



# Hiding in plain sight: Tackling malnutrition as part of the prevention agenda



FUTURE  
HEALTH

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## EXECUTIVE SUMMARY

Malnutrition affects an estimated 5% of the population in England and is more prevalent in older people, those with major conditions such as cancer, Chronic Obstructive Pulmonary Disease (COPD) and dementia as well as higher rates of deprivation.<sup>1</sup> People with malnutrition are more likely to visit their GP, be admitted to hospital and recover from treatment more slowly. Our updated research – based on the original work of the British Association of Parenteral and Enteral Nutrition (BAPEN) but carried out independently – estimates that the additional cost of a person with malnutrition is £7,775 per person per year at a total cost to the healthcare system in England of £22.6 billion.<sup>2</sup>

The majority of the cost – £15.7 billion – is in secondary care with £5 billion in social care and £1.9 billion in primary care.

The impact is not evenly felt across the country. Poorer, older populations have higher rates of malnutrition including a number of northern and coastal communities. These higher rates mean higher costs with some Integrated Care Boards (ICBs) spending an estimated 20% or more of their budgets on people with malnutrition.

As our population ages and the number with major conditions increases, rates of malnutrition are set to rise. By 2035 the estimated number of people with malnutrition will increase by half a million at a projected cost of an extra £4 billion.

Malnutrition has rarely been a health service or system priority. There is no clear Ministerial or NHS oversight of the issue. An analysis of national Government and NHS policy identifies only a small number of targeted interventions to address this significant challenge. Existing clinical guidance and guidelines is implemented variably and much of it is now several years old.

But opportunities exist to take action, including better screening and access to nutritional support and treatment. Taking such action is cost effective. Treating those at the highest risk of malnutrition has been proven to be cost effective and would deliver much needed health system savings<sup>3</sup>. A study in Gloucestershire found that screening and treating those with a medium and high risk of malnutrition resulted in a 49% reduction in hospital admissions, 48% reduction in length of hospital stay, 21% fewer GP appointments, 30% fewer antibiotic prescriptions and 13% less healthcare professional contacts.<sup>4</sup>

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1 <https://www.bapen.org.uk/malnutrition-undernutrition/introduction-to-malnutrition?showall=&start=4>

2 Future Health has used the existing publicly available BAPEN study for much of this work (<https://www.bapen.org.uk/pdfs/economic-report-full.pdf>). This policy research was conducted independently, following a commission from Danone as part of Future Health's prevention policy work. The work itself is not associated with BAPEN and should not be attributed as such. All findings and work in the report are those of Future Health. The source for all maps in this report is: Office for National Statistics licensed under the Open Government Licence v3.0 Contains OS data. © Crown copyright and database right (2023)

3 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

4 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7064449/>

There now needs to be a concerted push on changing policy at national, system and patient level.

The political health policy focus on prevention is yet to translate into a set of clear cutting priorities. There is an opening to start to define this through the forthcoming Major Conditions Strategy.<sup>5</sup> Patients with the major conditions identified (cancer, COPD, dementia, mental health, stroke and musculoskeletal) are at greater risk of malnutrition and action on malnutrition should be included within the cross cutting prevention actions of the strategy.

Within the NHS, moves towards integrated care create opportunities for systems to use population health management approaches to better identify those with or at risk of malnutrition and shape services in ways that tackle the problem. ICBs with more people with and at risk of malnutrition will need to work with partners in Integrated Care Partnerships (ICPs) to effectively make progress. This could include local authorities screening people going into care homes for malnutrition and incentives for primary care to increase the identification of those at risk.

And the development of digital tools and technologies creates new ways to engage with patients and the public, for example through a new planned digital health check. This could include providing those more at risk of malnutrition with weighing scales to enable people and their clinicians to more closely monitor patient weight gain and loss.

For too long malnutrition has been a major health policy issue hiding in plain sight. This report argues that for policymakers the time for hiding is over.

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5 <https://www.gov.uk/government/consultations/major-conditions-strategy-call-for-evidence>

## KEY FINDINGS

### The prevalence and cost of malnutrition

- Malnutrition affects an estimated 2.9 million people in England with an overall estimated cost to the healthcare system of £22.6 billion a year. The majority of the costs (£15.7 billion) associated with malnutrition are secondary care costs, meaning that efforts to tackle malnutrition will help alleviate pressures on over-burdened hospitals. Costs in social care are estimated to be £5 billion, with £1.9 billion in primary care

### Regional impact

- ICBs in the north of England along with some coastal health systems record relatively higher estimated rates of malnutrition. The highest estimated rates of malnutrition are in Cornwall and Isles of Scilly ICB and Norfolk and Waveney ICB (6.7%). Three of the four ICBs from the North East and Yorkshire also have estimated rates of over 6%. The lowest estimated rates of malnutrition are in South West London ICB (3.3%). Three ICBs from the South East record estimated malnutrition rates of less than 4%
- Nine ICBs are spending an estimated 20% or more of their budget on patients with malnutrition, with Black Country ICB spending the largest proportion (26.9%). South West London ICB is spending the lowest proportion (12.7%) of its budget on patients with malnutrition. No ICBs from the Midlands, North East and Yorkshire and North West are spending less than 15% of their budget on malnutrition

### Primary care

- An extra 4.73 million estimated additional GP appointments each month can be attributed to malnutrition, this represents 17.7% of all appointments. Annually this equates to 56.8 million GP appointments. Ten ICBs recorded an additional 20% of GP appointments as a result of patients with malnutrition. Black Country ICB has the highest rate at 27.3%. Nine ICBs record a rate of below 14%. Cambridgeshire and Peterborough ICB has the lowest rate of 11.7%

### Hospital admissions

- There are an estimated 464,000 additional hospital admissions per year for people with malnutrition, resulting in 2.9 million bed days. Eight ICBs recorded an estimated 3.5% of their hospital admissions relating to people with malnutrition. North East London ICB recorded the highest rate with 4.2%. Cornwall and Isles of Scilly ICB recorded the second highest (3.8%) and Norfolk and Waveney ICB the third highest (3.7%). 12 systems recorded rates of below 2.4% of their hospital admissions relating to people with malnutrition. Hertfordshire and West Essex ICB recorded the lowest rate of 2.1%

**Social care**

- There are an estimated 160,634 people in care homes over 75 with malnutrition at a projected cost of £1.25 billion

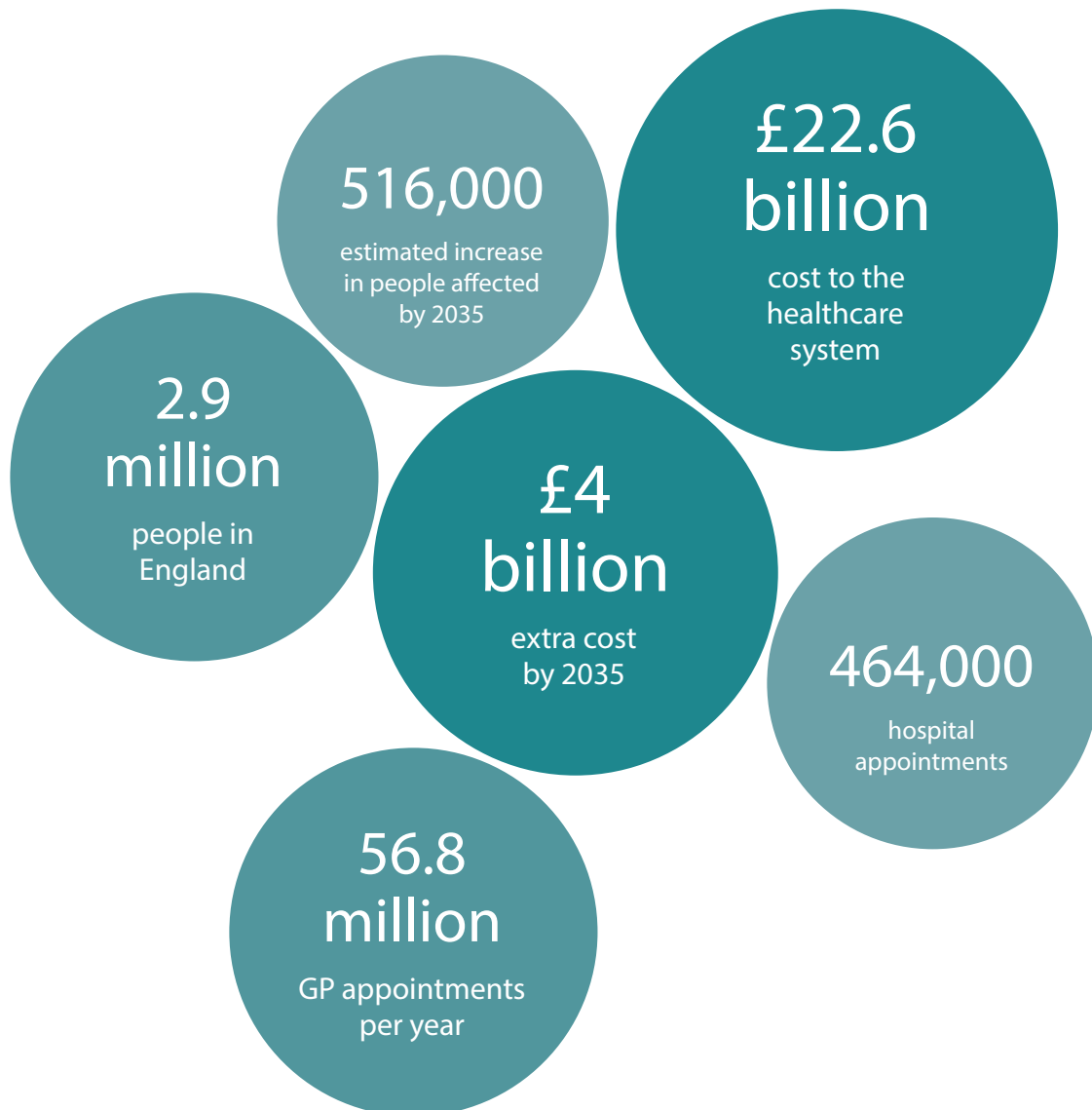
**Cancer**

- There are an estimated 778,638 people with cancer who are malnourished in England. The estimated overall cost to the healthcare system for cancer patients with malnutrition is £6 billion

**The future**

- Malnutrition is set to be a growing problem, with the number of people with malnutrition set to rise by over 516,000 by 2035 at an additional cost of £4 billion

**Summary of the economic and NHS burden of malnutrition**



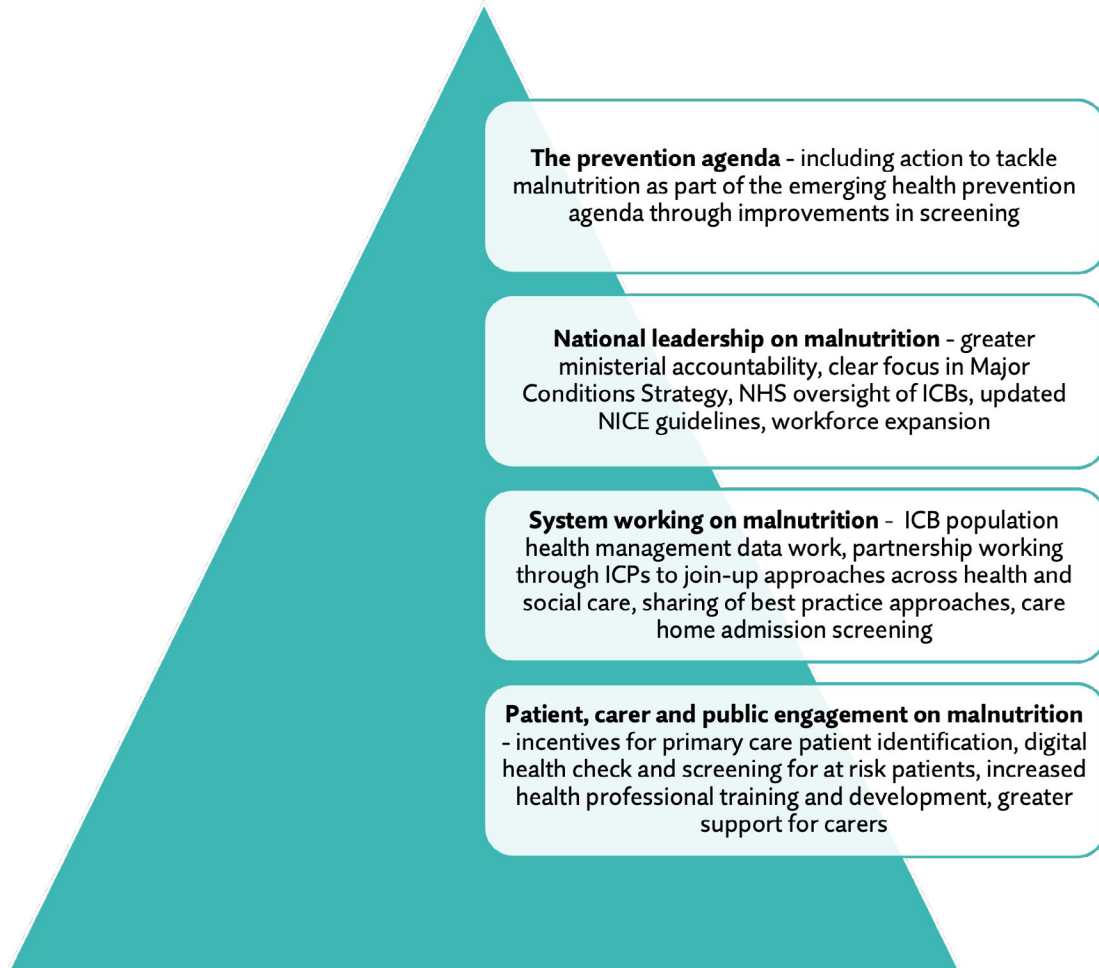
## SUMMARY OF RECOMMENDATIONS

This report makes a series of recommendations for tackling disease related malnutrition across Government and the NHS. In terms of immediate steps:

- The Government should focus on malnutrition within the Major Conditions Strategy including commitments to better screen and identify patients with or at risk of malnutrition. Malnutrition is common across the major conditions identified in the scope of the strategy
- Government and NHS England should include screening for malnutrition within the revised NHS digital health check
- ICBs as part of service planning should seek to build up to date data to estimate the numbers of people with or at risk of malnutrition in their area and deliver improvements in screening those at risk

The full recommendations are available in Chapter 6 and are summarised below.

*Figure 1: Recommendations for tackling disease related malnutrition*





A photograph of an elderly woman with grey hair, wearing a light-colored ribbed sweater, sitting on a couch. A healthcare professional is taking her blood pressure using a blue cuff. The woman is smiling and looking towards the professional. The background is a blurred indoor setting.

