

Supporting policy-makers and practitioners working to prevent and manage chronic conditions

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The Chronic Conditions Hub is a website that brings together information on chronic health conditions. It allows you to easily access, manage and share relevant information resources.

The Chronic Conditions Hub includes the Institute of Public Health in Ireland's (IPH) estimates and forecasts of the number of people living with chronic conditions.

On the Chronic Conditions Hub you will find:

- A Briefing for each condition
- Detailed technical documentation
- Detailed national and sub-national data that can be downloaded or explored using online data tools

## What is stroke?

A stroke happens when blood flow to a part of the brain is interrupted by a blocked or burst blood vessel. A lack of blood supply can damage brain cells and affect body functions.

Stroke is responsible for a substantial number of early deaths, much reduced quality of life and disability, and significant costs to the health and social care system and economy.<sup>1</sup> The World Health Organization estimates that stroke and cerebrovascular disease is responsible for 10% of all world deaths and is the second most common cause of death worldwide.<sup>2</sup>

Age, family history, diabetes, high blood pressure, high cholesterol, smoking, unhealthy diet, physical inactivity and alcohol are the main risk factors for stroke.

## Policy Context

In the Republic of Ireland (RoI), *Changing Cardiovascular Health: National Cardiovascular Health Strategy 2010–2019*<sup>3</sup> addresses the prevention and management of cardiovascular disease including stroke. The Stroke Council of the Irish Heart Foundation published *National Clinical Guidelines and Recommendations for the Care of People with Stroke and Transient Ischaemic Attack*<sup>4</sup> to address the issues raised by its *National Audit of Stroke Care*.<sup>5</sup> The Health Service Executive's national clinical programme for stroke<sup>6</sup> aims for rapid access to best-quality stroke services and sets out objectives for quality, access and cost.

In Northern Ireland (NI), the *Service Framework for Cardiovascular Health and Wellbeing*<sup>7</sup> details standards for good practice relating to the prevention, diagnosis and treatment of cardiovascular conditions including stroke. *Improving Stroke Services in Northern Ireland*<sup>8</sup> sets out recommendations and clinical and organisational standards for improvements in prevention, treatment and rehabilitation of people with stroke.

# Population prevalence and clinical diagnosis



This briefing describes how many people have had a stroke on the island of Ireland and how that number is expected to change between 2010 and 2020. This information will help us develop services where and when they are needed.

The number of people who have had a stroke is known as its population prevalence. Some people who have had a stroke may not be aware of it, and population prevalence includes both clinically diagnosed and undiagnosed cases.

We report national and sub-national rates of clinically diagnosed stroke among adults aged 18+ years. Undiagnosed cases are not included in our figures and they may be an underestimate of the total number of people with the condition.

## Method

Data from the Survey of Lifestyle, Attitudes and Nutrition (SLÁN) 2007<sup>9</sup> in RoI and the Health and Social Wellbeing (NIHSWB) Survey 2005/06<sup>10</sup> in NI were used to estimate the risk that is associated with a number of biological, behavioural and social risk factors.

When population data were available we estimated the number of people in the population - at a national and sub-national level, in 2010, 2015 and 2020 - with a clinical diagnosis of stroke by applying these risk estimates to the number of people in the population who had these risk factors.



In RoI, the SLÁN 2007 survey asked adults if they had a stroke in the previous 12 months that had been diagnosed by a doctor. Age, education and physical activity were the significant risk factors included in the final figures

In NI, the NIHSWB 2005/06 survey asked adults if they had ever been told by a doctor that they had a stroke. Age and employment were the significant risk factors included in the final figures.

Clinical diagnosis rates in RoI relate to stroke that occurred in previous 12 months and are not directly comparable with clinical diagnosis rates in NI which relate to stroke that occurred at any time in the past.

Full details of our method can be found in the technical documentation.<sup>11</sup>

# The number of people in the Republic of Ireland who had a stroke in the previous 12 months that had been diagnosed by a doctor (clinically diagnosed stroke)



In 2010 it is estimated that almost 23,000 (0.7%; 95% CI = (0.0%, 1.5%)) adults aged 18+ years in RoI had a stroke in the previous 12 months that had been diagnosed by a doctor (clinically diagnosed stroke). This excludes undiagnosed stroke and may be underestimate of the total number of people with the condition.

