

# Healthcare funding in Northern Ireland

An analysis of healthcare funding in Northern Ireland in comparison with England from 2011 to 2015

January 2018

## Executive summary

### Briefing overview

This briefing analyses the differences in per capita healthcare funding in Northern Ireland and England, how it has changed between 2011 and 2015, and how funding might have been expected to differ from this had certain assumptions about the impact of drivers of healthcare funding need been applied consistently to both countries.

As a starting point, we use the explicit assumption that the level and degree of variation in per capita funding in Northern Ireland and England in 2011 was appropriate. Given this assumption, we analyse the change in actual per capita growth in healthcare funding and compare it with what would be expected given various pressures on healthcare funding.

Later in our analysis we return to the assumption that the degree of variation in healthcare funding in 2011 was appropriate. We look at the differential in healthcare need between Northern Ireland and England that is driven by differences in relative levels of deprivation. We use this differential to produce scenarios of how funding levels in Northern Ireland might have looked in 2011 if they reflected certain assumptions about the impact of deprivation on healthcare need. In turn, we see how this would affect the per capita healthcare funding expected in 2015.

### Analysis structure

We examine the actual per capita funding levels for healthcare in Northern Ireland and England between 2011 and 2015 (being the most recent year for which comparable data are available) and note that the cumulative growth in per capita funding across that period is greater in England, at 12%,

compared to 8.6% in Northern Ireland. We set out the approach taken to allocate changes to funding across the devolved nations using the Barnett formula.

We use demographic data for Northern Ireland and England, together with estimated relative healthcare funding variation by age group, to form an estimate of the level of healthcare funding growth that would be required to address demographic pressures in those countries. The finding of this analysis is that, because of different changes in the age profile of the two countries, the amount of growth in healthcare funding required has varied. The amount of additional per capita funding required in 2015 over and above 2011 because of these demographic changes alone varies from 2% in England to 3.2% in Northern Ireland.

We present an analysis of the age profiles of England and Northern Ireland and note the relatively greater increase in over 70 year olds in Northern Ireland between 2011 and 2015. The briefing goes on to show how, despite this relative increase being only marginally higher in Northern Ireland than England, the impact on required funding is disproportionately higher because of the significantly higher healthcare funding requirements for older people.

We contrast the estimated required growth in per capita funding due to these demographic pressures with the actual per capita growth in funding in the two countries. The finding is that actual growth has exceeded the growth one would expect because of demographic pressures alone. This is of course not surprising – there has been cost inflation between 2011 and 2015 which is not reflected in our analysis of the impact of demographic changes. There will also have been non-demographic pressures on the amount of healthcare people require on average – that is increases in the amount of healthcare people receive irrespective of their age, for example because of technological advances that enable more conditions to be treated, or because of population health changes that give rise to greater incidences of certain conditions.

The briefing notes that, England's per capita funding growth above the amount expected solely because of demographic factors is greater than Northern Ireland. In England growth in funding between 2011 and 2015 was 9.8% above what one would expect from demographic pressures alone, in Northern Ireland it was 5.3%.

Without commenting on the appropriateness of the growth in funding, we analyse what funding growth would have been like in Northern Ireland had it (i) grown as our analysis shows because of the demographic pressures, and (ii) also experienced growth above this level in line with the non-demographic and inflationary growth experienced by England.

Per capita inflationary and non-demographic pressures might not be expected to vary materially between the two countries. So, it is instructive to see what impact the required non-demographic and inflationary growth in England would have on Northern Ireland had it followed the same growth levels. We do not have direct evidence of this non-demographic and inflationary growth but on the assumption that we have calculated demographic growth correctly earlier we can infer it from looking at overall growth.

On this analysis, the actual per capita funding in 2015 is, when factoring in all expected growth, £95 lower than expected in Northern Ireland (4.4% of actual per capita funding). We translate what this additional per capita funding means at a population wide level for Northern Ireland.

Until this point in our analysis we assume that in 2011 the differential in per capita healthcare funding between the two countries is appropriate and see, given this assumption, how the per capita healthcare funding might have been expected to change. One would expect healthcare per capita funding levels to differ between the countries because of demographic pressures, the effect of which we analyse; and because of other drivers such as relative amounts of rurality, and underlying healthcare need, the effects of which we have not analysed.

