

6 Assessing the needs (4): modelling and forecasting

To enable adequate provision of services, assessments have to be made of future needs. A variety of techniques is available to help with this. In many instances, forecasting models have been used to provide an indication of the likely future needs of the population.

6.1 General modelling and forecasting

6.1.1 National population projections

The Office for National Statistics produces forecasts of the population sizes for different geographical areas, different age ranges and ethnicities. We make use of these 'projections' to help us to estimate the scale of such things as the likely need for services for older age groups. (Several such projections were given in [section 5.1 \(demography\)](#)).

6.1.2 Predictive modelling

Both NHS SoTW and the North East Public Health Observatory are carrying out work on the predictive modelling of both diseases/conditions and the financial implications. The SoTW work involves predicting, for example, the need for acute care (particularly hospital beds) arising from the growth in numbers of people suffering from certain conditions. Costs can be directly attributed to an increase in hospital beds needed. The predictions can therefore show the effects of not acting to prevent increases in disease prevalence. Retrospective analysis has shown that increases in population account for only a small amount of the change in hospital admissions. Other factors play a huge part and this is being investigated.

The North East Public Health Observatory is considering three particular areas: chronic conditions, acute aggravated conditions and immunisable conditions. These are of interest particularly because of the scope they provide for transfer of services from secondary to primary care providers. Importantly, the models look not only at future prevalences but at making better estimates of actual current prevalences.

6.1.3 Spend and outcomes

The Association of Public Health Observatories produces for the Department of Health analyses of PCT spending compared to outcomes for certain programmes of work e.g. circulatory disease. These are helpful in financial analysis and are discussed in the later section on financial implications and shifting resources upstream. Importantly, Gateshead PCT does not have any areas of spend or outcome that differ significantly from other PCTs.

6.2 Predicting Adult Needs and Service Information (PANSI)

Estimates of the prevalence of long-term health conditions, as shown in [Annex 3.68](#), are typically derived from evidence from national health surveys such as the General Household Survey or the Health Survey for England. This evidence is based on self-reported health status and so will differ from estimates of prevalence taken from GP clinical records which are based on diagnosed illness. According to these estimates, neurotic disorder is the most common health condition amongst Gateshead adults aged 18-54, affecting 19,500 people. The second most common is being a survivor of childhood sexual abuse (13,650 people) and the third most common is suffering from moderate or serious physical disability (12,070 people).

PANSI also produces predicted changes between 2009 and 2020 in prevalence in health conditions of adults aged 18-64. The biggest change is a predicted 4% increase in the numbers suffering from early onset dementia. A rise of over 3% is expected in the numbers who, following stroke, require help with daily activities. A rise of over 3% is also expected in the numbers permanently unable to work. Profound hearing impairment is the third biggest increase (over 2%). On the other hand, the suicide rate is predicted to fall by 10% and there are anticipated slight falls in the prevalence [of autistic spectrum disorders](#) and personality disorders.

6.3 Predicting Older People Population Information System (POPPI)

This system includes estimates of current and future prevalence of long-term conditions among people aged 65 and over. Limiting long-term illness is currently estimated as affecting the largest number in Gateshead (over 18,000), followed by hearing impairment (14,162 people). ([Annex 3.87](#).)

The greatest anticipated percentage changes in health conditions affecting older people aged 65 and over between 2009 and 2010 include:

- Hearing impairment (profound - up 38%; moderate or severe – up 31%);
- Dementia (up 36%);
- Falls – hospital admissions up 31%;
- Mobility (29% increase in problems)
- Severe depression (up 28%).

6.4 Forecasts for specific groups

6.4.1 Older people receiving intensive home care

There is expected to be a considerable increase in the number of households with people aged over 65 receiving intensive home care ([Client Group Population Projections – Older People](#))

6.4.2 Physical disability, learning disability and sensory disability

The number of people aged 50 or more with learning disability is expected to rise by 30 by 2020. In the case of other disabilities (physical, sensory and mental health other than dementia), the Projecting Adult Needs and Service Information System suggests only small increases. However the ageing population also implies an increase in sensory disabilities as indicated in the [Briefing on sensory impairment](#).

