



Integrated Care for Cleaner Air Tackling air pollution across the North East and North Cumbria ICS

Understanding the Levers for Change

May 2022

Foreword

Dr Fiona Adshead, Chair, Sustainable Healthcare Coalition

It is without a doubt that air pollution is now increasingly being recognised as one of the greatest public health challenges facing the global population. In 2019, air pollution ranked fourth among major risk factors for global disease and mortality and in the UK, it contributes to between 28,000 and 36,000 deaths annually.^{1,2}

Change can bring rapid benefits: respiratory patients reported fewer symptoms when air pollution fell during the 2020 lockdown.³

Without sustained action, the negative impact on health is likely to increase significantly, placing considerable strain on our healthcare system.

The **Integrated Care for Cleaner Air initiative**, driven by a partnership between Newcastle upon Tyne Hospitals NHS Foundation Trust, Global Action Plan and Boehringer Ingelheim, will provide Integrated Care Systems (ICSs) with an actionable framework to improve air quality around healthcare access points. This will demonstrate how air pollution can be tackled by the NHS through coordination across sectors at an ICS level, by providing relevant healthcare leaders with an **ICS Clean Air Framework** for change.

The **'Levers for Change'** report has shaped the Action Plan for the North East and North Cumbria ICS, helping them to better understand the interconnection between air pollution and health inequalities in this region. In addition, it can play a pivotal role in the development of a national framework.

This report comes at a critical time as ICS leaders are expected to develop consolidated and system-wide Green Plans. These plans are intended to support the Greener NHS programme and its ambition to reduce the impact of climate change on public health. The insights from this report will be invaluable for ICS leaders – many of whom will be at the beginning of their journey to reduce the impact of climate change in their region.

The transformation to a net zero healthcare system is occurring during the most challenging period in the history of the NHS. Alongside responding to the pandemic, tackling the backlog of care, reducing air pollution and aligning to the NHS' net zero goals are vital to address health inequalities and protect future generations of patients.

Introduction

Air pollution is now a significant public health challenge, both in the UK and globally. The purpose of the **Integrated Care for Cleaner Air initiative** is to improve air quality around healthcare access points in the UK, to secure a healthier future for society and to inspire care systems nationally to pursue action on cleaner air.

Three key partners, Newcastle upon Tyne Hospitals NHS Foundation Trust (Newcastle Hospitals), the environmental change charity Global Action Plan (GAP), and Boehringer Ingelheim (BI), have come together to drive forward the development of the **Integrated Care for Cleaner Air initiative**. With the ambition to demonstrate how air pollution can be tackled by the NHS at an Integrated Care System (ICS) level, which includes all parts of the NHS and local authorities in an area, by providing relevant healthcare leaders with an **Integrated Care Clean Air Framework** for change.

This framework will be made available to all 42 ICSs nationally to assist in the development of an **Action Plan** for tackling air pollution at a system level within their region, with a focus on reducing emissions and mitigating health inequalities. The ambition for this **Integrated Care for Cleaner Air initiative**, is to play an active role in *Supporting every ICS to become a Clean Air Champion*.

The **'Levers for Change' report** acts as a stepping stone to inform the development of a wider national **ICS Clean Air Framework** for ICSs to address air pollution. The North East and North Cumbria ICS are pioneering this process, by piloting the initiative and developing an action plan to deliver improvements to air quality in their region.

The North East of England currently has the poorest health in the country, with significant levels of health inequalities stemming from the burden of historically industrial jobs.⁴ These industries have had a lasting impact in this region, resulting in sustained cardiovascular and respiratory issues, which are still felt today.⁴ Consequently, the North East also has more attributable deaths to air pollution per 100,000 people than London, despite London having considerably worse pollution.⁵

In fact, in England, almost 30% of preventable deaths are due to non-communicable diseases specifically attributable to air pollution.⁶ Unless air quality is improved, the health and social care costs of air pollution in England are set to reach £18.6 billion by 2035.⁷

This **'Levers for Change' report** details why poor air quality is such a health concern in the North East and North Cumbria region, highlighting the concentration of air pollution around the town and city centres, which act as the region's economic and employment hubs.

It also includes findings from desk-based research and key stakeholder interviews to better understand air pollution and health inequalities across the region. This has subsequently been presented to stakeholders across the North East and North Cumbria.