We look at evidence on the differing healthcare funding need between Northern Ireland and England. We note that research by McKinsey published in 2011, estimates the difference in healthcare funding

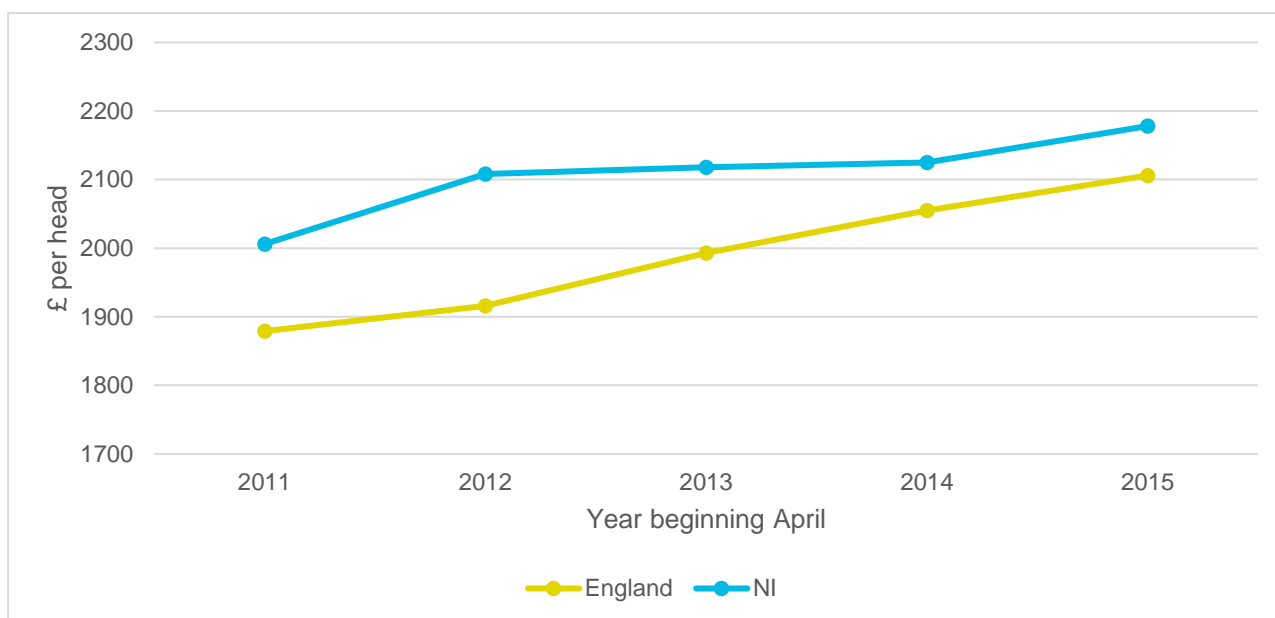
need between Northern Ireland and England is between 7% and 16%. We investigate what the expected funding levels in Northern Ireland in 2015 would be were Northern Ireland's funding between 7% and 16% greater than England's in 2011 and then grown by the expected rate from our earlier analysis.

## Per capita funding and growth 2011 to 2015

In November 2016, HM Treasury published the latest national statistics on health expenditure by country and region per head of population.<sup>1</sup> As shown in **Chart 1**, the amount spent per capita has increased in England and Northern Ireland since April 2011 in cash terms.

In 2015 spend per head was £2,178 in Northern Ireland compared to £2,106 spend per head in England. The rate of increase was greater in England with cumulative growth of 12% since April 2011 compared to 8.6% in Northern Ireland.

**Chart 1: Spend on health per capita 2011 to 2015**



These health expenditure figures are shown in cash terms rather than real terms. A figure shown in cash terms is simply the actual cash expenditure. This differs to a figure shown in real terms which is adjusted for inflation to reflect the changes in the value of money over time. Although in Chart 1 a £1000 spend in 2015 will be worth less than the £1,000 spend in 2011, it provides a helpful comparison of the differing growth rates between the two countries. The impact of inflation is explored further later in our analysis.

The current system of grants used to allocate annual changes in funds (both up and down) from Westminster to the devolved nations is the Barnett formula. For all functions that are provided at a devolved level, the changes made to funding for English departments are simply allocated to the devolved nations based on population size. There is no consideration of the needs of each nation as part of this formula. It should also be noted that the additional £1bn allocated, this year and next, to Northern Ireland for infrastructure, health and education sits outside of the usual arrangements.

