



# North Wales Regional Report 2022

Putting our region's  
cancer needs first



## Executive summary

Over the eight decades since our founding, North West Cancer Research has been independently funding research and strategies designed to understand the causes of cancer and support those living with and beyond cancer in the North West of England and North Wales.

The longevity of our work in these regions means we have developed a finely nuanced understanding of the prevailing cancer issues. This level of awareness is vital, as cancer cannot be effectively tackled without a highly localised approach that understands the multi-faceted, complex and evolving nature of the challenges at hand.

No two villages, towns or cities are exactly alike, and so we cannot take a one size fits all approach to cancer around the country. To enable local care systems to employ tailored measures that reflect on-the-ground realities, we've invested over £45 million since 2000 in life-saving research projects as well as preventative awareness campaigns designed to address cancer inequalities.

These projects span a wide range of activities, encompassing everything from advanced laboratory studies to targeted education and outreach programmes. An underlying thread that connects all of this work is uncovering why cancer is a more common disease in North Wales compared to the rest of the country.

This annual report, now in its third year, plays an important part in this, as it paints a multi-layered picture of the cancer landscape across all six

counties in North Wales. In particular, it illustrates several key long-term trends that highlight both the scale of the challenge as well as the critical necessity of community-level interventions.

In preparing this, we explored the available data on cancer in North Wales and broke it down to a county level, covering Conwy, Gwynedd, Flintshire, Wrexham, Anglesey, and Denbighshire. This provided us with granular insights into how this disease affects our communities and which specific conditions are putting the greatest strain on the people of North Wales as well as its healthcare infrastructure.

Central to this analysis is the overlaying of multiple data points, including socio-economic information with incidence and total cancer death rates, to identify connections that may not be immediately obvious. This creates a rounded picture of key cancer trends and shows where specific needs lie.



Sadly, we see more continuity than change over the course of our annual reports, with the overall number of deaths from cancer staying largely the same. From 2020 to 2021 the total number of cancer deaths in North Wales fell from 283.95 to just 272.9 per 100,000 people.

The scale of the issue is further highlighted by the fact that residents in the North West of England and North Wales remain 25% more likely to be diagnosed with cancer than in the rest of the UK. This is underlined by the fact that North Wales exhibits higher incidence rates for 22 of the 37 cancer groups for which data is recorded by the NHS. In addition, age standardised total cancer deaths were up to 15% higher for some types of cancer in the northern six counties compared to the national benchmark.

This year's report is the first to be able to set these findings against the backdrop of a post-lockdown world in which we see many of the inequalities that existed pre-pandemic still starkly apparent in today's society.

This entrenching of inequalities is important, as a clear correlation between deprivation and increased cancer rates is evident in our research. We can see this in areas such as Gwynedd, which is the second most deprived county in North Wales and where certain cancers are present at a significantly inflated rate. This is particularly the case for prostate cancer, for which Gwynedd exhibits a 34% higher prevalence rate than the national average. In contrast, Wrexham – which is one of the least deprived areas – records fewer cases of prostate cancer than would be expected given the national data.

The role that socio-economic factors play in an area's health expectations is further underlined by data that indicates it is 'lifestyle related' cancers that show the most alarming regional disparities. Oesophageal cancer for example, which may result from smoking, drinking or obesity, is tracked at a 37% higher rate in North Wales compared to the rest of the country.



This alarmingly high number of cases poses a substantial burden for the region's healthcare network, as not only is it present in such high numbers but it is a particularly challenging type of cancer to treat.

Another key issue uncovered in this research is that cases of some cancers specific to women are higher in North Wales than across the rest of the country. This is the case for cervical cancer, which has an incidence rate that's 43% higher than the national average. Cancer of the uterus also affects communities in North Wales at an acute rate, being 12% more prevalent than in the rest of Wales. Ovarian and fallopian tube cancer is present at higher than average rates in five out of the six counties in North Wales and last year this disease caused 9% more deaths throughout the region than the national average.

As we move out of the pandemic, the critical need to solve inequalities saw health become a key focus in the Levelling Up the United Kingdom released by the government in early 2022. One of the white paper's core '12 Missions to Level up

the UK' was to narrow the Healthy Life Expectancy (HLE) between local areas by 2030 and increase HLE by five years by 2035.