By combining stakeholder feedback and desk-based research, GAP has been able to identify twelve key themes to inform the next phase of the **ICS Clean Air Framework** development.

This report aims to provide valuable insights that can help the North East and North Cumbria ICS region to:

- Map the causes and impacts of air pollution.

- Outline the relevant bodies and agencies within the ICS that can have an influence on air quality within its remit and geography.
- Research opportunities and limitations for an ICS to improve air quality.

The report also includes considerations for sustainability teams throughout the NHS. It can be used as a useful resource in the development of ICS Green Plans by incorporating actions that mirror those found in the Greener NHS Green Plan guidance, whilst raising the importance of air quality.

What's next?

An action plan is already being developed with the North East and North Cumbria ICS, with a view to begin initiating the plan in Spring 2022.

Development of the broader framework has also begun, in collaboration with ICSs across England, with official publication scheduled for June 2022.

Beyond that, this **ICS Clean Air Framework** and action plan will help support the development of the ICS Green Plans and will co-benefit the NHS Long Term Plan and NHS Net Zero Strategy.

Executive Summary

Global Action Plan (GAP) with Newcastle Hospitals and Boehringer Ingelheim present initial findings on the sources of air pollution in the North East and North Cumbria (NE&NC) region, and the associated health inequalities.

This **'Levers for Change' report** concludes that without proper intervention, air pollution is likely to exacerbate the ongoing health challenges facing the region. It also highlights the opportunities and limitations that will inform the development of a North East and North Cumbria Integrated Care System (ICS) **Clean Air Framework**, which can be rolled out nationally.

Key Findings:

- The North East has the poorest health in the country, with high levels of health inequalities.
- People with lower socio-economic status, those with existing health conditions, and/or people with accumulated exposure to a range of stressors are more susceptible to the health effects of air pollution.
- There are several areas in which the NHS and the North East and North Cumbria ICS Sustainability Strategy are already tackling air pollution, despite air pollution not being mentioned in the NHS Green Plan guidance.
- A distinct ICS clean air action plan will support development of the ICS Green Plan and will benefit the NHS Long Term Plan and NHS Net Zero Strategy (see full summary in Annex 1).

Integrated Care for Cleaner Air Partnership

I have worked for Newcastle Hospitals for over a decade building the Sustainable Healthcare in Newcastle programme, which culminated in us becoming the first healthcare organisation in the world to declare a climate emergency in 2019.

In our own Climate Emergency strategy, Clean Air is one of our three primary goals alongside Zero Carbon Care and Zero Waste. As a Trust we have committed to eliminating harmful air pollution from our operational transport activities and ensuring our healthcare facilities are accessed only by zero emission travel, as it is recognised that air pollution is the largest environmental health risk we face today.

Sadly, we know that people in the North East and North Cumbria are disproportionately burdened by ill health and that the reasons for that are complicated, including socio-economic and cultural factors. The research presented in this report is key to understanding the impact that air quality has on the health outcomes of the people of the region, and to identify ways we can work across organisations to reduce inequalities and improve quality of life for the most vulnerable members of society.

On a personal level, I am really excited to be working on this project with Global Action Plan. When the Clean Air Hospital Framework was released a couple of years ago with Great Ormond Street Hospital, there was nothing else like it and it has been a vital resource to enable hospitals to understand and measure their impact on air quality. When the proposal for the development of an ICS wide framework came forward, I jumped at the chance, and thankfully the ICS CEOs were as keen as me to see this project come to the North East and North Cumbria.

- *James Dixon, Associate Director Sustainability, Newcastle upon Tyne Hospitals NHS Foundation Trust*

Global Action Plan is excited to be taking forward the learnings from the Clean Air Hospital Framework to explore the opportunities to tackle air pollution at the regional ICS level with partners from across the health system, across primary and secondary care but also with local government. This is a very important point as the NHS cannot tackle air pollution alone.