Caveats around the comparability of these data need to be recognised. Health expenditure figures will reflect differences in what is funded in each of the countries. For example, although the Northern

<sup>1</sup>[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/569815/Country\\_and\\_Regional\\_Analysis\\_November\\_2016.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/569815/Country_and_Regional_Analysis_November_2016.pdf) (table A15)

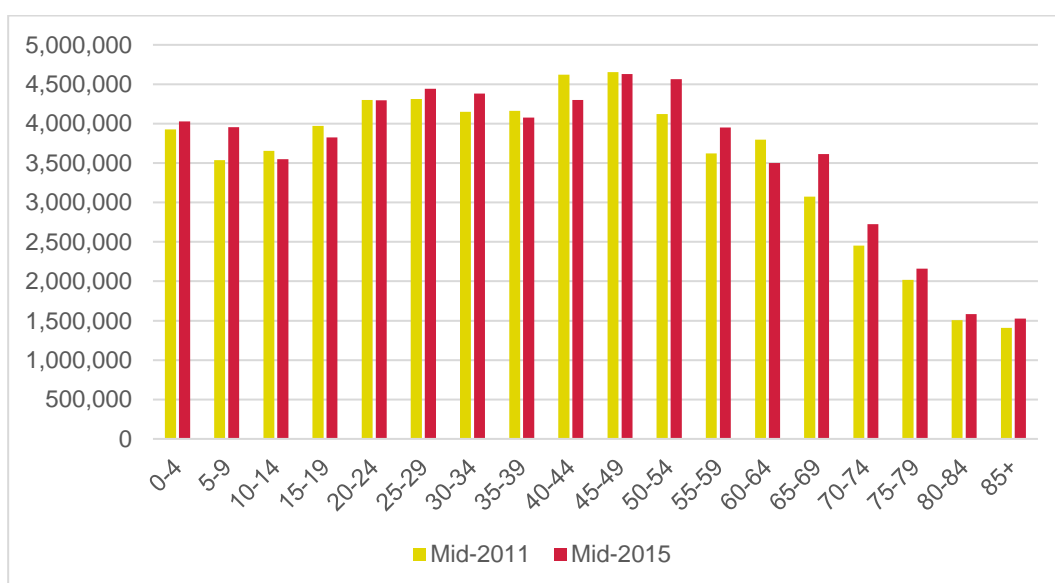
Ireland figures provided are for health only, it will be difficult to disentangle social care spending exactly in an integrated system. Other examples include differing medicine policies and that prescriptions are free in Northern Ireland, but not England. However, these differences are unlikely to have a material impact on the spending pattern over time, and these figures provide a useful overall picture on per capita funding and growth.

## Expected demographic growth in per capita funding

In order to compare and assess the actual growth in funding per capita in Northern Ireland and England, we first need to consider what we would expect this to be based on demographic growth. The Barnett formula uses population numbers to apply to total amount of devolved funding from Westminster. Our review looks at the actual changes in spending from 2011 to 2015. Both the changes in population numbers by age and the relative costs by age need to be considered when estimating expected funding required to address demographic pressures. On average, the cost of healthcare for older people is greater, so the rate the population is ageing will have a significant impact on costs. Below we analyse the increasing population figures and how this is reflected in each age group. We then use the expected costs of healthcare by age to determine the impact these population changes are expected to have on per capita funding.

The Office for National Statistics<sup>2</sup> provides mid-year estimates of population numbers each year by sex and age. These confirm that there has been a growing and ageing population across each of the four nations since April 2011, and provide us with an age profile for the populations from 2011 to 2015. Chart 2 shows that while the population is growing overall, there is a shift in the age profile. Since 2011, there has been an overall increase of 1% in the population aged 0-65 compared to an increase of 11% for those aged 65+.

**Chart 2: UK population numbers in 2011 and 2015 by age group**



Source: ONS mid-year estimates

<sup>2</sup>[www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland](http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland)

We have grouped data into age categories that align with those that NHS England have used for its age cost curves.<sup>3</sup> The age-cost curves provide an indication of the relative cost per head of providing healthcare services to different age and sex groups. For example, an age cost curve might tell us that the average cost of healthcare for a child up to the age of 5, is twice what it is for a child aged 5 to 10, the underlying cause being less need for complex healthcare in older children.

NHS England has made public age-cost curves for general and acute, mental health, prescribing and primary care. We have used the general and acute age-cost curve as an indicator for the relative cost per head, as set out in **table 1**. Although it does not reflect the differences in costs across the whole health system, we have used it as it is the largest cost component within the system.

When using the age-cost curve for our analysis, the important information is the relative differences in costs between the different age groups. For example, the cost of healthcare for 80 to 84 year olds is more than 10 times greater that for 5 to 9 year olds. Using these differences, we can apply them to overall funding levels and changes in demographic profiles over time to estimate the demographic impact on growth in required healthcare funding.