'Future Sight Loss UK' (RNIB 2009) looks at both prevalence and financial implications of sight impairment. Around 80% of sight loss occurs in people aged over 60 and by the age of 80, 1 in 4 people have sight loss. The prevalence of sight loss amongst adults living in Gateshead is expected to increase by 26% from 2010 to 2020 (to 876 people) and to double by 2050. ([Annex 3.40](#).)

The increases impact not only on the provision of direct eye health and sight loss services, but also on other services such as A&E (people with sight loss are at a much higher risk of accidents and falls) as well as formal and informal care provision

Estimates suggest an increase of 400 or more in the numbers of people aged 75+ in Gateshead with registrable eye condition over the period 2008-2025 (See [Strategic Commissioning for Independence and choice](#)). The prevalence of other factors in Gateshead with the potential to increase incidence of visual impairment should also be noted, including the current rise in diabetes and in obesity, which is linked to diabetes.

6.4.3 Long term physical conditions

We know of 9,800 people in Gateshead with a diagnosis of coronary heart disease (CHD) – 5.8% of all people ages 16 and over. The true prevalence is more likely to be 6.5% – 10,100 residents or 11,000 people on GP lists. This prevalence is likely to rise to 7.1% in Gateshead by 2020. Between 11,400 and 12,300 people will be affected. ([Annex 3.51](#) and [Predicted prevalence of coronary heart disease in Gateshead](#))

We know of 4,500 people in Gateshead who have suffered a stroke – 2.6% of all people ages 16 and over. True prevalence is more likely to be 2.8% – 4,300 residents or 4,700 people on GP lists. This prevalence is likely to rise to 3.0% in Gateshead by 2020. Between 4,800 and 5,300 people will be affected. ([Annex 3.54](#) and [Predicted prevalence of stroke in Gateshead](#))

We know of 8,600 people in Gateshead who have diabetes – 4.2% of people all ages. True prevalence is more likely to be 5.0% – 9,500 residents or 10,400 people on GP lists. This prevalence is likely to rise to 6.2% in Gateshead by 2020. Between 11,500 and 12,400 people will be affected. ([Annex 3.64](#) and [Predicted prevalence of diabetes in Gateshead](#))

We know of 32,100 people in Gateshead with a diagnosis of hypertension – 18.8% of all people ages 16 and over. True prevalence is more likely to be 32.2% – 50,500 residents or 54,800 people on GP lists. This prevalence is likely to rise to 33.8% in Gateshead by

2020. Between 54,200 and 58,800 people will be affected. ([Annex 3.57](#) and [Predicted prevalence of hypertension in Gateshead](#))

We know of 4,600 people in Gateshead with a diagnosis of chronic obstructive pulmonary disease (COPD) – 2.7% of all people ages 16 and over. True prevalence is more likely to be 5.5% – 8,600 residents or 9,400 people on GP lists. This prevalence is likely to rise to 5.8% in Gateshead by 2020. Between 9,300 and 10,100 people will be affected. . ([Annex 3.60](#) and [Predicted prevalence of chronic obstructive pulmonary disease in Gateshead](#))

We know of 6,700 people in Gateshead with a diagnosis of chronic kidney disease (CKD) – 4.0% of all people ages 18 and over. True prevalence is more likely to be 9.4% – 14,200 residents or 15,400 people on GP lists. Predicted prevalence for future years is not currently available. ([Predicted prevalence of chronic kidney disease in Gateshead](#))

Further work has also been carried out to look at long term conditions at a primary care practice level. ([Annex 3.52](#), [3.55](#), [3.58](#), [3.61](#).)

6.4.4 Depression

The mental health observatory (part of the Public Health Observatory) used a model to estimate the proportions at ward level of the population suffering from depression. According to this model, certain wards can expect around 20% of their population aged 16-64 to be suffering from depression. ([Annex 3.73](#).)

6.4.5 Neurological conditions

60% people over 60 suffer from a long term neurological condition, therefore numbers are expected to rise with the ageing population ([Strategic commissioning for independence and choice](#))