Liverpool City Council

State of Health in the City:

Liverpool 2040

Independent Report by the Director of Public Health

Professor Matt Ashton

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Foreword

In July 2023 Liverpool City Council passed a motion expressing concern over "*the significant Health Inequalities faced by residents across the city often marked by deprivation".*[1] The Council commissioned a report into the State of Health in Liverpool, and to consider "*proposals going forward".*

This report describes how health in the city has evolved since 1984, the current state of health, and for the first time a projection of health and wellbeing in the city in 2040 based on current trends.

We show that those living in our poorest areas live 15 years less than those in more affluent areas, and they live 18 more years with poor health. Our projections for ill health indicate that up to an extra 38,000 of our residents will be living with major illness's. This is unacceptable, unfair and avoidable, provided there is concerted action at a local level with national support.

The findings are stark and a clear call for urgent action not just by public bodies such as health services and the local authority, but for all who have an interest in the current and future prosperity of the city.

Poor physical and mental health shortens lives lived in good health and impacts not just on individuals but on those around them, such as other family members and the wider community. It is demonstrated to have a major detrimental impact on the economy through reduced productivity and increased demand for public services. It is a vicious cycle that needs to be broken.

We conclude this report by describing the work that the Council and its partners are currently doing and should be doing in the future. We also set out three considerations for national government to support the city in its efforts to give every one of our residents the best start in life and the chance of a life lived well.

[1] Liverpool City Council (LCC) (2023). Meeting of City Council - July 2023 on Tackling Health Inequalities.

Professor Matt Ashton

Director of Public Health

Executive Summary

The summary findings of this report are set out below, describing the current state of health, and then our projections for 2040. Alongside describing health outcomes, we highlight key social determinants that are deepening inequalities across the city.

In 2023 we found that:

- Our residents are living longer than previously, but progress has stalled over the last decade.
- The COVID-19 pandemic has increased inequalities in life expectancy between Liverpool and England - so men live 3.5 years less and women 3.9 years less (in the two years to 2021), up from 3.2 years and 3 years respectively before the pandemic.
- Two-thirds of these inequalities in life expectancy were caused by higher mortality rates from COVID-19, cancer, cardiovascular and respiratory diseases.
- People living in our poorest areas live an average of 15 years less than people in the most affluent areas and live 18 years longer with poor health.
- Residents in the most deprived areas of the city are living with major illness (2 or more long term conditions) around 10-15 years sooner than those in the most affluent.
- Our infant mortality rate remains above the national average (4.8 per 1,000 versus 3.9 per 1,000). Every year around 26 of our infants do not reach their first birthday.
- In Liverpool 24,000 (28.9%) children are living in relative poverty.
- One in two (43.5%) children have dental decay by the age of five, the second highest nationally.
- Childhood vaccination coverage has sharply declined in Liverpool since the start of the COVID-19 pandemic - in 2022/23 only 80% of children had

their first dose of the measles, mumps, and rubella (MMR) vaccine by their second birthday, significantly below England (89.3%).

- Our biggest killers are cancer, cardiovascular disease, and respiratory disease.
- 1,900 residents die young (under the age of 75) and 1,100 of these deaths are preventable.
- Almost two in three residents live in areas ranked in the most deprived 20% of areas in England.
- Health, living environment, employment, child poverty and lower income are the main drivers of deprivation in the city[2].
- Inequalities exist in health outcomes between groups of people and places across the city and by characteristics such as race, gender, age and disability.

By 2040 we estimate that in Liverpool, based on current trends and without further actions:

- A small decrease in overall life expectancy is expected (0.1 years), increasing by 0.5 years for men but falling by 1 year for women.
- On average, residents will live 26.1% of their lives in ill-health but people living in the most deprived areas are likely to live longer in ill health.
- Women are projected to live to 53.8 years in good health (a decrease of 4.1 years) while men are projected to live to 60.1 years in good health (an increase of 1.8 years).
- The number of people with major illness will increase by between 33,000 and 38,000 people.
- The overall number of health conditions is projected to rise by over half (54%) to 546,600, an increase of 191,300.
- The biggest increase in major illness is projected in the number of people diagnosed with depression, which is expected to more than double to 164,200 people.

[2] Ministry of Housing, Communities & Local Government, 2019. Index of Multiple Deprivation (IMD 2019). Available here

- Large increases are also expected in numbers diagnosed with hypertension (up 20,300 to 99,600 people), cancer (up 16,100 to 34,100 people), diabetes (up 14,800 to 46,900 people), asthma (up 11,600 to 44,900 people), and chronic kidney disease (up 10,600 to 35,600 people)
- The biggest increase in the number of health conditions is expected among the most deprived GP practices where the number is projected to rise by 55,000 (86%) compared to an increase of 34,200 (46%) among the least deprived GP practices.
- Minority ethnic adults living with major illness could rise by 4,000 people
- The number of 20–69-year-olds (the working age population) is projected to grow by just 5%.
- The key health issues facing children and young people within the next two decades are predicted to be mental health, obesity and child poverty.
- More people living with major illness will have implications for Adult Social Care and unpaid carers, as well as an increase in the number of revenue and benefit claimants by people unable to work through ill-health.
- If more parents are out-of-work this could have a negative impact on our children's mental health, pupil educational attainment and school absenteeism.

1 Background

It is important to contextualise previous achievements, health challenges, strategies, and the current state of health in Liverpool before exploring what health may look like for Liverpool in 2040.

Liverpool is a city of firsts for improving the health of its residents:

- William Henry Duncan, Britain's first Medical Officer of Health 1847. Instrumental research on the 'Physical Causes of the High Rate of Mortality in Liverpool' led to the Liverpool Sanitary Act 1846 and in turn the Public Health Act 1848.
- Royal School for the Blind is the oldest specialist school in the UK (1791).
- Catherine "Kitty" Wilkinson became the superintendent of the first washhouse for poor people in Liverpool (and Britain) on Upper Frederick Street in 1842.
- Lucy Cradock, the first woman doctor to practise in Liverpool, established and ran a surgery at 52 Huskisson Street 1888.
- Eleanor Rathbone (1872-1946) investigated social and industrial conditions in Liverpool and campaigned to improve the lives of women, representing Granby ward for 25 years.
- One of the first cities to introduce a population testing programme for tuberculosis in 1959[3].

  The first Club Health Conference was held in Liverpool 1997, exploring Nightlife, Substance Use and Related Health Issues[4].
- In 2003 the Council was one of the leading councils campaigning for stronger national Government legislation to ban smoking in public places and introduced local plans to make the city smoke free[5]

A report 'Health in Mersey: A Review (1984)' produced for the first Mersey Health Promotion Conference, set out health challenges and priorities areas across the

[3] Liverpool City Council (2021). Liverpool's COVID-19 Journey. Public Health Annual Report 2020. Available here
[4] Club Health Conference (2023) Available here.
[5] Dawson, J (2012) Presentation to WHO, Singapore. Available here

Mersey Regional Health Authority, many of which are still relevant today.[6] The report advocated for a locally defined and focused health promotion strategy.

The report stated that the attainment of good health and well-being for a greater number of individuals across the Mersey Region, was possible given the motivation and set out three broad objectives:

(1) Adding years to life by reducing premature deaths occurring before the age of 75.
(2) Adding health to life – by reducing as much as possible disease and disability.
(3) Addling life to years by ensuring full development and the use of peoples physical, mental, and societal potential.

Since the inception of the National Health Service (NHS) in 1948, the public had witnessed the demise of epidemics of infectious disease, a reduction of maternal and child mortality rates and increased life expectancy. However, many challenges and inequalities in health outcomes remained in local populations. In 1974 local public health teams were incorporated within the NHS. Between 1950-1981, investment in General Practitioners and Health Authority Community Services decreased.

Subsequent improvements in life expectancy are the positive consequence of "public health measures such as childhood immunisations, the introduction of universal health care, medical advances in treating adult diseases such as heart disease and cancer, and lifestyle changes including a decline in smoking".[7] By 1984, life expectancy in England was 71 years for Males and 77 years for Females. However, there remained significant health challenges across the Mersey Region and in Liverpool.

Mortality rates were highest in the North of England and rates in Liverpool (Standardised Mortality Rate = 115) were higher than the regional average. Furthermore, Liverpool had the highest rate of years of life lost (individuals aged

[6] Ashton. J. (1984). Health in Mersey: A Review. Report produced for the first Mersey Health Promotion Conference. Warrington. April 1984.
[7] Kings Fund (2022). What is happening to life expectancy in England. Available here.

over 75 years) across the Mersey Region at 7.6 per annum per 1,000 population. In 1981, ischaemic heart disease was the leading cause of premature mortality across the Mersey Region and was attributable to 23% of years of life lost (Table 1). Strikingly, Liverpool still experiences poorer health outcomes compared to its regional peers and many of the health conditions in 1980s Liverpool remain an issue today (explored in Chapter 2).

Rank	Cause of Death	Years of Life Lost	Percentage of Years Lost (%)
1	Ischaemic heart disease	52140	23.2
2	Cancer of trachea, bronchus, and lung	16370	7.3
3	Accidents and falls	13976	6.2
4	Cancer of digestive organs	13929	6.2
5	Disease of blood vessels to the brain	13650	6.1
6	Cancer of genito-urinary organs including cancer of the cervix	9173	4.1
7	Chronic obstructive lung disease	8270	3.9
8	Pneumonia	7723	3.4
9	Cancer of the female breast	6761	3.0
10	Diseases of lung, circulation, and other heart diseases	6986	2.7

Table 1: Top 10 causes of years of life lost before the age of 75 years in the Mersey Region, 1981

To improve health in Liverpool, it was recognised that acting across the life course was vital. Furthermore, it was necessary to have a conducive environment which enabled knowledge to be acted upon with cross-sectoral support from appropriate education, health, and social services.

In 1981 the World Health Organisation (WHO) published its Global Health For All Strategy, with recommendations for healthcare professionals to collaborate and work in partnership with wider-society partners to tackle inequalities, promote healthy lifestyles and prevent disease.[8] Twelve priorities were identified for health promotion in Liverpool alongside recommendations for health promotion action

[8] World Health Organisation (1981). Global strategy for health for all by the year 2000. Available here.

(Table 2) which would allow all individuals to achieve a good level of health enabling them to lead a socially and economically productive life.

Priority	Key Actions
Planned Parenthood	A systematic approach to public health education about interpersonal relationships and biological facts of reproduction. Provision of support for parents and others working with young people. This education and support should be backed up by adequate, accessible and acceptable counselling and clinical services.
Prevention of Sexually Transmitted Diseases	Strategies must include support for health education, especially that concerned with the development of self-esteem, confidence, and a sense of responsibility to encourage caring interpersonal relationships. Methods of spread of disease needs to be widely known and non-stigmatising.
Antenatal Care	Social policy is the most important approach to reducing infant and perinatal mortality whilst antenatal and obstetric services should be attractive, accessible, and welcoming to high-risk populations.
Improving Child Health and Immunisation	Commitment to give children the best start in life. Health services should be tailored to the needs of the population they serve. They should be mindful of aspects of timings of clinics, waiting times, location and facilities for other children and relatives. There should be widespread awareness of vaccination schedules throughout the community and clinical services should be orientated to meeting the needs of those who are difficult to reach.
Prevention of Death and Disability from Accidents and Environmental Causes	Health promotion should target road, recreation, home and, occupational safety. Clean air and an environment safe from infectious and non-infectious hazards are of great importance.
Dental Health	A reduction in sugar consumption, fluoridation of water; good dental hygiene established through clear and imaginative dental health education.
Lifestyle Behaviours related to Premature Death: Tobacco, Alcohol, Diet & Exercise	Development of individual and group awareness of health risks and behaviours. However, awareness itself is not sufficient; it is necessary to provide political and organisational support so that healthy choices become the easier choices.
Control of High Blood Pressure	Combined with effective screening programmes, strategies should aim to reduce salt intake, smoking and obesity and increase physical activity. Local statistics are needed to monitor this programme.
Early Detection of Cancer	Regular screening programmes combined with health education that allows individuals to be aware of symptoms at the earliest opportunity. It is important that health services can respond effectively and efficiently to early presentation of these symptoms.
Reduction of Disability in the Elderly	Reduction of disability in life can be achieved through early intervention and treatment of chronic diseases earlier in the lifecourse. For those living with a chronic disease, strategies should aim to improve fitness and buit/wider environment.
Dignity and Comfort at the Time of Death	A full understanding of death and dying by all health workers, a comprehensive range of community nursing and medical support, including pain relief and high quality, ethical funeral arrangements can all be regarded as a health promotion strategy.
A Healthy Body and a Healthy Mind (Positive Health)	The promotion of good health as a valuable asset to which everybody is entitled, and which is attainable. This approach should be embedded within cross-sectoral strategies. Additionally, measures which capture positive health (including psychological, social, and physical well-being) are needed at a local level.

Table 2: Liverpool's Health Priorities 1984

Health in Mersey 1984 proposed a strategy for action which stressed the importance for health teams to address health questions and challenges in a multidisciplinary way. A determinants of health approach (addressing housing, food, employment, and the physical environment), throughout the life course, should underpin all work which aims to improve health in Liverpool. Additionally, health promotion work should be developed through cross-sectoral alliances and through close partnerships with local communities. This strategy for action still reflects Liverpool's public health approach today.

For good levels of health and prevention of disease, the report emphasised the need for recognition across all sectors and organisations that health is a product of biological, social, and political factors. Whilst high quality and accessible primary care is an essential part of health strategies a real commitment to resource, actionable intelligence and community/individual empowerment which is tailored to the needs of specific populations (i.e., wards/neighbourhoods) is essential.

This section has explored previous health challenges faced in Liverpool and examined a strategy for action which called upon multidisciplinary and cross-sectoral partnerships to improve the health of the population in Liverpool. The next section will examine the current state of health in the city before exploring Liverpool's projected health in 2040.

2 Current state of health in Liverpool

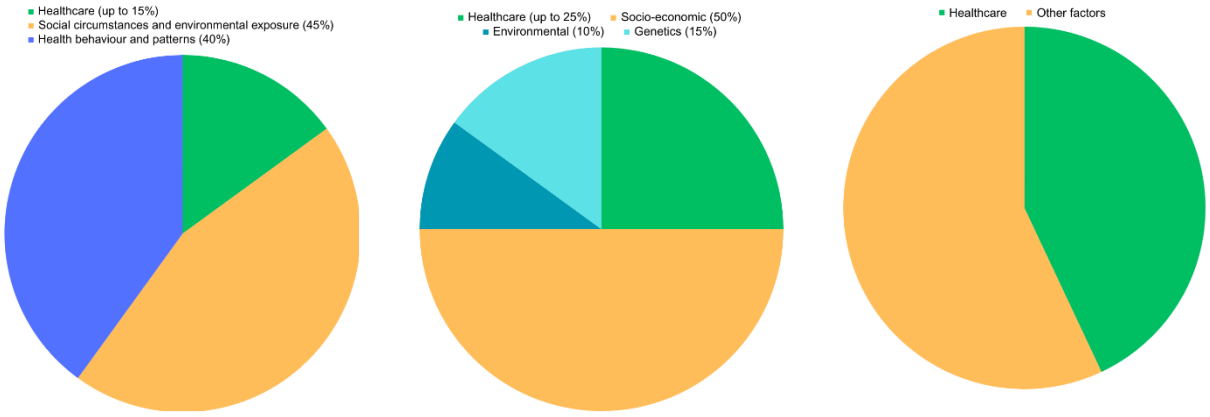
Liverpool is the third most deprived local authority in England and the council has seen its funding reduced by around 65 per cent since 2010.[9] The Health Foundation's analysis showed that cuts to the public health grant in England had fallen more heavily on the most deprived areas despite these areas having greatest need. [10]

In this section we look at the current state of health in the city. We examine the latest data for the city, for neighbourhoods and for communities. We look at how long our population lives, and crucially we look at the serious inequalities in healthy life expectancy, the period when we live in good health. We also look at how health in Liverpool affects our residents differently across the life course, from birth to the end of life. Finally, we consider the protective and risk factors that contribute to this current state of health of our residents to help inform actions needed to improve outcomes.

Health has been defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"[11]. The Local Government Association (LGA) used three different models to demonstrate how at least 50% of our health is determined by socio-economic factors and the built environment[12] (see Figure 1 below). These social determinants of health include the quality of housing, employment, education, the environment, and green spaces, as well as our income and relationships and characteristics such as sex, ethnicity, disability and social exclusion.