**Table 1: General and acute age-cost curve**

Age group	Males	Females
0-4	259	198
5-9	183	149
10-14	186	169
15-19	188	227
20-24	190	252
25-29	185	281
30-34	196	315
35-39	223	345
40-44	281	395
45-49	357	470
50-54	446	545
55-59	589	620
60-64	776	745
65-69	962	886
70-74	1,260	1,134
75-79	1,603	1,397
80-84	1,950	1,703
85+	2,350	2,008

\*we have used the NHS England figure for age 1-4 to represent the age group 0-4

Source: NHS England

Using these data, for each year from 2011 to 2015 and for both Northern Ireland and England, we have multiplied the population in each age and sex group by the relative general and acute age cost curve. The sum of this is used to help calculate the growth, based on demographic growth reflecting the different expected levels of cost for each age group. This number should not be assumed to relate to any particular cost, rather it is a way of providing relative rankings of years and countries.

By calculating how this value grows over time we could arrive at an estimated demographic growth rate for each country. However, this growth rate would factor in both overall growth in the population and changes in the proportion of the population in each age group. Accordingly, we take the overall cost value and divide it by the country's population in the year.

<sup>3</sup> [www.england.nhs.uk/wp-content/uploads/2016/04/1-allctins-16-17-tech-guid-formulae.pdf](http://www.england.nhs.uk/wp-content/uploads/2016/04/1-allctins-16-17-tech-guid-formulae.pdf)

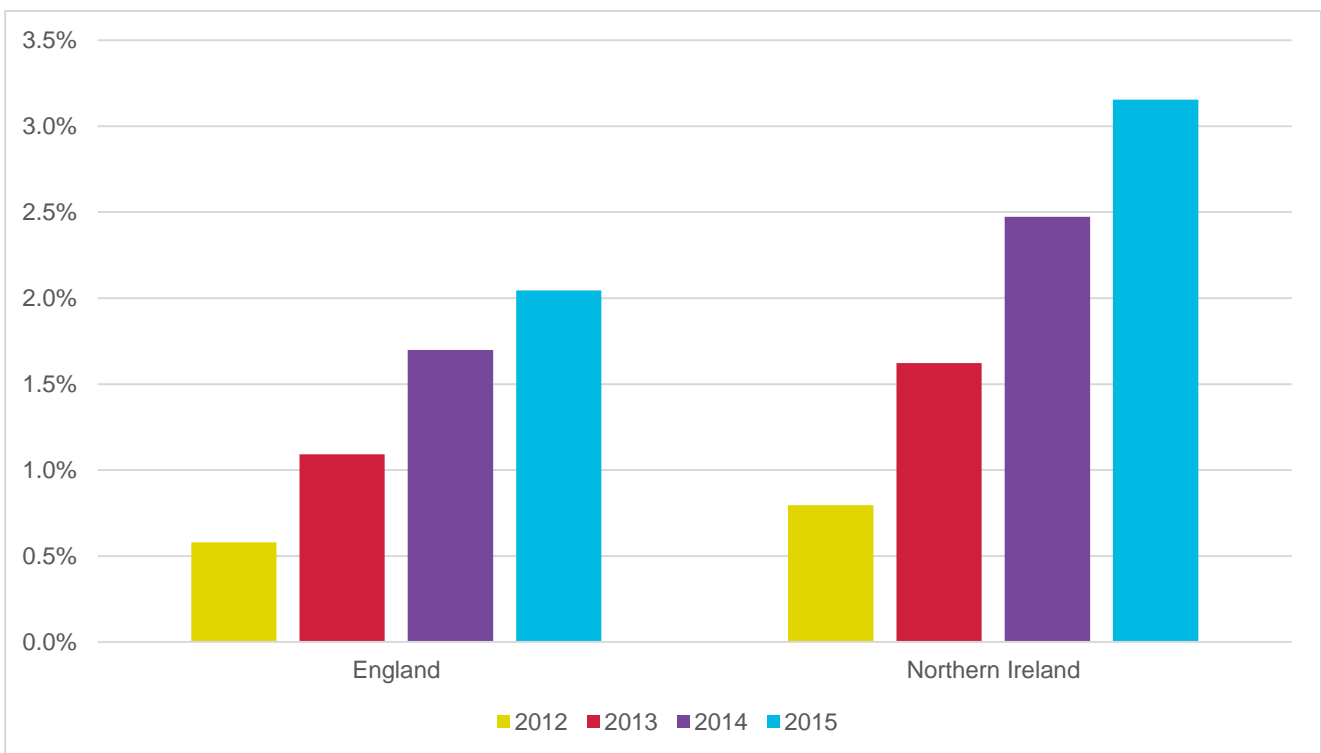
We repeat these steps for each of the years from 2011 and 2015, and for each country. The result is a set of values, five for each country. These values increase over time and by calculating this level of growth for a particular country we can form an estimate of the growth in healthcare funding need for a particular country over a particular time period.