With cancer death rates flatlining rather than decreasing in North Wales, it's clear that we're facing a long-term issue and that achieving the government's goal is going to require significant levels of investment targeted at understanding the problems – and the solutions – at a local level.

Prevention and awareness should be key watchwords for this investment, as increasing general levels of understanding across our communities will significantly help North Wales to bring its cancer rates down and into alignment with the national average.

This is why we work hard to implement outreach projects and to spread information at a grass-roots level. Our presence in the region's communities and our work on research like this tells us that creating a cancer-free future takes more than researchers in labs and doctors in hospitals - it will take each town and county to realise where its specific concerns lie and how exactly they can be empowered to take control of their own health.

**Alastair Richards,**

North West Cancer Research CEO

#### Data Source Overview:

We assessed the 37 key cancers across Wales for which NHS data is available. Population, employment, household religion and ethnicity data was obtained from the UK Office for National Statistics via Nomis ([www.nomisweb.co.uk](http://www.nomisweb.co.uk)). The latter two were taken from the 2011 Census returns. Data for cancer rates (incidence/prevalence) was obtained from the National Cancer Registration and Analysis Service ([www.ncin.org.uk](http://www.ncin.org.uk)). Data on age standardised total cancer deaths came from the Office of National Statistics Leading Causes of Mortality 2020 report.

# NORTH WALES

## Regional Overview



The three cancer types that accounted for the most total deaths in 2021 were trachea, bronchus and lung; followed by colon, sigmoid, rectum and anus; and lymphoid, haematopoietic and related tissue. Total deaths from some of the most challenging types of cancer surveyed, including breast, pancreas and brain, have remained higher than the Welsh average for consecutive years.

### Regional inequality

Health outcomes are often influenced by regional income levels and the pervasiveness of deprivation. On average, communities in North Wales face higher levels of inequality than elsewhere in the country.

The data gathered for this report highlights that areas of North Wales are experiencing deprivation levels that are up to 25% higher than the majority of the country. Often, pockets of significant deprivation sit very close to areas of comparative affluence - with communities in Flintshire and Gwynedd indexing high levels of income deprivation despite being close to relatively high-income areas in Denbighshire.

The overlaying of income data with cancer rates paints a mixed picture across North Wales. The region as a whole exhibits higher than average levels for both cancer rates and deprivation, being 7% and 8% higher than the Welsh average respectively. However, cancer rates across the region fluctuate considerably, going as high as 21% above the average in Conwy to a rate that aligns exactly with the wider country in Flintshire. Interestingly, while Flintshire records the worst levels of deprivation among the six counties surveyed, the most affluent area in North Wales,

**Health outcomes for people living in North Wales are distinctly different to those in the rest of the country, with the region over-indexing on the total number of cancer cases recorded compared to the national average.**

Specific health challenges can be seen by the fact that 22 of the 36 cancers surveyed were above the national rate while for the past two years, North Wales has also recorded a higher total cancer death rate than the Welsh average. This means that people living in the region's communities are facing a higher chance of both developing and dying from cancer than those living in the rest of the country.

The three most prevalent recorded cancers across the region are prostate, breast, and lung cancer. The population in North Wales also records high incidence rates of colorectal, colon, and uterine cancer.

Denbighshire, is roughly in the middle of these extremes with an incidence rate 14% above the national average.

Just under a third (29%) of the population in North Wales are employed in routine or manual roles, while a similar number (28%) have managerial, administrative, or professional occupations. Students make up 8% of the population, while 5% of people living in the region are long term unemployed or have never worked.

The gender breakdown in North Wales aligns with the national population, with men making up 49% and women making up 51% of the population.

The age demographics of a population can play a significant role in the frequency and type of cancers experienced by communities. In North Wales, nearly two thirds (63%) of the population is made up of people under 54, while those over 65 years old constitute nearly a quarter (24%) of the population. This is roughly similar to the rest of Wales, where just over two thirds (67%) of the population is under 54 years old and those over 65 years old represent 21% of the total population.

This data shows that the region has a large proportion of elderly people, as 38% of the population is over 55 years old, and 11% of these are over 75 years old. This could indicate a causative link to the higher rates of cancer found in the research.