The social determinants of health are often understood as 'the causes of the causes' of ill health. They are now globally recognised as a core dimension of public health policy and practice and central to action on health inequalities.[13]

[9] Liverpool Express (2023). *Final budget proposals put forward*. Available here.
[10] Health Foundation (2021). Cuts to public health run counter to levelling up, say leading health organisations. Available here
[11] World Health Organization (WHO) (2023). *Constitution.* Available here.
[12] Local Government Association (LGA) (2020). *Social Determinants of Health and the Role of Local Government.* Available here.
[13] Marmot M, Allen J, Boyce T, Goldblatt P, Morrison J (2020). Health Equity in England: The Marmot 10 Years On. Institute of Health Equity.



McGiniss et al (2002) Canadian Institute of Advanced Research (2012) Bunker et al (1995)

Figure 1: The contribution of the social determinants of health to overall health[14]

Collectively these influence the three leading behavioural risk factors for preventable ill health in Liverpool - the consumption of unhealthy food, tobacco, and alcohol[15].

It is important to recognise that local health determinants are also impacted by global socio-economic, cultural and environmental conditions. Climate change is already having a significant direct and indirect impact on human health. It is expected that in the UK climate change will lead to increases in extreme weather events including heatwaves and flooding, as well as increasing vector-borne diseases, poorer air quality and threats to our food security. Closely linked to climate change, there is an increased risk of emerging infectious diseases[16]. This poses a significant threat to human health and may increase demand for health and social care services at a local level. Human factors such as urbanisation and globalisation, as well as ecological factors are contributing to these new patterns of disease.

[14] Local Government Association (LGA) (2020). *Social Determinants of Health and the Role of Local Government.* Available here.
[15] Institute for Health Metrics and Evaluation (IHNE), 2019. Global Burden of Disease – Liverpool. Available here
[16] UK Health Security Agency (UKHSA), NIHR (2023). *Climate Change and Public Health Indicators Scoping Review.* Available here.

The threat of high global levels of antimicrobial resistance (AMR) means that infections will be much harder to treat, and AMR will make medical and surgical procedures much riskier.[17]

Health care and outcomes will also be influenced by technological and medical innovation. For example, use of artificial intelligence to help with diagnosis, patient navigation and communication. Adopted in the right way this has the potential to improve efficiency, enable more pro-active and personalised response and communication to improve patient outcomes.[18]

2.1 Life Expectancy and Healthy Life Expectancy

Social factors, including poverty, income level, education, employment status and characteristics such as gender and ethnicity have a marked influence on how long a person lives and how many years of their lives is lived in good health. The infant mortality rate has been long regarded as key indicator of population health that is sensitive to the prevailing socioeconomic circumstances affecting children. In Liverpool around 26 infants every year do not reach their first birthday.

Life expectancy in Liverpool is currently 76.1 years for men and 79.9 years for women, both significantly worse than England which is 79.4 for men and 83.1 for women. While our residents are living longer than previously, progress has stalled over the last decade.

[17] WHO (2023) Antimicrobial resistance factsheet. Available here.
[18] Stoumpos, A I, et al, (2023), *Digital Transformation in Healthcare: Technology Acceptance and Its Applications, Int J Environ Res Public Health. 2023 Feb; 20(4): 3407.* Available here

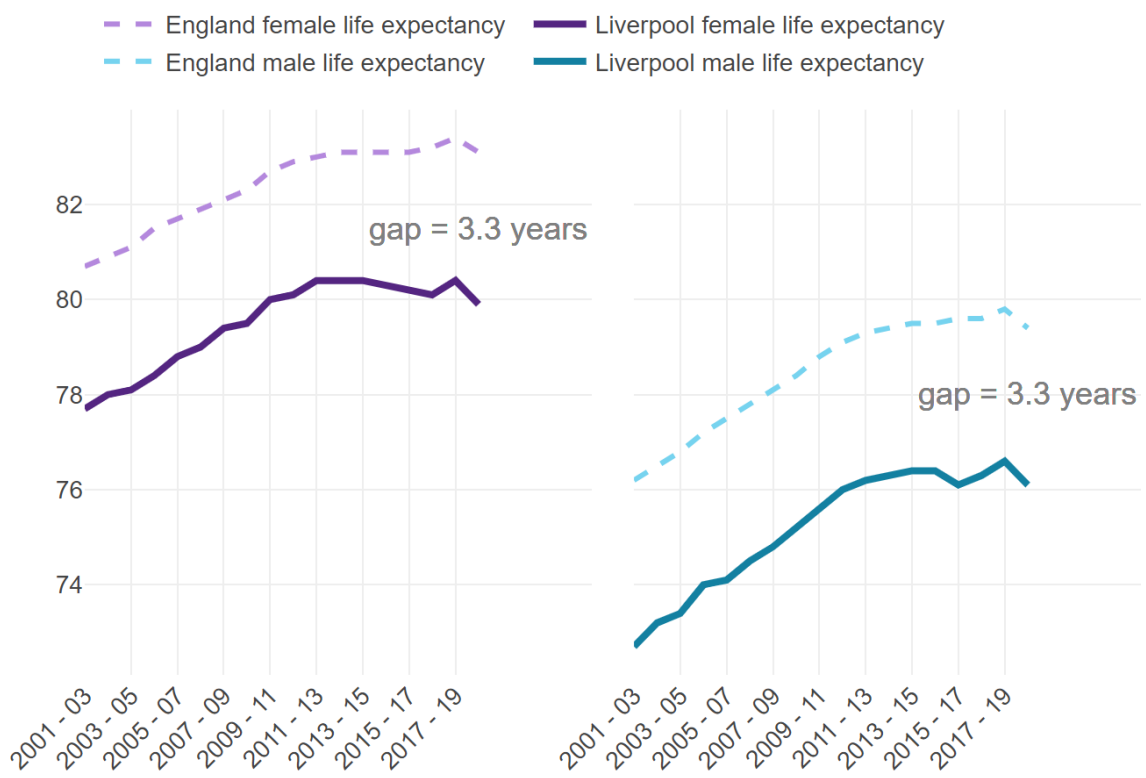


Figure 2: Life expectancy trends, males and females in Liverpool

In Liverpool, women can expect to live 57.9 years in good health and men up to 58.3 years – this means on average women will spend 28% of their lives in poor health whilst men will spend 23% poorly.

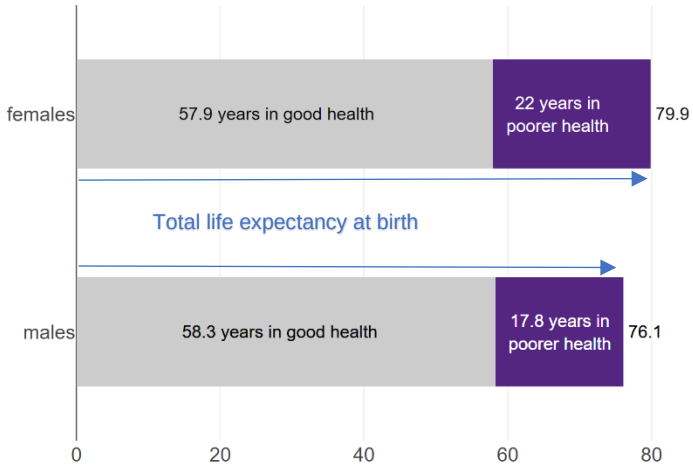


Figure 3: Total life expectancy at birth

For women, healthy life expectancy is lower than at the turn of the decade and the gap with England has widened from 5.5 years to 6 years, while for men the gap continues to be 4.8 years.

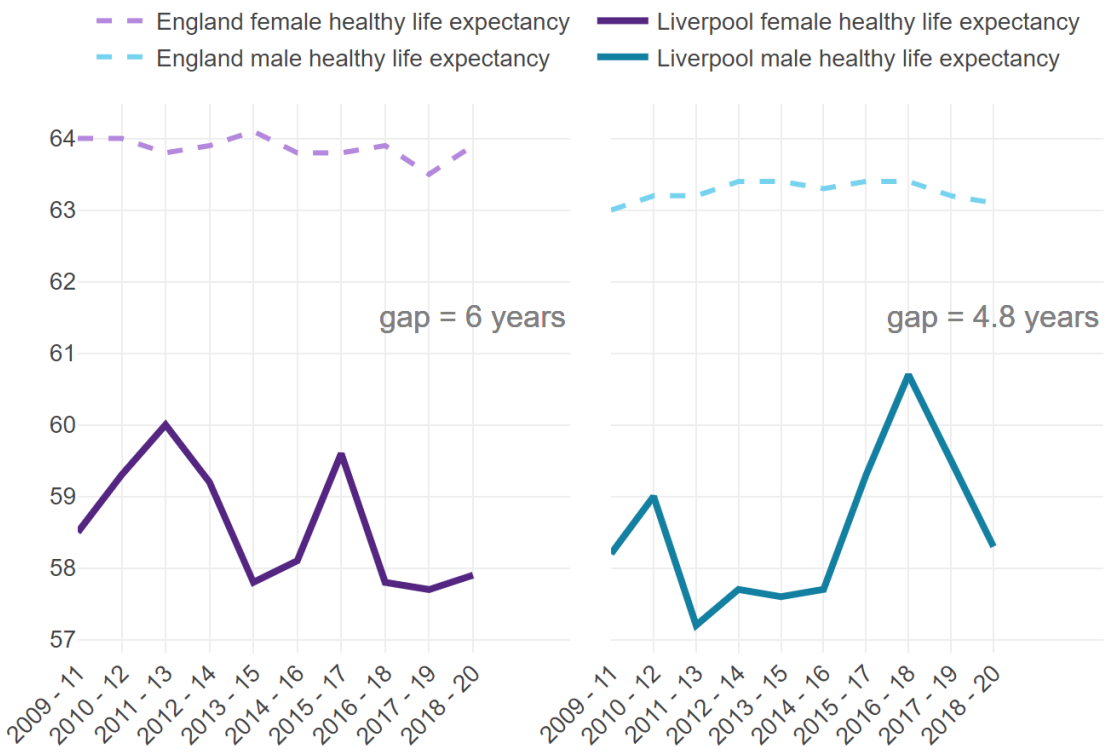


Figure 4: Healthy life expectancy trends, males and females in Liverpool

1,900 of our residents die prematurely before the age of 75 each year and 1,100 of these early deaths are considered preventable. Mortality rates for the three biggest killers are worsening (cancer and respiratory disease) or plateauing (cardiovascular disease)[19].

Around 63% of residents live in areas[20] ranked among the most deprived quintile in England while ten percent of areas are among the most one percent deprived. Deprivation tends to be concentrated in the north of the city, where most areas are ranked in the most deprived one or ten percent nationally (see Figure below) with health, living environment, employment and lower income being the main drivers.

[19] NHS Digital, *Primary Care Mortality Database.* Analysis by Liverpool Corporate Intelligence Team.
[20] Lower Super Output Area (LSOA).

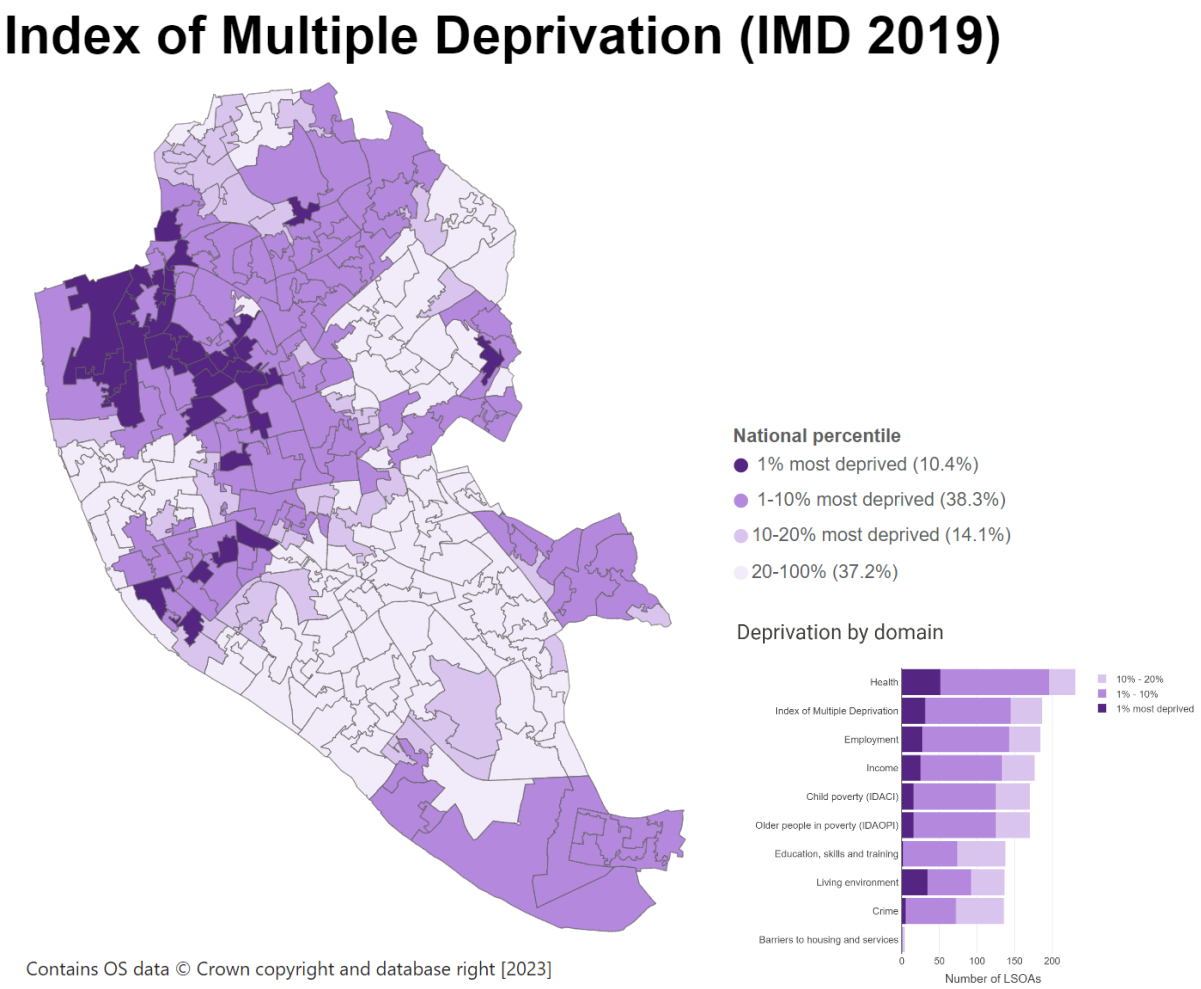


*Figure 5: Source Index of Multiple Deprivation (*IMD 2019), Ministry of Housing, Communities & Local Government

Compared to residents in more affluent areas, residents in the most deprived areas of the city have significantly shorter lives and spend more of their life in poor health. Latest data available for 2009-13 shows residents in our poorest areas lived 17.7 fewer years in good health than those in wealthier areas.[21] The infographic below shows how in just a short train ride, the average length of time a person lives decreases by 13 years.