Table 2 sets out the key steps used in the analysis. This shows that the amount of additional funding expected in 2015 over and above 2011 due to demographic changes alone is 2% in England and 3.2% in Northern Ireland (see **chart 3**).

**Table 2: Steps to calculate expected demographic growth in per capita funding between 2011 and 2015**

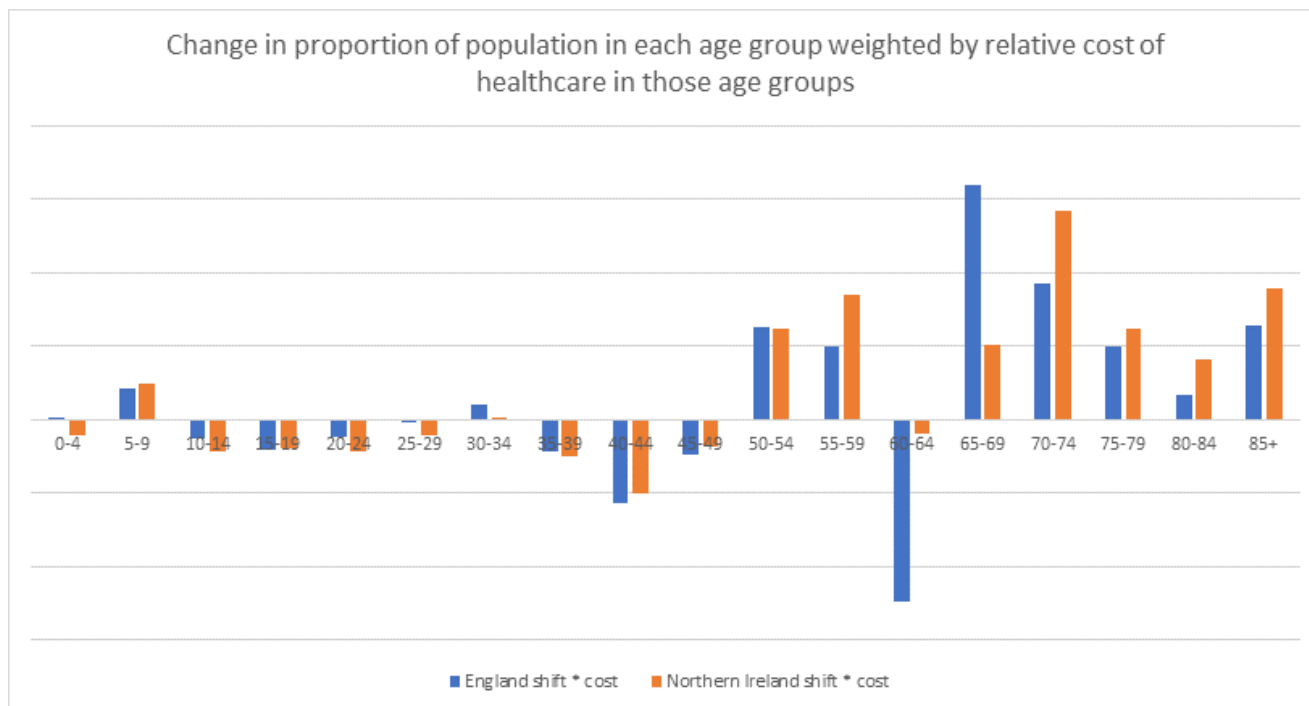
	England	Northern Ireland
Step 1: Multiply the 2015 population in each age group for males and females by the relative acute/ general cost for each and sum.	28,413,415,277	913,037,908
Step 2: Divide this by total 2015 population for males and females to get per capita relative cost	/54,786,327 =518.62	/1,851,621 =493.10
Step 3: Divide the in-year relative cost by that in 2011 to get the rate of increase of relative cost since 2011	/508.23 =2.0%	/478.03 =3.2%

**Chart 3: Expected cumulative growth in funding since 2011, based on demographic changes**



The 3.2% expected increase in funding in Northern Ireland reflects the impact of a relatively greater increase in over 70 year olds as a proportion of the population compared to England. Although this is a relatively small increase only, the impact is disproportionately greater due to the increase in healthcare costs as people get older.

**Chart 4: Change in proportion of population in each age group weighted by relative cost of healthcare in those age groups**



**Chart 4** sets out the change in proportion of population in each age group weighted by relative cost of healthcare in those age groups. For example, an increase in the proportion of people aged 70 to 74 would be weighted more highly than the same increase in numbers of 20 to 24 year olds because of the relatively greater average healthcare costs for 70 to 74 year olds.