**CHAPTER 1 – THE CHALLENGE  
OF MALNUTRITION**

The National Institute for Health and Care Excellence (NICE) defines a person as being malnourished if they have:

- A body mass index (BMI) of less than 18.5 kg/m<sup>2</sup>
- Unintentional weight loss greater than 10% within the past three to six months
- A BMI of less than 20 kg/m<sup>2</sup> and unintentional weight loss greater than 5% within the past three to six months<sup>6</sup>

According to the Malnutrition Task Force the warning signs of an increased risk of malnutrition include:

- Recent ill health or diagnosis
- A recent hospital stay
- Problems with oral health or dentures
- Difficulties in swallowing
- Practical difficulties with cooking or shopping
- Change in personal circumstance, such as bereavement or becoming depressed
- Loss of interest in food, eating a restricted diet, loss of appetite or even not eating<sup>7</sup>

The Malnutrition Universal Screening Tool (MUST) has been used to estimate the number of adults in England with malnutrition.<sup>8</sup> It is estimated that the prevalence of malnutrition across various groups is:

- 30% of adults on admission to hospital and about 34% of those in hospital ward
- 35 % of those resident in care homes
- 18% of adults on admission to mental health units
- 15% or more of adults attending hospital outpatients
- 12–14% of adults in sheltered housing
- 10% of adults visiting their GP
- 5% of the adult population of England<sup>9</sup>

There are three main risk factors associated with malnutrition:

- Disease-related malnutrition – this is where malnutrition is related to another ongoing health condition (for example, cancer, dementia or COPD)
- Physical – physical or disability related factors can result in malnutrition. An example is dentition where pain, loose teeth or denture problems can prevent people from eating well

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6 <https://www.nice.org.uk/guidance/CG32>

7 <https://www.malnutritiontaskforce.org.uk/sites/default/files/2021-10/State%20of%20the%20Nation%202020%20F%20revise.pdf>

8 [https://www.bapen.org.uk/pdfs/must/must\\_full.pdf](https://www.bapen.org.uk/pdfs/must/must_full.pdf)

9 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

- Social – the most complex and ranges from constraints on people’s ability to eat well and motivation to eat, including poverty, access to cooking equipment and other factors<sup>10</sup>

It is important to note that it is common to see overlap of these risk factors, for example those with disease-related malnutrition are more likely to also be impoverished and/or have physical barriers to eating well.

The focus for this research is on disease-related malnutrition. A number of major conditions are associated with an increased risk of malnutrition. Patients with long term conditions, those with problem swallowing and others recovering from episodes of care are all more vulnerable.<sup>11</sup> Five examples include<sup>12</sup>:

- Cancer – Not being able to eat enough protein and calories is a problem for people with cancer. Cancer Research UK (CRUK) estimate that between 40–80% of people with cancer have malnutrition<sup>13</sup>
- COPD – Around 1 in 3 inpatients and 1 in 5 outpatients with COPD are at risk of malnutrition. Malnutrition may develop gradually over several years or might develop or progress following exacerbations. Sarcopenia (loss of skeletal muscle mass and strength) affects 15% of patients with stable COPD and impairs function and health status. About 25% of patients with COPD will develop cachexia (a wasting syndrome that leads to loss of skeletal muscle and fat).<sup>14</sup> The consequences of malnutrition in COPD include increased mortality and longer hospital stays<sup>15</sup>
- Dementia – Research has found that malnutrition was present in more than a quarter of dementia patients (29%) and was associated with a more rapid functional decline over five years<sup>16</sup>
- Stroke – A quarter of patients become more malnourished in the first weeks after a stroke. Malnutrition is an independent predictor of mortality, length of stay, and hospitalisation costs at 6 months post stroke<sup>17</sup>
- Frailty – Malnutrition is associated with a four-fold increased likelihood of frailty<sup>18</sup>

10 <https://www.malnutritiontaskforce.org.uk/sites/default/files/2021-10/State%20of%20the%20Nation%202020%20F%20revise.pdf>

11 <https://www.nhs.uk/conditions/malnutrition/#:~:text=Anyone%20can%20become%20malnourished%2C%20but,mobility%2C%20or%20a%20low%20income>

12 All these conditions are included within the Government’s Major Conditions Strategy: <https://www.gov.uk/government/consultations/major-conditions-strategy-call-for-evidence>

13 <https://www.cancerresearchuk.org/about-cancer/coping/physically/diet-problems/about/why-diet-is-important>

14 [https://www.malnutritionpathway.co.uk/library/mm\\_copd.pdf](https://www.malnutritionpathway.co.uk/library/mm_copd.pdf)

15 [https://www.malnutritionpathway.co.uk/library/mm\\_copd.pdf](https://www.malnutritionpathway.co.uk/library/mm_copd.pdf)

16 <https://www.kcl.ac.uk/news/malnutrition-predicts-faster-functional-loss-in-dementia-patients>

17 <https://www.england.nhs.uk/london/wp-content/uploads/sites/8/2019/09/Nutrition-Hydration-Diabetes-Acute-Stroke.pdf>

18 Boulos C., Salameh P., and Barberger-Gateau P. 2016. Malnutrition and frailty in community dwelling older adults living in a rural setting. *Clin. Nutr.* 35(1): 6–11

The prevalence of malnutrition also increases with age. Nearly half of all malnourished people are over 65.<sup>19</sup>

With an ageing population and associated increases in major conditions such as cancer, dementia, COPD, this report seeks to provide an estimate of the prevalence and costs of malnutrition facing the healthcare system in England. It also looks ahead at the potential increases in malnutrition rates in the future and sets out some ideas and suggestions for policymakers and health system leaders to take greater action on malnutrition.

### **Note on methods**

The report draws on a number of published academic studies on malnutrition and applies their findings to the latest population and NHS activity data in England to develop new projections on the prevalence, impact and costs of malnutrition.<sup>20</sup> The report particularly draws on the previous BAPEN economic study of malnutrition, covering 2011–12 and published in 2015. It is not possible or within the boundaries of the research to re-run or update the original study. Our approach has limitations and introduces new assumptions, when compared to the original primary research of the 2011–12 study. However, with the data from the original study now over ten years old, and with an ageing population, now was felt to be a good time to conduct this research and draw greater attention to this important issue.

All calculations in the report are estimates and are referred to as such in the report.

More information on the methods can be found in Annex A and in relevant sections and references of the report.<sup>21</sup>

Future Health would like to thank all those who kindly contributed their time as part of a set of expert interviews and discussions for the work including Mhairi Donald (Brighton and Sussex University Hospitals NHS Trust), Anita Nathan (GP), Lesley Carter (Age UK), Caroline Hodgson (British Specialist Nutrition Association) and Emily Holszhausen (Carers UK). The views expressed in this report are solely those of Future Health.

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19 <https://www.bapen.org.uk/malnutrition-undernutrition/introduction-to-malnutrition?showall=&start=4>

20 <https://www.bapen.org.uk/pdfs/economic-report-full.pdf>

21 Annex A includes the approach to estimating the numbers with malnutrition and costs, as well as in 2035. Specific studies and associated calculations, for example on healthcare usage and impact are included in the relevant sections of the report



## CHAPTER 2: ESTIMATING THE PREVALENCE AND COSTS OF MALNUTRITION IN ENGLAND

Analysis by BAPEN has estimated that 5% of the adult population of England has malnutrition. Malnutrition rates increase with age, with an estimated 1.2 million of those affected being over 65.<sup>22,23</sup>

A study by Stratton and Elia linked increased rates of malnutrition with deprivation as defined by the Index of Multiple Deprivation (IMD).<sup>24</sup>

By dividing the national rate of malnutrition in England to local ICB populations – and adjusting for age and deprivation – it is possible to estimate the numbers and proportions of people with malnutrition in each ICB.

### INTEGRATED CARE BOARDs (ICBs)

Integrated Care Systems (ICSs) were established in July 2022. They include ICBs which are the statutory organisations responsible for developing a plan for meeting the health needs of the population, managing the NHS budget and arranging for the provision of health services in the ICS area. In carrying out these tasks they replaced clinical commissioning groups (CCGs).

They have four over-arching objectives:

- Improve outcomes in population health and healthcare
- Tackle inequalities in outcomes, experience and access
- Enhance productivity and value for money
- Help the NHS support broader social and economic development<sup>25</sup>

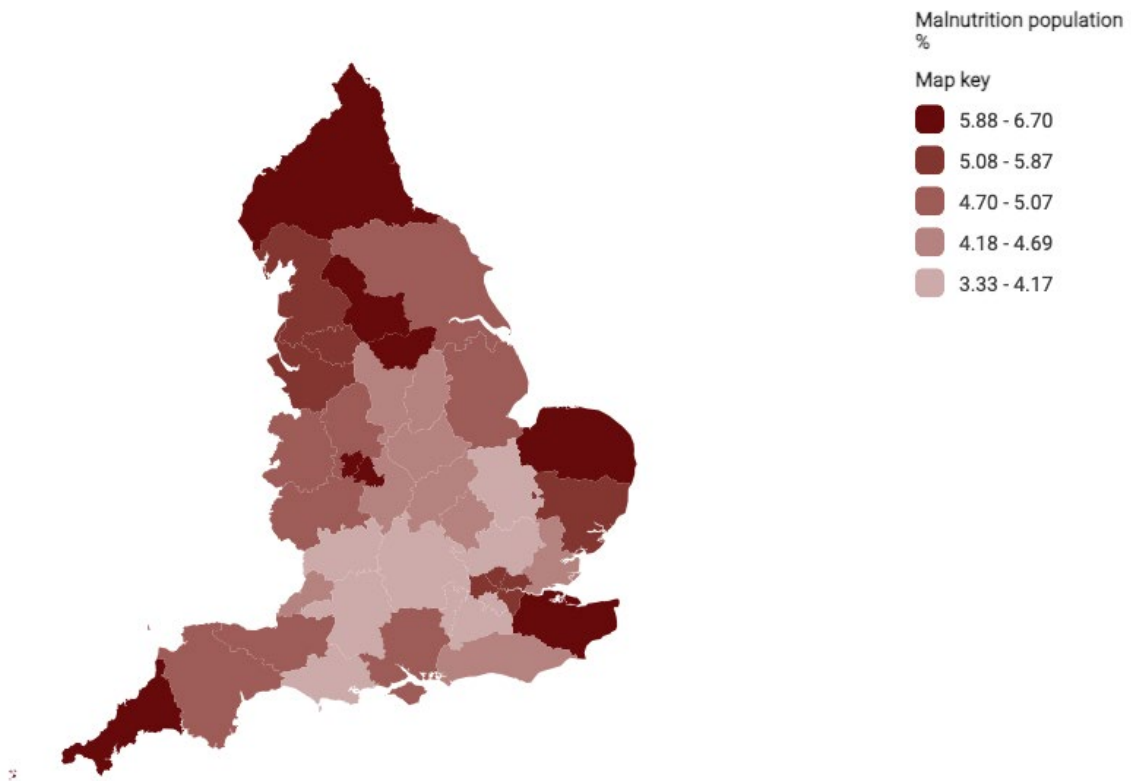
22 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

23 <https://www.bapen.org.uk/malnutrition-undernutrition/introduction-to-malnutrition?showall=&start=4>

24 <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/362583B6E2BF2352BE0E59A728394F36/S0007114506003059a.pdf/deprivation-linked-to-malnutrition-risk-and-mortality-in-hospital.pdf>

25 <https://www.england.nhs.uk/integratedcare/what-is-integrated-care/>

Figure 2: Estimated % of population with malnutrition by ICB

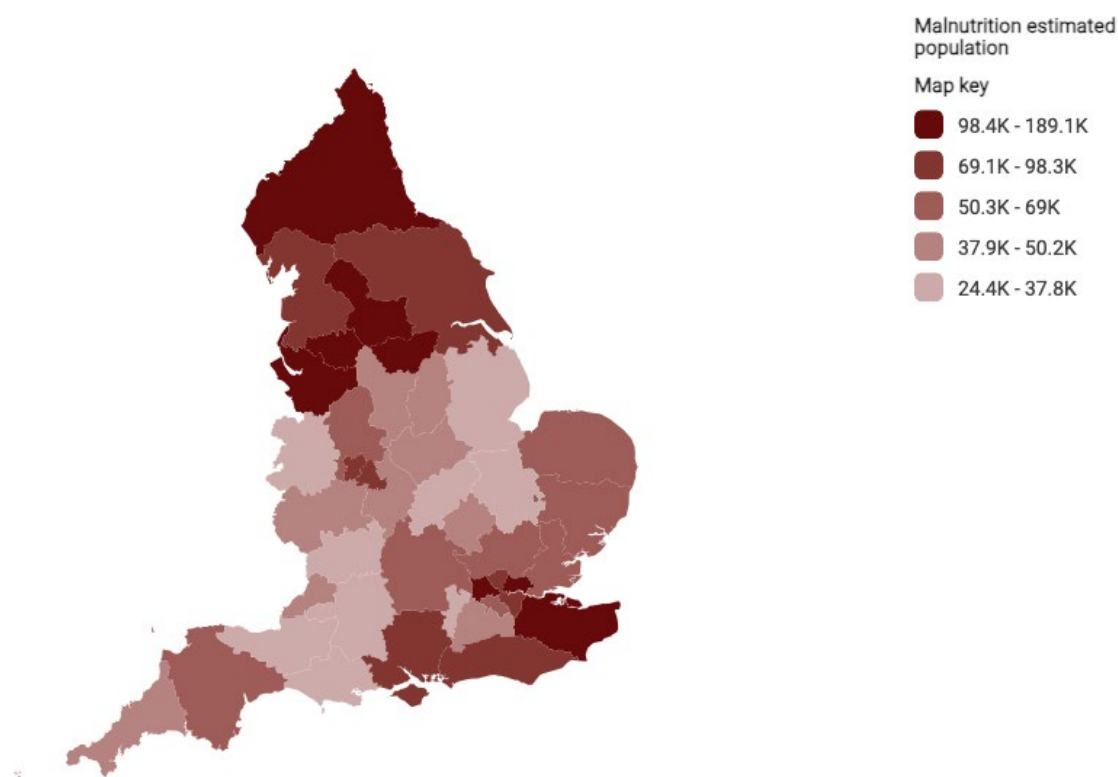


Eight ICBs have estimated malnutrition rates of over 6%. Cornwall and the Isles of Scilly ICB and Norfolk and Waveney ICB have the highest estimated rates of 6.7%.

Of the eight systems, just two are from the South East, South West and London regions. The region with the highest number is the North East and Yorkshire with three systems (West Yorkshire ICB, South Yorkshire ICB and North East and North Cumbria ICB), the Midlands has two systems (Black Country ICB; Birmingham and Solihull ICB) and East of England one system (Norfolk and Waveney ICB).

Eight ICBs record estimated malnutrition rates of less than 4%. South West London ICB has the lowest estimated rate of 3.3%, half of that recorded by ICBs with the highest rates. Of the eight systems none are from the North East and Yorkshire, North West and Midlands regions. Three are in the South East (Surrey ICB, Buckinghamshire, Oxfordshire and West Berkshire ICB, Frimley ICB), two are in the East of England (Cambridgeshire and Peterborough ICB, Hertfordshire and West Essex ICB) two are in the South West (Gloucestershire ICB, Bath and North East Somerset, Swindon and Wiltshire ICB) and one in London (South West London ICB).