[21] Office for National Statistics, Healthy life expectancy (HLE) for males at birth by 2011 Census Wards, England and Wales, 2009 to 2013. Available here

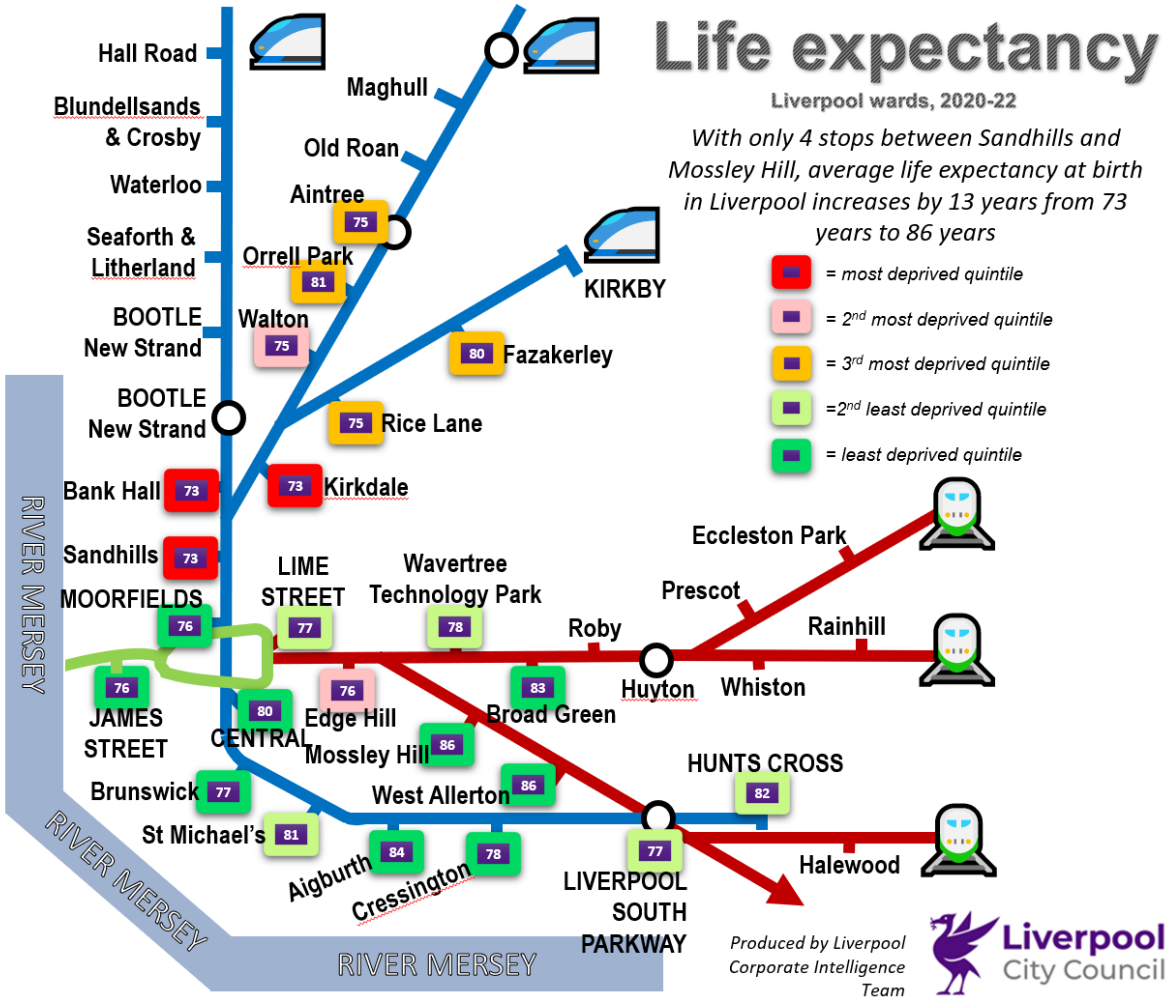


Figure 6: Life expectancy at birth, 2020-22 (3 year pooled). Source: Primary Care Mortality Database

The COVID-19 pandemic has widened inequalities in life expectancy between Liverpool and England to 3.5 years for men and 3.9 years for females (in the two years to 2021), up from 3.2 years and 3 years respectively before the pandemic. Two-thirds of these inequalities in life expectancy were caused by higher mortality rates from COVID-19, cancer, cardiovascular and respiratory diseases (Figure 7).

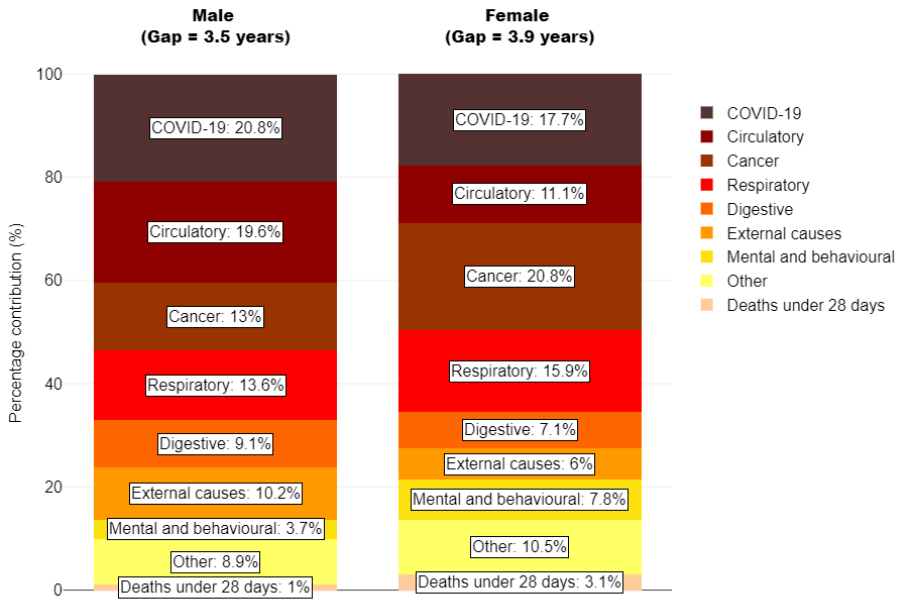


Figure 7: Breakdown of the life expectancy gap between England and Liverpool by cause of death, 2020 to 2021. Source: Office for Health Improvement and Disparities

Trends in life expectancy have not only resulted in widening inequalities between Liverpool and England but also within Liverpool. The life expectancy gap between males living in the poorest areas and those in the wealthiest was 9.4 years up from 9 years in 2017-19 while the gap for females was 8.7 years, up from 8.3 years (Figure 8).

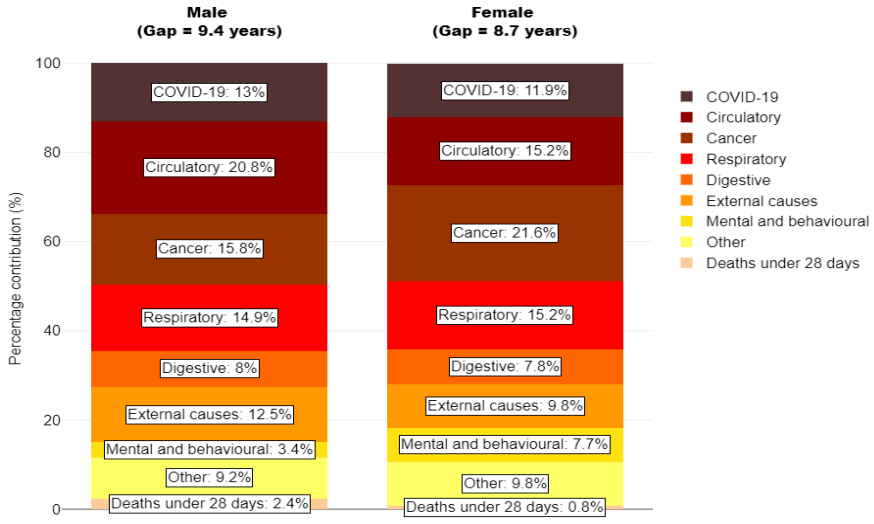


Figure 8: Breakdown of the life expectancy gap between the most and least deprived quintiles of Liverpool by cause of death, 2020 to 2021. Source: Office for Health Improvement and Disparities

Alongside deprivation, health outcomes vary by equality and diversity characteristics, including age. Liverpool has a younger age profile compared to nationally mainly because of its large student population. In 2022, two-thirds (66%) of the Liverpool population were of working age (20 – 69 years), 23% were aged under 20 years while older people aged 70 and over accounted for 11% of residents. Many older people experience barriers to care based on their chronological age, with research showing that older people have poorer access to treatments for common health care conditions.[22]

Groups and communities with poorer health outcomes include care leavers, those in contact with the criminal justice system, people with mental illness, Gypsy, Roma and Traveller communities, homeless people, vulnerable migrants, refugees and asylum seekers, people who do not speak English as their first language, people with drug and alcohol dependence difficulties, people experiencing racial inequalities, people with autism, people with learning disabilities and LGBTQ+ groups. At the time of the Census 2021, 16% of our residents identified as Black, Asian, Mixed/Multiple or Other ethnic groups. The largest minority ethnic groups in the city are: Other White (including eastern European), Black African, Chinese, and Arab. Ethnic diversity in Liverpool has increased steadily from 11% in 2011 to 16% in 2021 and is projected to rise to around 24% by 2040.

The Census 2021 shows English was the main language spoken for 90.4% of people in Liverpool, down from 93.7% a decade ago. The top ten languages spoken after English are: Arabic, Polish, All other Chinese, Portuguese, Romanian, Spanish, Kurdish, Persian or Farsi, Italian and Cantonese Chinese.

Local analysis[23] shows that:

- Of those aged 20-69 years, prevalence of chronic kidney disease and non-diabetic hyperglycaemia is highest among our Black/Black British residents.
- Among people aged 70 and over:

[22] Age UK, 2019. Improving healthcare, policy position paper Available here
[23] CIPHA, November 2023. Unpublished analysis by Liverpool Corporate Intelligence Team.

- Asian/Asian British residents have the highest rates of coronary heart disease, diabetes, and rheumatoid arthritis.
- Black/Black British residents have the highest rates of hypertension.
- Residents from Mixed/Multiple ethnic groups have the highest rates of asthma, serious mental illness, and non-diabetic hyperglycaemia.

The early impact of the COVID-19 pandemic replicated existing health inequalities and, in some cases, made them worse. [24] We know that older people, males, people from minority ethnic groups and people from deprived backgrounds were more likely to become infected and die with COVID-19.[25] Since the pandemic, long-term health conditions are keeping many people out of work, while some 'left-behind' children face significant risks to their long-term health and living standards.[26]

2.2 Health in our neighbourhoods

Liverpool is comprised of 64 electoral wards that have very different demographic, socio-economic, and health characteristics. The communities in which people are born, live, work and socialise have a significant influence on how healthy they are. Greenspace, such as parks, woodland, fields and allotments as well as natural elements including green walls, roofs and incidental vegetation, are increasingly being recognised as an important asset for supporting health and wellbeing[27]. Three-fifths (58.7%) of our residents live in areas (LSOAs) which score in the poorest performing 20% on the healthy neighbourhoods Access to Health and Hazards (AHAH) index, the 22nd highest in England and highest in the North West.

[24] Public Health England (2020). COVID-19: review of disparities in risks and outcomes. Available here
[25] LGA (2023). Social determinants of health and the role of local government. Available here
[26] The Health Foundation (2022). The continuing impact of COVID-19 on health and inequalities Available here
[27] Public Health England (PHE) (2020). *Improving Access to Greenspace: A New Review for 2020.* Available here

Poor quality or unsuitable homes can directly affect physical and mental wellbeing, creating or exacerbating health issues[28]. Cold homes and fuel poverty are directly linked to excess winter deaths. In 2021 one in six households in Liverpool were living in fuel poverty compared to one in eight in England (18% compared to 13%). Housing in Liverpool is more affordable than England, however, Liverpool has a higher proportion of non-decent dwellings (19.9% compared to 16.7% nationally).

Social isolation and loneliness have negative impacts on health outcomes[29]. Older people are at increased risk for loneliness and social isolation because they are more likely to face factors such as living alone, chronic illness, hearing loss and the loss of family or friends[30]. Liverpool has 76,000 residents aged over 65 years and the Census 2021 showed 25,600 (12.4%) households are occupied by a single person aged 66 years and over.

High crime levels can impact on how safe and secure a person feels and on the sense of community within an area. Over 28,000 violent crimes were recorded in 2021/22 and Liverpool's rate of 56.2 per 1,000 was the highest in Liverpool City region and the third highest among the Core Cities.

Homes energy efficiency On average in the UK, we spend 90% of our time inside buildings.[31] This makes the indoor air quality and temperature of our homes important, as well costing less to heat. Concentrations of some homebased air pollutants can be linked to socioeconomic co-factors, although data is currently limited.[32] In 2022, less than half (47%) of properties in Liverpool had an energy performance certificate (EPC) rating between A - C. Around 13.5% of properties had energy efficiency measures installed under the

[28] The Health Foundation (2017). *How does Housing Influence our Health?* Available here.
[29] WHO (2023). Social Isolation and Loneliness. Available here.
[30] CDC, (2023). Loneliness and Social Isolation Linked to Serious Health Conditions. Available here.
[31] UKSHA, (2023). How to improve air quality in your home while making it more energy efficient. Available https://ukhsa.blog.gov.uk/2023/12/01/how-to-improve-air-quality-in-your-home-while-making-it-more-energy-efficient/
[32] Source DEFRA, Air Quality Expert Group (2022) Indoor Air Quality. Available here.

governments ECO scheme including wall and loft insulation (Great Britain = 9%)[33].

Poor air quality is the biggest environmental risk to public health in the UK[34]. Long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy. In Liverpool 5.8% of deaths are attributable to particulate air pollution. The amount of traffic on the roads can have a direct impact on health through road safety, air and noise pollution. In many cities, traffic remains one of the main sources of air pollution, with vulnerable groups and those living in deprived areas most affected. In Liverpool the 2021 Census showed 44.7% of residents travel to work by van or car.

Infectious diseases Similar to the national trend, uptake of most of our vaccination programmes in Liverpool across the life-course has fallen, with inequalities in uptake linked to deprivation. This means that fewer people are protected against a range of vaccine-preventable diseases. The most immediate concern is the decline in MMR vaccine coverage which leaves us at risk of spread of measles. Other concerns include the risk of re-emergence of rare infectious diseases like diphtheria, increased risk of certain types of cancer linked with human papillomavirus, and deaths and hospitalisations from acute respiratory infections like flu.

2.3 Health across the Life Course

The life course approach is a well-recognised public health cornerstone to build health and health equity[35]. The approach identifies the importance of taking action early from preconception to birth and early years, to take action appropriately throughout adulthood, and to consider how these interact, for example between adult carers and children, between wider society and local communities and individuals. At a national level, evidence points to the “general

[33] Department for Energy Security and Net Zero (2023). *Domestic Energy Map.* Available here.
[34] PHE (2019). Review of Interventions to Improve Outdoor Air Quality and Public Health. Available here.
[35] WHO (2021). The Life-Course Approach: From Theory to Practice. Available here.

principle that early policy interventions at large enough scale can be highly cost-effective".[36] The next section looks at the current state of health in Liverpool across the life course. Some of the main health outcomes at different life stages are summarised in Figure 9.

[36] World Bank (2020) *Toward Successful Development Policies: Insights from Research in Development Economics*. Available here.

Figure 9: Liverpool life course statistics, 2023. Source: Liverpool City Council / Fingertips / OHID.

2.4 Start Well

Poverty is associated with adverse developmental, health, educational and long-term social outcomes. In Liverpool 24,000 children are living in relative poverty, that is almost one child in every three.[37] Over 40% of children in the UK experience continuous exposure to either poverty and/or parental mental ill health.[38] These common exposures lead to large negative impacts on child physical, mental, cognitive and behavioural outcomes, for example increasing the risk of children developing mental health problems six-fold when both exposures are present. These harmful exposures are very common, and much more so in Northern regions (55% overall), compared to the Southern regions (32% overall). Children and young people being raised in families facing poverty stressors are also more vulnerable to becoming looked after or needing social care support.

Child poverty is linked to a wide range of poorer health outcomes including low birth weight (200g lower than affluent children); poorer age-related development during stages of childhood; poor physical health (linked to chronic conditions and obesity); mental health problems and low sense of wellbeing; experience of stigma and bullying from peers; academic underachievement; subsequent employment difficulties; and social deprivation.[39]

There were 5,364 live births in Liverpool in 2021 which is 513 fewer births than a decade ago. As mentioned earlier, around 26 infants every year do not reach their first birthday. Liverpool's infant mortality rate of 4.8 per 1,000 live births in 2019-21 was the 7th highest in the North West, and higher than England (3.9 per 1,000). The Annual Child Death Overview Panel for Liverpool and Merseyside[40] continuously demonstrate that preventable infant deaths are socially patterned

[37] Ministry of Housing, Communities and Local Government (MHCLG), (2019). English indices of deprivation, Child Poverty, Income deprivation affecting children index (IDACI). Available here
[38] NHSA, (2023). Child of the North, Building a fairer future after COVID-19. Available here
[39] The Children's Society (2019). What are the Effects of Child Poverty? Available here
[40] Merseyside Child Death Overview Panel, (2023). Child Death Overview Panel Annual Report 2021/2022. Available here

with common modifiable risk factors, such as household and maternal smoking, lack of engagement with services, maternal obesity and mental health issues.

What happens in pregnancy and early childhood impacts on physical and emotional health all the way through to adulthood. Smoking is recognised as a risk factor for mothers and their unborn babies and children in the household.[41] Around 436 mothers are smokers at the time of giving birth (8.8% of mothers). The local rate of women smoking at time of delivery is in line with the national rate (8.8%) and is reducing. However, the rate of smoking on delivery in 2022/23 was 7.3 times higher in the most deprived areas (14.8%) compared to least deprived parts of the city (2%).

Breast feeding is a protective factor for our babies providing them with nutrition that meets all their needs, stronger immunity against infections and a stronger emotional attachment with mother. Breast feeding prevalence is increasing but remains significantly lower than England at 44.6% compared to 49.2% in 2022/23.

