



CHKS

Insight for better healthcare



Insight report

An economic analysis of the excess costs for acute care for patients with dementia

December 2013

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Executive summary

There are a number of reports showing that people with dementia account for a significant proportion of patients in English hospitals and that they tend to use more resources during their stay. It is also recognised that dementia is a widely under-diagnosed and reported diagnosis.

Hospital Episode Statistics (HES) data were used to examine all admissions for people aged over 45 for the two calendar years 2010 and 2011. To assess whether dementia was being recorded accurately, we linked the latest admission with HES data back to April 2006 to examine whether any previous admissions were accompanied with a diagnosis of dementia. The analysis found that 3.5 per cent of all patients had a diagnosis of dementia recorded for their latest hospital spell. By linking previous admissions we found a further 30 per cent of patients actually had dementia, but it was not recorded in the latest admission records.

A similar process was applied to patients who had a subsequent admission during the two years (2010-2011) with a diagnosis of dementia following a previous admission where dementia was not recorded. This analysis found an additional 50 per cent of patients in 2010 and 23 per cent in 2011 had dementia. It could be argued that some of these patients did not have dementia on their first admission, but they must have been close to the onset for the subsequent admission to have it recorded. The lower figures for 2011 are explained by the shorter period in which we could look forward (a maximum of 12 months against a maximum of 24).

We looked at the numbers coded with senility, and found a further 3.5 per cent fell into this category. This code can be found on its own when there is no clear diagnosis of dementia but could be seen as a potential precursor, or simply a lack of clear diagnosis being recorded. However, on the advice of expert coders we excluded this population from our analysis.

The total proportion of all admissions that we could identify as people with dementia was about 6.0 per cent. This is likely to be an underestimate.

Impact of a diagnosis of dementia on patterns of care

Patients with dementia stay longer in hospital, are more likely to be readmitted, have a higher rate of death in hospital and are liable to more falls. Subsequently they are less likely to return home.

The study looked at length of stay, both for differences in profile and average length of stay. It was clear that a higher proportion of people with dementia have a longer stay for non-elective admissions. The overall proportion of stays lasting longer than one day was 71 per cent for people with dementia compared to 60 per cent for those without.

Comparison of average length of stay (standardised for condition, age and admission method) showed that patients with dementia typically stay 25 per cent longer than those without. However, a significant variation was discovered when the data were analysed at primary care trust level and length of stay was found to be up to 85 per cent longer.

Readmissions within 30 days following an elective admission for an elderly person are often for a different/unrelated clinical condition. Patients with dementia are over twice as likely to have a readmission following an elective admission (8.25 per cent compared to 3.8 per cent). Readmissions following a non-elective admission are more common but people with dementia still have almost 50 per cent more than those without (25 per cent compared to 17 per cent).

The mortality rates for people with dementia presented a less clear picture. There were up to 20 per cent more deaths than would be expected amongst patients with dementia. The national picture is varied and in some PCTs there were up to 50 per cent more deaths than would be expected within this group of patients.

People with dementia are three times as likely to have a fall whilst in hospital compared to those without dementia. The ratio of “expected” falls (based upon the standards for non-dementia patients) to actual was 2.9:1 for 2010 and 3.2:1 for 2011. When a patient experienced a fall it more than doubled the average length of stay, from 13.6 to 31.3 days in 2010 and from 13.2 to 29.6 in 2011.

Finally, fewer patients with dementia returned to their home. For patients with dementia there was a reduction of over 7per cent in the proportion of them that returned to their usual place of residence upon discharge.

The financial impact of these differences in care patterns

The overall impact is estimated to be £265 million. The major element of care that can be costed is the additional time spent in hospital. In order to apply a financial value to this we used the average of the tariff for excess bed days at the end of a spell. This gives a cost of £231 for each additional bed day.

Using this value increased length of stay costs by £120 million, readmissions by a further £120 million and falls by £25 million – total £265 million. There are considerable regional variations and this means further regional analysis is required to inform decision making.

Introduction

According to an audit carried out by the Royal College of Psychiatrists¹ people with dementia in England¹ occupy a quarter of hospital beds rising to 40 per cent on elderly care wards. Their length of stay is longer than people without dementia and they are often subject to delays on leaving hospital.

Dementia affects an estimated 670,000 people in England, and the costs across health and social care and wider society are estimated to be £19 billion – both figures are set to rise with the ageing of the population. Currently only around 42 per cent of people with dementia in England have a formal diagnosis even though timely diagnosis can greatly improve the quality of life of the person with dementia by preventing crises (and thus care home and hospital emergency admission) and offering support to carers.