Figure 3: Estimated number of people with malnutrition by ICB



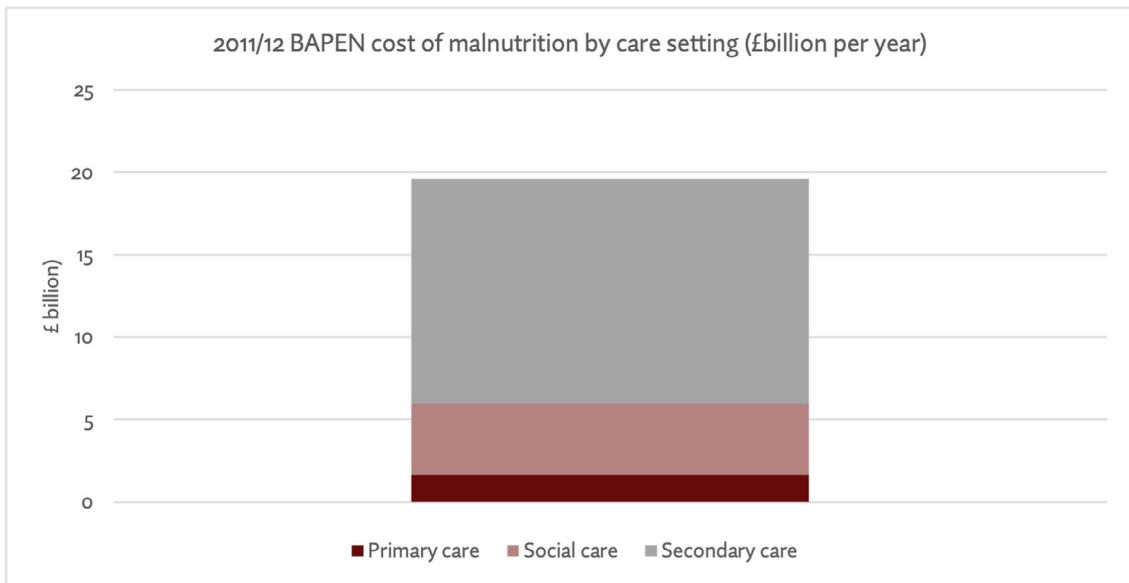
Seven systems have over 100,000 people estimated to have malnutrition. North East and North Cumbria ICB – the largest ICB by population has the highest number – 189,104. Greater Manchester ICB, West Yorkshire ICB, Cheshire and Merseyside ICB, East London ICB, North West London ICB and Kent and Medway ICB all have numbers over 100,000.

Analysis from BAPEN in 2011/12 calculates the cost per malnourished person as £7,408 per year and the cost of a non-malnourished person as £2,155 per year (a difference of £5,253).<sup>26</sup> BAPEN's analysis calculated a total estimated cost of malnutrition to the healthcare system in England of £19.6 billion. The breakdown of the BAPEN costs across primary care, secondary care and social care is set out in figure 4 below.

<sup>26</sup> <https://www.bapen.org.uk/pdfs/economic-report-full.pdf>



Figure 4: 2011/12 BAPEN cost of malnutrition by care setting

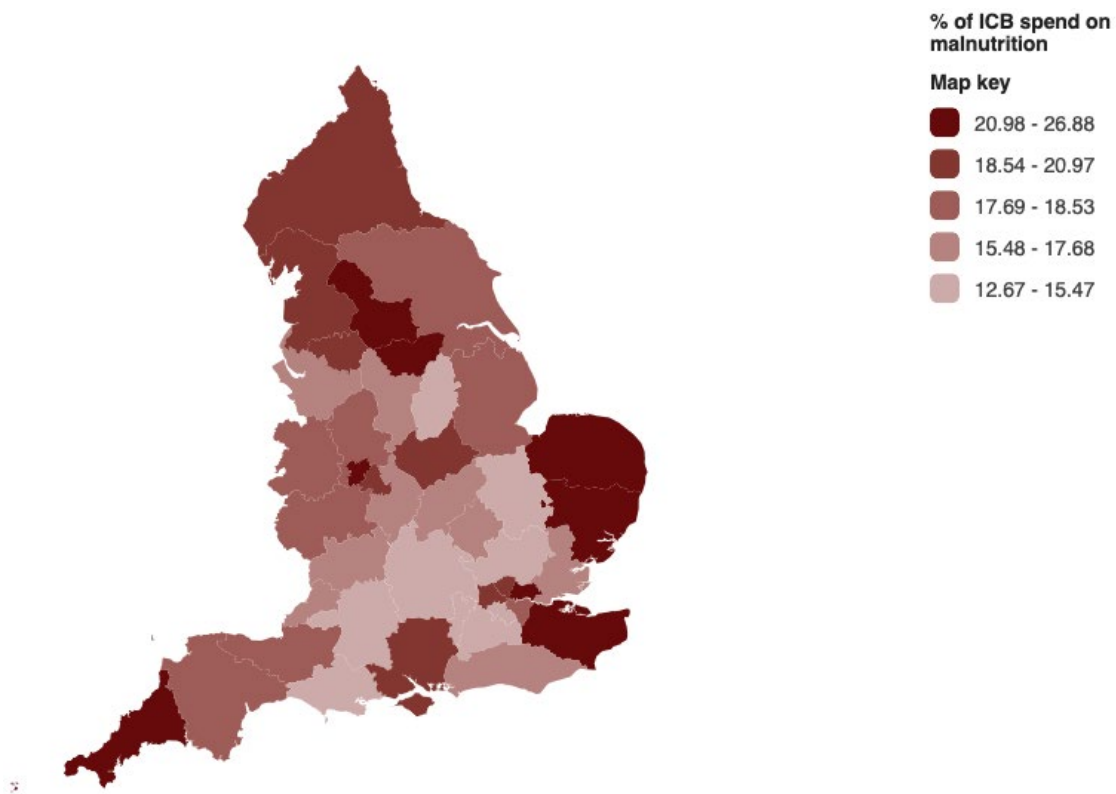


Over two thirds of the cost of malnutrition under the BAPEN model is in secondary care (£13.6 billion), with the highest contributor being hospital inpatient care (£6.7 billion).

Social care costs are estimated to be over £4.3 billion, with older adults over 65 the largest cost at £2.6 billion. Primary care costs are over £1.6 billion.

Using the BAPEN data and adjusting for inflation it is possible to estimate the cost of malnutrition for each ICB today and how these costs compare with their overall budget allocations from NHS England.

Figure 5: Estimated % spend of ICB budget on malnutrition



The updated analysis finds that the overall cost of malnutrition in England is estimated to be £22.6 billion and that the difference in cost to the healthcare system between a malnourished person (£10,965) and a non malnourished person (£3,190) is £7,775.

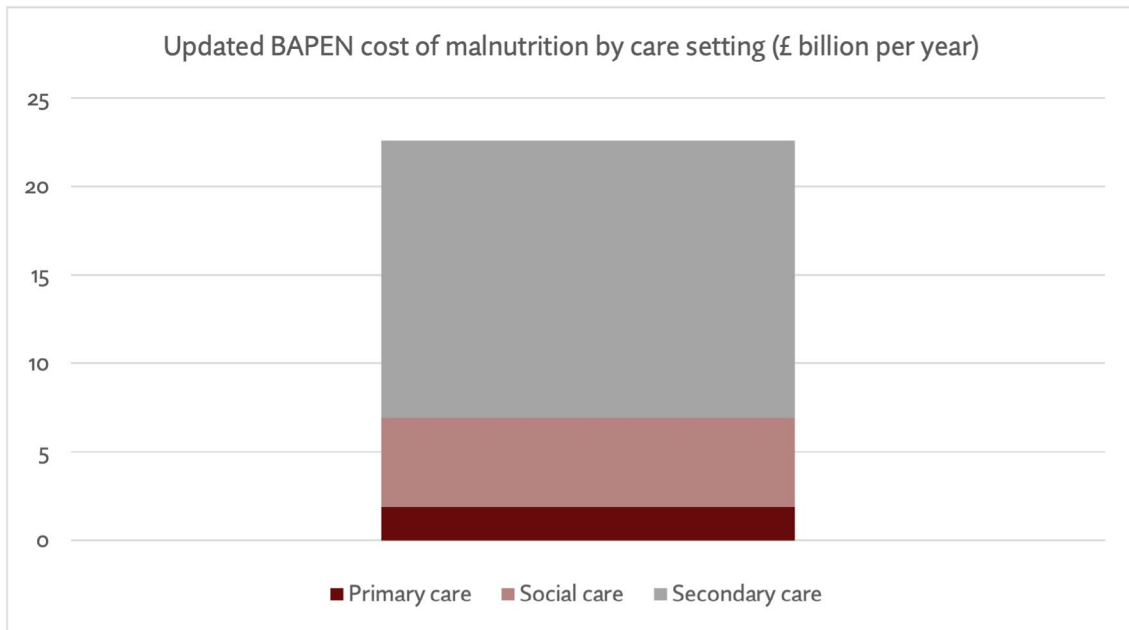
Nine ICBs are estimated to be spending over 20% of their overall budget on treating and managing people with malnutrition. Black Country ICB is spending the most – over a quarter (26.9%) – of its budget. Other systems spending over 20% include South Yorkshire ICB, Norfolk and Waveney ICB, Cornwall and the Isles of Scilly ICB, Kent and Medway ICB, West Yorkshire ICB, Suffolk and North East Essex ICB, North East London ICB and North East and North Cumbria ICB.

For ICBs with large populations such as North East and Cumbria ICB, Greater Manchester ICB, Cheshire and Merseyside ICB and West Yorkshire ICB this analysis reveals that the costs of malnutrition across health and social care is over £1 billion a year per system.

By contrast six systems are spending less than 15% of their budget on treating and managing patients with malnutrition. South West London ICB has the lowest spend at 12.7%. There are no ICBs spending less than 15% of their budget from the Midlands, the North East and Yorkshire and the North West.

Assuming the proportion of costs related to care setting have remained the same, secondary care costs since the original analysis will have increased by over £2 billion to £15.7 billion, social care costs by £650 million to over £5 billion and primary care costs by nearly £250m to nearly £1.9 billion.

Figure 6: Updated estimated proportion of BAPEN cost of malnutrition by care settings



## Summary

- ICBs in the north along with some coastal systems record relatively higher rates of malnutrition in their populations reflecting age demographics and higher levels of deprivation. The highest estimated rates of malnutrition are in Cornwall and Isles of Scilly ICB and Norfolk and Waveney ICB. Three of the four ICBs from the North East and Yorkshire have rates of over 6%
- The lowest estimated rates of malnutrition are in South West London ICB. Three ICBs from the South East record malnutrition rates of less than 4%
- The overall updated estimated cost of malnutrition in England is £22.6 billion a year
- The majority of this estimated cost is in secondary care (£15.7 billion). Estimated social care costs are £5 billion and primary care estimated costs £1.9 billion
- Nine ICBs are spending over 20% of their budget on patients with malnutrition, with Black Country ICB spending the largest proportion (26.9%)
- South West London ICB is spending the lowest proportion (12.7%) of its budget on patients with malnutrition. No ICBs from the Midlands, North East and Yorkshire and North West are spending less than 15% of their budget on patients with malnutrition

A photograph of a group of people in a meeting or conference room. In the foreground, a person is seen from the back, wearing a patterned shirt. In the middle ground, an older man with glasses and a woman with a red bow in her hair are seated and looking towards the right. The woman is holding a coffee cup. In the background, another person in a light blue uniform is standing. A large, semi-transparent circular graphic is overlaid on the left side of the image. The overall lighting is warm and slightly dim.

**CHAPTER 3: HEALTHCARE  
SYSTEM IMPACT**

Malnutrition has a significant impact on healthcare systems. BAPEN’s original analysis reveals that in primary care, disease-related malnutrition results in:

- Increased dependency
- Increased GP visits
- Increased prescription costs
- Increased referrals to hospital
- Increased admissions to care homes

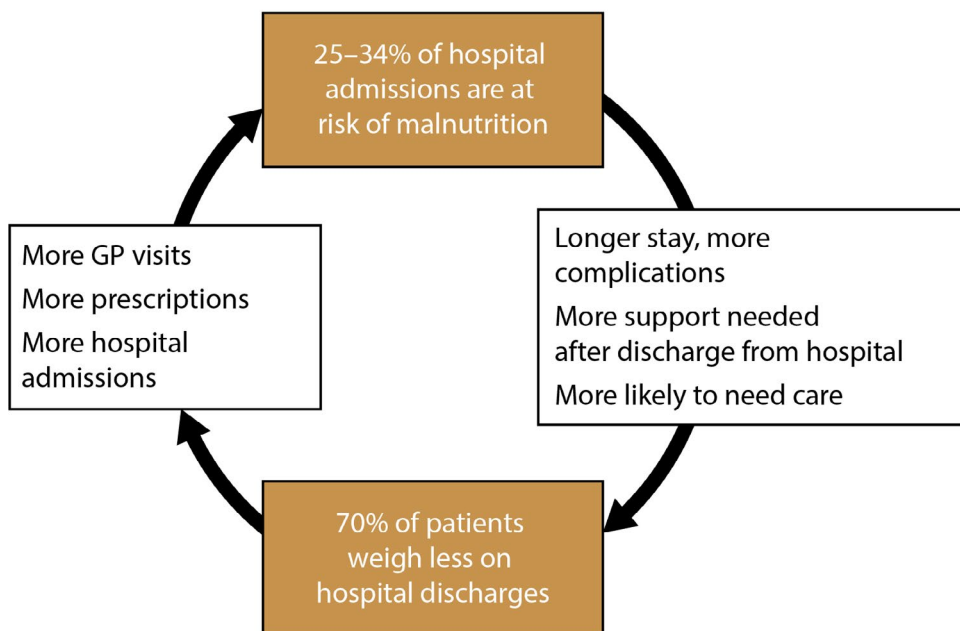
In secondary care, disease related malnutrition results in:

- Increased complications such as wound infections, chest infections, pressure ulcers
- Increased length of hospital stay
- Increased numbers of patients who are readmitted to hospital
- Increased numbers of deaths<sup>27</sup>

The malnutrition carousel sets out the knock on impacts if a person becomes malnourished as they are more susceptible to disease, which in turn will make their nutritional state worse, increasing healthcare use and impairing recovery.

Figure 7: The Malnutrition Carousel<sup>28</sup>

### The Malnutrition Carousel



27 <https://www.bapen.org.uk/screening-and-must/23-about-malnutrition>

28 <https://www.bapen.org.uk/screening-and-must/23-about-malnutrition>

The previous chapter used the BAPEN analysis to provide updated estimates of the numbers of people with and costs of malnutrition at a national and ICB level.