Clinically diagnosed stroke was more common among older people. In 2010 almost 2% of adults aged 55 years or over had a stroke in the previous 12 months that had been diagnosed by a doctor.

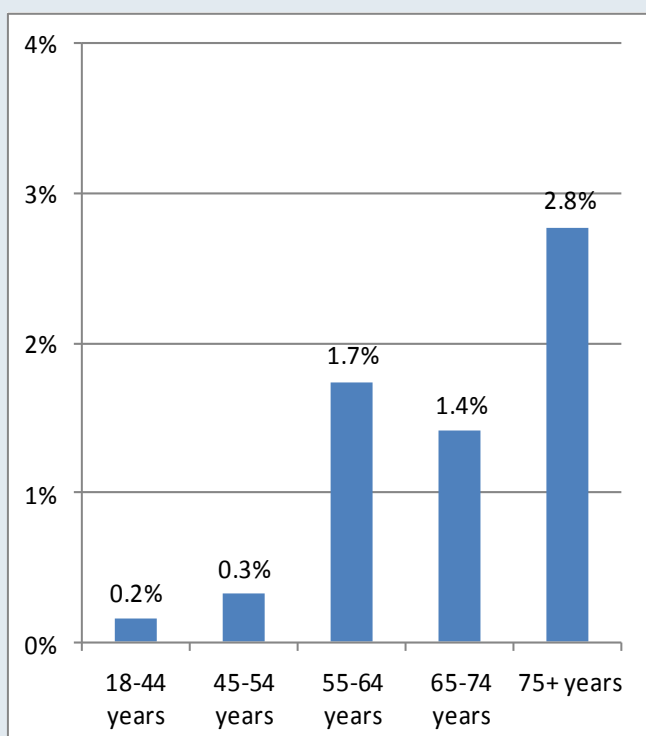
Rates of clinically diagnosed stroke were similar among men (0.7%; 95% CI = (0.0%, 1.5%)) and women (0.7%; 95% CI = (0.0%, 1.6%)) .

By 2020 the number of adults with clinically diagnosed stroke is expected to rise to almost 29,000 (0.8%; 95% CI = (0.0%, 1.7%)). This represents a 27% increase (an additional 6,000 adults) in ten years. Approximately three-tenths of this increase is due to increases in the size of the population and seven-tenths is due to population ageing (including the increases in risk factor levels associated with ageing).

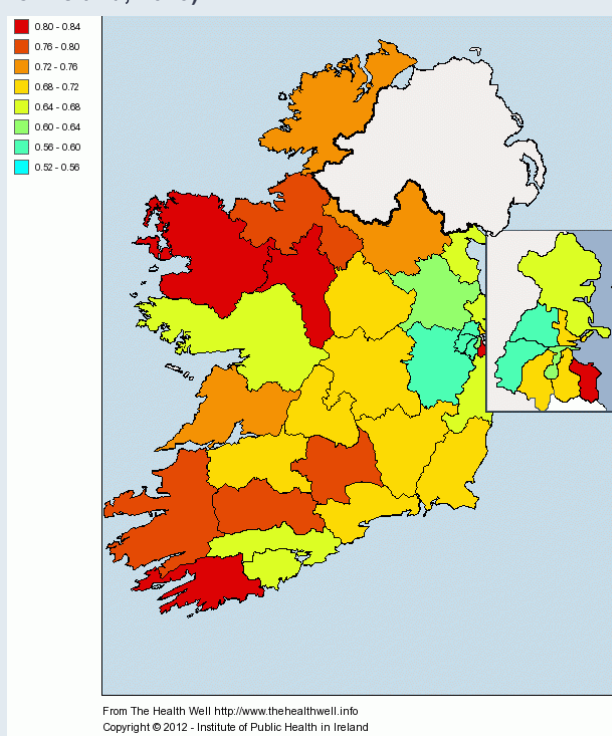
Rates of clinically diagnosed stroke were prepared for 32 Local Health Offices in RoI. Comparing 95% confidence intervals revealed no significant differences in the rates in Local Health Office areas. However, because of differences in population sizes, there was significant variation in the number of adults aged 18+ years in each area with clinically diagnosed stroke.