This is derived by multiplying the growth in proportion of the population in each age group by the cost of that age group (which comes from the age cost curve). It shows that while England’s share of the cost has grown for those aged 65 to 69, it has shrunk for those aged 60 to 64. In Northern Ireland, the proportion of the population for all 70+ age groups has increased at a greater rate than in England. This combined with the increased costs of health for those aged 70+, leads to the extra 1.2% demographic pressure per capita, compared to England.

## Difference in expected per capita funding because of demographic growth and actual growth in funding

We saw in the previous section, based on some assumptions about the relative cost of care for different age groups and the changes in countries’ demographic makeup, that we would have expected per capita funding to grow between 2% and 3.2% between 2011 and 2015. In reality, per capita funding grew far more than this, for example by 12.1% in England.

The reason that funding growth is far higher than what we would expect from demographic pressures alone is principally due to other, non-demographic, pressures that increase demand as well as inflationary pressures on costs.



There may also, in theory, be an effect of a policy decision to increase funding beyond what would be required to address these pressures. However, the prevailing policy direction since 2011 has not been to increase funding beyond that required by growth pressures, so we shall assume in what follows that this has not been the case.

Noting the growth in England’s funding level per capita, in this section we analyse how Northern Ireland’s funding levels would look had it experienced similar growth to that attributable to England’s implied non-demographic and inflationary pressures. That is, we see what funding levels would have been in Northern Ireland had it grown in line with the demographic pressures from the previous section together with the non-demographic and cost inflationary pressures that England experienced.

The first step in this part of the analysis is to estimate the combined growth rate in England that arises because of non-demographic and inflationary pressures. We know the overall growth rate in England’s per capita funding, and we know, based on certain assumptions, the demographic growth rate, and so the calculation is straightforward.

Starting with the previous section’s findings, the expected cumulative growth in per capita funding attributable solely to demographic pressures looks as below:

**Table 3: Estimated cumulative demographic growth pressures**

<b>Estimated cumulative per capita demographic growth in funding required since 2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	0.6%	1.1%	1.7%	2.0%
<b>Northern Ireland</b>	0.8%	1.6%	2.5%	3.2%

The actual per capita growth in England’s funding though looks as below:

**Table 4: Actual per capita cumulative funding growth in England**

<b>Actual per capita cumulative growth in funding since 2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	2.0%	6.1%	9.4%	12.1%

From this and the demographic growth in England we can estimate the growth in funding in England that is attributable to non-demographic pressures and inflation. This gives us the table below:

**Table 5: Estimated non-demographic and inflationary funding growth in England**

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Estimated cumulative non-demographic and inflationary growth in England since 2011</b>	1.4%	4.9%	7.5%	9.8%

We then take Northern Ireland’s demographic growth from table 3 and combine it with the assumed growth for all other factors that we have in table 5. This gives us an estimate of overall growth in funding required in table 6.

**Table 6: Estimated requisite total cumulative funding growth**

<b>Estimated cumulative per capita total growth in funding required since 2011 using England's implied non-demographic and inflationary growth together with Northern Ireland’s estimated demographic growth</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	2.0%	6.1%	9.4%	12.1%



<b>Northern Ireland</b>	2.2%	6.6%	10.2%	13.3%
-------------------------	------	------	-------	-------

From **table 6** we can see that while England experienced 12.1% growth in per capita funding between 2011 and 2015, Northern Ireland would have experienced 13.3% if they had the same funding uplifts because of non-demographic and inflationary pressures as England. The difference between the growth rates in **table 6** is attributable to the differing demographic growth need that we analysed previously.

To get to **table 6** we have made a number of explicit assumptions along the way and the analysis is of necessity contingent on these assumptions.

The assumptions in summary:

- per capita funding levels in England and Northern Ireland were equitable in 2011
- we have assumed that demographic growth is driven by changes in the age-sex profile of the populations together with the differing relative costs for different ages and sexes of acute care
- we have assumed that the portion of England's growth in funding that is attributable to everything other than demographic growth is simply its actual growth less the growth we calculated should be required because of demographic pressures
- finally, we have examined what would happen if Northern Ireland had funding growth in line with their own demographic needs together with the calculated non-demographic and inflationary growth in funding experienced in England.

It is important to note that these assumptions are all challengeable and so the resultant figures ought to be a starting point for discussion and nothing more. We note in the subsequent section how the growth figures might differ under scenarios where we explicitly assume that funding levels for Northern Ireland and England were not equitable in 2011.