Based on the ICB population estimates, Future Health then sought to estimate the impact of malnutrition on key health service activity. Three of the main domains of spend identified in the original BAPEN work were primary care, secondary care and social care. Future Health analysed a select piece of activity relating to each as follows:

- Primary care appointments
- Hospital admissions
- Residential care prevalence

For the NHS element of the analysis, Future Health drew on a study by Guest et al which examined the specific effect of malnutrition on clinical outcomes and health-care resource use in the UK, comparing malnourished and non malnourished people.<sup>29</sup> This was used to estimate the additional activity relating to malnourished people. NHS cost data was then used to estimate the costs and impact in each activity area for each ICB.

For the social care analysis, Future Health used the BAPEN estimate of the proportion of older people admitted to residential care with malnutrition to develop ICB projections and used the updated BAPEN per person with malnutrition cost figure to calculate the costs.<sup>30</sup>

### **Primary care appointments**

Guest et al found that malnourished patients more frequently attended GP consultations over a six month period (18.9 consultations for malnourished vs 9.12 consultations for non malnourished).<sup>31</sup>

Using this study an estimated 4.73 million additional GP appointments each month can be attributed to malnutrition – this represents 17.7% of all appointments. Annually, this equates to 56.8 million GP appointments and an estimated cost of £1.7 billion.<sup>32</sup>

The additional appointments attributable to malnutrition by ICB per month range from 39,707 in Shropshire, Telford and Wrekin ICB to 308,240 in North East and North Cumbria.

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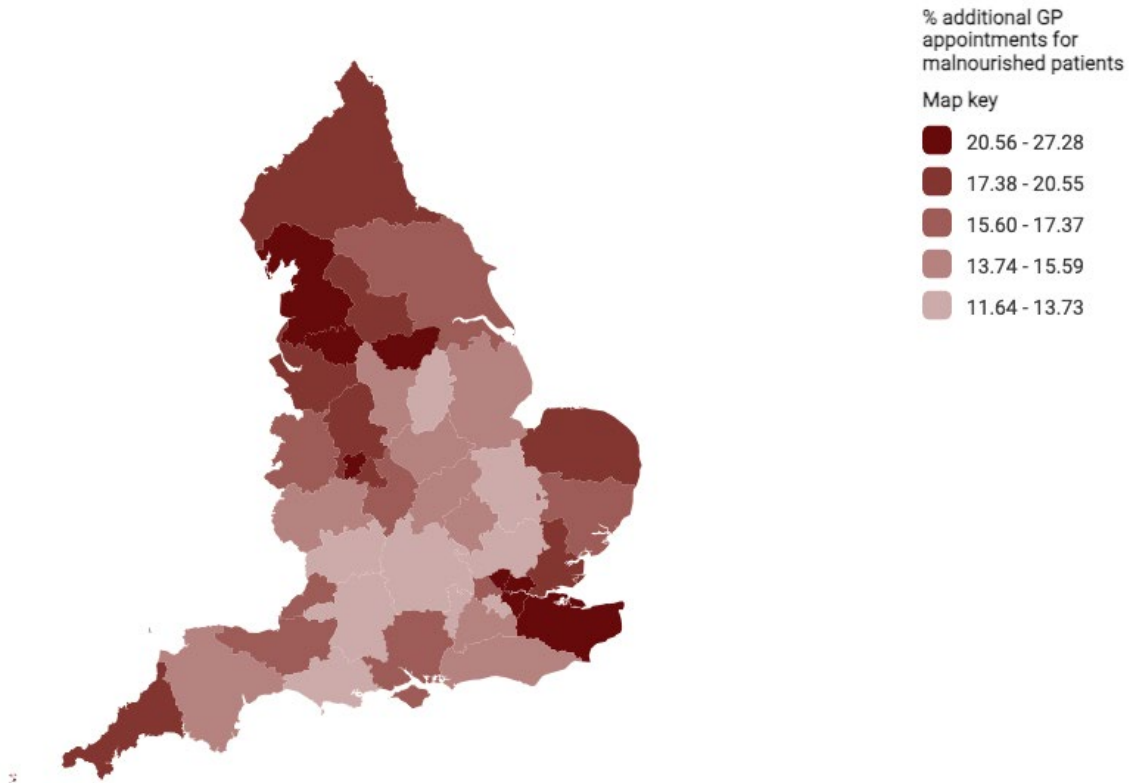
29 <https://pubmed.ncbi.nlm.nih.gov/21406315/>. Future Health drew on the Guest et al analysis for this element as a real world specific published study on healthcare activity usage between malnourished and non-malnourished patients

30 <https://www.bapen.org.uk/pdfs/economic-report-full.pdf>

31 <https://pubmed.ncbi.nlm.nih.gov/21406315/>

32 This assumes a cost of £30 per primary care appointment as set out here: <https://www.england.nhs.uk/2019/01/missed-gp-appointments-costing-nhs-millions/>

Figure 8: Percentage of additional GP appointments as a result of malnutrition by ICB



Ten ICBs recorded an additional 20% of GP appointments due to patients with malnutrition. Black Country ICB has the highest rate at 27.3%. Three London systems (South East, North East and North Central) are in the top 10, along with two from the North West (Greater Manchester ICB and Lancashire and South Cumbria ICB).

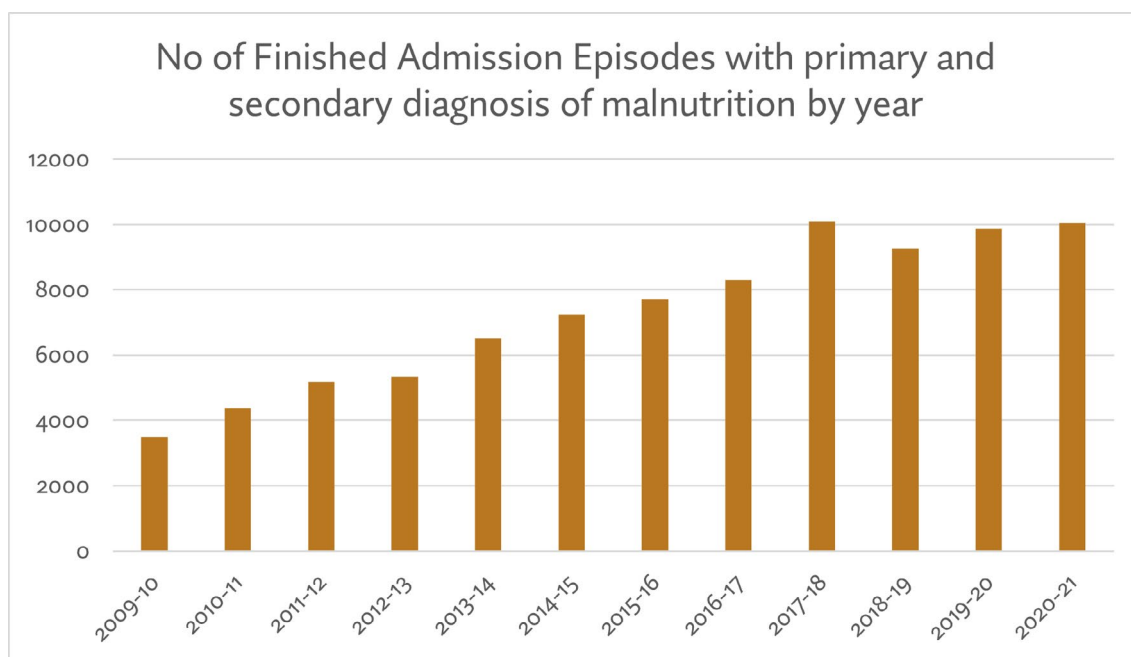
Nine ICBs record a rate of below 14% of additional GP appointments being attributable to malnutrition. Cambridgeshire and Peterborough ICB has the lowest rate of 11.7%. Of the nine systems there are none from the North West and North East and Yorkshire. There is one (Nottingham and Nottinghamshire ICB) from the Midlands and one from London (South West London ICB). By contrast there are three from the South West (Dorset ICB, Bath and North East Somerset, Swindon and Wiltshire ICB and Gloucestershire ICB), two from the South East (Buckinghamshire, Oxfordshire and Berkshire West ICB and Frimley ICB) and two from the East of England (Hertfordshire and West Essex ICB, Cambridgeshire and Peterborough ICB).



## Hospital admissions

The number of NHS hospital admissions officially recorded as related to malnutrition has increased nearly three fold since 2009–10 from 3,490 to 10,040 in 2020–21.<sup>33</sup>

*Figure 9: Number of Finished Admission Episodes with primary and secondary diagnosis of malnutrition from 2009–10 to 2020–21<sup>34</sup>*



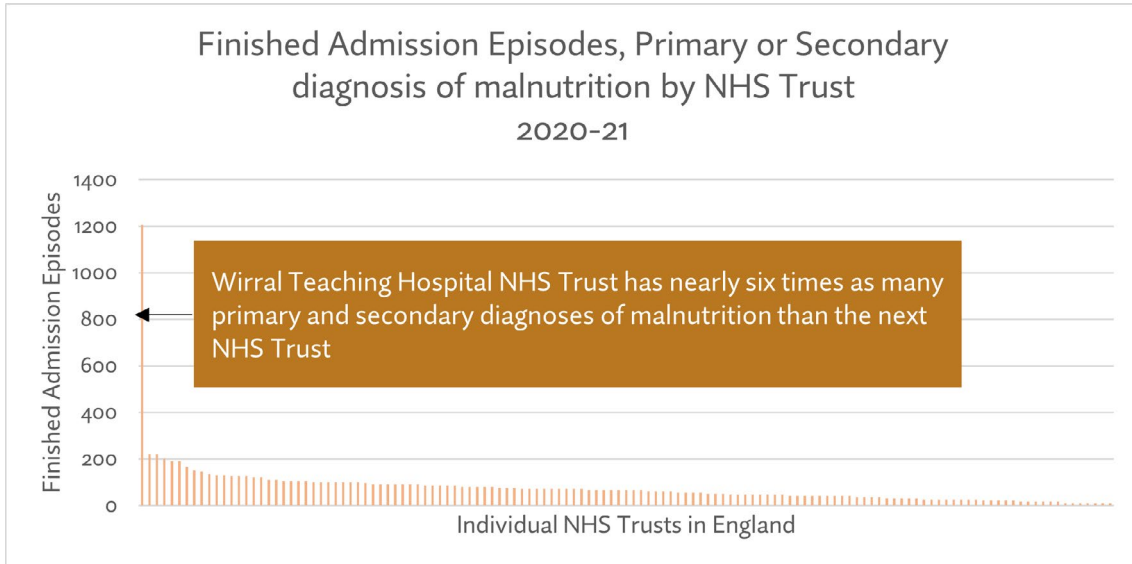
But malnutrition remains an under-reported issue. Whilst Wirral Teaching Hospital NHS Foundation Trust recorded 1205 admissions, all other NHS Trusts recorded 220 admissions or less each year (see figure 10), with many recording a lot less. Wirral Teaching Hospital NHS Foundation Trust has completed significant work in relation to improving its screening of patients which likely explains its high diagnosis figure.<sup>35</sup>

<sup>33</sup> <https://digital.nhs.uk/supplementary-information/2021/malnutrition-by-provider-suppressed-update>

<sup>34</sup> The primary diagnosis is the primary cause of the visit. The secondary diagnosis refers to other conditions that either present on admission or are developed as a direct result of the primary diagnosis

<sup>35</sup> <https://www.wuth.nhs.uk/media/18006/annual-quality-account-2020-2021-final.pdf>

Figure 10: Finished Admissions Episodes with a primary or secondary diagnosis of malnutrition by NHS Trust 2020-21<sup>36</sup>



The level of under-reporting of malnutrition as a reason for hospital admission is demonstrated through the Guest et al study which found a difference in hospitalisation between malnourished and non malnourished patients of 8% (13% vs 5%).<sup>37</sup>

Applying this study to the estimated population with malnutrition results in an estimated additional 464,000 hospital admissions per year related to people with malnutrition.<sup>38</sup> By way of comparison with other specialties this is slightly lower than urology (594,974) but higher than numbers recorded for geriatric medicine (421,340), clinical oncology (407,199) and cardiology (383,297).<sup>39</sup>

By applying the Guest et al study to the estimated number of people with malnutrition by ICB it is possible to estimate the number of additional admissions relating to people with malnutrition for each ICB.

This can then be compared with the overall number of admissions each system records in a calendar year to assess the overall proportion of admissions relating to people with malnutrition.

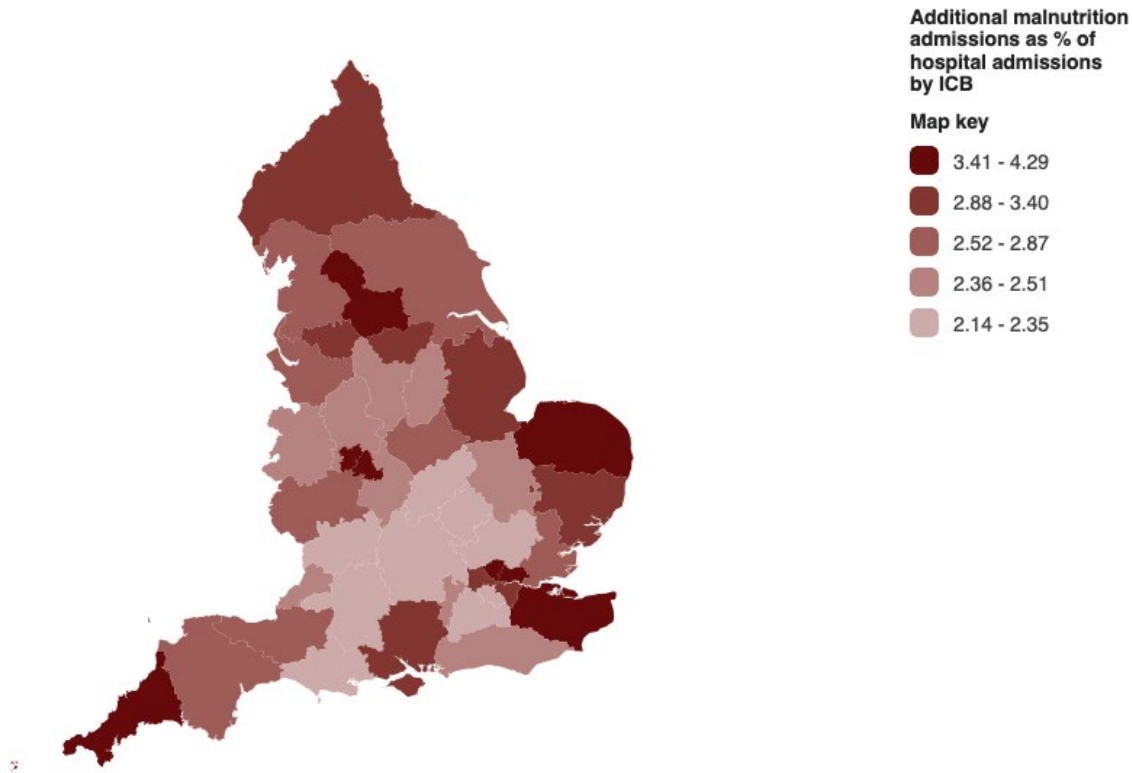
36 <https://digital.nhs.uk/supplementary-information/2021/malnutrition-by-provider-suppressed-update>