Vaccinating children protects them against infectious diseases that used to seriously harm or even kill children and adults. Across the world millions of deaths worldwide every year are prevented through vaccination programmes[42]. Childhood vaccination coverage has sharply declined in Liverpool since the start of the COVID-19 pandemic - in 2022/23 only 80% of children had their first dose of the measles, mumps, and rubella (MMR) vaccine by their second birthday, significantly below England (89.3%) and well below the 95% World Health Organisation's (WHO) target needed to achieve and sustain measles elimination. There was a 19.1 percentage point difference in MMR coverage (one dose) at 24 months between the most deprived and the least deprived areas (70.2% compared to 89.3%). Insight obtained from local communities indicates that there are a proportion of parents that could be supported to have their child vaccinated. But there are a number of barriers including: a lack of knowledge around the diseases the vaccines counter, some mistrust in health

[41] Office for Health Improvement and Disparities (OHID) (2022). Smoking and Tobacco: Applying All Our Health. Available here
[42] NHS (2023). Why Vaccination is Important. Available here

care professionals, and a resurgence in myths and misinformation about vaccinations.

2.5 Grow Well

There is a direct link between education and factors such as health and life expectancy rates, with academic achievement playing a potentially significant role in reducing health inequalities by shaping life opportunities.[43] Being ready for school is recognised as an important cornerstone of a child's life, preparing them for education at least up to their 16th birthday. This includes having good health and wellbeing alongside learning and communication skills. Health visitors (through the Healthy Child Programme)[44] and early years services, including childminding and nursery provision, alongside the support from school nurses, parents and others, help prepare children for this stage in their lives.

A number of factors influence a child's school readiness, including poor health and socio-economic and employment status of parents, and maternal education. [45] In 2021/22 only 58.4% of Liverpool children were ready for school at the end of their school reception year, a proportion that was significantly below the national level (65.2%) and the fifth lowest in England. Last year pupils' results in GCSE-level qualifications were the lowest among the Core Cities and the ninth lowest in the country (43.9% compared to 48.7% in England).

Having good physical and mental health is also a positive building block for children throughout their time in education and as they prepare for becoming teenagers and young adults. In this section we look at weight, oral health, health protection, mental health, exposure to risks and unhealthy behaviours - as key indicators of health.

[43] Health Research Action Group, (2019). The role of education in reducing health inequalities Available here
[44] OHID (2023). The Healthy Child Programme. Available here.
[45] Camacho C, Straatmann VS, Day JC, et al. (2019). Development of a predictive risk model for school readiness at age 3 years using the UK Millennium Cohort Study. BMJ Open 2019;9:e024851. doi:10.1136/bmjopen-2018-024851

Obesity is associated with reduced life expectancy and a range of health conditions including type 2 diabetes, cardiovascular disease, liver and respiratory disease and cancer. Obesity can also have an impact on mental health. Obesity in childhood is associated with poorer quality sleep, bullying, risk of toxic relationships due to lower self-esteem and poor mental health. Obesity and mental health have a reciprocal relationship, but evidence suggests that in early years it is also reflective of parental mental health.[46]

Compared to England, rates of children with excess weight (overweight and obesity combined) in Liverpool are significantly higher and are increasing at a faster pace. In 2022/23 there were 1,375 4-5-year-olds and 2,205 10-11-year-olds who were overweight. Of these, 645 children in reception and 1,445 children in Year 6 were obese. Obesity rates more than double in Liverpool children between reception and Year 6, increasing from 12.2% of children to 28.1% of children. Prevalence of child excess weight is 1.4 times higher in our most deprived areas compared to least deprived areas.

Encouragingly, the percentage of our children and young people who are physically active is above the national average (55.2% compared to 47.2%) and the highest among the Core Cities.

Children with poor oral health experience the immediate pain, social stigma and sleeplessness consequently but they are also more likely to be absent from school falling behind their peers.[47] One in two (43.5%) children have dentinal decay by the age of five, and Liverpool's rate in 2021/22 was the second highest nationally. In the 12 months up to 30 June 2023, 50,882 (52.6%) children were seen by an NHS Dentist, the second lowest in the Core Cities after Birmingham (50%).[48] Many children with poor oral and poor access to routine dental care are doubly disadvantaged often living in families facing poverty stressors.[49] The Office for Health Improvement and Disparities has found that fluoridated water is

[46] UK Parliament Post (2021). Childhood Obesity. Available here
[47] Jackson S L (2011). Impact of poor oral health on children's school attendance and performance, National Library of Medicine. Available here
[48] NHS Business Services Authority (BSA), (2023). NHS Dental Statistics for England, 2022-23, Annual Report. Available here
[49] Public Health England (2020). Inequalities in oral health in England. Available here

an “effective, safe, and equitable public health intervention to reduce the prevalence, severity, and consequences of dental caries” and the benefits are greatest in the most deprived areas”[50].

Adverse childhood experiences including child abuse and neglect can leave people with health, social and economic problems throughout their life[51]. The risks posed by ACEs are now well understood and a range of programmes seek to prevent and intervene early, as well as provide ongoing support to adults affected by childhood trauma. In the 2023 OxWell Survey, 10% of 9-18 year olds said they had ever been physically hurt by an adult in their household on purpose, with 6% preferring not to answer. 9% either preferred not to answer or said they had ever been made to give or receive inappropriate touch from an adult.

Parental/carer mental ill health can, in some circumstances, lead to an inability to look after the child's physical and emotional wellbeing. It is thought about one third of all children and young people in England live with a parent with mental ill-health, around 7% of which live in lone-parent households.[52] Children in care face adverse health outcomes throughout their life course compared with their peers.[53] In 2022 there were 1,600 children in care in Liverpool, the fourth highest in the country and two and a half times the England rate (172 per 10,000 compared to 70 per 10,000). From 2011 to 2018, areas in England that reduced their spending on preventative adolescent services saw higher rates of 16–17-year-olds entering care the following year.[54] [55]

The proportion of pupils in Liverpool with special educational needs (SEN) is the fifth highest nationally (21.5% compared to 17.3%). There were over 17,000

[50] OHID (2022). *Water fluoridation: Health monitoring report for England 2022*. Available here
[51] First 1001 Days All Party Parliamentary Group, (2015). *Building Great Britons.* Available here.
[52] Safeguarding Network (2023). Parental Mental Ill-health Available here
[53] Bennett DL et al,(2022). Child poverty and children entering care in England, 2015–20: a longitudinal ecological study at the local area level, The Lancet. Available here
[54] Skinner G et al (2022). The cost-of-living crisis, poverty, and child maltreatment. The Lancet Child & Adolescent Health, Volume 7, Issue 1, p5-6, January 2023. Available here
[55] Bennett, (2023). Inequalities in Children Looked After in England: local area studies to inform policy, University of Liverpool for the degree of Doctor in Philosophy (UNPUBLISHED).

pupils with SEN support or with an educational healthcare plan (EHC) in 2022/23 while the underlying trend is significantly increasing.

National survey results show one in five children and young people aged 8 to 25 years have a probable mental disorder.[56] In Liverpool this would equate to around 28,700 children and young people: 9,400 (20.3%) 8–16-year-olds; 5,800 (23.3%) 17-19-year-olds; and 13,500 (21.7%) 20-25-year-olds. National evidence indicates that children living in the most deprived areas are twice as likely as children in the least deprived areas to be referred to specialist mental health services or receive mental health prescribing. In Liverpool in 2022 there were 13,600 referrals to Child & Adolescent Mental Health Services, an 8% increase on the previous year. In the 2023 OxWell Survey of Liverpool school children, 28% of surveyed year 7 pupils reported they have a mental health problem affecting their daily life, rising to 53% of year 13 pupils[57]

Alcohol consumption and drug use are known to co-exist with, and exacerbate, mental health problems. Smoking and drinking levels in our children and young people are continuing to fall but vaping is increasing with tempting flavours a key factor for young people. The 2023 OxWell Student Survey results for Liverpool pupils in Year 13 show:

- one in four (23%) had vaped/used e-cigarettes.
- one in five (19%) had had an alcohol drink in the last 19 days and 8% had had four or more alcoholic drinks.
- one in five (21%) had taken something to get high/self-medicated in the last year.

Children and young people at risk of offending or within the youth justice system often have greater mental health needs than other young persons. There were 84 juveniles who received their first conviction or caution in 2022. Liverpool's rate of first-time entrants to the youth justice system was significantly higher than

[56] NHS England (2023). *Mental Health of Children and Young People in England.* Available here.
[57] Oxwell (2023) Available here.

England (210.9 per 100,000 compared to 148.9) however the underlying trend is decreasing.

Persistent absenteeism among Liverpool secondary school pupils (32.0%) was the 3rd highest among the Core Cities in 2021/22 and significantly above the England average (27.7%). This is of concern, as we know children with poor attendance at school are at increased risk of criminal exploitation by county lines gangs. Liverpool has the highest number of county lines outside the Metropolitan police.[58]

There were 885 16-17-year-olds who were not in education, employment, or training in 2022/23, the 9th highest in England (8.5% compared to 5.2%).

Liverpool has the highest alcohol-specific hospital admissions rate in under 18s among the Core Cities. The admission rate between 2018/19 - 2020/21 was significantly higher than England (46.9 per 100,000 compared to 29.3).

Hospital admissions for substance misuse among 15-24-year-olds are significantly above the national average (106.1 per 100,000 compared to 81.2 in 2018/19 - 20/21) and the second highest among the Core Cities. Admission rates are 3.1 times higher in the most deprived parts of the city.

Most teenage pregnancies are unplanned and around half end in an abortion. Teenage mothers are three times more likely to suffer from post-natal depression and experience poor mental health for up to three years after the birth and are at increased risk of living in poverty with their children. In 2021 there were 141 teenage conceptions. Liverpool's under 18s conception rate per 1,000 was 1.5 times the national average (20.2 per 1,000 versus 13.1). The number of teenage mothers has fallen significantly in recent years. There were 25 teenage mothers in 2022/23 compared to 97 teenage mothers a decade ago.

[58] Merseyside Police, 2023.

2.6 Live Well

Throughout adulthood we are exposed to a range of risks to our health. Some are often described as behavioural, placing the responsibility on the individual. However, evidence shows that whilst individuals can and do make choices, often these are heavily influenced by advertising, unhealthy inducements by retailers, and the deliberate actions of commercial organisations, referred to as the commercial determinants of health, that are *escalating avoidable levels of ill health*[59].

In this section we look particularly at employment rates and some of the health issues that limit people's health and wellbeing including physical activity and weight, smoking, alcohol, mental health, and major illness.

In 2022/23 there were 232,800 people aged 16-64 years in employment, significantly lower than nationally (69.4% compared to 75.7%). In June 2023 one in three (35%) of our economically inactive residents were long term sick compared to one in four (25.6%) nationally.

In 2021/22 one in four (24.8%) adults were physically inactive and 65.3% were overweight or obese, the third highest levels among the Core Cities.

Liverpool has the 13th highest smoking prevalence rate in England. There are around 70,000 smokers, with prevalence in 2022 standing at 17.3% compared to 12.7% in England. Smoking prevalence in the most deprived areas of the city are 2.5 times higher than in the least deprived.

Violence against women and girls is a growing issue in Liverpool as well as in some other Core Cities. In 2021/22 8 in 10 (81%) police callouts resulted in a domestic crime being recorded, up from 3 in 10 (31%) in 2015/16.[60] Witnessing or experiencing domestic abuse as a child is a key ACE and it is shown it can

[59] The Lancet (2023). Commercial Determinants of Health. Available here.
[60] Liverpool City Council, 2023. Violence Against Women and Girls Strategy 2023-2026. Available here

impact on a child's future risks becoming involved in crime, either as a victim or perpetrator.

Liverpool has the 12th highest rate of violent crime in England (56.2 per 1,000 versus 34.9) and the third highest rate among the Core Cities. One in 8 crimes in the city are alcohol related. There were over 8,000 alcohol related crimes in 2022/23 which is a third higher (33%) than before the pandemic.[61] Kirkdale East, Everton West, Tuebrook, Breckside Park, Sefton Park and County wards account for the highest alcohol-related crime incident rates outside of the city centre

Alcohol consumption is a contributing factor to hospital admissions and deaths from a wide range of conditions. Alcohol specific admissions to hospital are 1.8 times higher than nationally with 4,935 admissions per year. Rates of admission are 2.9 times in the most deprived quintile compared to the least deprived. There are around fifty-six drug misuse deaths each year. Liverpool's drug misuse mortality rate between 2018–20 was 2.6 times higher than the national average (12.9 per 100,000 compared to 5.0) and the 5th highest in England.

In 2022 there were 7,337 new Sexually Transmitted Infections (STIs) diagnosed in the city – an increase of 2,564 on the previous year. Notably cases of gonorrhoea have more than doubled (113.7%) while chlamydia detection rates among 15–24-year-olds have increased by 40.3%. With increased STI testing, more STIs will be detected, and people treated which helps prevent onward spread. However, the scale of the increase suggests an increased burden of STIs in the city. Gonorrhoea has developed resistance to nearly all the antibiotics used for its treatment – highlighting the critical need to prevent and treat gonorrhoea.

An estimated 95% of people living with HIV in Liverpool know their HIV status, this means 5% of people living with HIV (45-50 people) are unaware that they

[61] Merseyside Police, Oct22-Sep23 (12 months rolling), Liverpool Corporate Intelligence Team

are infected. 833 people in the city are currently in treatment for HIV infection, with 814 virally suppressed and unable to transmit HIV to others.

Screening coverage rates for breast, bowel and cervical cancer are significantly below the England average.

Dental problems are the reason for more than half of enquiries made to Healthwatch Liverpool, up from a fifth in 2019-20.[62] Difficulty getting dental care is a recurring theme in these calls, with challenges around availability of NHS dentists offering routine care and the affordability of care, with the latter potentially exacerbating health inequalities. Compared to the other Core Cities, Liverpool adults are less likely to see an NHS dentist and when they do, they are more likely to need urgent treatment. In the 24-months leading up to 30 June 2023, 146,600 (36.1%) adults were seen by an NHS Dentist, the lowest among the Core Cities while in 2022/23 there were 45,400 (7.6%) dental activities which were urgent, the highest out of the Core Cities. [63]

Previous analysis shows 60% of residents aged 15+ with physical and mental health multimorbidity are under 65 years.[64]

In 2022/23, 75,730 people (16.1%) were diagnosed with depression by their GP which equates to one in every six adults. Mental health conditions, particularly depression, are more prevalent in people with increasing numbers of physical conditions. Residents in the most deprived parts of the city are twice as likely to have a mental health condition than those in the most affluent. Men were less likely to have a mental health condition than women, with women 1.6 times more likely than men to have a mental or behavioural condition.

People with five or more conditions were 2.6 times more likely to have a mental health condition compared with those with none. People aged between 15-64 years with mental health conditions were more likely to have increasing numbers of physical health conditions than older people (aged over 65 years) with mental

[62] Healthwatch Liverpool, 2022.The State of NHS Dentistry in Liverpool. Available here
[63]NHS Business Services Authority (BSA), 2023. NHS Dental Statistics for England, 2022-23, Annual Report. Available here
[64] Liverpool Corporate Intelligence Team (2022). Multimorbidity Intelligence Report. *Unpublished Analysis using Liverpool Place Risk Stratification Data Extract, August 2022.*

health conditions, and this association was stronger among younger people in the most deprived areas.

People in the most deprived areas of the city experience major illness significantly worse than those in the least deprived areas including[65]:

- living with major illness around 10-15 years sooner and therefore spend more of their lives in poor health.
- more likely to have major illness for all age groups, apart from those aged 90 years and older.
- more likely amongst those with multi-morbidities to be diagnosed with coronary heart disease, diabetes, chronic obstructive pulmonary disease, or cancer (apart from atrial fibrillation, in which a small reverse gradient was observed).
- People living in deprived areas of the city are much more likely to have cancer, chronic obstructive pulmonary disease (COPD), diabetes, depression, and hypertension as multimorbidity than other conditions.

[65] Liverpool Corporate Intelligence Team (2022). *Unpublished Analysis using Liverpool Place Risk Stratification Data Extract, August 2022.*

	Most deprived quintile	Most affluent quintile
Cancer and depression	28.5%	16.0%
Cancer and COPD	16.8%	5.3%
COPD and depression	37.6%	22.6%
CHD and depression	32.8%	18.6%
Diabetes and depression	28.9%	18.6%
Diabetes and cancer	19.3%	11.9%
Hypertension and depression	27.0%	16.3%
Hypertension and diabetes	27.2%	18.5%
CHD and diabetes	34.1%	24.7%
CHD and cancer	13.7%	10.8%

Table 3 Prevalence of selected morbidities in people aged 15 and over in the most deprived and most affluent areas, 2022.