There is no cure for dementia, and its commonest cause is Alzheimer's disease, although current treatments can provide relief of symptoms. Antipsychotic drugs are prescribed to control agitation and aggression. An estimated 180,000 people in the UK with dementia are prescribed these medications.

As well as longer lengths of stay and delayed discharge from hospital, people with dementia have a higher number of readmissions and inter-ward transfers. Many admissions are a result of ambulatory conditions such as urinary tract or respiratory infections, which can be managed in the community.

Dementia is often not coded, particularly when it is not considered the primary reason for admission. As a result, the number of people with dementia in hospital is significantly underestimated.

People with dementia in hospital can present with a variety of symptoms ranging from being mildly disorientated to more severe symptoms of agitation, restlessness, shouting and wandering which can cause significant disruption. This latter group are often labelled as being 'in the wrong place', usually resulting in referral to old age psychiatry liaison services.

The Commissioning for Quality and Innovation (CQUIN) targets for dementia aim to identify and support people with the condition. The CQUIN targets encourage the NHS to:

1. Identify people with dementia – members of staff ask family, or friends of a person, admitted to hospital whether the patient has suffered any problems with their memory in the last 12 months
2. Assess people with dementia – if there is evidence to suggest a problem with their memory, the patient is given a dementia risk assessment
3. Refer on for advice – a referral is made for further support either to a liaison team, a memory clinic or a GP

¹ National Audit of Dementia, Royal College of Psychiatrists, 2011 Methods

People with dementia who are admitted to hospital are more likely to have a longer length of stay, to fall while they are in hospital, to experience complications such as dehydration and urinary tract infection and to suffer a hospital acquired infection.

Longer length of stay is a significant issue since the longer a patient with dementia stays in hospital, the more likely it is that their physical health will deteriorate, the more likely it is that they will be discharged to a care home and there will be an increased likelihood of further prescribing of antipsychotics. Many patients will be prescribed antipsychotics for the symptoms of acute confusion and anxiety that can result from a sudden, and often traumatic, change of environment. If this prescription goes unchallenged during the period in hospital it can lead to over sedation, loss of function (such as the ability to eat and drink as well as reduced mobility) and where it continues after discharge it can also become an inappropriate long-term medication.

This research aimed to identify the costs to the health system associated with current clinical management practice for the population profile of people with dementia and to analyse the potential cost savings for the health system associated with implementing improved systems in hospitals for people with dementia.

Methods

The HES data files used in these analyses cover all hospital admitted spells for patients aged over 45, in calendar years (CY) 2010 and 2011. Only admissions to acute general hospitals have been included; those to specialist hospitals are not included.

These spells (occurring in 2010 and 2011) have been linked at individual patient level to all other spells for that patient from the start of the 2006/7 Financial Year (FY) and a range of variables derived to specify patients with differences in the diagnosis and/or coding of dementia. The data have been separated into:

- (i) spells of patients without dementia (defined as patients whose hospital records from start of FY 2006/7 to end of CY 2011 contain no diagnoses codes of dementia)
[Note: the list of diagnoses codes of dementia is included in the Appendix]
- (ii) spells of patients occurring in 2010 (or 2011) where no diagnosis of dementia had previously been made, but who were subsequently diagnosed with dementia before the end of CY 2011
- (iii) spells of patients occurring in 2010 (or 2011) where diagnosis of dementia had previously been made (or was first made in the current spell).

This latter group was further divided (see Table 1 below), to identify where the HES record of the current spell recognises the dementia of the patient and those records where it remains uncoded. These uncoded spells provide some estimate of the possible scale of unrecognised dementia in patients in hospital being treated for an acute condition.

We also separated out (from (i) to (iii) above) patients who have a senility diagnosis (ICD10 code R54, which is actually a 'sign and symptom') but without a record of any other dementia diagnosis. We have been advised by coding experts that this group of patients should differ substantially from group (iii) above, as dementia should be coded separately where it occurs. These patients have not been considered in the following analysis, but is highlighted in Table 1, which shows that this group contains a sizeable number of such spells.

In most of the comparative analyses that follow, data records of patients with dementia were compared to those of non-dementia patients. Since this latter group was likely to contain a very different mix of patients, the analyses used data standardised to take out any differences between the two groups in respect of clinical condition (defined by 249 CCS² groups), type of admission (elective / non-elective) and age band.

² CCS – Clinical Classifications Software (CCS) is a tool for clustering patient diagnoses and procedures into a manageable number of clinically meaningful categories. It was developed in the United States of America by the Agency for Healthcare Research and Quality. CCS offers researchers and planners the ability to group conditions and procedures without having to sort through thousands of codes.

Results

i) Frequency of dementia and level of recording

Table 1 shows the number of patient spells recorded in the HES extract for each year (2010 & 2011) for patients aged over 45, described by whether the patient's record had ever (since 2006) contained an ICD code of dementia.