37 <https://pubmed.ncbi.nlm.nih.gov/21406315/>

38 Calculated as the difference in admissions between malnourished (13%) and non malnourished persons (5%)

39 <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity/2021-22>

Figure 11: Estimated number of additional admissions relating to malnutrition as a percentage of overall admissions by ICB



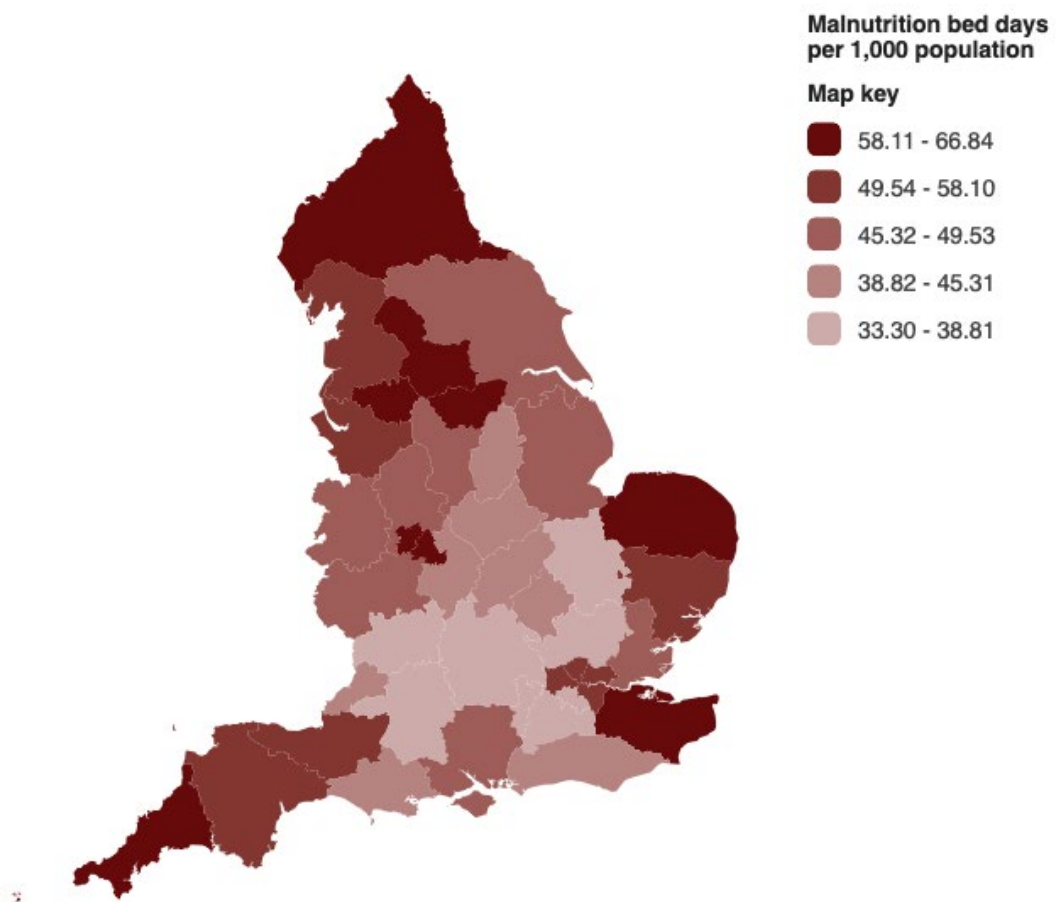
The average number of estimated admissions attributable to people with malnutrition by ICB was 11,502. This ranged from 3,898 in Shropshire, Telford and Wrekin ICB to 30,257 in North East and North Cumbria ICB representing a range of 7.8 across systems.

Eight ICBs recorded an estimated 3.5% of their hospital admissions relating to people with malnutrition. North East London ICB recorded the highest rate with 4.2%. Cornwall and Isles of Scilly ICB recorded the second highest (3.8%) and Norfolk and Waveney ICB the third highest (3.7%). Kent and Medway ICB, West Yorkshire ICB, Black Country and West Birmingham ICB, North Central London ICB and Birmingham and Solihull ICB all recorded rates above 3.5%.

12 systems recorded rates of below 2.4% of their hospital admissions relating to people with malnutrition. Hertfordshire and West Essex ICB recorded the lowest rate of 2.1%. Three ICBs from the South West (Bath, North East Somerset, Swindon and Wiltshire ICB, Gloucestershire ICB and Dorset ICB), three from the Midlands (Nottingham and Nottinghamshire ICB, Coventry and Warwickshire ICB, Northamptonshire ICB), three from East of England (Bedfordshire, Luton and Milton Keynes ICB, Cambridgeshire and Peterborough ICB and Hertfordshire and West Essex ICB) and two from the South East of England (Surrey ICB, Buckinghamshire, Oxfordshire and Berkshire West ICB) and one from London (South West London ICB) all recorded rates at below 2.4%.

Guest et al also calculated that the overall number of bed days for patients with malnutrition was higher than those who were non malnourished (6.24 bed days compared to 3.26 bed days).<sup>40</sup> Using these projections along with the estimated number of malnutrition related admissions leads to a total 2.9 million bed days a year for people with malnutrition at a projected cost of £1.16 billion.<sup>41</sup> On average there are 69,000 bed days related to malnutrition hospital admissions across all ICBs.

Figure 12: Malnutrition bed days per 1,000 population by ICB



When weighting the additional bed days by population, seven ICBs recorded over 60 additional bed days per 1,000 population reflecting higher estimated rates of malnutrition in the population. These included: Cornwall and the Isles of Scilly ICB, Norfolk and Waveney ICB, Black Country ICB, Birmingham and Solihull ICB, South Yorkshire ICB, North East and North Cumbria ICB and Kent and Medway ICB.

Eight systems recorded under 40 additional bed days per 1,000 population. Three in the South (Surrey ICB, Buckinghamshire, Oxfordshire and Berkshire West ICB

40 <https://pubmed.ncbi.nlm.nih.gov/21406315/>

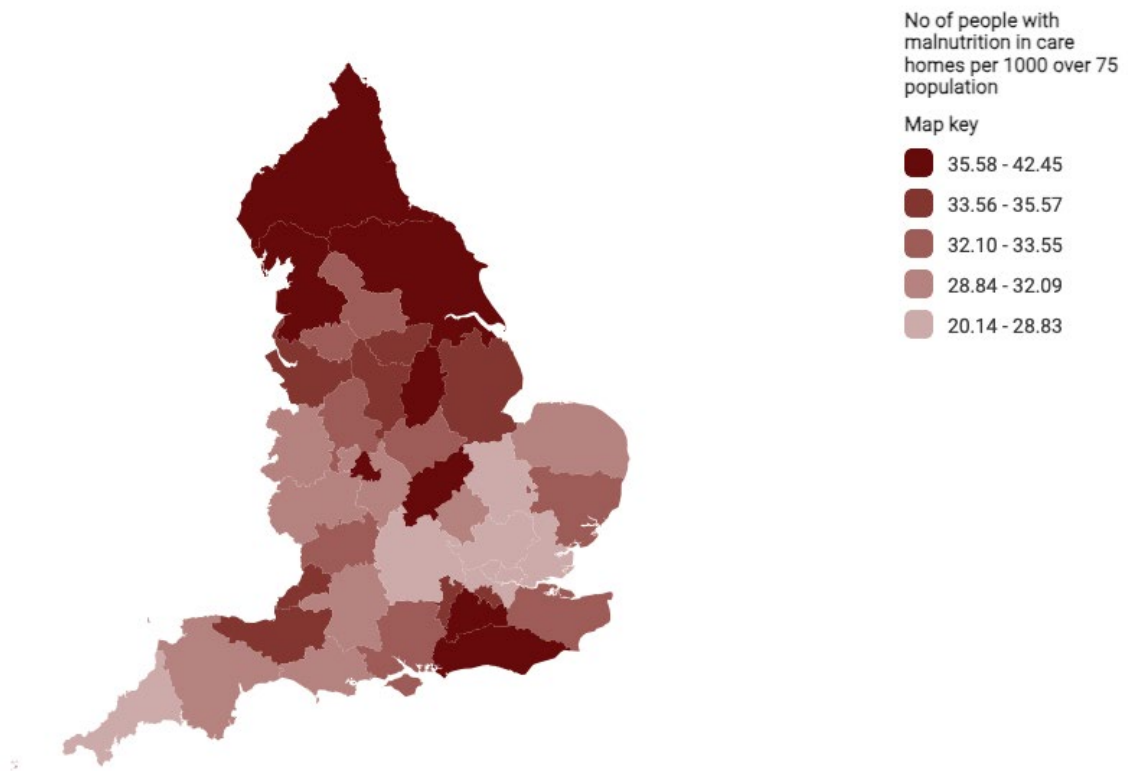
41 This assumes a bed day cost of £400 as per Department of Health analysis quoted in: <https://www.bbc.co.uk/news/uk-england-norfolk-38731937>

and Frimley ICB), two systems in the South West (Gloucestershire ICB and Bath and North East Somerset, Swindon and Wiltshire ICB), two in the East of England (Hertfordshire and West Essex ICB, Cambridgeshire and Peterborough ICB) and one in London (South West London ICB).

### Residential care prevalence

Nutritional screening surveys by BAPEN have estimated that 35% of people in care homes are malnourished.<sup>42</sup> This equates to 160,634 people nationally. When applying this at ICB level, the numbers with malnutrition over 75 in care homes ranges from 1,658 in Shropshire, Telford and Wrekin ICB to 10,018 in North East and North Cumbria ICB.<sup>43</sup>

Figure 13: Number of people with malnutrition in care homes per 1000 people over 75 in each ICB



When the data is weighted by overall population, 12 ICBs record a rate of over 35 people in care homes who are malnourished per 1000 people over 75 in their area. The highest rates are in Surrey (42.4) and Sussex (38.3) which have relatively higher proportions of their over 75 population in care homes (12 and 11% respectively against a clinical commissioning group national average of 9.7%). Frimley ICB is the third ICB from the South East with a rate of over 35.

42 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

43 <https://fingertips.phe.org.uk/end-of-life#page/3/gid/1938133060/ati/167/iid/92489/age/162/sex/4/cat/-1/ctp/-1/yr/1/cid/4/tbm/1/page-options/car-do-0>

There are also three ICBs from the Midlands (Nottingham and Nottinghamshire ICB, Northamptonshire and Birmingham and Solihull ICB), two from the North West (Cheshire and Merseyside ICB and Lancashire and South Cumbria ICB), three from the North East and Yorkshire (North East and North Cumbria ICB, Humber and North Yorkshire ICB and South Yorkshire ICB) and one from the South West (Bristol, North Somerset and South Gloucestershire ICB).

Nine systems record a rate of below 30 people who are malnourished per 1000 population over 75. This includes four from London (North West, East, South East, North London), three from the East of England (Mid and South Essex ICB, Hertfordshire and West Essex ICB and Cambridgeshire and Peterborough ICB), one from the South East (Buckinghamshire, Oxfordshire and Berkshire West ICB) and one from the South West (Cornwall and the Isles of Scilly ICB).

Applying the revised BAPEN cost per patient for malnutrition to the estimated numbers with malnutrition in residential care results in a total estimated cost of malnutrition in residential care of £1.25 billion.

### Summary

- An extra 4.73 million additional GP appointments each month can be attributed to malnutrition, this represents 17.7% of all appointments. Annually this equates to 56.8 million GP appointments at a cost of £1.7 billion a year
- Ten ICBs recorded an additional 20% of GP appointments due to patients with malnutrition. Black Country ICB has the highest rate at 27.3%. Three London systems (South East, North East and North Central) are in the top 10, along with two from the North West (Greater Manchester ICB and Lancashire and South Cumbria ICB)
- Nine ICBs record a rate of below 14% of additional GP appointments being attributable to malnutrition. Cambridgeshire and Peterborough has the lowest rate of 11.7%. Of the nine systems there are none from the North West and North East and Yorkshire
- The number of malnutrition related hospital admissions has trebled since 2009–10
- Malnutrition remains an under-reported cause of admission to hospital, with just over 10,000 admissions recorded a year. However in reality there are an estimated 464,000 people with malnutrition admitted to hospital each year, resulting in 2.9 million bed days, with an estimated cost of £1.16 billion

- Eight ICBs recorded an estimated 3.5% of their hospital admissions relating to people with malnutrition. North East London ICB recorded the highest rate with 4.2%. Cornwall and the Isles of Scilly ICB recorded the second highest (3.8%) and Norfolk and Waveney the third highest (3.7%). 12 systems recorded rates of below 2.4% of their hospital admissions relating to people with malnutrition. Hertfordshire and West Essex recorded the lowest rate of 2.1%
- Seven ICBs recorded over 60 additional bed days per 1000 population as a result of malnutrition. These included: Cornwall and the Isles of Scilly ICB, Norfolk and Waveney ICB, Black Country ICB, Birmingham and Solihull ICB, South Yorkshire ICB, North East and North Cumbria ICB and Kent and Medway ICB
- Eight systems recorded under 40 additional bed days per 1000 population. Three in the South (Surrey ICB, Buckinghamshire, Oxfordshire and Berkshire West ICB and Frimley ICB), two systems were in the South West (Gloucestershire ICB and Bath and North East Somerset, Swindon and Wiltshire ICB), two in the East of England (Hertfordshire and West Essex ICB, Cambridgeshire and Peterborough ICB) and one in London (South West London ICB)
- There are an estimated 160,634 people in care homes over 75 with malnutrition at a projected cost of £1.25 billion



**CHAPTER 4: DISEASE IMPACT  
CASE STUDY: CANCER AND  
MALNUTRITION**



Malnutrition is a common problem for cancer patients. A 2021 BAPEN survey of malnutrition and nutritional care found that malnutrition prevalence was highest in individuals with gastrointestinal conditions (48%), respiratory conditions (45%), cancer (45%) and neurological diseases (44%).<sup>44</sup> Malnutrition is most prevalent in patients with gastric, pancreatic, lung, prostate and colon cancer.<sup>45</sup>

According to Argiles 'cancer-associated malnutrition occurs as a consequence of an imbalance between the nutritional needs of the patient, the demands of the tumour and the availability of nutrients in the body. Cancer-associated malnutrition can also be associated with taste changes and food aversion.'<sup>46</sup> Cancer Research UK estimate about 40 to 80 out of every 100 people with cancer have malnutrition.<sup>47</sup> A study of French cancer centres found that approximately 1 in 3 patients were malnourished.<sup>48</sup> In some cancers, such as pancreatic cancer, the estimated rates of malnutrition can be 85%.<sup>49</sup> A global study in the Lancet found that severe malnutrition in cancer patients was associated with an increased risk of 30-day mortality across all country income groups.<sup>50</sup>

There are a total of 1.95 million cancer cases recorded across ICBs in England.<sup>51</sup> At an ICB level six systems record rates of cancer per 100,000 population of 4,000 or more. Four of these are in the South West (Dorset ICB, Somerset ICB, Cornwall and the Isles of Scilly ICB, Devon ICB) and two are in the Midlands (Herefordshire and Worcestershire ICB and Lincolnshire ICB). Five ICBs have cancer rates per 100,000 population of 2,500 or below. Four of these are in London. The other is Birmingham and Solihull ICB.

