporal trend and spatial variation, and a map of the significance data (Fig 1b to 1e).

The graphics below illustrate some of the results prepared for the Atlas (others are presented in the companion poster *Variation in numbers and lengths of hospital admissions in the last 90 days of life by local health administration geographies across England*).

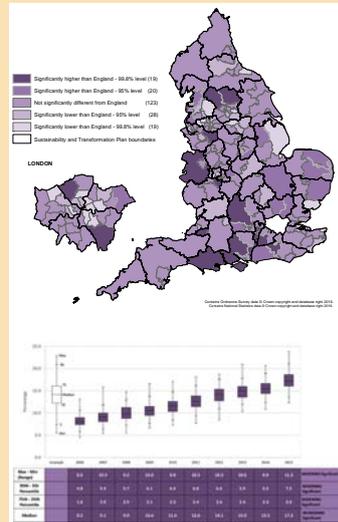
### 1b : Proportion of deaths in usual place of residence



### 1c : Proportion of permanent care home residents who die in a care home



### 1d : Proportion of deaths with dementia as underlying or contributory cause of death



### 1e : Proportion of deaths aged 85 years or older

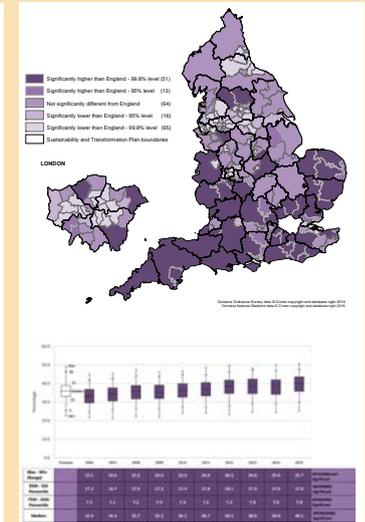


Figure 1 : Four indicators from the End of Life Care Atlas of Variation

## DISCUSSION

End of life care can vary in different ways: in its quality, safety, equity, outcomes, the money spent and the types of services used. Some variation is expected, often linked to illness or patient preference, but some is 'unwarranted'. Unwarranted variation could be due to limited professional knowledge or disparate organisational performance.

The End of Life Atlas of variation will identify where opportunities to address unwarranted variation exist.

Examples from the Atlas on where action might be taken to tackle unwarranted variation include:

Map 1a Here we see a 2.0 fold difference in the proportion of deaths in usual place of residence for CCGs. The range is 28.5 to 56.9%. Nationally we have observed significant improvements in this measure, with the median increasing significantly from 34.7 in 2006 to 45.3% in 2015. However, the magnitude of variation has persisted for the same time period.

Map 1b There was a 1.9 fold difference in the proportion of care home residents who die in a care home for CCGs. CCG values ranged from 44.5% to 83.8%.

When looking at variation in provision it is also important to understand contextual patterns in cause of death and demography. Maps 1c and 1d illustrate how these maps can be used alongside end of life care outcome maps (1a and 1b) to better understand unwarranted variation in end of life care, and will be an important starting point when trying to tackle unfair variation in end of life care provision in England.

## CONCLUSIONS

When published this will be the most comprehensive Atlas of its kind in the world. It will have a radical impact on national and local policy maker's ability to plan for and assess the quality of end of life care in England.

## ACKNOWLEDGEMENTS

Office for National Statistics, UK: Mortality Data

## REFERENCES

- Public Health England Atlases of Variation in Health and Health Care. Accessed May 2017. <https://fingertips.phe.org.uk/profile/atlas-of-variation>.
- Public Health England. End of Life Care Profiles accessed May 2017. <https://fingertips.phe.org.uk/profile/end-of-life>

## CONFLICTS OF INTEREST

None