The table includes day cases and other zero stay cases which will occur disproportionately in patient group 1. These have been removed from some of the subsequent analyses where they are considered to materially impact on the interpretation of the results, e.g. in assessing excess length of stay (LoS), mortality etc.

| Table 1 | 2010 | | 2011 | |
|--|------------------|-------|------------------|-------|
| | | | | |
| 1. No of spells for non-dementia patients (the patient's record since 2006 did not contain an ICD code of dementia) | 8,133,341 | 90.0% | 8,372,169 | 91.0% |
| 2. No of spells for dementia patients (the patient's record since 2006 contains at least one spell with an ICD code of dementia, made up of: | 549,454 | 6.1% | 498,408 | 5.4% |
| i) dementia is recorded in the current spell in 2010 or 2011 | 300,094 | 3.3% | 321,566 | 3.5% |
| ii) dementia is not recorded in the current spell in 2010 or 2011 | 92,651 | 1.0% | 101,982 | 1.1% |
| iii) the spell occurs in 2010 or 2011 prior to the patient's first record of dementia in that period.) | 156,709 | 1.7% | 74,860 | 0.8% |
| 3. No of spells for patients with senility (the patient's record since 2006 did not contain an ICD code of dementia but contains a diagnosis of senility [code R54]) | 352,458 | 3.9% | 334,141 | 3.6% |
| 4. Grand total | 9,035,253 | 100% | 9,204,718 | 100% |

The figures show that, in this age group, approximately 10 per cent of patient spells in acute hospitals can be attributed to patients with dementia or senility (or whose diagnosis is imminent).

[Note: Patients with only senility coded in their record have been excluded from later analyses on the advice of coding experts, since if dementia is present it should be recorded as a separate condition.]

Of those patients with dementia (i.e. those where dementia has been recorded at some point in their record since 2006), the 2010 data shows that dementia is

recorded in about 55 per cent of the spells and goes unrecorded in about 45 per cent of spells (c.f. groups 2(i) against groups 2(ii) and 2(iii)). The apparent drop in numbers of patients with dementia in 2011 would appear to be solely due to the reduction in group 2(iii), i.e. those who have a subsequent admission with a diagnosis where the initial spell could be before the first diagnosis, or that the diagnosis was not recorded. This reduction will be due to the smaller length of subsequent time included in the study for those admitted in 2011. Thus, it should be concluded that the values for 2010 are more representative of the true rates of prevalence.

The headline figure can be taken as at least 6 per cent of all admissions for people over 45 are patients who have dementia. However, only 55 per cent of this population have this diagnosis recorded during their spell, potentially reflecting a serious shortfall in the recognition of this problem whilst the patient is in hospital.

ii) **Differences in the length of stay profiles between the dementia and non-dementia patient groups**

Table 1 shows patients who had very short lengths of stay. Typically these may include day cases and regular admissions for sources of treatment such as renal dialysis or chemotherapy etc. In order to provide valid comparisons of the use of beds across the two patient groups, we decided to remove the ‘noise’ created by such patients but before doing so, Table 2 provides a description of the distribution of lengths of stay for each year and for elective / non-elective patients across dementia and non-dementia patients

| Table 2 | 2010 | | | | 2011 | | | |
|----------------------|------------------------|-------|-----------------------|-------|------------------------|-------|-----------------------|-------|
| | Patients with dementia | | Non-dementia patients | | Patients with dementia | | Non-dementia patients | |
| Elective: | | | | | | | | |
| No of spells | | | | | | | | |
| 0 LoS | 113,115 | 83.6% | 4,744,498 | 84.3% | 94,448 | 83.6% | 4,969,228 | 85.3% |
| 1 LoS | 7,744 | 5.7% | 351,253 | 6.2% | 6,519 | 5.8% | 344,049 | 5.9% |
| > 1 LoS | 14,524 | 10.7% | 533,281 | 9.5% | 12,014 | 10.7% | 512,749 | 8.8% |
| Non-elective: | | | | | | | | |
| No of spells | | | | | | | | |
| 0 LoS | 61,985 | 15.0% | 525,469 | 21.0% | 56,703 | 14.7% | 527,671 | 20.7% |
| 1 LoS | 59,558 | 14.4% | 481,794 | 19.2% | 55,506 | 14.4% | 496,030 | 19.5% |
| > 1 LoS | 292,528 | 70.6% | 1,497,046 | 59.8% | 273,218 | 70.9% | 1,522,442 | 59.8% |

Table 2 shows the consistency of distribution across the two years within the various groups, and highlights the differences between patients with and without dementia especially in the non-elective cases.