Researchers project that if current trends continue, new cancer cases in the UK will rise by one-third to 506,000 in 2040, taking the number of new cases every year to more than half a million for the first time.<sup>52</sup> As rates of cancer increase, malnutrition is set to also be a growing challenge for the health system.

Using the CRUK estimates of malnutrition prevalence amongst cancer patients and the number of cancer cases by ICB weighted for population, enables high level estimates to be made for the numbers of cancer patients with malnutrition by ICB and associated costs.<sup>53</sup>

44 <https://www.bapen.org.uk/pdfs/reports/mag/survey-of-malnutrition-and-nutritional-care-in-adults-2021.pdf>

45 <https://www.sciencedirect.com/science/article/pii/S1462388905001080>

46 Cancer-associated malnutrition can also be associated with taste changes and food aversion

47 <https://www.cancerresearchuk.org/about-cancer/coping/physically/diet-problems/about/why-diet-is-important>

48 [https://www.researchgate.net/publication/41452522\\_Prevalence\\_risk\\_factors\\_and\\_clinical\\_implications\\_of\\_malnutrition\\_in\\_French\\_Comprehensive\\_Cancer\\_Centre](https://www.researchgate.net/publication/41452522_Prevalence_risk_factors_and_clinical_implications_of_malnutrition_in_French_Comprehensive_Cancer_Centre)

49 <https://www.sciencedirect.com/science/article/pii/S1462388905001080>

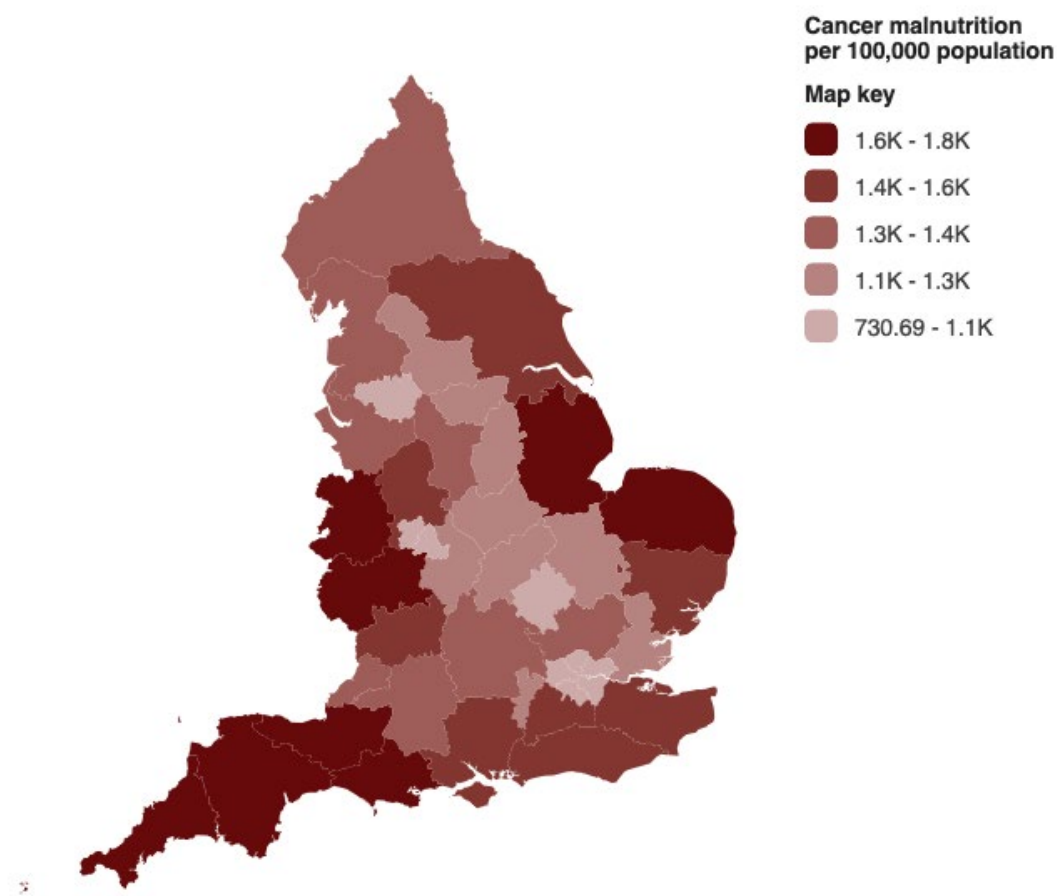
50 [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(22\)00550-2/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(22)00550-2/fulltext)

51 <https://fingertips.phe.org.uk/profile/cancerservices/data#page/9/gid/1938133365/pat/15/par/E92000001/ati/221/are/nE54000028/iid/91337/age/1/sex/4/cat/-1/ctp/-1/yr/1/cid/4/tbm/0/page-options/tre-ao-1>

52 [https://www.cancerresearchuk.org/sites/default/files/cancer\\_in\\_the\\_uk\\_overview\\_2023.pdf](https://www.cancerresearchuk.org/sites/default/files/cancer_in_the_uk_overview_2023.pdf)

53 <https://www.cancerresearchuk.org/about-cancer/coping/physically/diet-problems/about/why-diet-is-important>; the 40% figure at the bottom of the estimated range for cancer and malnutrition was applied here. The above calculations may well therefore be conservative estimates

Figure 14: Estimated cancer patients with malnutrition per 100,000 population



There are an estimated 778,638 people with cancer who are malnourished in England.

Ten ICBs have estimated rates of cancer patients with malnutrition of over 1,550 per 100,000 population. These include four from the South West (Dorset ICB, Somerset ICB, Cornwall and Isles of Scilly ICB and Devon ICB), three from the Midlands (Herefordshire and Worcestershire ICB, Lincolnshire ICB and Shropshire, Telford and Wrekin ICB), two from the East of England (Norfolk and Waveney ICB and Suffolk and North East Essex ICB) and one from the South East (Sussex ICB). There are no ICBs recorded from the North West, North East and Yorkshire or London regions in this list.

Six ICBs record rates of cancer patients with malnutrition of less than 1,050 per 1000 population. All five London ICBs are in this list along with Birmingham and Solihull ICB.

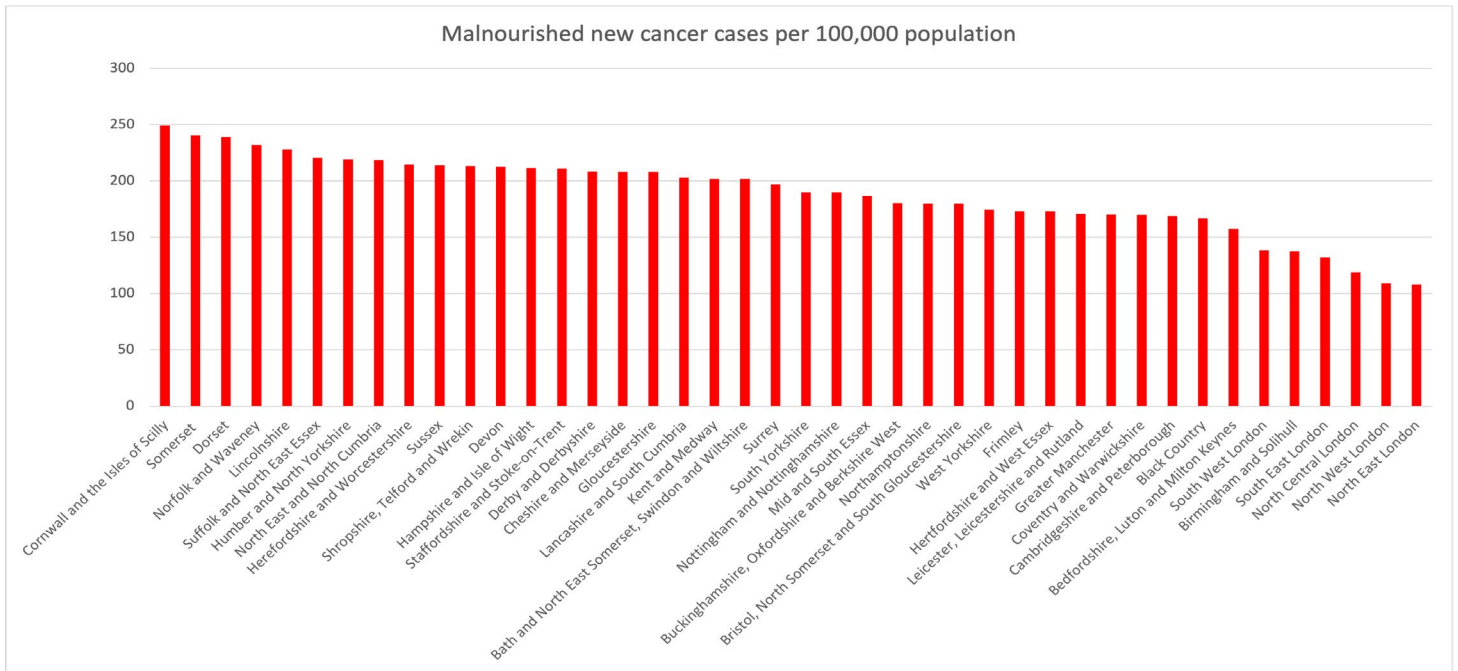
Using the updated BAPEN malnutrition patient cost analysis the estimated overall cost to the healthcare system for cancer patients with malnutrition is £6 billion.

*New cancer cases*

In 2020/21 there were over 274,000 new cases of cancer recorded across ICBs in England. North East and North Cumbria ICB recorded the highest number (17,062), with Shropshire, Telford and Wrekin ICB the lowest (2,700). Across ICBs the average number of new cancer cases was 6,524.

When applying the CRUK estimate, 109,601 newly diagnosed cancer patients are malnourished.<sup>54</sup> When weighted by population, six ICBs record over 220 new cancer cases with people who are malnourished per 100,000. Six ICBs recorded rates of fewer than 150 new cancer cases with people who are malnourished per 100,000. Using the revised BAPEN malnutrition patient cost analysis the cost of new cancer patients with malnutrition is estimated at £852 million per year.

*Figure 15: Estimated newly diagnosed cancer patients who are malnourished per 100,000 population by ICB*



<sup>54</sup> Again this uses the 40% figure which is at the bottom of the estimated range for cancer and malnutrition. The above calculations may well therefore be conservative estimates

## Summary

- Malnutrition is a common problem for cancer patients with CRUK estimating that between 40–80% of cancer patients are malnourished depending on the type of cancer
- There are an estimated 778,638 people with cancer in England with malnutrition at an estimated total cost of £6 billion
- As the population ages, the number of cancer cases will increase, with malnutrition and cancer set to be a growing problem for the healthcare system. There are an estimated 109,601 new people diagnosed with cancer with malnutrition each year at a cost of £852 million
- The highest relative rates of malnutrition in cancer are recorded in the South West of England. The lowest relative rates are recorded in London



**CHAPTER 5: EXISTING POLICY  
AND LOOKING AHEAD TO 2035**

The latest BAPEN survey of malnutrition and nutritional care undertaken as part of Malnutrition Awareness Week in 2021 found 39% of patients in hospital and community settings were at risk of malnutrition and that 20% of patients were underweight and 21% had unplanned weight loss.<sup>55</sup> Despite the numbers involved and the associated costs tackling malnutrition remains an under-prioritised policy issue particularly amongst national Government and NHS policymakers.

The following table sets out major Government and NHS policy frameworks and maps the number of references and actions committed to malnutrition. Documents are labelled:

- Green if they have a reference specific action or commitment related to malnutrition
- Yellow if there is a reference but no clear action
- Red if there is no reference or commitment

*Figure 16: References and commitments to malnutrition in national Government and NHS policy document and frameworks.*

Organisation	Policy document	Date of publication	Malnutrition references
HM Government	Integration white paper	Feb-22	Case study reference
	Mandate to the NHS	Jun-23	None
	Social care green paper	Dec-21	None
	Build back better health and care	Sep-21	None
NHS	Quality and Outcomes Framework	Mar-23	Cancer care and mental health reviews both include references to nutrition
	Commissioning for Quality and Innovation (CQUIN)	Jan-23	Achieving 90% of community hospital inpatients having a nutritional screening that meets NICE Quality Standard QS24

<sup>55</sup> <https://www.bapen.org.uk/pdfs/reports/mag/survey-of-malnutrition-and-nutritional-care-in-adults-2021.pdf>

	Long Term Plan	Jan-19	Commits to a greater place for nutrition in professional education training
	Primary Care Recovery Plan	May-23	None
	Urgent and Emergency Care Plan	Jan-23	None
	Planning guidance	Dec-22	None
	Primary Care Network (PCN) Direct Enhanced Service	Sep-22	None
	ICB Oversight metrics	Jun-22	None
	Outcomes frameworks	Mar-22	None
	Elective Recovery Plan	Feb-22	None

Recent Government health policy government documents have not included direct action on malnutrition. The only direct reference is a case study included in the integration white paper of a patient with diabetes and mental health issues who was better supported though integrated care to manage his nutrition.<sup>56</sup>

There has been some limited action within the NHS. The NHS Long Term Plan did commit to improving nutritional training for healthcare professionals.<sup>57</sup> Within the Quality and Outcomes Framework nutritional assessments are expected to be included in broader cancer and mental health patient planning reviews, but this is limited to specific disease areas.<sup>58</sup> A specific secondary care CQUIN is in place for assessing the nutrition of 90% of community hospital inpatients to support effective treatment and recovery.<sup>59</sup>

<sup>56</sup> <https://www.gov.uk/government/publications/health-and-social-care-integration-joining-up-care-for-people-places-and-populations/health-and-social-care-integration-joining-up-care-for-people-places-and-populations> (case study is Mandeep)

<sup>57</sup> <https://www.longtermplan.nhs.uk/>

<sup>58</sup> <https://www.england.nhs.uk/wp-content/uploads/2023/03/PRN00289-quality-and-outcomes-framework-guidance-for-2023-24.pdf>

<sup>59</sup> <https://www.england.nhs.uk/wp-content/uploads/2022/12/CQUIN-scheme-for-2023-24-indicator-specifications-version-1.1.pdf>

A number of clinical tools and guidelines have been developed to improve nutrition and tackle malnutrition. These include:

- NICE Clinical Guideline 32 'Nutrition Support in Adults' was first published in February 2006 and was last updated in 2017. The guidelines covers identifying and caring for adults who are malnourished or at risk of malnutrition in hospital or in their own home or a care home<sup>60</sup>
- NICE Quality Standard 24 published in November 2012 sets out markers for high quality nutritional care<sup>61</sup>
- Managing Adult Malnutrition in the Community Pathway is an evidence based tool to support the identification and support for people with malnutrition across all care settings<sup>62</sup>

The implementation of NICE guidance and/or malnutrition pathways has shown a series of benefits including:

- Improved rates of screening
- Weight gain
- Reductions in health care use and associated costs (e.g. fewer GP visits, hospital admissions, antibiotic prescriptions, shorter hospital stays)
- Reduced health care costs<sup>63</sup>

Implementing guidelines for nutrition is more cost effective than for a number of other conditions including hypertension, chronic heart failure and alcohol dependence.<sup>64</sup>

However the uptake of NICE guidance is variable, many of the guidelines themselves are now several years old and with little prioritisation and oversight in the system efforts to tackle malnutrition are unlikely to be effective.