2.7 Age Well

In his latest Annual Report, Chief Medical Officer for England has set out some of the main health issues facing our older population[66]. Importantly, the CMO is clear that "inequality in the rate of biological ageing is largely preventable and is

[66] Department of Health and Social Care (DHSC) (2023). Chief Medical Officer's Annual Report 2023: Health in an Ageing Society. Available at: here.

affected by the social and economic environments that people live and work in". In this section we look at some of the key current statistics of our older population including their health, carers who as well as providing important care support also have their own health needs, and some of the most common health issues for this age group.

In Liverpool over 70% of those aged over 70 have multimorbidity (two or more long term conditions), while a further 20% have at least one long term condition.[67]

High numbers of older people are admitted to hospital after a fall. There were over 2,000 admissions in 2021/22 and Liverpool's falls admission rate was the seventh highest in England.

Hip fracture is a debilitating condition. One in three people end up leaving their own home and moving to long term care following a hip fracture. The National Hip Fracture Database[68] reports that mortality from hip fracture is high where about one in ten people with a hip fracture die within one month and about one in three within 12 months. In Liverpool around 450 older people fracture their hip every year, the 14th highest nationally (637 per 100,000 compared to 551 per 100,000 in England).

In 2022/23 there were 3,115 people (0.54%) diagnosed with dementia, which was significantly lower than nationally (0.74%). It is estimated around 2,000 people aged 65 and over are living with undiagnosed dementia.

Levels of independent living support for older people are significantly better than nationally. In Liverpool people aged 65 and over are more likely to be offered reablement services after being discharged from hospital (3.7% compared to 2.8%) and they are more likely to be still at home three months after being discharged from hospital into reablement services (90.9% compared to 81.8%).

[67] CIPHA enhanced case finding tool.
[68] National Hip Fracture Database (2013). National Report 2013. Available here.

Despite this, there is a significant number of patients who are fit to be discharged but staying in hospital for longer than necessary[69]. Across June and July 2023, approximately 324 patients per day in Liverpool University Hospitals NHS Foundation Trust did not meet criteria to reside, meaning a non-medical reason was preventing discharge from hospital[70].

Finally, when considering health and care needs it is important to consider the role and impact on informal carers. The results of the Census 2021 show almost one in ten adults in Liverpool said they provide unpaid care (over 50,1000 people). Liverpool has the highest level among the eight Core Cities, in addition to being significantly above England (9.6% v 8.8%). Many carers in Liverpool report they are unable to spend their time doing things they valued or enjoy (10.9%); they do not have as much control over their daily life as they want (15.0%) or have as much social contact as they want with people they like (19.6%).[71]

[69] Liverpool University Hospitals NHS FT (2023). Board of Directors Meeting 28 September 2023 Public Pack. Available here.
[70] Liverpool University Hospitals NHS FT (2023). Board of Directors Meeting 28 September 2023 Public Pack. Available here.
[71] NHS Digital, 2023. Personal Social Services Survey of Adult Carers in England, 2021-22. Available here.

3 Projected Health in Liverpool 2040

The purpose of this report is not to just take a static view of health in the city but to consider the health of the city's population in 2040 based on current trends. Taking this unique local-level approach means that we can plan better now to create the best possible circumstances for the future health of our residents. Acting now means less demand on health and care services in the future, helping people live longer in good health.

In this section we look at estimates for what the health of the population in Liverpool may look like, how many people and who may be living with major illness by 2040. Adult projections are drawn from validated methodologies, whereas our child and young person projections have relied upon less established methods, thus reducing certainty of modelling. To understand potential health issues for the future generation of this group, we have utilised data and evidence, including national work by the Royal College for Paediatric and Child Health (RCPCH) on our current under-18 population.

For further detail about the methodology used in this report please refer to the methodological addendum. The Health Foundation's insight report 'Health in 2040: projected patterns of illness in England'[72] looked at patterns of illness over the next two decades to give an indication of the potential scale of demand.

It is important to note that in this first iteration, the major disease projections are based on historic trend data with the assumption that such trends will continue to 2040. They do not consider unknown future innovations in treatment, potential changes to lifestyle behaviour, and wider economic and societal impacts on health. As a result, they are very much estimates based on current assumptions, rather than predictions. Work will be undertaken with the University of Liverpool and health partners to keep these projections under review.

[72] The Heath Foundation (2023). Health in 2040: Projected Patterns of Illness in England. Available here.

3.1 Summary of Key Findings

By 2040 we estimate that in Liverpool, based **on current trends and without further actions**:

- Life expectancy is projected to increase by 0.5 years for men and to fall by one year for women.
- On average residents will live more than a quarter of their lives (26.1%) in ill-health.
- The number of people with major illness will increase by between 33,000 and 38,000 people.
- The biggest increase in major illness is projected in the number of people diagnosed with depression, expected to more than double to 164,200 people.
- Large increases are also expected in numbers diagnosed with hypertension (up 20,300 to 99,600 people), cancer (up 16,100 to 34,100 people), diabetes (up 14,800 to 46,900 people), asthma (up 11,600 to 44,900 people), chronic kidney disease (up 10,600 to 35,600 people).
- The overall number of health conditions is projected to rise by over half to 546,600, an increase of 191,300 (54%) and the increase will be greatest in the most deprived quintile.
- Minority ethnic adults living with major illness could rise by 4,000 people
- The key health issues facing children and young people within the next two decades are predicted to be mental health, obesity, and child poverty.

3.2 Our changing population

Liverpool's population has been increasing since 2001 and there are currently 496,770 residents.

Life expectancy increased since the turn of this century before stalling in the decade leading up to the pandemic. While people are living longer, many are spending longer in ill-health because of chronic diseases. Increasingly, demand

on hospitals, primary care and social care is from long-term conditions such as heart disease, dementia and diabetes.

The chart below shows the population trend for Liverpool up to 2022 and projected population estimates up to 2040.

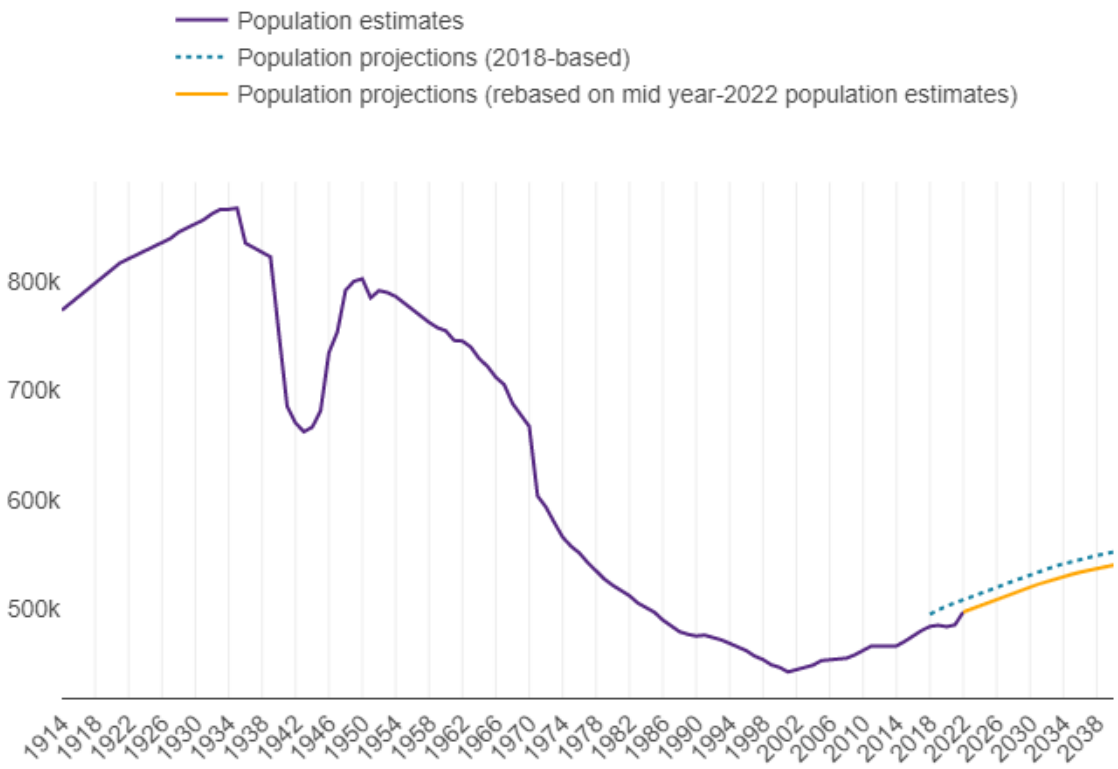


Figure 10: Population trends and projections between 2014 and 2040. Source: Office for National Statistics mid-year population estimates, and population projections 2018-based.

The overall proportion of older dependents is increasing. Between 2022 and 2040 we estimate that our population will increase by 9%, with the following key features:

- the number of 0-19 years old is expected to increase by 9,100 (8%).
- the number of 20–69-year-olds (the working age population) is projected to increase by 16,000 (5%).
- the number of older people aged 70 and over is expected to increase by 18,800 (35%).

- The number of people 80 years and older is expected to increase by 8,800 people (47%), accounting for 5% of the population in 2040 (up from 4% in 2022).

Age group	2022	2040	Change
0 - 19	114,300	123,400	+8%
20 – 69	329,600	345,600	+5%
70+	52,900	71,600	+35%
All ages	496,800	539,900	+9%

Table 4 Projected population change between 2022 and 2040. Figures do not sum due to rounding.

3.3 Life Expectancy and Healthy Life Expectancy

If current trends continue, then a small decrease in life expectancy is expected (0.1 years). Life expectancy in 2040 is projected to increase by 0.5 years for men and to fall by one year for women.

If trends in healthy life expectancy continue along the same trajectory, then by 2040 women are projected to live to 53.8 years in good health (a decrease of 4.1 years) while men are projected to live to 60.1 years in good health (an increase of 1.8 years). Liverpool residents can expect to live on average more than one quarter of their lives in ill health in (26.1% in 2040 compared to 25.5% in 2018-20).

3.4 Population living with major illness

Modest changes in the overall size of Liverpool's population are expected over the next two decades – increasing by around 6% per decade compared with 7% from 2012 to 2022. A high proportion (43%) of the population growth will be among people aged 70 years and older (18,800 out of 44,000 people).

The Health Foundation reported the number of people living with major illness in England is projected to increase by almost 37% by 2040.

If the proportion of adults with major illness in Liverpool rises in line with the national average, an increase of 37%, then the number is expected to grow between 33,000 and 38,000 to between 123,500 and 141,000 people by 2040.

By 2040, one in four people (27%) aged 20 years and older are projected to be living with major illness, moving from one in five (22%) in 2023. While some of this increase will be driven by a rise in older age groups, it is recognised that age by itself is not an acceptable reason for living in poor health. To improve outcomes for people as they age – whether in health, skills, employability, housing and assets to fund retirement – requires interventions from an early age, and an understanding of the impact of policies through the life course.[73]

An increase of 37% in the number of people with major illness is seven times the increase in the working age population (20-69-year-olds) which is projected to grow by 5% (16,000 people) – this is the group that generates the bulk of government revenues. These revenues are used across all areas of government spending including the NHS.

[73] Government Office for Science, (2019). Future of an Ageing Population. Available here

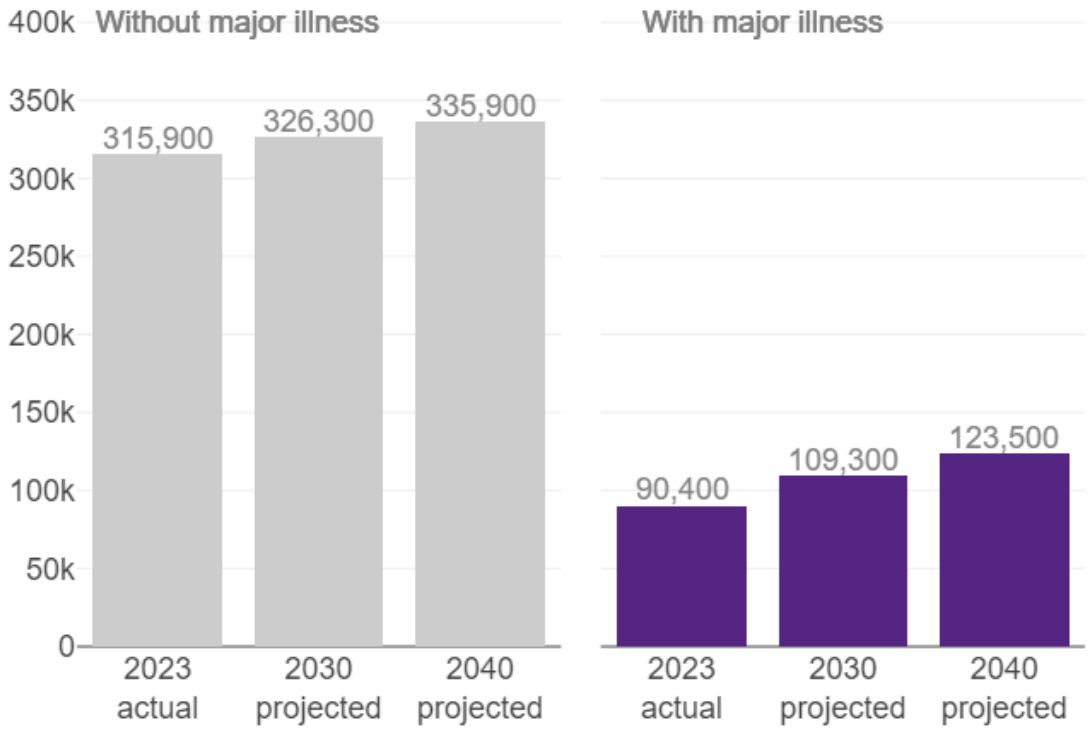


Figure 11: Estimates of population with and without major illness. Source: CIPHA Enhanced Case Finding Tool, November 2023. Analysis by Liverpool Corporate Intelligence Team

The actual number expected to be living with major illness will vary according to the definition of major illness being used, however, our analysis shows large increases in people living with major illness can be expected in 2040 of between 33,000 to 38,000 people. Applying a national estimate to the Liverpool population, one of the most deprived areas in the country, is likely to underestimate the level of inequalities in the city, meaning the actual number living with major illness in 2040 is likely to be higher.

3.5 Wider economic and societal impacts

We know the poorest populations are more likely to have multiple health conditions and to acquire them at a younger age. Living with ill-health in middle age can impact negatively on family lives, and professional activities while employment rates and work productivity are lower among people with

multimorbidity than those without.[74] Middle-aged people with multimorbidity are often intensive users of primary care, requiring regular health reviews and multiple prescriptions. This is also the age cohort most likely to be parents with the potential of their ill health negatively impacting on their families including children, the nature of relationships and carer roles.

More people living with major illness potentially means increased demand on Adult Social Care and unpaid carers, as well as an increase in the number of revenue and benefit claimants by people unable to work through ill-health. If more parents are out-of-work this could have a negative impact on pupil educational attainment and absenteeism while the number eligible for free school meals (FSM) is likely to increase.

It is important to recognise that local health determinants are also impacted by global socio-economic, cultural and environmental conditions. Climate change is already having a significant direct and indirect impact on human health. It is expected that in the UK climate change will lead to increases in extreme weather events including heatwaves and flooding, as well as increasing vector-borne diseases, poorer air quality and threats to our food security. Closely linked to climate change, there is an increased risk of emerging infectious diseases.[75] This poses a significant threat to human health and may increase demand for health and social care services at a local level. Human factors such as urbanisation and globalisation, as well as ecological factors are contributing to these new patterns of disease. One of the highest current risks to the UK is the possible emergence of an influenza pandemic – the rapid worldwide spread of a new strain of flu to which people would have no immunity.

The threat of high global levels of antimicrobial resistance (AMR) is being driven by the overuse of antimicrobials in people, animals and the environment and

[74] Gonzalez et al (2022). Everyday Lives of Middle-Aged Persons with Multimorbidity: A Mixed Methods Systematic Review. *International Journal of Environmental Research Public Health.* Available here.
[75] UK Health Security Agency (UKHSA), NIHR (2023). *Climate Change and Public Health Indicators Scoping Review.* Available here.

means that infections will be much harder to treat, and AMR will make medical and surgical procedures much riskier.[76]

3.6 Prevalence of conditions

To estimate ill health over the next two decades linear regression was used to predict conditions forward to 2040 using trend data from 2012/13 onwards. The chart below shows the number of conditions in 2023, the projected number in 2040 and the expected change over this time.