With non-electives there is a 10 per cent increase in the proportion who stay longer than one day (70.6per cent vs 59.8 per cent in 2010 and 70.9 per cent vs 59.8 per cent in 2011). Whilst there is an increase for electives this is a smaller effect – about a 1 per cent increase on a base of 9 per cent in the comparison group.

iii) Standardised length of stay in patients with dementia compared to patients without dementia

After removing patients with a zero day length of stay from the data file, the average length of stay for each CCS group/age band/type of admission combination was calculated for patients with dementia, and for non-dementia patients. The standardised figures were then compared at national and PCT level. Table 3 provides summary figures at national level.

| Table 3 | 2010 | 2011 |
|---|-------------|-------------|
| No of patient spells (patients with dementia) | 549,454 | 498,408 |
| No of patient spells (patients with dementia) with >0 LoS | 175,100 | 151,151 |
| Ave LoS for spells with >0 LoS (patients with dementia) | 13.57 | 13.25 |
| Expected ave LoS for spells with >0 LoS (patients with dementia) using standards from non-dementia patients | 10.67 | 10.85 |
| % excess LoS for patients with dementia | 27.2% | 22.1% |

While the difference in length of stay between patients with dementia and non-dementia patients has narrowed between 2010 and 2011, the percentage excess length of stay is still greater than 20 per cent after standardising for age and acute clinical condition. There is considerable variation across the country (at PCT level) as demonstrated by Chart 1 provided in the Appendix.

iv) Standardised mortality in patients with dementia compared to patients without dementia

Using a similar methodology to that described in the previous section, a comparison was made between mortality levels in patients with and without dementia after standardising for age, acute clinical condition and type of admission. Summary results are shown in Table 4

| Table 4 | 2010 | 2011 |
|---|-------------|-------------|
| No of patient spells (patients with dementia, post diagnosis) | 392,745 | 423,548 |
| No of deaths in this group of patients (patients with dementia, post diagnosis) | 38,108 | 36,562 |
| Crude mortality rate | 9.7% | 8.6% |
| Expected no of deaths in this group of patients (patients with dementia, post diagnosis) using standards from non-dementia patients | 31,607 | 34,003 |
| % excess mortality in patients with dementia | 20.6% | 7.5% |

The figures from 2011 show a marked reduction in the number of 'excess' deaths when comparing the actual number of patient deaths in this group of patients with the number expected using non-dementia rates.

The reduction has two elements:

- an increase in the relative proportion of patients with a diagnosis of dementia (this analysis only includes those with a diagnosis in this spell or a prior diagnosis in the preceding period of the analysis) which had gone up from 4.3 per cent of the total to 4.6 per cent, and
- a reduction in the number of deaths within this group.

The increase in the expected number of deaths (an extra 7.6 per cent) is more or less in line with the increase in total spells included (an extra 7.8 per cent)

It will be important to monitor whether this reduction is sustained over future years as it is unclear why it should have fallen.

Again there is considerable variation between PCTs in this statistic as shown in Chart 2 in the Appendix.

vi) Falls in hospital and their impact

It was considered likely that the number of falls in hospital among patients with dementia might be higher than those in patients without dementia. This data has been adjusted for age, but after consideration it has not been adjusted for the acute clinical diagnosis as it was considered that for the vast majority of cases an in-hospital fall should be considered avoidable.

Additionally, falls usually occasion an increased need for care and additional resources and analysis has allowed us to estimate the scale of such requirements. Table 6 shows the observed number of in-hospital falls in patients with dementia and the expected number if they occurred at a similar rate as in non-dementia patients. Chart 3 in the Appendix shows the level of variation in the number of 'excess' falls across PCTs in England.

| Table 6 | 2010 | 2011 |
|--|-------------|-------------|
| Elective: | | |
| No of patient spells (patients with dementia) | 135,383 | 112,981 |
| No of in-hospital falls (patients with dementia) | 221 | 210 |
| % rate of in-patient falls | 0.2% | 0.2% |
| Expected no of in-hospital falls (patients with dementia) using standards from non-dementia patients | 49 | 40 |
| Excess no. of falls for patients with dementia | 172 | 170 |
| Non-elective: | | |
| No of patient spells (patients with dementia) | 414,071 | 385,427 |
| No of in-hospital falls (patients with dementia) | 8,919 | 9,070 |
| % rate of in-patient falls | 2.2% | 2.4% |
| Expected no of in-hospital falls (patients with dementia) using standards from non-dementia patients | 3,037 | 2,851 |
| Excess no. of falls for patients with dementia | 5,882 | 6,219 |

In essence patients with dementia are experiencing three times as many falls as those without. Both patient groups showing a much lower likelihood of a fall when admitted electively but the increased risk is still of a similar proportion.