### *Looking ahead to 2035*

This is particularly important as the challenge of malnutrition is set to increase significantly over the next decade. As the number of people over 85 is set to rise by 1 million by 2035, so rates of malnutrition will also increase.<sup>65</sup>

Projections by 2035 indicate that there will be an additional 516,000 people with malnutrition in England – an increase of 18.3%. Using the revised inflation adjusted BAPEN cost figures this will result in an estimated additional cost of £4 billion and an overall healthcare system cost of £26.6 billion from malnutrition.

By projecting forward it is possible to assess the likely increases in malnutrition by 2035 for each ICB.

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60 <https://www.nice.org.uk/guidance/cg32>

61 <https://www.nice.org.uk/guidance/qs24>

62 <https://www.malnutritionpathway.co.uk/>

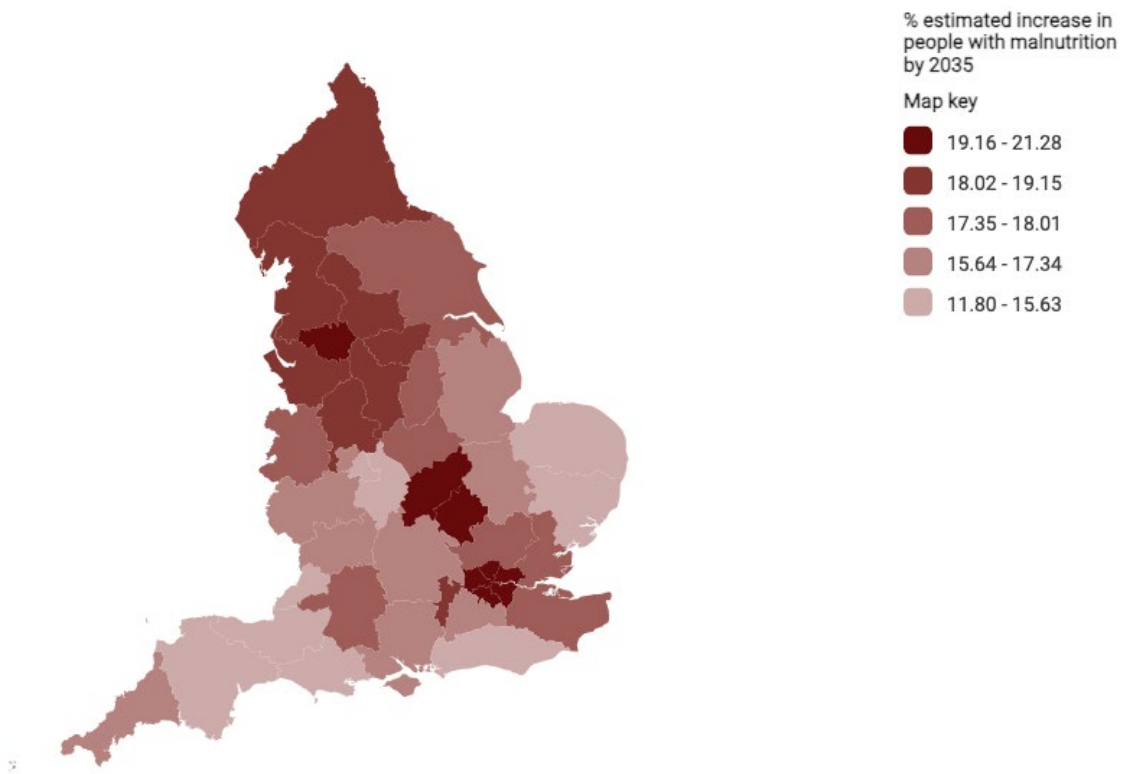
63 <https://www.bapen.org.uk/pdfs/reports/mag/managing-malnutrition.pdf>

64 <https://www.bapen.org.uk/pdfs/reports/mag/managing-malnutrition.pdf>

65 This figure uses today's revised per patient cost and does not factor in any future inflation or price changes



Figure 17: Estimated % increase in rates of malnutrition by 2035 by ICB



Nine ICBs will see their estimated malnutrition rates increase by 19% or more. Northamptonshire ICB will have an estimated 21.2% more people with malnutrition than today. All five London ICBs will see rates increase by 19% or more along with Bedfordshire, Luton and Milton Keynes ICB, Greater Manchester ICB and North East and North Cumbria ICB.

Eight ICBs are projected to see their rates of malnutrition increase by 15% or less. Dorset ICB is due to have the slowest growth of 12%, with three other ICBs in the South West also recording rates of 15% or below (Bristol, North Somerset and South Gloucestershire ICB, Somerset ICB and Devon ICB). This is likely a reflection of existing high proportions of older populations in these ICBs.<sup>66</sup>

<sup>66</sup> These projections are based on a static model and do not take into account any population movements between ICBs, which will see shifts in population demographics. For example people leaving more urban ICBs for more suburban/rural areas for their retirement

## Summary

- Malnutrition has not been a priority area for national and NHS policymakers in recent years
- There is a CQUIN for screening patients in community hospitals for malnutrition, payments for nutrition as part of primary care plans for cancer and mental health and efforts to improve health professional training but clear, direct and co-ordinated, systematic action is lacking
- Guidelines and tools exist to tackle malnutrition by identifying patients earlier but are implemented variably across the health system
- Malnutrition is set to be a growing problem, with the number of people set to rise by over 516,000 by 2035 at an additional cost of £4 billion
- Northamptonshire ICB will have an estimated 21.2% more people by 2035 with malnutrition than today. Dorset ICB is due to have the slowest growth of 12%



**CHAPTER 6: OPPORTUNITIES  
AND RECOMMENDATIONS FOR  
TACKLING MALNUTRITION**

There are a series of policy opportunities at the national, system and patient level for tackling malnutrition in the healthcare system.

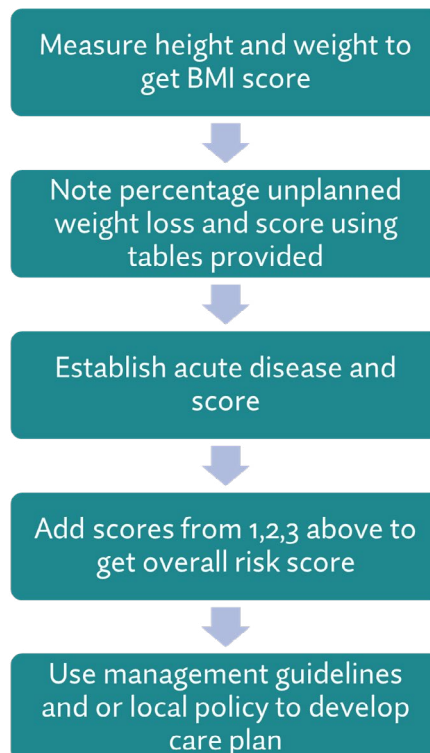
### *Opportunity 1: Malnutrition and the prevention agenda*

Delivering on health prevention is an emerging priority for the healthcare system. The recent Hewitt Review of ICSs set out the need for the NHS to move ‘from focusing on illness to promoting health.’<sup>67</sup> The Health and Social Care Secretary Steve Barclay has spoken of the opportunities new technology presents to deliver a step-change in prevention.<sup>68</sup> Shadow Health and Social Care Secretary Wes Streeting has committed Labour to a ten year health transformation plan underpinned by prevention.<sup>69</sup>

Better screening for malnutrition can play an important, low resource and highly cost effective role in this agenda.

‘MUST’ is a five-step screening tool to identify adults, who are malnourished, at risk of malnutrition, or obese. A summary of the screening tool is set out below<sup>70</sup>:

*Figure 18: Summary of MUST five step screening tool*



67 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1148568/the-hewitt-review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1148568/the-hewitt-review.pdf)

68 <https://capx.co/the-conservatives-will-give-people-freedom-and-control-over-their-own-health/>

69 <https://labour.org.uk/missions/building-an-nhs-fit-for-the-future/>

70 [https://www.bapen.org.uk/pdfs/must/must\\_full.pdf](https://www.bapen.org.uk/pdfs/must/must_full.pdf)

Patients are given a risk score of 0 (low risk), 1 (medium risk) and 2 (high risk) after assessment with the tool.

For patients at low risk, repeating the screening at regular intervals (e.g weekly in hospital, monthly in care homes and annually in the community for at risk groups) is recommended. Medium risk patients are more closely monitored. High risk patients should be referred into a treatment pathway with goals set as part of care planning.<sup>71</sup> Once patients are screened, appropriate treatment can be administered this could include dietary advice or help with eating (such as parenteral nutrition and enteral tube feeding) or Oral Nutritional Supplements (ONS).<sup>727374</sup>

Studies have demonstrated the cost effectiveness of implementing the MUST screening tool and associated treatment plans.

Implementing MUST screening and appropriate management of malnutrition amongst older people in the community in Gloucestershire with a range of primary diagnoses led to significant reductions in hospital admissions, length of hospital stay, GP visits and antibiotic prescriptions.<sup>75</sup>

### Case study: tackling malnutrition in Gloucestershire

163 adults over 65 from 5 GP surgeries in Gloucestershire were managed for malnutrition risk according to the Malnutrition Pathway. Malnutrition risk was identified through screening using the MUST tool.

In those in both the medium and high risk of malnutrition groups there was a 49% reduction in hospital admissions, 48% reduction in length of hospital stay, 21% fewer GP appointments, 30% fewer antibiotic prescriptions and 13% less healthcare professional contacts.

In the high risk group, there was a 62% reduction in hospital admissions, 67% reduction in length of hospital stay, 25% reduction in number of GP appointments, 39% reduction in number of antibiotic prescriptions and 21% reduction in total number of healthcare professional visits.

Six months after implementation of the pathway the proportion of patients admitted to hospital was significantly lower (26.5% to 12.4%), as was the proportion prescribed antibiotics (45.1% to 27.4%). There was also a 15% reduction in the proportion of patients visiting their GP.<sup>76</sup>

The BAPEN 2015 study found that treating 85% of subjects with medium and high risk of malnutrition according to MUST against just those with a high risk of malnutrition resulted in savings of between £325,000 to £432,000 per 100,000 of the general population.<sup>77</sup>

71 [https://www.bapen.org.uk/pdfs/must/must\\_full.pdf](https://www.bapen.org.uk/pdfs/must/must_full.pdf)

72 <https://www.bapen.org.uk/nutrition-support/parenteral-nutrition>

73 <https://www.bapen.org.uk/nutrition-support/enteral-nutrition>

74 <https://www.bapen.org.uk/nutrition-support/nutrition-by-mouth/oral-nutritional-supplements>

75 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7064449/>

76 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7064449/>

77 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

### Case study: Wirral Teaching Hospital NHS Trust

In 2019 Wirral University Teaching Hospital NHS Trust implemented a new three year quality strategy. One of the identified priority outcome areas was nutrition and hydration. Two targets were set for completing a MUST within 24 hours of admission and at 7 days following admission. The Trust included the metric as nutrition 'is a fundamental element of patient care and impacts on patients' recovery, length of stay, skin integrity and rehabilitation.'<sup>78</sup> The 2020-21 update found that the Trust was meeting both its 24 hour and 7 day targets.

Unfortunately such prioritisation seen at Wirral University Teaching Hospital NHS Foundation Trust is not consistent across the NHS and these specific measures likely explain Wirral recording nearly six times as many primary and secondary care diagnoses of malnutrition compared with the next highest NHS trust as set out earlier in the report. In 2021, NHS England's 'Get it right first time' (GIRFT) programme review of gastroenterology services found that 16.7% of trusts had no nutrition support team at all, and 25% of trusts had no dedicated nutrition specialist nurses. This is despite the NICE guideline recommendation that all acute hospital trusts should employ at least one nutrition specialist nurse.<sup>79</sup>

The NHS digital health check provides another opportunity to increase screening for people at risk of malnutrition within the community.<sup>80</sup> However as with any screening programme the implications of any expanded roll-out will need to be carefully considered. A review of studies by Harris et al found a set of physiological, practical and psychosocial barriers to effectively rolling out malnutrition screening for older people in the community. In particular the importance of how the intervention was presented to patients was highlighted as being critical for effective engagement.<sup>81</sup>

#### *Opportunity 2: National leadership*

In January 2023 the Government announced that it was developing a Major Conditions Strategy.<sup>82</sup> The strategy covers six conditions:

- Cancers
- Cardiovascular diseases, including stroke and diabetes
- Chronic respiratory diseases
- Dementia
- Mental ill health
- Musculoskeletal disorders

78 <https://www.wuth.nhs.uk/media/18006/annual-quality-account-2020-2021-final.pdf>

79 <https://bsna.co.uk/blog/2022/nutrition-and-hydration-week-14-20-march-why-malnutrition-should-be-a-priority-for-integrated-care-systems>

80 <https://www.gov.uk/government/news/patients-to-carry-out-health-checks-in-comfort-of-own-home-to-ease-pressure-on-frontline-services>

81 <https://bmcpriamcare.biomedcentral.com/articles/10.1186/s12875-019-0983-y>

82 <https://questions-statements.parliament.uk/written-statements/detail/2023-01-24/hcws514>

The strategy replaced plans for a health inequalities white paper and separate national plans for cancer, mental health and dementia. The aim is to ‘harness the potential of whole person care, addressing the fact that our health and care system has been built in silos, often focused around specific diseases or organs in the body.’ In addition there is an ambition to use the strategy for shifting the care model towards preserving good health and delivering prevention.<sup>83</sup>

Malnutrition is an issue that cuts across patients in all six conditions and the development of the strategy presents new opportunities to tackle the issue. This could include:

- **Ministerial accountability** – Assigning clearer Ministerial accountability for malnutrition (currently it is not an identified priority in any Ministerial portfolio) and setting an ambition for reducing rates of malnutrition year on year over the next five years<sup>84</sup>
- **NHS oversight and delivery** – Making malnutrition an NHS prevention priority by including it within the ‘preventing ill health and reducing health inequalities’ ICB oversight framework.<sup>85</sup> NHS England should also update the commissioning nutrition and hydration guidance published in 2015 to relate to ICBs
- **NICE guidelines** – Committing with NICE to update quality standards and guidelines on malnutrition to ensure that they reflect the latest clinical practice. NICE clinical guideline 32 *Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition* was last updated in April 2017.<sup>86</sup> As part of this NICE should also commission and publish an impact report assessing the uptake and use of the existing clinical guidelines and identify opportunities for improvements<sup>87</sup>
- **Workforce** – Delivering on commitments within the NHS workforce plan to expand the number of dietitians and ensure that the policy focus on prevention is matched by efforts to recruit the right mix of professionals to deliver more community and preventative care<sup>88</sup>

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83 <https://questions-statements.parliament.uk/written-statements/detail/2023-01-24/hcws514>

84 <https://www.gov.uk/government/organisations/department-of-health-and-social-care>

85 [https://www.england.nhs.uk/wp-content/uploads/2022/05/B1378\\_ji\\_nhs-oversight-metrics-for-2022-23\\_June-2022.pdf](https://www.england.nhs.uk/wp-content/uploads/2022/05/B1378_ji_nhs-oversight-metrics-for-2022-23_June-2022.pdf)

86 <https://www.nice.org.uk/guidance/cg32>

87 <https://www.nice.org.uk/about/what-we-do/into-practice/measuring-the-uptake-of-nice-guidance/impact-of-guidance>

88 <https://www.england.nhs.uk/wp-content/uploads/2023/06/nhs-long-term-workforce-plan-v1.2.pdf>

### *Opportunity 3: System working – using integrated care to tackle malnutrition*

The development of ICBs creates opportunities to join-up care more closely around the needs of patients. With an ageing population and more complex care, the opportunity exists for ICBs to take new action to identify people with or at risk of malnutrition and develop pathways of care that deliver improved outcomes for patients.