By 2040 the biggest increase is projected in the number of people diagnosed with depression which is expected to more than double to 164,200 people (an increase of 88,400 people). Large increases are also expected in numbers diagnosed with hypertension (up 20,300 to 99,600 people), cancer (up 16,100 to 34,100 people), diabetes (up 14,800 to 46,900 people), asthma (up 11,600 to 44,900 people), chronic kidney disease (up 10,600 to 35,600 people).

[76] WHO (2023) Antimicrobial resistance factsheet. Available here.

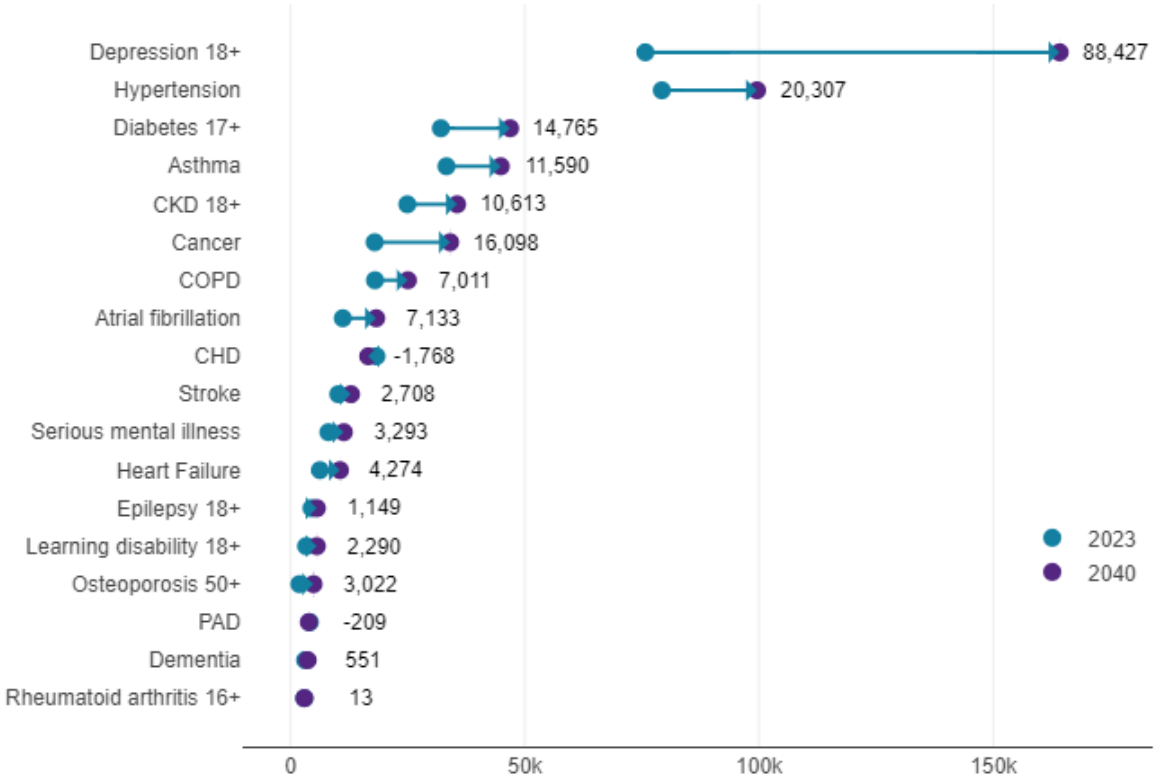


Figure 12: Projected demand of conditions in 2040. Source: Quality and Outcomes Framework (QOF) registers. Analysis by Liverpool Corporate Intelligence Team

3.7 Deprivation

People with multiple long-term conditions account for more than half of NHS primary and secondary care costs while those living in the most deprived areas are more likely to develop multimorbidity earlier in life[77].

To summarise GP practices by deprivation, practices were ranked by their GP deprivation scores and grouped into quintiles (with similar numbers of practices in each group). In the chart below the bars represent the projected percentage change in prevalence for each condition between 2023 and 2040. 'Most deprived GP quintile' equates to patients registered at practices in the most deprived 20% of practices and 'Least deprived GP quintile' represents patients registered at GP practices in 20% least deprived practices.

[77] NIHR, 2023. *Multiple Long Term Conditions Research.* Available here.

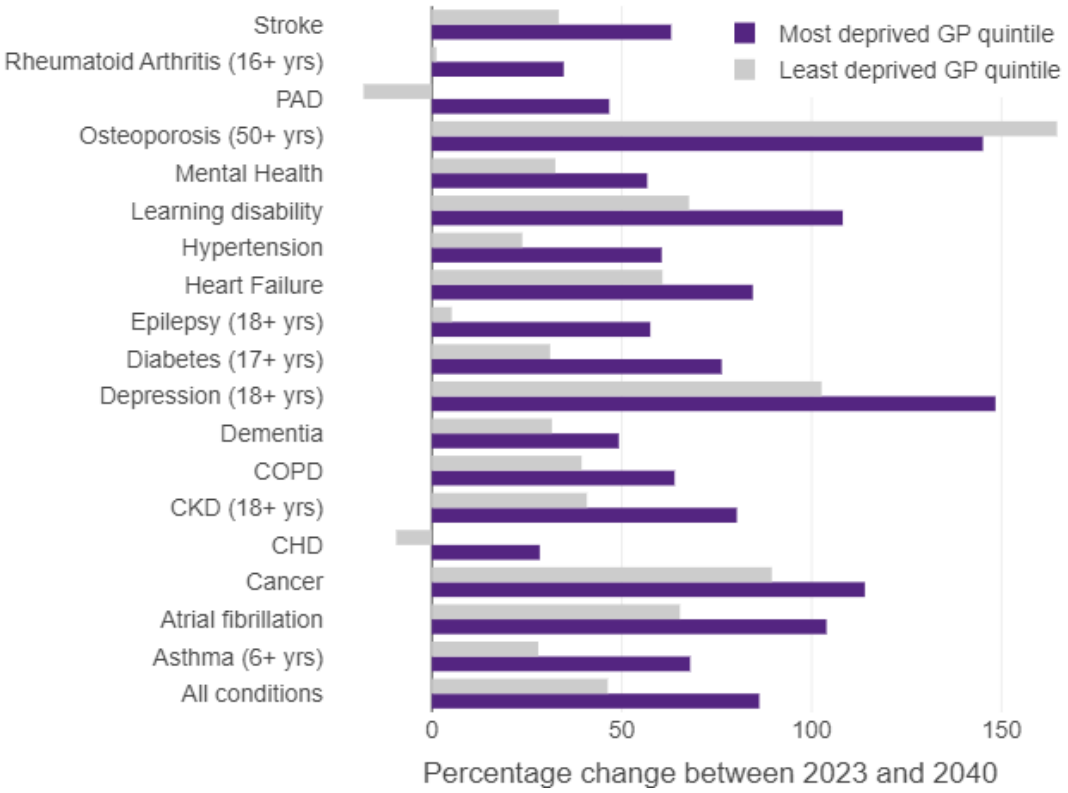


Figure 13: Projected change in demand of conditions in 2040 by deprivation. Source: Quality and Outcomes Framework (QOF) registers. Analysis by Liverpool Corporate Intelligence Team

For each condition, the projected rate of change was greatest in the most deprived areas, apart from osteoporosis in over 50s where the projected change was greatest in the least deprived. Increases were observed for all in conditions apart from rheumatoid arthritis, peripheral arterial disease, and CHD in the least deprived quintile, where small decreases are projected. In the most deprived GP quintile, the biggest increases were projected for depression (21,000), hypertension (8,400), diabetes (4,500), asthma (3,800) and chronic kidney disease (3,400).

While the overall number of conditions is projected to increase in both the most deprived and least deprived quintiles, this increase was greatest in the most deprived quintile – two times the rate of change in the least deprived quintile. The number of conditions is projected to increase by 55,000 (86%) in the most deprived quintile compared to 34,200 (46%) in the least deprived quintile.

3.8 Minority ethnic groups

People from ethnic minority groups (Asian, Black, Mixed/Multiple and Other) in Liverpool have lower odds (OR = 0.3, p <0.05) of major illness compared to White people which can be explained by the city's younger age profile. In 2021, 95.2% of the population aged 65 years and over living in the city identified in the White ethnic group compared to 84% of the general population, and we know major illness increases significantly with age. There are over 10,300 adults with major illness who identify as minority ethnic (Asian, Black, Mixed/Multiple or Other Ethnic groups), accounting for 12% of residents with major illness. By 2040, this figure is expected to rise to 14,300 (an increase of 4,000 people) if major illness increases in line with the national projection.

3.9 Children and young people

Between 2022 and 2040 an 8% increase is expected in the number of children and young people aged under 20 years, equivalent to 9,100 people. The population aged under 10 is expected to grow by 4% and the population aged 10-19 years by 11%. The replacement level is the level of fertility at which a population exactly replaces itself from one generation to the next. In Liverpool fertility rates are low and below the replacement level of 2.1 births while the underlying rate is declining. If current trends continue, then the total fertility rate is expected to fall below 1 by 2040. This means in several decades there will be fewer economically active people to fund our health and social care systems.

Based on national and local studies, we estimate that the three main issues for children and young people's health will be:

- Mental health
- Unhealthy weight
- Child poverty

The Royal College of Paediatrics and Child Health (RCPCH) report sets out health challenges for children by 2040 and what good health and care will look

like[78]. Significant increases in poor mental health, substance use, and the consequences of prematurity are projected for adolescents and young adults based on previous trends. Increasing challenges to child health felt from the impact of worsening poverty and climate change are also expected.

Poor mental health is predicted to be the biggest future burden on children's health services within the next two decades with more young people expected to have complex healthcare needs across both physical and mental health. Mental health referrals for children with special educational needs and disabilities (SEND) including autism are already significantly increasing. There is a need to provide timely and effective services for these children, to reduce the risk of harm especially to their mental health resulting in risk of self-harm and suicide. Our calculations show that based on population change alone, the number of children and young people living with a probable mental health disorder in Liverpool is expected to rise to 32,000 by 2040, an increase of 3,200 8-25-year-olds.

Obesity is expected to be the second biggest issue impacting children and young people by 2040. In Liverpool, the proportion of children in Reception who are projected to be overweight or obese by 2040 is 34.9% compared to 46.9% in Y[79]. Childhood obesity and unhealthy weight is a complex issue, driven by different factors. A Nuffield Trust research report found that amongst children in upper-tier local authorities, obesity and overweightness was highest amongst children living in childhood poverty, with poor access to physical activities and in areas with the lowest breastfeeding rate[80]. Significant evidence also highlights the role of commercial determinants of childhood unhealthy weight – national public consultations demonstrated a need for significant restrictions on television

[78] Royal College of Paediatrics and Child Health (RCPCH) (2021). *Paediatrics 2040: Forecasting the Future.* Available here
[79] Local Government Association (2022). *Future Health Challenges: Public Health Projections.* Available here
[80] Nuffield Trust (2022*). Research Report on Childhood Obesity: Is Where you Live Important?* Available here

and online advertising for food products high in fat, sugar[81]. National guidance also recommends the use of local powers to encourage a healthy food[82].

The third biggest health issue is expected to be child poverty. Poverty is considered the lead driver of inequalities between children in the North and the rest of England.[83] Growing up in poverty damages children's health and well-being, adversely affecting their future health and life chances as adults. The Due North report highlights the uneven spread and impact of poverty on children in the North of England, setting an imperative that Marmot priorities have also embraced; to invest in the early years of life, empower our children and families to voice their views and to lift families out of poverty to secure better child health outcomes and future adult health.

Child poverty and resultant health inequalities are expected to rise over the next decade[84]. There are 171 (57%) Liverpool areas (LSOAs) that fall into the most deprived national quintile of the 2019 Income Deprivation Affecting Children Index (IDACI) which measures the proportion of children living in income deprived families – up from 161 (4%) in 2019. Without concerted action to reduce child poverty, healthcare activity will increase, and outcomes worsen. As this report has shown, 24,000 children already live in poverty in the city and without action there is a serious risk this number will continue to increase.

Furthermore, Liverpool is facing multiple health protection threats including outbreaks of vaccine-preventable diseases like measles and diphtheria. There is a high level of confidence in childhood vaccination programmes with the majority of families choosing to take up vaccination. Work is needed to strengthen primary health care vaccination systems and address disinformation and misinformation about vaccination to support families from all communities to protect their children.

[81] DHSC (2019). Consultation Outcome: Further Advertising Restrictions for Products High in Fat, Salt and Sugar. Available here.
[82] DHSC (2018). Childhood Obesity: A Plan for Action. Available here.
[83] APPG (2023) Child Poverty and the Cost of Living Crisis. Available here.
[84] RCPCH (2021). Paediatrics 2040: Forecasting the Future. Available here.

4 What do Liverpool people say about health?

Over the last five years residents of the city have been asked for their views on health issues, and issues that impact on their health. This section is not intended to be a comprehensive summary of those consultations, but to capture some of those main themes of what local people say matter to them.

Community assets

The people of the city and our community spirit and support are consistently ranked as Liverpool's major strength[85,86,]. The people of Liverpool have time and again, before, during and after the COVID pandemic, shown their strength and resilience, with too many examples to mention here. Liverpool's charitable and voluntary sector has significant positive impact on the health and wellbeing of the city, from Healthwatch Liverpool acting as an independent champion for people who use the city's health and care services, to more than 1,300 charitable and voluntary groups offering many different types of support[87]. The range of support offered is extensive, including help to access services and ways to connect and boost wellbeing, from coffee mornings and arts groups to food pantries and sports clubs. Liverpool people show their willingness to help and get involved in these ways and in one-off events, from taking part in the pilot of voluntary asymptomatic COVID testing in 2020/21 to all those whose volunteering helped make Eurovision 2023 an international success. In addition to its people, residents also feel the city's culture, heritage and green spaces are also strengths[88,89,90].

Priorities

[85] LCC (2021). Our City, Our Future, Your Say report. Available here.
[86] LCC (2023). Your Say Liverpool: Residents' Survey 2023 (unpublished data).
[87] NHS Cheshire and Merseyside (2023) State of the Sector. Available here.
[88] LCC (2021). Our City, Our Future, Your Say report. Available here.
[89] LCC (2023). Your Say Liverpool: Residents' Survey 2023 (unpublished data).
[90] LCC (2019). Liverpool's Child Friendly City Badge Rationale Report.

Safety, along with clean, well-maintained streets, is a top priority in residents' views of what could be improved about the city as a whole[91,92,93]. Safety, followed by affordable housing, was the highest priority for Liverpool participants in a study on designing neighbourhoods[94]. Improved transport, including more affordable public transport and better cycling options, is also a priority for residents[95,96,97]. This relates to people's ability to access different resources for health and its determinants, as well as affecting health through influencing people's physical activity and city pollutant levels.

4.1 Views across the life course

Start and grow well

Children and young people in Liverpool consistently rank "feeling good about myself" in their top 3 most important goals[98]. They chose 'Healthy' as a priority for the Liverpool Child Friendly City programme, with mental and emotional wellbeing, as well as fitness and eating and healthy food, a key theme in their interpretation of what 'healthy' means[99]. Their other chosen priorities also illustrate what children and young people think could be improved to support their wellbeing. These include safety, green spaces, activities for young people, better travel around the city and equality and inclusion for all children and young people. Residents identify activities for children and young people as a priority for improvement[100].

Live well

[91] LCC (2021). Our City, Our Future, Your Say report. Available here.
[92] LCC (2023). Your Say Liverpool: Residents' Survey 2023 (unpublished data).
[93] LCC (2019). Liverpool's Child Friendly City Badge Rationale Report.
[94] Levend S and Fischer TB (2022). Determining People's Design Priorities for Neighbourhood Units: A Study in Liverpool, Merseyside. *Iconarp International Journal of Architecture and Planning*. 10(1):21-42. doi:10.15320/iconarp.2022.192
[95] LCC (2021). Our City, Our Future, Your Say report. Available here.
[96] LCC (2019). Liverpool's Child Friendly City Badge Rationale Report.
[97] Levend S and Fischer TB (2022). Determining People's Design Priorities for Neighbourhood Units: A Study in Liverpool, Merseyside. *Iconarp International Journal of Architecture and Planning*. 10(1):21-42. doi:10.15320/iconarp.2022.192
[98] Liverpool City Council (2019). Youth and Play Impact Assessment Survey (unpublished data).
[99] Liverpool City Council (2019). Liverpool's Child Friendly City Badge Rationale Report.
[100] Liverpool City Council (2021). Our City, Our Future, Your Say report. Available here.