Comparing the length of stay of those patients with dementia who experience in-hospital falls to those who do not provides a further estimate of the additional bed days caused by such falls. In this analysis, care has been taken not to make comparisons against patients without dementia, the impact of which has already been accounted for in section (iii).

| Table 7 | 2010 | 2011 |
|--|-------------|-------------|
| Elective: | | |
| Ave LoS for spells with >0 LoS (patients with dementia, with in-hospital fall) | 29.3 days | 26.9 days |
| Ave LoS for spells with >0 LoS (patients with dementia, without an in-hospital fall), age standardised | 6.5 days | 6.7 days |
| Excess LoS for patients with an in-hospital fall | 22.8 days | 20.2 days |
| Non-elective: | | |
| Ave LoS for spells with >0 LoS (patients with dementia, with in-hospital fall) | 31.3 days | 29.6 days |
| Ave LoS for spells with >0 LoS (patients with dementia, without an in-hospital fall), age standardised | 13.6 days | 13.2 days |
| Excess LoS for patients with an in-hospital fall | 17.7 days | 16.4 days |

This table clearly shows that a fall has a dramatic effect on the length of stay, with a large increase. Later in the economic analysis we look at the cost in bed days, but it is impossible to also estimate the other consequences of such a long length of stay with increasing risks around hydration and food intake.

vii Proportion of patients returning home to their usual place of residence

Table 8 shows the proportion of patients returning to their usual place of residence following treatment for an acute condition. This is contrasted with the expected proportion based on standard rates of non-dementia patients of similar age and treated for similar conditions

| Table 8 | 2010 | 2011 |
|---|---------------|---------------|
| Elective: | | |
| No of patient spells (patients with dementia) | 135,383 | 112,981 |
| No of patients returning to their usual place of residence (patients with dementia) | 132,306 | 110,273 |
| % rate of return to usual place of residence | 97.7% | 97.6% |
| Expected no of patients returning to their usual place of residence (patients with dementia) using standards from non-dementia patients | 134,134 | 111,867 |
| Deficit in no of patients returning to their usual place of residence for patients with dementia | 1,828 (1.4%) | 1,594 (1.4%) |
| Non-elective: | | |
| No of patient spells (patients with dementia) | 414,071 | 385,427 |
| No of patients returning to their usual place of residence (patients with dementia) | 305,428 | 283,111 |
| % rate of return to usual place of residence | 73.8% | 73.6% |
| Expected no of patients returning to their usual place of residence (patients with dementia) using standards from non-dementia patients | 330,256 | 305,043 |
| Deficit in no of patients returning to their usual place of residence for patients with dementia | 24,828 (7.5%) | 21,563 (7.1%) |

The table shows that, as might be expected, patients admitted electively are much more likely to return to their usual place of residence than non-elective admissions and that in such elective admissions there is little difference between patients with and without dementia.

However for non-elective admissions there is a noticeable rise in the proportion who do not return to their usual place of residence, with over 7 per cent more of the patients with dementia being discharged to a different place.

viii) Some selective results for specific individual conditions

The ten most frequently admitted acute conditions (described by the Clinical Classification System (CCS) groups) for patients with dementia, other than dementia itself are shown below in Table 9.

| Table 9 | 2010 | 2011 |
|-------------------------------|---------------|---------------|
| Urinary tract infection | 34,599 (6.3%) | 34,284 (6.9%) |
| Pneumonia | 23,630 (4.3%) | 24,448 (4.9%) |
| Chronic Renal failure | 23,120 (4.2%) | 18,233 (3.7%) |
| Fractured neck of femur | 18,642 (3.4%) | 17,945 (3.6%) |
| Syncope | 16,530 (3.0%) | 13,702 (2.7%) |
| Superficial injury contusion | 13,855 (2.5%) | 13,034 (2.6%) |
| Acute bronchitis | 11,247 (2.0%) | 10,975 (2.2%) |
| Acute cerebrovascular disease | 11,539 (2.1%) | 10,648 (2.1%) |
| Non specific chest pain | 11,236 (2.0%) | 9,735 (2.0%) |
| Other psychoses | 11,348 (2.1%) | 9,525 (1.9%) |

[Note: Chronic Renal Failure will contain multiple admissions for renal dialysis]

Selecting certain of these diagnoses, that have also been examined by the Alzheimer's Society and which are perhaps less open to ambiguous coding practices, tables 10 to 12 look at the 'excess' length of stay, mortality and in-hospital falls experienced by patients with dementia using the same methodology as in sections (iii), (iv) and (vi).