Actions include the following – the below will be particularly important for ICBs with higher estimated rates of malnutrition in their populations:

- **Building data and intelligence** – Using new data and population health management approaches to better capture people with or at risk of malnutrition. ICBs should work with local geographic places to ensure such assessments and data are captured as part of areas building Joint Strategic Needs Assessments and Joint Health and Wellbeing Strategies
- **Working in partnership** – Working through ICPs to hold a workshop with relevant stakeholders across public health, primary care, social care and the voluntary sector on how to effectively work together to tackle malnutrition. The new CQC oversight framework of ICBs should include an assessment of system action in working together to identify and support patients with malnutrition
- **Sharing good practice** – Convening a group of ICBs, potentially through a representative group such as the NHS Confederation, to share good practice and ways of effective working to tackle malnutrition. Opportunities should be explored for unlocking interventions at important moments in patient pathways, where an assessment for malnutrition would be beneficial. Examples could include at the time of hospital discharge, regular medication reviews and attendance at frailty clinics
- **Leading local action** – At a local level PCNs, local authorities and community healthcare providers are well placed to support people with or at risk of malnutrition in the community – the care setting with the highest prevalence rates. Given the higher prevalence rates of malnutrition amongst older people, local government commissioners should also introduce screening for malnutrition for those entering care homes. Such screening will ensure that those entering care homes get access to the nutritional care and treatment they need.

### Case study

Hertfordshire County Council provides individual nutrition and wellbeing support for older and vulnerable people across Hertfordshire. The aim of the service is to work with people to keep them living independently. It is available to all meals on wheels clients and includes an assessment for malnutrition using the MUST tool, alongside:

- Nutrition and wellbeing checks, either in a person's home or over the phone for a period of up to 6 months



- Nutrition and wellbeing education
- Resources and information
- Referrals to additional services to provide people with the support they need<sup>89</sup>

A pilot programme used screening to identify 30% of new clients entering the service requiring additional nutritional or wellbeing-related support, including nutrition boosts.<sup>90</sup>

### Case study

Dorset County Council has developed a nutritional care strategy including Dorset Council, Bournemouth, Christchurch and Poole Council, Dorset NHS and Public Health Dorset. As part of the strategy the group has created a Pan Dorset Malnutrition Programme focused on people living at risk living at home with the aim of reducing malnutrition in older people and improving their health and quality of life as well as reducing unnecessary public expenditure. The model is based on a pilot in Purbeck which found better screening reduced avoidable healthcare costs by £50,000.<sup>91</sup>

### Case study

Birmingham Community Healthcare NHS Trust runs a community nutrition service which malnutrition as well as obesity, diabetes and allergies. The pan wide Birmingham service is made up of a mix of professions including dietitians, nutritionists and nurses. Services are provided across the city in a range of locations including GP surgeries, health centres, residential care facilities, patients' own homes, community hospitals and early years settings.<sup>92</sup>

### *Opportunity 4: Patient, carer and public engagement*

With increasing numbers of people with or at risk of malnutrition public engagement will be particularly important to support efforts at reducing impact. This engagement will need to take a number of forms:

- **Building a new relationship with patients** – Providing patients with more regular opportunities to update health professionals on their weight and appetite such as through the digital health check and through conversations in their appointments in primary and secondary care. The pandemic has presented additional challenges in accurately tracking the weight of patients with consultations taking place remotely. To tackle this, will require patients

89 <https://hertsindependentliving.org/nutrition-and-wellbeing/>

90 <https://www.gov.uk/government/publications/helping-older-people-maintain-a-healthy-diet-a-review-of-what-works/helping-older-people-maintain-a-healthy-diet-a-review-of-what-works>

91 <https://www.dorsetcouncil.gov.uk/documents/35024/286491/Dorset+Nutrition+Poster+Patient+Safety+Congress+FINAL.pdf/194b6e18-51a7-5d27-64ec-6d3a092f526f>

92 <https://www.bhamcommunity.nhs.uk/patients-public/adults/nutrition/>

to be able to record their weight easily. Investment in increasing access to weighing scales should be considered to deliver this.<sup>93</sup> ICBs with higher rates of malnutrition should also ensure patient information on the signs and risk of malnutrition is up to date and easily available to patients across care settings

- **New incentives for action** – A new indicator should be included as part of the refreshed Quality and Outcomes Framework (QOF) aimed at improving the screening of people with or at risk of malnutrition in primary care. This could be targeted at those at higher risk, such as those affected by major conditions as well as older patients
- **Increasing and enhancing medical training on nutrition** – Putting nutritional training in all medical school and nursing undergraduate and postgraduate training programmes as recognised by the GMC. Nutritional care training should be included within all relevant health professional Continuing Professional Development Programmes<sup>94</sup>
- **Supporting carers** – According to Carers UK a large proportion of carers worry about the diet and nutrition of the person being cared for. Health professionals should activate care and carers' assessments under the Care Act 2014 (England) to help with information, advice and support. Such assessments include the statutory eligibility criterion: "ability to maintain nutrition", which provides a basis on which to ensure that there is appropriate tailored support<sup>95</sup>

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93 The Purbeck Malnutrition Task Force increased access to weighing scales as part of a pilot programme to screen and identify people with malnutrition. The programme delivered a £50,000 return in the first ten months: <https://www.gov.uk/government/publications/helping-older-people-maintain-a-healthy-diet-a-review-of-what-works/helping-older-people-maintain-a-healthy-diet-a-review-of-what-works>

94 Examples of nutritional training programmes include such as those from NNEdPro: <https://vle.nnedpro.org.uk/course/nephelp>

95 <https://www.carersuk.org/media/4m4nt1dk/carers-uk-nutricia-report-2023.pdf>

## CONCLUSION

The challenge of malnutrition is hiding in plain sight. With nearly 3 million people in England affected and a multi-billion pound cost, national and health system leadership currently does not match-up to the scale of the problem.

And this is a problem that is set to grow. As the population ages and as major conditions such as cancer, COPD and dementia increase, the numbers of people with or at risk of malnutrition will rise putting greater pressures on the NHS and social care system. As this report demonstrates malnutrition increases healthcare use through greater primary care appointments, hospital admissions and referrals to care homes.

Fortunately, a lot of work has been done to identify what is needed and opportunities are opening up for new action at the national, system and patient level. A Major Conditions Strategy focused on prevention and joining-up care across different conditions presents a chance for new action. The development of ICBs creates a platform for health organisations to collaborate and tackle fragmented and disjointed care, particularly for older people with multiple conditions who are more likely to have and be at greater risk of malnutrition. A new digital health check should also be used to identify and screen people more quickly and effectively.

However for this to happen, malnutrition will require a new sense of prioritisation within healthcare policy than it has held in the past. Malnutrition is currently not recognised in Ministerial portfolios or NHS England oversight frameworks for new ICBs. With an increasing political focus on the importance of prevention, malnutrition now needs to be seen as part of 'core business' for health system prevention and prioritised appropriately.

## ANNEX A: NOTE ON METHODOLOGY

To calculate the numbers of people with malnutrition across each ICB in England, Future Health used the BAPEN estimates of 5% of the population with malnutrition.<sup>96</sup>

Weightings of malnutrition prevalence were then applied in three categories (under 65, 65-83, over 84). The over and under 65 weighting was based on the estimated 1.3 million of 3 million people over 65 being estimated to have malnutrition in the UK, and then applied to England.<sup>97</sup> The over 84 category was included to account for the increased residential care use in this segment of the population, where an estimated 35% of people are malnourished (an estimated 15% of this age group are in residential care and the average age of admission is 84<sup>98,99</sup>).

These figures were then applied to each CCG mid 2020 population in England to get age-adjusted malnutrition rates.<sup>100</sup>

These CCG age adjusted rates were then adjusted for deprivation. Each CCG was assigned a quartile of deprivation based on the Government's Index of Multiple Deprivation and this quartile was assigned a multiplier as set out in Stratton and Elia's paper which found that increasing rates of deprivation were linked to malnutrition.<sup>101,102</sup>

The deprivation multiplier was then applied to the age adjusted rates for each CCG. Relevant CCGs were then amalgamated to estimate overall numbers with malnutrition at ICB level.

To estimate up to date costs, Future Health updated the cost per malnourished and non malnourished individual in the BAPEN study and adjusted for inflation based on the ONS healthcare inflation market data.<sup>103,104</sup> This resulted in a new cost differential between a malnourished and non malnourished patient of £7,775.

For healthcare system impact, Future Health conducted three main analyses.

96 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

97 <https://www.bapen.org.uk/malnutrition-undernutrition/introduction-to-malnutrition?showall=&start=4>

98 <https://trustedcarepro.co.uk/insights/average-age-of-person-in-need#:~:text=How%20old%20are%20people%20who,of%20a%20residential%20care%20setting%3F&text=We%20analysed%20over%2050%2C00-0%20care,down%20from%2086%20in%202020;> notes average age of residential care admission of 84

99 <https://www.mha.org.uk/get-involved/policy-influencing/facts-stats/>; notes 15% of over 85s. This was applied to over 84s for the analysis

100 <https://www.ons.gov.uk/file?uri=%2Fpeoplepopulationandcommunity%2Fpopulationandmigration%2Fpopulationestimates%2Fdatasets%2Fclinicalcommissioninggroupmidyearpopulationestimates%2Fmid2020sape23dt6a/sape23dt6amid2020ccg2021estimatesunformatted.xlsx>

101 <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>

102 <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/362583B6E2BF2352BE0E59A728394F36/S0007114506003059a.pdf/deprivation-linked-to-malnutrition-risk-and-mortality-in-hospital.pdf>

103 <https://www.bapen.org.uk/pdfs/economic-report-full.pdf>

104 <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/icvk/mm23>

In primary care, Guest et al's analysis was used as a specific study on healthcare usage to compare primary care appointments for malnourished and non malnourished people over a six month period.<sup>105</sup> This was then weighted against the overall number of GP appointments by ICB over a six month period, as per the Guest study. NHS GP appointment data from December 2022 was used for this.<sup>106</sup> A cost per GP appointment of £30 was then assigned as per guidance from NHS England to estimate overall costs.<sup>107</sup>

In secondary care, Guest et al's analysis was also used to compare hospital admissions for malnourished and non malnourished people over a six month period.<sup>108</sup> The additional admissions for malnutrition were then weighted against the overall number of hospital admissions by ICB. NHS 2021-22 inpatient data was used for this, with CCG level activity relating to admissions for over 18s amalgamated into ICB level projections as the baseline.<sup>109</sup>

These additional malnutrition related admissions were then multiplied by the bed days associated with a patient with malnutrition as per the Guest et al paper, and then multiplied by an estimated NHS bed day cost to calculate the estimated overall cost.<sup>110</sup> For the ICB comparison analysis bed days related to malnutrition were then weighted against ICB populations built from the CCG 2020 population estimated data.<sup>111</sup>

It is worth noting that the projections for this element of the analysis are much lower than the overall inpatient/secondary care NHS cost within the BAPEN report. This is because this analysis focused on only on one element, additional admissions relating to malnutrition, rather than the overall costs associated with people with or at risk of malnutrition within hospital in-patient settings (as per the BAPEN analysis).

In social care, Future Health used BAPEN's estimate of 35% of people in care homes being malnourished and applied this to the care home population in each ICB as per Public Health England's data.<sup>112,113</sup> BAPEN's revised cost figure per person with malnutrition was then used to estimate the overall costs. As with the secondary care data, the cost here is lower than the overall social care cost figure

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105 <https://pubmed.ncbi.nlm.nih.gov/21406315/>

106 <https://digital.nhs.uk/data-and-information/publications/statistical/appointments-in-general-practice>

107 This assumes a cost of £30 per primary care appointment as set out here: <https://www.england.nhs.uk/2019/01/missed-gp-appointments-costing-nhs-millions/>

108 <https://pubmed.ncbi.nlm.nih.gov/21406315/>

109 <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity/2021-22>

110 <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity/2021-22>

111 <https://www.ons.gov.uk/file?uri=%2Fpeoplepopulationandcommunity%2Fpopulationandmigration%2Fpopulationestimates%2Fdatasets%2Fclinicalcommissioninggroupmidyearpopulationestimates%2Fmid2020sape23dt6a/sape23dt6amid2020ccg2021estimatesunformatted.xlsx>

112 <https://www.bapen.org.uk/pdfs/economic-report-short.pdf>

113 <https://fingertips.phe.org.uk/end-of-life#page/3/gid/1938133060/ati/167/iid/92489/age/162/sex/4/cat/-1/ctp/-1/yr/1/cid/4/tbm/1/page-options/car-do-0>

as this relates to one group of people accessing social care (those in care homes over 75) and does not include other groups (such as those accessing care in the community).

For cancer, Future Health used the lower end of the CRUK estimate of malnutrition in cancer (40%) and applied this to overall and new cases of cancer as captured by Public Health England.<sup>114</sup> BAPEN's revised per patient malnutrition cost figure was then used to estimate the overall costs.

When projecting forward to calculate the rate of malnutrition in 2035, Future Health re-profiled each CCG's mid 2020 population by 15 years. Future Health then applied the same approach above to secure age and deprivation adjusted malnutrition rates. In re-profiling the populations Future Health included only those aged between 15 and 90 in these calculations reflecting the uncertainty of the size of the populations outside of these brackets in 15 years time. Future Health did not make any other adjustments in these projections which should be taken with appropriate caution as a result.

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114 <https://fingertips.phe.org.uk/profile/cancerservices/data#page/9/gid/1938133365/pat/15/par/E92000001/ati/221/are/nE54000028/iid/91337/age/1/sex/4/cat/-1/ctp/-1/yr/1/cid/4/tbm/0/page-options/tre-ao-1>



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