Adults consistently rank mental health as a top local priority, as seen in Healthwatch Liverpool[101,102] and Liverpool City Council consultations[103]. People emphasise the importance of drivers of mental health, including the negative effects of stress and the positive effects of physical activity, access to green spaces, social support and connection, as well as access to timely, appropriate and effective healthcare[104]. Loneliness appears to be a challenge for adults with care needs as 37% of Liverpool adults aged 18-64 using non-learning disability support and participating in the 2022/23 Social Care Users' Survey said they got little or not enough social contact[105].

Age well

Most consultations group findings from all adults together, meaning there is a relative lack of information on the specific perspective of older adults in Liverpool on health. Liverpool residents participating a Healthwatch Survey identified staying in their own home as long as it is safe to do so as their most important priority in staying healthy and independent in later life, although community and family support and travel convenience were all also rated as highly important[106]. Loneliness and social isolation can be a particular challenge for older adults in the community, with 33% of adults aged 65 and over receiving community social care services in Liverpool who participated in the 2022/23 Social Care Users' Survey saying they had little or not enough social contact with people[107]. Community-based activities, connection and reducing isolation was a main theme in a focus group with older adults in Dingle and Toxteth discussing what was important to them about their health and care[108].

[101] Healthwatch Liverpool (2020). Membership Event 2019 Summary of Themes. Available here.
[102] Healthwatch Liverpool (2022). The COVID-19 Pandemic and Mental Health in Liverpool. Available here.
[103] LCC (2021). Our City, Our Future, Your Say report. Available here.
[104] Healthwatch Liverpool (2022). The COVID-19 Pandemic and Mental Health in Liverpool. Available here.
[105] NHS Digital (2023). Adult Social Care Users Survey. Available here.
[106] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.
[107] NHS Digital (2023). Adult Social Care Users Survey. Available here.
[108] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.

4.2 What services should look like

The focus in consultations with residents is often what services should look like to best deliver what residents need. This section summarises recurring themes in consultations about health and council services in the last five years.

Design and delivery centred on service users

The desire and need to be listened to and have influence is clearly voiced by children and adults in consultations[109,110,111,112]. People express both a right to be involved in decisions that affect them and the unique perspective on their needs and wants that they bring to inform those decisions. This extends to health, with Liverpool residents ranking "Choosing the right treatment is a joint decision between me and the relevant health and care professional" as most important factor to enable them to manage and choose the support they need[113]. Continuity of care is often a priority for people regularly and repeatedly accessing services, for example for a chronic or major health condition, because it supports establishing relationships and understanding of the service user's needs and priorities[114,115].

Holistic and joined up

People said that services have to take a holistic perspective and work together to truly meet their needs. One example given is the need for more integrated working between health and care services and community activities and support[116]. Another example given is the apparent under-appreciation of the emotional impact of managing long-term and major health conditions and disabilities for both individuals and their families, and the resulting gaps in

[109] LCC (2021). Our City, Our Future, Your Say report. Available here.
[110] LCC (2023). Your Say Liverpool: Residents' Survey 2023 (unpublished data).
[111] LCC (2019). Liverpool's Child Friendly City Badge Rationale Report.
[112] Healthwatch Liverpool (2020). "Not thriving... just about coping": Liverpool's response to the health and social care needs of children and young people (0 – 25) with Special Educational Needs and Disabilities (SEND). Available here.
[113] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.
[114] NHS Cheshire and Merseyside (2022). Have Your Say - Where care and treatment happens at Liverpool University Hospitals: Public Consultation Findings Report. Available here.
[115] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.
[116] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.

support, including peer support, for the emotional and mental wellbeing of users of specialist services[117,118]. A third example is the need for tailored support that breaks down barriers to accessing and continuing to access services effectively, including recognising the needs of people who don't speak English well or at all[119].

Easy to access

Transport and travel are typically the main themes raised by people when asking about potential changes to service delivery. People are concerned about the cost of travel, including parking, travel time, whether there are public transport options and the additional challenges faced by people with physical disabilities[120]. People were concerned this could stop people from getting the care they need in a timely manner. Wait times are a recurring area of concern across all levels of healthcare[121,122]. People also ask that information about services and what they offer is easy to find and use. 64.7% of Liverpool participants in the Adult Social Care Users Survey said that they find it easy to find information about services[123].

[117] Healthwatch Liverpool (2020). Transplant Project Report. Available here.
[118] Healthwatch Liverpool (2020). "Not Thriving... Just About Coping": Liverpool's Response to the Health and Social Care Needs of Children and Young People (0 – 25) with Special Educational Needs and Disabilities (SEND). Available here.
[119] Healthwatch Liverpool (2021). Accessible Information Standard Project Report. Available here.
[120] NHS Cheshire and Merseyside (2022). Have Your Say - Where Care and Treatment Happens at Liverpool University Hospitals: Public Consultation Findings Report. Available here.
[121] Healthwatch Liverpool (2019). NHS Long Term Plan Report. Available here.
[122] NHS Cheshire and Merseyside (2022). Have Your Say - Where Care and Treatment Happens at Liverpool University Hospitals: Public Consultation Findings Report. Available here.
[123] NHS Digital (2023). Adult Social Care Users Survey. Available here.

5 How do we build a healthier city?

In this section we highlight some of the building blocks for a healthier and fairer city, drawing on some of the work already underway here and elsewhere.

5.1 Prevention of poor health

The current One Liverpool strategy states that the health of our city will continue to decline unless we strengthen our system-wide approach to health and wellbeing.[124] The Council Plan (2023-27) also sets out ambitions for the health of our population whilst recognising the significant impact that complex long-term issues have had on the social determinants of health.[125]

At a sub-regional level, the Population Health Board of the Cheshire and Merseyside Health and Care Partnership has set out its plans in the “All Together Fairer” report,[126] a “Joint Forward Plan" built on strategic objectives to address health inequalities,[127] whilst work on promoting public bodies to act as Anchor Institutions is set out in a Charter, all of which add benefits to the work in the city on health inequalities.[128]

Other evidence in this report also points to the need for national action on population level policies, targeting the drivers of poor health and premature mortality, such as poverty reduction, tobacco and alcohol control, restricting promotion of unhealthy food and drink, and addressing the factors that perpetuate poverty.

[124] Liverpool Health and Care Partnership (2019). One Liverpool Strategy. Available here.
[125] Liverpool City Council (2023) Council Plan 2023-2027. Available here.
[126] Institute of Health Equity (2022) All Together Fairer. Available here.
[127] NHS Cheshire and Merseyside (2023) Joint Forward Plan 2023-28. Available here.
[128] Cheshire and Merseyside Health and Care Partnership (2022). Anchor Institution Charter Principles. Available here.

At a local level, building healthy environments and improving timely access to health and social care support across our city are essential for a changing population likely to be living longer in poor health[129].

To achieve improvements in population-wide healthy life expectancy, evidence shows that investment in primary prevention is more cost-effective than clinical treatment, or tertiary prevention[130]. Action to prevent poor health is embedded within the NHS Long Term plan, and in the city in the *One* Liverpool strategy[131] and has been articulated by the APPG on Child of the North[132].

Frameworks such as the Marmot Principles[133] provide an evidence-based approach to building in prevention of ill health across the determinants of health. The City Council and partners are working within these principles and the issues raised in this report highlight opportunities for this work to be accelerated.

Universal measures - such as the ban on smoking indoors in public places - coupled with systematic identification of people in need, as opposed to targeting deprived areas, often have the best chance of improving health and reducing inequalities. Minimum unit pricing has been associated with reducing alcohol related deaths. Two years and eight months after the policy was rolled out in Scotland a 13% reduction was seen in deaths from alcohol consumption compared with estimated deaths that would have occurred without the legislation. This is equivalent to avoiding 156 deaths a year, with the greatest reductions seen among people living in the most socioeconomically deprived areas and among men.[134]

[129] The Association of Directors of Public Health (ADPH) (2023). Manifesto for a Healthier Nation: Delivering Change. Available here.
[130]Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q. 2005;83(3):457-502. Available here
[131] NHS (2019). The NHS Long Term Plan. Available here.
[132] APPG (2023) Child Poverty and the Cost of Living Crisis. Available here.
[133] The Marmot Review (2010). Fair Society, Healthy Lives. Available here.
[134] BMJ (2023), Minimum unit pricing in Scotland is associated with 13% fall in alcohol deaths BMJ 2023;380: p672 Available here

Communities in Liverpool continue to experience high levels of poor health and wider harms related to tobacco, alcohol, drug use, poor diet, low levels of physical activity and gambling[135].

People in more disadvantaged groups and in areas of deprivation are most exposed to advertising for unhealthy food and drink linked to poor diet and obesity. There is some evidence that restrictions on advertising unhealthy food can lead to reduced consumption.[136] The Council is leading work with a wide range of partners to develop and deliver population-level actions to address these risk factors and to create healthy places for residents and communities.[137] Other universal approaches towards reducing obesity include making changes to local environments to support people to walk or cycle and getting children moving as part of the school day.

The place we live

Evidence shows that incorporating a health focus into wider local authority and public service sector policies can effectively harness civic functions to address the social determinants of health[138]. It can also produce benefits beyond improving population health, e.g. health can influence educational attainment and employment opportunities, contributing in turn to economic productivity[139].

Liverpool City Council, alongside our local and regional partners, is working to create environments that address the health and wellbeing needs and priorities as articulated by local communities. Actions on community safety, access to green spaces, housing, promotion of active and affordable travel set out in the Council's Travel Plan[140], and safer streets are some of the areas which the

[135] Health Foundation (October 2023) Addressing the leading risk factors for ill health. Available here.
[136] Yau A et al. (2022) Changes in household food and drink purchases following restrictions on the advertisement of high fat, salt, and sugar products across the Transport for London network: A controlled interrupted time series analysis, Plos Medicine. Available here
[137] Health Foundation (2023), Addressing the leading risk factors for ill health – a framework for local government action. Available here
[138] PHE (2021). Place-Based Approaches for Reducing Health Inequalities. Available here.
[139] Greer S et al. (2022). From Health in All Policies to Health for All Policies. Lancet Public Health; 7(8): e718-e720. Available here.
[140] Liverpool City Council (September 2023) Liverpool Transport Plan. Available here.

Council has prioritised which have a positive impact on health and wellbeing. Action to improve air quality across the city is underway, including plans to improve active travel through the Clean Air Plan[141]. The importance of a strong Liverpool economy to the wider city region was recognised in the recent Strategic Futures Advisory Panel report to Government, setting out a roadmap to "accelerate the city's progress towards a stronger and more sustainable future".[142] The use by the local NHS adopting Anchor Institutions approaches, demonstrates how they can maximise their contribution to social, economic and ecological conditions that can shape good health and influence health inequalities[143].

Most recently the Council has developed a neighbourhood model to bring council services closer to local communities, which will improve access and target local priorities for residents, a local approach that will help target areas of greatest need.

As part of taking a systematic approach to embedding health across its decision making, the Council is adopting a 'Health in All Policies' (HiAP) approach as recommended by the World Health Organization[144]. The Council, with community and university partners, has also secured £5 million research funding to establish a National Institute of Health and Social Care, Health Determinants Research Collaboration[145]. This programme will build our capacity and capability to routinely use evidence and data to build health priorities into all council decision making to reduce inequalities.

Taken collectively, the opportunities described above present a unique opportunity to accelerate its actions to improve health and wellbeing by reviewing how health in all policies is prioritised and adopted across the Council.

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[141] Liverpool City Council (Accessed December 2023) Available here.
[142] Liverpool Strategic Futures Advisory Panel (November 2023) Interim report to Government. Available here.
[143] NHS Providers (2023). Being an Anchor Institution: Partnership Approaches to Improving Population Health. Available here
[144] WHO European Healthy Cities Network (2022). How to Develop and Sustain Healthy Cities in 20 Steps. Available here
[145] Liverpool John Moores University, (2023). New funding to tackle health inequalities. Available here

Health and work

The important of health to work, and work to the health of individuals, is now well established. People in good health are more likely to be productive, for example less absenteeism, and conversely a good work environment reduces physical and wellbeing risks to employees. In 2019 it was estimated that an unhealthy workforce was costing the UK Government over £100billion.[146] The Local Government Association and the Office for Health Improvement and Disparities have set out actions that local authorities and local systems can take to support work and health at a local level.[147] The importance of employers across the city cannot be understated, not simply for the economic benefits they can bring, but because of the opportunities they have to support the health and wellbeing of employees, for examples those promoted through Liverpool BID's Health and Wellbeing Initiative and environmental works[148].

Good health throughout our lives

Evidence shows that a life course approach to health, recognising the critical stages where protective and risk factors interplay to impact health, can have a significant impact on reducing health inequalities[149].

Preconception, pregnancy, birth, childhood (particularly early childhood) and adolescence are a particularly critical stage. Experiences in early years can have lifelong effects. For example, children who experience Adverse Childhood Experiences (ACEs) including witnessing violence or experiencing neglect are at a higher risk of mortality and poor health in adulthood[150] [151]. Similarly, "children growing up in deprived areas are 1.5 times more likely to be 'not school ready' than their more affluent peers"[152], this places children at risk of lower educational attainment and lesser employment opportunities in adulthood, itself a

[146] Public Health England (2019) Cost of Ill Health. Available here.
[147] LGA and OHID (2023) Work, Health and Growth. Available here
[148] Liverpool BID (December 2023) Information here.
[149] Public Health England, 2019. Health matters: Prevention - a life course approach. Available here
[150] Rod NH, et al, 2020. Trajectories of childhood adversity and mortality in early adulthood: a population-based cohort study. The Lancet. Volume 396, Issue 10249, P489-497. Available here
[151] Webster EM, 2022. The Impact of Adverse Childhood Experiences on Health and Development in Young Children, Glob Pediatr Health v.9; 2022, PubMed Central. Available here
[152] Cheshire and Merseyside ICB, 2023. One Liverpool Strategy, 2019-2024. Available here

determinant of health. This means the conditions in which children are born and grow in Liverpool today which affect the health of the city in 2040.

As we set out earlier, it is also important to recognise the importance of intervening across each life stage. For example, although there has been a significant decline in the numbers of people in Liverpool who smoke tobacco, those older adults who do smoke will need support to quit to reduce the risks to their health that tobacco creates.

6 Conclusion

This report highlights the stark reality of health and health inequalities in Liverpool. We have taken a unique look forward to 2040 to understand what we need to do now and in the coming years to improve the health of our population.

We estimate that by 2040 between 33,000 and 38,000 more people will be living with major illness, that is at least 2 or more long term conditions. This increase in poor health is likely to have a disproportionate impact on certain groups with people from disadvantaged backgrounds, minority ethnic groups, and those with serious mental illness most affected. Whilst many people can and do live with major illness without needing additional support, the evidence shows that this can compromise healthy life expectancy, particularly when we consider underlying factors such as poverty. By 2040, on average our residents will be living up to 26% of their lives in poor health and for some of our communities this will be worse. This is neither acceptable for individuals nor for Liverpool overall, because of its impact on communities, on our economy and on our public services.

This state of health is the consequence of a wide range of factors as set out by Marmot and others. We have shown that it has not arisen overnight and addressing the root causes requires actions from a wide range of stakeholders, at local, city region, regionally and nationally. Our projected outcomes are not inevitable provided these actions take place at pace and scale.

Our ambition is to increase the number of years people in Liverpool live in good physical and mental health, and to see equity of good health across our population. Joint working and strong partnerships with a wide range of stakeholders will be key to this, with residents and communities at the heart of partnerships and collaboration.

In this section we summarise what the council and its partners are doing to address poor health and inequalities across our city, and set out several high-level recommendations for further action, building on the best-practice and evidence.

Finally, we include additional considerations for national government to enable the council and its partners to meet our local needs in Liverpool, now and in the future.

The approach we have taken recognises the importance of preventing poor health through the adoption of a life course approach as well as understanding how wider social and commercial determinants of health can harm and protect our health.

Our current priorities include:

- **An ambition of a *healthier, happier, fairer Liverpool for all.*** We have set this out in the *One* Liverpool Plan (2019-2024), and the Council Plan (2023-27) focussing not just on access to **health and care** services, but the social determinants of health.
- **Using international frameworks to promote and protect the health of our city and residents.** We will use Healthy Cities (WHO), Age Friendly Cities Network and Child Friendly Cities (UNICEF) to describe our ambitions and how we will achieve these, and we will work with our partners for a common approach across the city. We are also widening our use of a **Health in All Policies** approach across the Council, for example around planning, housing, regeneration and how we use our resources.
- **Working with the NHS with a shared plan for health in the city.** We are working with NHS Integrated Care Board and NHS Place, as well as with primary and acute health care providers as set out in the *One* Liverpool Plan. Taking an all-age approach this will include a continued shift to prevention and early identification, shaping services and support around people to give them more choice and control over their care and joining up services to better support people living with multi-morbidities in the city. We use population health management approaches, data and local insight, to identify individuals and groups in greatest need and, or, with greatest health risks.
- **A Neighbourhood model** which will fundamentally transform the way the Council delivers frontline services. The new model sees 13 Neighbourhoods teams, each led by a senior manager permanently based locally, to tackle

the key issues in the area, be it housing, waste management, potholes, parking, or anti-social behaviour.