Clinical diagnosis rates in RoI relate to stroke that occurred in previous 12 months and are not directly comparable with clinical diagnosis rates in NI which relate to stroke that occurred at any time in the past.

**Figure 1: Percentage of adults (aged 18+ years) with stroke in the previous 12 months that had been clinically diagnosed (Republic of Ireland, 2010).**

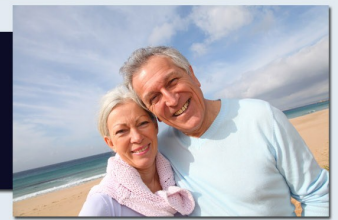


**Figure 2: Percentage of adults (aged 18+ years) with stroke in the previous 12 months that had been clinically diagnosed (Local Health Offices, Republic of Ireland, 2010).**





## The number of people in Northern Ireland who had ever been told by a doctor that they had a stroke (clinically diagnosed stroke)



In 2010 it is estimated that almost 24,000 (1.7%; 95% CI = (0.6%, 2.9%)) adults aged 18+ years in NI had ever been told by a doctor that they had a stroke (clinically diagnosed stroke). This excludes undiagnosed stroke and may be an underestimate of the total number of people with the condition.

Clinically diagnosed stroke was more common among older people. In 2010 it is estimated that 4.4% of adults aged 55 years or over had ever had a clinically diagnosed stroke.

Rates of clinically diagnosed stroke were slightly higher among women (1.9%; 95% CI = (0.6%, 3.1%)) than men (1.6%; 95% CI = (0.5%, 2.7%)).

By 2020 the number of adults with clinically diagnosed stroke is expected to rise to more than 29,000 (2.0%; 95% CI = (0.7%, 3.3%)). This represents a 23% increase (an additional 5,000 adults) in ten years. Approximately one-third of this increase is due to increases in the size of the population and two-thirds is due to population ageing (including the increases in risk factor levels associated with ageing).

Rates of clinically diagnosed stroke were prepared for 26 Local Government Districts in NI. Comparing 95% confidence intervals revealed no significant differences in the rates in Local Government District areas. However, because of differences in population sizes, there was significant variation in the number of adults aged 18+ years in each area with clinically diagnosed stroke.

Clinical diagnosis rates in NI relate to stroke that occurred at any time in the past and are not directly comparable with clinical diagnosis rates in RoI which relate to stroke that occurred in previous 12 months.

Figure 3: Percentage of adults (aged 18+ years) who had ever had clinically diagnosed stroke (Northern Ireland, 2010).