Noting those extensive caveats, we can see how the modelled required growth in **table 6** diverges from the actual growth rate. **Table 7** shows how much additional cumulative growth in funding would be required in each of the four countries to match the growth rate in **table 6**, that is the difference in actual growth in funding and the modelled requisite funding.

**Table 7: Additional funding growth to meet estimated requisite funding levels**

<b>Extra cumulative growth in funding required in order to meet demographic, non-demographic and inflationary growth levels comparable to England</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	0.0%	0.0%	0.0%	0.0%
<b>Northern Ireland</b>	-2.8%	1.0%	4.0%	4.4%

As expected, given the methodology, the England row is nil for each year; this is because we are comparing Northern Ireland against England. We note though that given our assumptions by 2015 Northern Ireland would require an extra 4.4% in per capita funding to be equivalent to England.

Translating this extra growth into additional per capita spending gives us **table 8**:

**Table 8: Estimated additional per capita healthcare funding required**

<b>Additional per capita spending to meet modelled required funding growth, £</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	0	0	0	0
<b>Northern Ireland</b>	(58)	21	86	95

Interpreting this table, we see that Northern Ireland would require an extra £95 per capita funding in 2015 given our modelled assumptions.

Given the relative populations the modelled required per capita increase in funding at **table 8** can be translated into the total additional funding that would be required under the same assumptions. We show this in **table 9**.

**Table 9: Estimated additional total country additional healthcare funding required**

<b>Additional country level spending to meet modelled required funding growth, £m</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>England</b>	0	0	0	0
<b>Northern Ireland</b>	-106	38	158	176

In 2015 Northern Ireland would have required a further £176m in funding to meet the modelled growth.

## Underlying differences in healthcare funding need

The analysis in the previous section was predicated on the assumption that funding levels in 2011 were equitable. However, analysis conducted by McKinsey in 2010<sup>4</sup> looked at the relative levels of deprivation between Northern Ireland and England and how this might affect funding levels. Their analysis suggested that there is a need for healthcare funding in Northern Ireland of between 7% and 16% greater than that of England.

What this means, in the context of the report produced by McKinsey, is that were England to spend £100 per capita on healthcare Northern Ireland would need to spend £107 at the 7% level or £116 per capita at the 16% level to achieve comparable healthcare provision. In this section, we explore the impact of these differing scenarios for Northern Ireland's healthcare funding.

The principal justification for the claim that there is a need for greater healthcare funding in Northern Ireland than England, is the different levels of deprivation between the two countries. There is no single agreed deprivation index that can be used to compare deprivation between Northern Ireland and England, however the McKinsey report suggests that one proxy is the level of disability living allowance (DLA) claimed. The report notes that approximately 10% of the population in Northern Ireland are claiming DLA in comparison to approximately 5% in England.

Since 2011 the relative difference in the proportion of DLA claimants has remained at similar levels. Analysis of government data shows that in mid-2015 5.4% of the population in England were claiming DLA or its replacement personal independence payment (PIP), and this compared to 10.9% in Northern Ireland.<sup>5</sup>

We have made the assumption that the impact of any baseline (2011) difference in healthcare funding need between Northern Ireland and England because of deprivation remains the same throughout the years under investigation.

In this section of the briefing we investigate what funding levels in Northern Ireland would need to have been in 2011, assuming the two different scenarios of 7% additional funding need and 16%

<sup>4</sup> PP12-14 *Reshaping the system: implications for Northern Ireland's health and social care services of the 2010 spending review* McKinsey 2010 on behalf of the Department for health social services and public safety.

<sup>5</sup> Data come from [www.ninis2.nisra.gov.uk/public/SearchResults.aspx?sk=dla](http://www.ninis2.nisra.gov.uk/public/SearchResults.aspx?sk=dla) for Northern Ireland and [www.gov.uk/government/collections/dwp-statistical-summaries](http://www.gov.uk/government/collections/dwp-statistical-summaries) and <https://pipdash.herokuapp.com/index.html> for England, Scotland and Wales.

additional funding need. We then grow these assumed 2011 funding levels using the implied growth rates because of demographic and non-demographic pressures on activity and the inflationary pressures on price growth that we used in the previous section.

**Table 10** shows four different scenarios, the first two are the actual per capita healthcare funding in 2011 in Northern Ireland and England respectively, these are the same figures that we have used as the basis of our calculations in the previous section of this briefing. The next two rows show what per capita funding in Northern Ireland would have been in 2011 if it were set at England's level plus 7% (row three) or at England's level plus 16% (row four).