- **Providing local support to families through Family Hubs across the City**. Working across health, social care and early years, and with community organisations, we are providing support services to families where they live.
- **Liverpool City Council will continue to deliver on the 2030 Net Zero Liverpool Action Plan**, leading our city in innovation and change. This will achieve clear health co-benefits for our population, contributing to associated reductions in health inequalities. Alongside decarbonisation, we will continue to work to improve city resilience to climate change and environmental factors.
- **Health Protection:** Continue to strengthen primary health care vaccination systems and address disinformation and misinformation about vaccination to support families from all communities to protect their children from serious illness. Increase awareness of antimicrobial resistance, reduce infections and reduce antibiotic prescribing. Work together with partners and local communities under the umbrella of the Pandemic Institute to develop an inclusive equitable plan to strengthen the resilience of Liverpool and the city-region to future pandemic threats.
- **Sexual Health**: Implementing a new sexual and reproductive health strategy to reduce the number of sexually transmitted infections diagnosed in the city by 2030, improve reproductive health, work towards reducing HIV transmission in Liverpool to zero by 2030, and improving access for underserved communities. We will continue to work with the NHS to further develop the provision of integrated care through Women's Health Hubs.

In my professional opinion as the city's Director of Public Health, and to address the challenges and inequalities of health that we have set out in this report, the Council and its partners ***need to***:

- **Embed a health equity approach in the way the Council makes decisions.** Launching in 2024, we shall use NIHR Health Determinants Research Collaboration funding of £5 million to grow our use of evidence and

data to improve the health of our population, building on our work with the City's world leading universities on health and social determinants. Alongside using evidence and data we will ensure that that the lived experience of our communities shapes this work, working closely with Liverpool Charity and Voluntary Services and Liverpool Health Watch. The Council Plan (2023-2027) provides a crucial means by which some of the social determinants of health can be addressed in a stronger economy, high quality and inclusive education, skills and employment, in thriving communities, in a well-connected and sustainable, accessible city, and a well-run council.

- **Work towards being a Marmot City by April 2025**. This will mean the council and its partners work in a structured, evidenced and fair way to address the determinants of health including housing, income, climate change, mental health and welfare, and developing a Good Food Plan; the needs of children and young people will be a crosscutting theme across all of these priorities.
- **Improve equitable access to health and care services across the City.** We shall set out in the One Liverpool Plan for 2024/29 how we will improve access to services for underserved communities, and how we will collectively address the issues set out in this report. This will recognise the role of primary and secondary prevention, and how the work on broader prevention and social determinants will support actions to reduce health inequalities. We will continue to use the Core20Plus5 model to target communities at greatest risk of key diseases. The model for population health will be central to the system strategy and plans.
- **Use data driven approaches to target actions.** Across the City Region we have world leading, innovative examples of using data to inform policy making and prioritisation. We believe this work can be the foundation of a data and evidence driven approach to population health, working with organisations such as Liverpool City Region, University of Liverpool, Liverpool John Moores University, and the NHS through the Integrated Care System. The HDRC Liverpool programme will help realise this potential.
- **Recognise and support the role of our voluntary and community sector.** We will support the sector to ensure that the voices of our underserved

communities are clearly heard and actions to address need are informed by lived experiences alongside the evidence base. We will do this throughout all the current and planned commitments set out in this report. We will draw on the positive experience of our work with the sector such as the Community Champions programme, Everton in the Community's pre-match screening, and Liverpool FC Foundation's programme on health and wellbeing.

- **Ensure all children and young people have the best start in life.** We will do this through the launch of a new Healthy Child Programme in 2025, complementing our roll-out of Family Hubs, so that children, young people and their families get the services they need to protect their health and develop their health and wellbeing positively, in the right place and at the right time. The Council has made the provision of high quality and inclusive education, skills and employment to maximise everyone's potential and life chances a corporate priority**.**
- **Support children living in care to thrive**. Grow a Liverpool partnership to support, advocate and champion for our young people who are care experienced to thrive and be the best version of themselves.
- **Support more adults to live independently for as long as possible.** In 2024/25 we will publish an ***Adult Social Care Prevention Strategy*** in partnership with the NHS and voluntary and community organisations. This will take a strengths-based approach and will set out our ambitions alongside a clear action plan to support adults in Liverpool to live well, promote health and wellbeing and remain as independent for as long as possible. **Support carers.** We recognise the important role that informal carers undertake. We will support families and young people to manage the impact of increasing complex health needs for family members by supporting carers and young carers.
- **Develop a Women's Health Strategy to improve health outcomes for women and girls,** strengthening prevention, greater provision of holistic integrated health and wellbeing services, and ensuring women's' voices are heard in policy and service design.
- **Strengthen existing actions to target the key drivers of poor health including alcohol and smoking.** We will work towards plans to integrate our

drug and alcohol services into a single, cohesive “treatment and recovery service” by 2025/2026. Alongside this, we will deliver a new ***Tobacco Control Strategy*** *(2024)* and an ***Alcohol Strategy*** *(2025)* to tackle the health inequalities smoking and alcohol causes across the city and to achieve our ambition of creating our first smokefree generation. We will continue to campaign for action to prevent harms caused by inappropriate use of electronic vaping devices, particularly for young people and to the environment.

- **Make healthier choices more accessible and the default choice.** Further focus will be given to implementing a city region food strategy to improve access to healthy, affordable foods and eliminate food poverty. We will advocate for the introduction of water fluoridation, such as the West Midlands, to protect the oral health of our children, as well as work with others to make the case for restrictions on the advertising of foods high in fat, salt, and sugar (HFSS). We will launch a ***Physical Activity Strategy*** (2024) that focusses on those with the lowest levels of physical activity and highest levels of need. We will continue to create opportunities for people to be physically active through active travel, safe environments, green spaces and leisure services. We will refocus our public health work on healthy weight through **a new model**, providing support and advice across the life course that also builds on our knowledge of behavioural insights and the wider social factors that create unhealthy communities.
- **Improve our understanding of mental health and wellbeing across our city and shape services as necessary with our partners.** We will produce and all age mental health and wellbeing needs assessment in 2024 which will inform recommendations for how, partnerships, we can make best use of the resources and assets available to improve community resilience, increase prevention, and ensure early detection, support and services including recovery from mental health problems**.**
- **Strengthen our health protection systems.** We will need to develop a local flexible vaccination delivery model across the life-course to meet the needs of all communities, with improved access and information. We need to develop an equitable plan to strengthen the resilience of Liverpool and the

city-region to future pandemic threats and to increase awareness of antimicrobial resistance, reduce infections and reduce antibiotic prescribing.

These recommendations will build on existing partnerships to address health inequalities and improve the health and wellbeing of our residents.

However, local action can only go so far – the burden of poverty, especially child poverty, the consequences of austerity and cuts to local public services, inadequate national support to meet needs such as housing, transport and infrastructure, not only impede the work of the council and its parents, but their inadequacy pushes our communities into deeper disadvantage.

Therefore, as Director of Public Health for Liverpool, it is also my professional opinion that to move at the scale and pace required to address the health risks set out in this report, additional action is required, and therefore I recommend that:

- **Recommendation 1: Consideration be given to how devolved powers on health would support local organisations to improve health outcomes and reduce health inequalities at pace and scale.** Specific consideration to be given of the model of health and social care powers in devolved nations and other city regions to help drive improvements in access to, and quality of, services. Alongside this, consideration should be given to the implementation of a health improvement duty which would require all partners to consider steps to improve the health of residents as proposed in draft guidance for current devolved authorities[87] as well as the ability to consider locally implemented evidence based measures such as minimum unit pricing of alcohol to reduce alcohol related harms to individuals and communities, and evidence based opportunities through *licensing and local taxation* to reduce the harms caused by the over provision of fast food outlets selling unhealthy foods.
- **Recommendation 2: Consideration be given in the 2024/45 municipal year as to how the City Council, with the support of its partners, can**

make the case for national policy actions to address the main drivers of poor health in the City[88]. This would include as a priority, policy actions and appropriate resources to: a) the case for investment to address the social determinants of health as set out in this report, including taking all our children out of poverty b) making smoking obsolete; b) building healthy weight and physically active communities and environments; c) addressing more effectively the harms caused by tobacco and alcohol to individuals and to communities; d) safeguarding the oral health of our children through the protection that a water fluoridation programme can offer as set out in the Government's report on Water Fluoridation[153].

- **Recommendation 3: Consideration be given in the 2024/45 municipal year as to how the City Council, with the support of its partners, can make the case for changes to future national funding for health and care services in the City, including preventative investment.** One of the key challenges in improving population health is scarcity of resources in public services. The seriously impaired ability of the City Council and its partners to invest sufficiently in preventing ill health through services and other health determinant measures, at the same time as meeting existing growing health and social care demands, means that more and more residents risk seeing their healthy life expectancy shortened. More investment in preventative measures is urgently required and on an ongoing basis to enable longer term planning and delivery. The findings of this report provide an opportunity for the Council and its partners to define a longer-term funding requirement for the City, including the City Council being funded on a multi-year (three to four-year) funding settlement, with more devolved powers and less reliance on council tax so we are better placed to sustain local services and serve our communities' needs.

[153] OHID (March 2022) Water fluoridation: Health monitoring report for England 2022. Available here.

7 Definitions

Antimicrobial Resistance (AMR) AMR occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicines. As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become difficult or impossible to treat, increasing the risk of disease spread, severe illness, disability and death.[154]

Core Cities The Core Cities are among the UK's biggest urban areas and economies outside London, delivering 25% of the UK economy. The 8 English Core Cities used for benchmarking in this report are Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield.

Economic inactivity The proportion of people who are neither working nor looking for work.

Infant Mortality Rate The infant mortality rate (IMR) is defined as the total number of infant deaths per 1,000 live births in the first year of life.

Life expectancy Life expectancy is a statistical measure of the average time someone is expected to live, based on the year of their birth, current age and other demographic factors including their sex[155]. Life expectancy gap is the difference in the life expectancy figures, for example, comparing gender (difference between male or female) or different areas (difference between wards or between local authorities and England).

Healthy life expectancy A measure of the average number of years a person would expect to live in good health (rather than with a disability or in poor health) based on contemporary mortality rates and prevalence of self-reported good. This indicator is an extremely important summary measure of mortality and morbidity in itself.

[154] World Health Organisation (WHO) (2023). *Antimicrobial resistance*. Available here
[155] Office for National Statistics, (2023). Life expectancy. Available here

Health Promotion Any combination of health education and political, economic, and organisational activity designed to improve or protect health through its effect on the human environment and on behaviour.

Lower Super Output Area (LSOA) LSOAs are small geographic areas with an average population of 1,500 people or 650 households.

Major illness

(i) People with 2 or more long term health conditions (multimorbidity) covered by the Quality and Outcomes Framework (QOF) [156]

(ii) People with 3 or more ACG conditions. ACG is an 'adjusted clinical group' used for measuring morbidities and includes conditions such Parkinson's disease, chronic renal failure, low back pain and immuno-suppressant transplant which are not in the Quality and Outcomes Framework (QOF).[157]

Mersey Regional Health Authority (1984) Comprised of ten health districts: Chester, Crewe, Halton, Macclesfield, Warrington, Liverpool, St Helens & Knowsley, Southport & Formby, South Sefton and Wirral.

Poverty Two commonly used measures of poverty based on disposable income are: (i) relative poverty (low income): this refers to people living in households with income below 60% of the median in that year, and (ii) absolute (poverty): this refers to people living in households with income below 60% of median income in a base year, usually 2010/11. This measurement is adjusted for inflation**.**

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[156] Includes 19 health conditions covered by the Quality and Outcomes Framework (QOF) - asthma, atrial fibrillation, cancer; coronary heart disease (CHD), chronic kidney disease (CKD) stages 1-3, chronic obstructive pulmonary disease (COPD), dementia, depression, diabetes, epilepsy, heart failure; hypertension, learning disability, non-diabetic hyperglycaemia, osteoporosis, peripheral arterial disease, rheumatoid arthritis, serious mental illness, and stroke/transient ischaemic attack (TIA).

[157] The 20 ACG conditions were age related macular degeneration, bipolar disorder, COPD, chronic renal failure, congestive heart failure, deficiency anaemia, depression, diabetes, disorders of lipid metabolism, glaucoma, hypertension, hypothyroidism, immuno-suppressant transplant, ischaemic heart disease, low back pain, osteoporosis, Parkinson's disease, persistent asthma, rheumatoid arthritis, and schizophrenia.

Quintile A statistical value of a dataset that represents 20% of a given population.

The Oxwell Student Survey. An online large scale annual survey designed to measure the wellbeing (health and happiness) of children and young people aged 9-18 years old. In 2023, 17,443 students from 74 Liverpool schools participated in the survey.

Social determinants of health The social (or wider) determinants of health describe the social and environmental conditions in which people are born, grow, live, work and age, which shape and drive health outcomes and the inequities in access to power, money and resources which underpin these. Unfair distribution of these resources creates avoidable health inequalities, known as health inequities.

Years of life lost (YLL) is a measure of premature mortality that compares the relative importance of different causes of premature death within a population and can be used by health professionals to define priorities for the prevention of such deaths. YLL can also be quantified to show the burden and impact on a population and society from a specified cause of death.

8 Methodological Addendum

Life expectancy (LE) and healthy life expectancy (HLE): Linear regression was fitted to LE and HLE estimates to project forward using historical trend data.

Data source: Office for Health Improvement & Disparities (OHID).

Major illness (MI): Assumes that major illness in Liverpool will increase in line with the Health Foundation national projection of a 37% increase, acknowledging that actual numbers with MI will vary depending on the definition of MI used. Two definitions of MI were modelled: (i) Number aged 20 and over with two or more long term conditions (multimorbidity)[158] and (ii) Number aged 20 and over with three or more ACG 'adjusted clinical group' conditions.[159]

Data source: CIPHA enhanced case finding tool, November 2023 linked dataset with anonymised patient data from GP clinical systems.

Health conditions: Linear regression was fitted to absolute numbers on individual Quality and Outcomes Framework (QOF) registers using trend data between 2012/13 and 2022/23 to project forward.

Data sources: National General Practice Profiles/OHID available here and QOF/NHS Digital available here

Inequalities in health conditions: To summarise GP practices by deprivation, practices were ranked by their GP deprivation scores and grouped into quintiles with similar numbers of practices in each group. 'Most deprived GP quintile' equates to patients registered at practices in the most deprived 20% of practices

[158] The 19 conditions covered by the Quality and Outcomes Framework (QOF) were asthma, atrial fibrillation, cancer; coronary heart disease (CHD), chronic kidney disease (CKD) stages 1-3, chronic obstructive pulmonary disease (COPD), dementia, depression, diabetes, epilepsy, heart failure; hypertension, learning disability, non-diabetic hyperglycaemia, osteoporosis, peripheral arterial disease, rheumatoid arthritis, serious mental illness, and stroke/transient ischaemic attack (TIA).

[159] ACG is an 'adjusted clinical group' used for measuring morbidities. The 20 ACG conditions were age related macular degeneration, bipolar disorder, COPD, chronic renal failure, congestive heart failure, deficiency anaemia, depression, diabetes, disorders of lipid metabolism, glaucoma, hypertension, hypothyroidism, immuno-suppressant transplant, ischaemic heart disease, low back pain, osteoporosis, Parkinson's disease, persistent asthma, rheumatoid arthritis, and schizophrenia.

and ‘Least deprived GP quintile’ represents patients registered at GP practices in 20% least deprived practices. Linear regression was fitted to absolute numbers on QOF registers using trend data for each quintile to predict forward.

Data sources: National General Practice Profiles/OHID available here and QOF/NHS Digital available here

Limitations:

The major disease projections are based on historic trend data with the assumption that such trends will continue to 2040. They do not consider unknown future innovations in treatment, potential changes to lifestyle behaviour, and wider economic and societal impacts on health. As a result, they are very much estimates based on current assumptions, rather than predictions. Work will be undertaken with the University of Liverpool and health partners to keep these projections under review.

Unless otherwise stated the source of the statistics in this report is: Office for Health Improvement & Disparities. Public Health Profiles. 2023 https://fingertips.phe.org.uk

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