| Table 10 | 2011 |
|--|-------------|
| Excess Length of Stay for patients with Dementia in days (excess % over patients without dementia) | |
| Urinary tract infections | 3.6 (33.2%) |
| Fractured neck of femur | 3.1 (15.5%) |
| Acute bronchitis | 2.4 (25.9%) |
| Acute cerebrovascular disease | 2.8 (15.4%) |
| Non-specific chest pain | 0.2 (4.5%) |

| Table 11 | 2011 |
|--|-------------|
| Excess number of deaths for patients with Dementia, post diagnosis (excess % over patients without dementia) | |
| Urinary tract infections | 115 (5.7%) |
| Fractured neck of femur | 152 (9.9%) |
| Acute bronchitis | 205 (23.0%) |
| Acute cerebrovascular disease | 387 (17.7%) |
| Non-specific chest pain | 0 (0.2%) |

| Table 12 | 2011 |
|---|-------------|
| Excess number of in-hospital falls for patients with Dementia | |
| Urinary tract infections | 610 |
| Fractured neck of femur | 197 |
| Acute bronchitis | 106 |
| Acute cerebrovascular disease | 259 |
| Non-specific chest pain | 9 |

With the exception of non-specific chest pain, the other individual conditions exhibit similar results to those reported across in aggregate across all of the 249 CCS groups. Bronchitis and cerebrovascular disease exhibit a higher 'excess' mortality than most of the clinical groups while UTIs appear to have a very high 'excess' length of stay, probably occasioned by the very high level of in-hospital falls in this condition.

Financial assessment of the impact of dementia in acute hospitals

This section provides some estimates of the additional cost to the NHS of certain aspects of the care of patients with dementia in acute hospitals. It does NOT estimate the total cost of these patients throughout their hospital stay.

In the previous sections, we have shown that acute admissions of patients with dementia account for approximately 0.4 to 0.5 million patient spells each year and, if required, the total cost might be estimated from these figures. However, since the vast majority of these patients are being admitted for clinical conditions similar to patients without dementia e.g. CVAs, cataracts, chest pain, etc., we have focussed on aspects of the excess costs incurred by the NHS occasioned by differences in the way dementia patients are treated.

The figures in the following sections are taken from the various results of our analyses (shown above) and use value of £231 for the cost of an excess bed day. This has been calculated from an average of the excess day tariff. Costs have been calculated separately for the calendar years 2010 and 2011.

The previous estimates of the prevalence of patients with dementia imply that the figures for 2010 are the more robust.

i) Costs incurred by an excess length of stay

2010:

2.9 excess days x
175,100 patient spells (with non-zero length of stay) x
£231 average excess day tariff = **£ 117.3 Million**

2011:

2.4 excess days x
151,151 patient spells (with non-zero length of stay) x
£231 average excess day tariff = **£ 83.8 Million**

ii) Costs incurred by excess readmissions

2010:

39,083 extra readmissions x
13.57 days (assumes a non-zero length of stay for readmissions) x
£231 average excess day tariff = **£ 122.5 Million**

2011:

35,805 extra readmissions x
13.25 days (assumes a non-zero Length of stay for readmissions) x
£231 average excess day tariff = **£ 109.6 Million**

iii) Costs incurred by excess length of stay attributable to falls

2010:

((172 excess elective falls x 22.8 excess days) +
(5,882 excess non-elective falls x 17.7 excess days)) x
£231 average excess day tariff = **£ 25.0 Million**

2011:

((170 excess elective falls x 20.2 excess days) +
(6,219 excess non-elective falls x 16.4 excess days)) x
£231 average excess day tariff = **£ 24.4 Million**

In summary then, these cost elements total as follows:

| | 2010 | 2011 |
|---|----------------|----------------|
| i) Costs incurred by an excess length of stay | £117.3M | £83.8M |
| ii) Costs incurred by excess readmissions | £122.5M | £109.6M |
| iii) Costs incurred due to falls | <u>£ 25.0M</u> | <u>£ 24.4M</u> |
| Totals | £264.8M | £217.8M |

Conclusions

People with dementia are currently using significantly more resources within acute hospitals. The estimate of additional cost derived here of £265 million is likely to be an underestimate.

It is clear that there are major variations between different parts of the country and there is the potential to learn from some of the better performing localities.

It is also clear from this study that the recording of the diagnosis is regularly missing from hospital records. This may be in part due to the condition for the admission being an unrelated physical problem, but it is also very likely that the diagnosis is being missed. Our methodology allowed us to identify almost twice as many patients as the simple examination of their record would have shown but we believe this to still be an underestimate.

Effective identification of this diagnosis can lead to better care and support whilst in hospital, more appropriate discharge planning and support and also a significant cost saving for acute hospitals.