Communities across North Wales with higher levels of elderly residents are likely to report increased rates of certain cancers that predominantly impact older people, such as myeloma.



“ Areas of North Wales are experiencing deprivation levels that are up to 25% higher than the majority of the country. ”

## Cancers impacting women

Incidences of cancers which impact women are recorded at markedly higher rates in North Wales compared to the rest of the country.

The prevalence of cervical cancer is particularly notable at 43% above the national average. Communities in Denbighshire are the most acutely affected, with recorded rates of cervical cancer over double the national average. Gwynedd, Wrexham, Flintshire, and Anglesey all record rates between 33% and 41% higher than the rest of Wales for this disease.

Women in North Wales also experience higher rates of cancer of the uterus compared to the rest of Wales, with the region over indexing by 12% for this type of cancer. Gwynedd recorded the highest prevalence rate of this disease, at 60% above the national benchmark. Anglesey and Flintshire also exhibited higher than average rates, at 13% and 39% respectively

Across the region, ovarian and fallopian tube cancer rates are 16% above those recorded in the rest of Wales. Last year, this led to total deaths from this type of cancer being 9% above the national statistics. Every county in North Wales, aside from Denbighshire, experienced higher rates of ovarian and fallopian tube cancer than the rest of the country. Flintshire's rates for this cancer tracked at the highest level, being 38% above the Welsh median. This was followed by Gwynedd at 33%, Anglesey at 29%, Conwy at 11%, and Wrexham at 5% above the national average.

## Cancers impacting men

North Wales records higher than average incidence rates for several male specific cancers compared to the rest of the country.

Prostate cancer is a key challenge for the region's health infrastructure, with rates 15% higher in North Wales than in the country as a whole.



Out of all deaths by cancer in North Wales, this disease accounts for the fifth most fatalities at 19.31 deaths per 100,000 people.

Five of the six counties surveyed recorded incidence rates for prostate cancer in excess of the national average, with communities in Gwynedd reporting the highest burden of this disease, with an incidence rate 34% above the national benchmark. Anglesey and Conwy both tracked incidence rates much higher than the Welsh average, with this disease being 19% and 18% more prevalent in these counties respectively. In addition, Flintshire recorded a 15% higher incidence rate for prostate cancer and Denbighshire reported a 10% higher rate.

Testicular cancer is also experienced by men across North Wales at a higher than average rate, as it is 22% more prevalent in North Wales than in the rest of the country. Three counties in the region suffer from incidence rates that far exceeded expectations, with the prevalence of this disease in Anglesey being especially high at 87% above the national average. Flintshire and Wrexham also saw significantly inflated cases of testicular cancer with rates 69% and 66% higher than average respectively.

While not male specific, men are more likely to be diagnosed with head and neck cancer than women. The fact that it is one of the region's top

ten most prevalent cancers, with 24.08 cases per 100,000 people, is therefore concerning for men's healthcare in North Wales.

## Key challenges for North Wales:

Communities in North Wales experience extremely high levels of oesophageal cancer. Overall case numbers for this disease are 37% higher than the rest of Wales, with some counties in particular suffering from this type of cancer at a rate that rockets past the national average. This is especially the case in Conwy, which records a staggering 201% higher incidence rate and 14% higher total deaths compared to the national average. In Denbighshire, oesophageal cancer is present at a 67% above average rate while Anglesey, Flintshire and Gwynedd all also record double digit higher rates of oesophageal cancer at 19%, 16% and 12% respectively. While lower, Wrexham likewise exhibits a 7% higher than average rate for cases of oesophageal cancer.

Breast cancer is the second most prevalent type of cancer in North Wales and represents a key challenge for the region's healthcare infrastructure. Both incidence rates and total cancer death rates are higher than the national average for this disease, which ranks as the fourth most fatal type of cancer in the region.

Four of the six counties surveyed reported above average incidence rates of breast cancer. Denbighshire's population is particularly affected, with both a prevalence rate and a total death rate for this disease that is 33% above the rest of Wales. Conwy also experiences very high levels of breast cancer, with incidence rates 32% higher than the national benchmark. Likewise, Wrexham's breast cancer prevalence rate tracks at 22% above the Welsh average while the total death rate for this disease is also 10% higher than the national median.