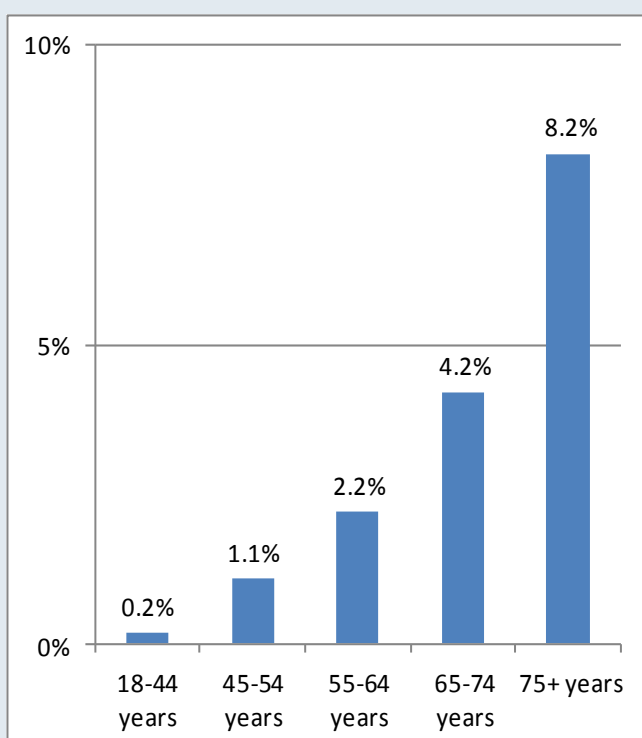
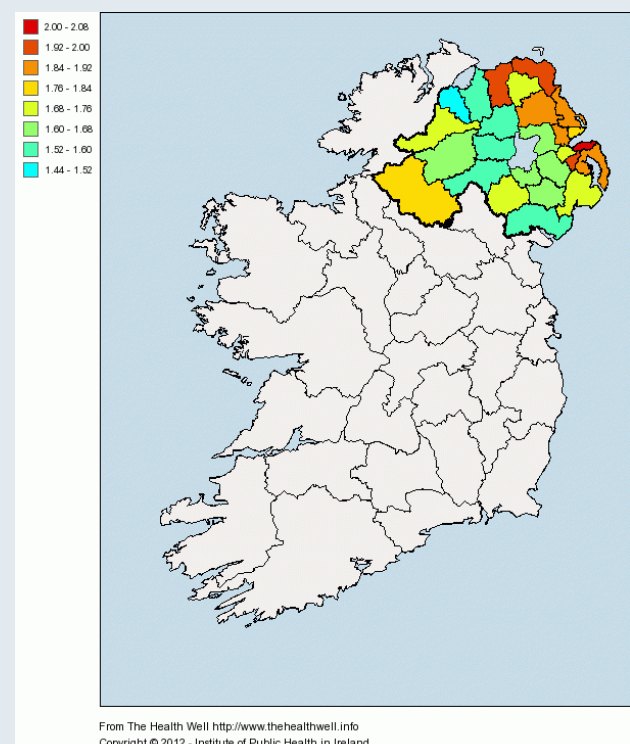


Figure 4: Percentage of adults (aged 18+ years) who had ever had clinically diagnosed stroke (Local Government Districts, Northern Ireland, 2010).



## Discussion



Large numbers of adults on the island have clinically diagnosed stroke and this number is expected to increase between 2010 and 2020. These findings have significant implications for individuals and families, the health and social care system and Ireland's economies.

These estimates and forecasts are likely to be an underestimate of the number of adults with stroke as they do not include undiagnosed stroke. Although the estimates and forecasts do not explicitly include transient ischaemic attack (TIA; 'mini-strokes') although some TIAs may have been misdiagnosed as stroke or misreported as stroke and therefore included in the figures.

The expected increases assume that the levels risk factors do not change over time. If levels deteriorate, the expected increases in the number of people with clinically diagnosed stroke will be even greater. A greater focus on prevention to reduce these risk factors and promote healthier lifestyles will help moderate these increases. Prevention programmes should also address social, environmental and other issues that influence the development of stroke and its risk factors.

There remain significant limitations in the data that are available for estimating and forecasting the population prevalence of stroke on the island.

- Firstly, there are data on undiagnosed stroke which may be a substantial component of the population prevalence of stroke.
- Secondly, detailed population data are not available on the risk factors associated with stroke. The data limitations are particularly critical when we are looking at sub-national estimates and forecasts to guide local action. For risk factors other than age, we had to assume that all sub-national areas had the same distribution of risk factors as the national population.
- Thirdly, there are no agreed data on future trends in risk factors so we had to assume that the levels of risk factors do not change over time.

Estimates and forecasts of the population prevalence of major chronic conditions are essential for the development of healthy and equitable communities. The figures reported here could be improved if comprehensive and accurate data at local level were more readily available.

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The Institute of Public Health in Ireland (IPH: [www.publichealth.ie](http://www.publichealth.ie)) produces figures on the number of people living with chronic conditions on the island of Ireland. Briefings, technical documentation and data tables can be accessed on the Chronic Conditions Hub website ([www.chronicconditionshub.info](http://www.chronicconditionshub.info)).