APPENDIX

List of ICD 10 codes included in definition of dementia

F000,Dementia in Alzheimer's disease with early onset
F001 ,Dementia in Alzheimer's disease with late onset
F002 ,Dementia in Alzheimer's disease atypical or mixed type
F009 ,Dementia in Alzheimer's disease unspecified
F010 ,Vascular dementia of acute onset
F011 ,Multi-infarct dementia
F012 ,Subcortical vascular dementia
F013 ,Mixed cortical and subcortical vascular dementia
F018 ,Other vascular dementia
F019 ,Vascular dementia unspecified
F020 ,Dementia in Pick's disease
F021 ,Dementia in Creutzfeldt-Jakob disease
F022 ,Dementia in Huntington's disease
F023 ,Dementia in Parkinson's disease
F024 ,Dementia in human immunodeficiency virus [HIV] disease
F028 ,Dementia in other specified diseases classified elsewhere
F03X ,Unspecified dementia
F050 ,Delirium not superimposed on dementia so described
F051 ,Delirium superimposed on dementia
G300 ,Alzheimer's disease with early onset
G301 ,Alzheimer's disease with late onset
G308 ,Other Alzheimer's disease
G309 ,Alzheimer's disease unspecified
G20X ,Parkinson's disease
G22X ,Parkinsonism in diseases classified elsewhere