**Table 10: 2011 per capita funding in Northern Ireland under differing scenarios**

	<b>2011</b>
<b>Actual Northern Ireland per capita, £</b>	2,006
<b>Actual England per capita funding, £</b>	1,879
<b>Northern Ireland per capita if 7% greater need than England, £</b>	2,011
<b>Northern Ireland per capita if 16% greater need than England, £</b>	2,180

If England's per capita healthcare funding in 2011 was increased by 7% it would have been £2,011, this is only £5 different from Northern Ireland's actual per capita funding of £2,006.

**Table 11** presents four different scenarios:

- the actual per capita healthcare funding in Northern Ireland from 2011 to 2015
- the per capita amount that healthcare would have to have been funded in Northern Ireland were the 2011 amount correct and annual growth was as calculated in the previous section. The growth is that attributable to the modelled Northern Ireland demographic changes and growth at the same per capita level as England's because of non-demographic activity pressures and inflationary cost pressures
- the same growth attributable to the demographic, non-demographic and inflationary cost pressures from the previous section for years 2012 to 2015 but with the per capita funding for 2011 in Northern Ireland set at the same level as per capita funding in England in 2011 plus 7%
- the same growth attributable to the demographic, non-demographic and inflationary cost pressures from the previous section for years 2012 to 2015 but with the per capita funding for 2011 in Northern Ireland set at the same level as per capita funding in England in 2011 plus 16%.

**Table 11: Estimated requisite per capita funding in Northern Ireland under different scenarios**

	2011	2012	2013	2014	2015
<b>Actual Northern Ireland per capita funding, £</b>	2,006	2,108	2,118	2,125	2,178
<b>Northern Ireland per capita funding with modelled growth from actual 2011, £ Scenario 1</b>	2,006	2,050	2,139	2,211	2,273
<b>Northern Ireland per capita funding with modelled growth from England 2011 + 7%, £ Scenario 2</b>	2,011	2,054	2,144	2,216	2,278
<b>Northern Ireland per capita funding with modelled growth from England 2011 + 16%, £ Scenario 3</b>	2,180	2,227	2,324	2,402	2,470

We see that under scenario 3, where relative healthcare need in Northern Ireland is estimated at 16% greater than England, the modelled level of healthcare funding required is £2,470 per capita in 2015. This contrasts with the actual healthcare funding in Northern Ireland in 2015 of £2,178 per capita.

Under these scenarios the modelled gap between the actual funding and the three scenarios at 2011 is as set out in **table 12**.

**Table 12: Modelled per capita gap in funding between actual Northern Ireland healthcare funding and different scenarios**

<b>Gap between actual Northern Ireland funding and scenarios, £</b>	2011	2012	2013	2014	2015
<b>Scenario 1</b>	0	-58	21	86	95
<b>Scenario 2</b>	5	-54	26	91	100
<b>Scenario 3</b>	174	119	206	277	292

In 2015 the gap between the actual funding in Northern Ireland and Scenario 1 is £95, this is the same figure which we saw in the previous section.

There is a similar gap, at £100, between scenario 2 and the actual, as should be expected. This is because the same growth rates are applied from 2011 throughout each of the three scenarios with the only variable being the 2011 value, and these base values are only £5 different between scenario 1 and 2.

There is a larger gap of £292 by 2015 between scenario 3 and the actual funding in Northern Ireland. Scenario 3 represents what the modelled funding would be if in 2011 Northern Ireland's per capita funding was 16% greater than England's.

## Conclusion

The modelling and analysis in this briefing, based on a set of challengeable assumptions, suggests that healthcare funding in 2015 in Northern Ireland is higher than England in absolute terms, but lower than England when relative demographic need is taken into account.

We see that on the assumption that funding levels were at appropriate levels in 2011 that by 2015 we would have expected Northern Ireland's funding to be £95 more per capita. This assumes too that the calculated growth in funding in England because of non-demographic and inflationary causes is accurate and is appropriate to use in Northern Ireland.

If we investigate Northern Ireland's differing healthcare need because of differing levels of deprivation between there and England, then the modelled gap between healthcare funding need and actual funding widens further.

If Northern Ireland is found to have a 7% greater per capita need in healthcare funding than England in 2011 because of differing deprivation, then by 2015 the per capita gap is modelled to be £100. If that need differential is however 16% then the modelled per capita gap is £292. Given a population in Northern Ireland of approximately 1.85m in 2015, this equates to a total gap of £540m between what the modelled required level is and the actual level.

We present these findings as a starting point for discussion about the relative healthcare funding levels. We are explicitly not stating that these modelled per capita funding levels represent what funding should be, rather we are presenting an exploration of modelled scenarios based on certain assumptions.