Both stomach and pancreatic cancers represent a key challenge for communities across North

“ Every county in North Wales exhibits a higher than average prevalence rate for oesophageal cancer, with Conwy experiencing double the rate of cases for this disease than the rest of the country. ”



Wales. Regional incidence rates for these diseases range from between 13% and 15% higher than the national average while the total death rate from pancreatic cancer in North Wales is 15% above the rest of the country.

The specific impact of these cancers ranged quite widely across the counties surveyed. Anglesey for example, recorded high case levels of both stomach and pancreatic cancers at 51% and 47% over the national average respectively. Similarly, Conwy recorded the highest prevalence of stomach cancer at 61% above the national average. When looking at total death rates, Anglesey and Gwynedd saw 32% and 23% above average rates for pancreatic cancer, while Gwynedd and Flintshire recorded 34% and 26% higher rates for stomach cancer. In comparison, Wrexham recorded the lowest rate for stomach cancer, with 28% fewer incidences than the Welsh average.

The data analysed for this report reveals that North Wales has a defined cancer

### NORTH WALES Top 10 cancers by total deaths \*

1. Trachea, bronchus & lung
2. Colon, sigmoid, rectum & anus
3. Lymphoid, haematopoietic & related tissue
4. Breast
5. Prostate
6. Pancreas
7. Oesophagus
8. Bladder
9. Liver
10. Brain

\* List is based on age standardised total cancer deaths for which data was available

landscape that presents unique and highly localised challenges. The region is evidently impacted at both a regional and county level by specific cancers at a scale not seen elsewhere in the country. These key variances in the communities of North Wales means that the area's healthcare network is facing a number of specific burdens.

The entrenched nature of this problem is illustrated by the fact that almost all the indices used to benchmark cancer prevalence rates and total deaths are largely static across multiple years of data gathering. This highlights the urgent need for immediate evidence-led interventions at a local level across all six counties of North Wales.

### HEAD & NECK CANCER: Our work

Immunotherapy treatments that harness the body's immune system to destroy cancer cells have been shown to provide life-extending advantages in metastatic head & neck cancer cases. However, the proportion of patients responding is low and clinicians are unable to predict which patients will benefit or who might suffer side effects with little impact on their cancer.

To better inform the likelihood of success, a new project will assess whether specific magnetic resonance imaging (MRI) scans can detect positive effects of an immunotherapy drug called nivolumab before patients have surgery.

While routine MRI scans can provide information about tumour size and potential spread, any information about tumour biology is limited. By using advanced MRI scans acquired before and after nivolumab treatment, it is possible to assess evidence of changes in the tumour. These changes can be correlated with biological changes found in blood samples and the cancer itself, providing a much fuller picture of the treatment's efficacy.

New MRI markers of immunotherapy response could help better target treatments to the patients most likely to benefit. In addition, it will avoid unnecessary treatment and side effects for those unlikely to respond and could inform future clinical trials to help those least likely to benefit from the treatment.

### EDUCATION OUTREACH: Our work

Lab Coat Learning is an educational programme designed to provide young people across North Wales with the knowledge, tools and insights required to make educated and informed choices about their health.

Empowering children with this information not only improves health outcomes on an individual level, but it also helps tackle health inequalities in socially deprived areas by giving participants the confidence to become 'health champions' for their families and communities.

Lab Coat Learning delivers a programme of cross-curricular lessons and resources that includes fun and engaging hands-on experiments and investigations which complement classroom-based learning. The programme mixes vital health messages with the promotion of STEM subjects, covering topics such as the components of a cell, DNA, cell growth and division, apoptosis, UVA and UVB rays, cancer knowledge, terminology and research methods.

Each child is given a take home pack with information that can be shared with families and friends to help influence healthier lifestyles outside of the classroom. Follow-up sessions ensure that the new behaviours are maintained and that the children remain motivated to make good health-based decisions.

The innovative programme is suitable for children aged 3-14 and it prioritises schools and harder to reach communities in areas of deprivation who do not traditionally engage with health messages.

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## Get in touch

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