Chart 1 - Excess length of stay in patients with dementia, 2011

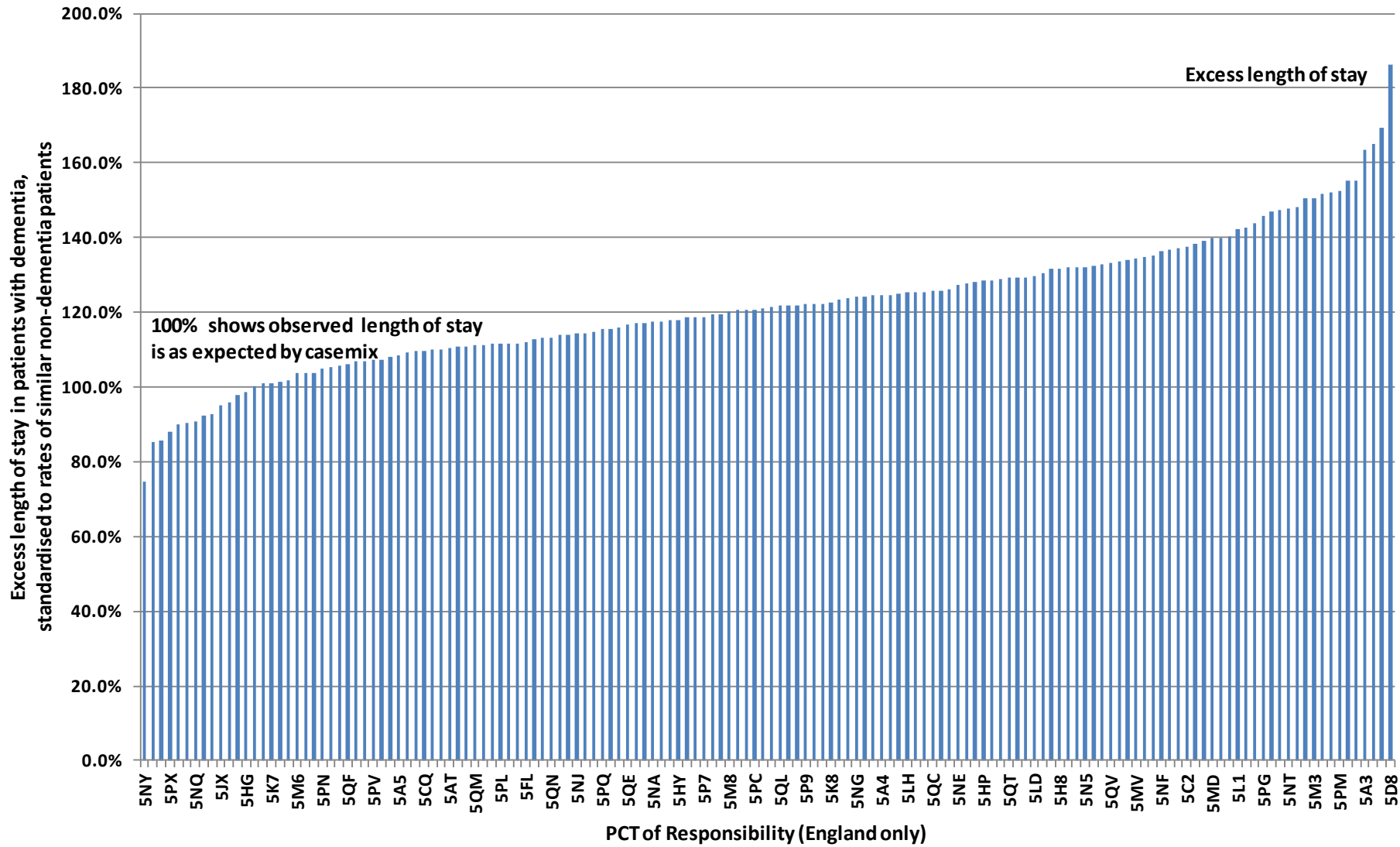


Chart 2 - Excess in-hospital mortality in patients with dementia, 2011

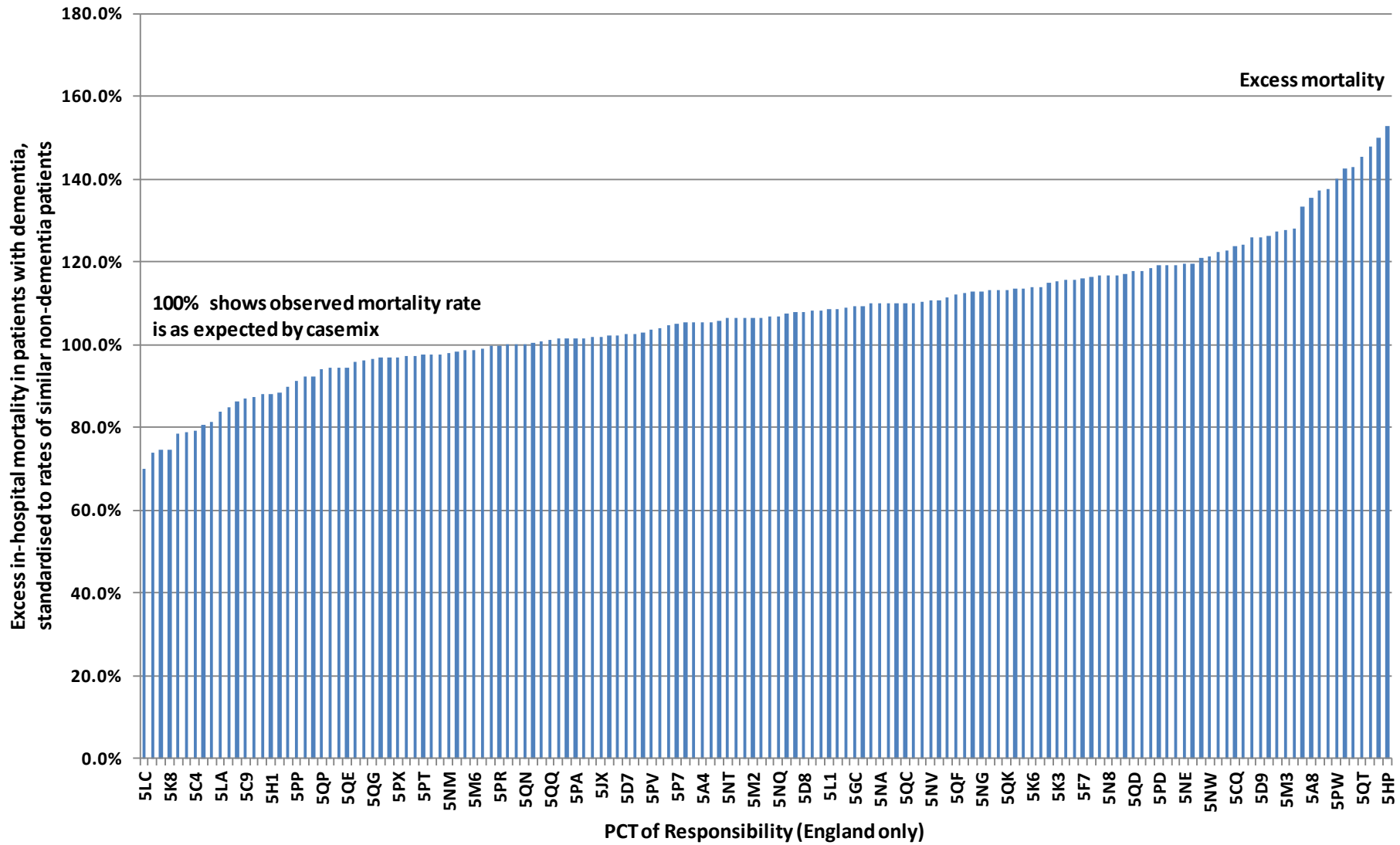


Chart 3 - Excess no. of in-hospital falls in patients with dementia, 2011