Transport is the biggest contributor to air pollution in the UK and in this region, so this is where a big opportunity lies. Acknowledging that patient choice is essential and that there are patient-clinician interactions which are not appropriate for virtual delivery, reducing unnecessary journeys for patients across the North East will have a positive impact on air quality and patient quality of life. If we can reduce the number of vehicles on the road and clean up the remaining vehicles, we will see the amount of people that come through the doors of the NHS reducing each year. Of course, there are co-benefits too. Many things that can be done to improve air quality, like increasing active travel, will also increase quality of life and wellbeing. By having cities and towns that are designed around people, we will have fewer road traffic accidents, increased levels of physical activity and increased levels of social community cohesion.

If we are to tackle air pollution and the climate crisis, we really need to fundamentally address how we live our lives in every aspect, so that we can live healthy lives and not need NHS services at the levels that we currently do, and that really is the exciting opportunity that this project brings.

- *Larissa Lockwood, Director of Clean Air, Global Action Plan*

At Boehringer Ingelheim we are committed to improving community health now and for generations to come. The **ICS Clean Air Framework** aligns seamlessly with our global Sustainable Development for Generations strategy, which in turn has been informed by the UN's Sustainable Development Goals.

We are proud to be involved in such a pivotal project which aims to improve air quality for millions of people across the North East and North Cumbria, to be contributing to the wider challenge of improving health determinants with the ultimate aim of mitigating health inequalities associated with air quality across the region. Raising awareness and affecting change in air quality will enhance the quality of life for citizens of all ages across the social gradient. There has never been a better time to bring stakeholders across the ICS together and commit to incorporating air quality improvement principles, moving to a 'Health in All Policies' approach to improving air quality.

- *James Bevan, National Policy and Partnerships Manager, Boehringer Ingelheim*

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The health outcomes of being exposed to air pollution

Air pollution contributes to death and disease. In the UK, 36,000 premature deaths (or one in five deaths) a year are caused by air pollution.² Air pollution affects human health at all stages of life. Most affected are the young, the elderly, pregnant women, those with existing health conditions and those living in areas of high pollution.⁸ Despite this, other environmental factors, such as occupation, access to health care and housing conditions can be just as important.⁹

Exposure to any amount of air pollution can be damaging to health, the greater the exposure the greater the risk.¹⁰ Health implications associated with air pollution include damage to lung function, triggering asthma, increasing blood pressure, and increasing lung and heart-related hospital admissions and deaths.^{11,12} Air pollution affects lung development in children and also increases the incidence, prevalence and severity of asthma, with more frequent exacerbations and hospital admissions.^{13,14,15,16,17,18} High levels of air pollution have been linked to low birth weight, premature births and stillbirths.^{19,20,21}

There is evidence to suggest a detrimental health link between COVID-19 and air pollution.²² A small increase in air pollution leads to a large increase in the COVID-19 infectivity and mortality.²³

Generally, air pollution is worse in more deprived communities and can be up to 20% higher.²⁴ This is due to the proximity and concentration of road traffic and industrial point sources in deprived areas.²⁵ It is important to note that typically the lowest income households do not have access to a car and therefore contribute less to air pollution.²⁶

In addition to the high levels of exposure to road traffic, the other sources of pollution and the increased susceptibility to poor health people in deprived communities face, there is also evidence that community-level disadvantages may increase susceptibility to the health effects of air pollution itself.^{27,28} Among the reasons suggested for this are lack of access to food, medical care and preventative services as well as accumulated exposure to a range of stressors.^{27,28}

In England:

- Almost 30% of preventable deaths are due to non-communicable diseases specifically attributable to air pollution.⁶
- The vast majority of GP practices and hospitals are in areas that breach the recently updated World Health Organisations guidance levels for PM_{2.5}.^{29,30}

Air pollution increases the risk of cardiovascular disease, one of the leading causes of death in the North East, by causing cell and tissue damage, inflammation, arterial blood clots and an irregular heartbeat.³¹

Air pollution can affect us both directly and indirectly. Small particles can penetrate the lungs and be carried around the body, causing direct damage to the function of key organs.³² Exposure to pollutants can cause systemic inflammation and initiate a stress response which can lead to subsequent damage to the body.³³ Acute and chronic exposure to air pollution weakens our whole system and depletes our body of resources, affecting the function of our immune system.^{34,35}

Air pollution can be linked to all leading causes of death, including those in the North East (see Framework development progress

The next phase of this project is to develop the framework using the opportunities and limitations raised by the stakeholders. This framework will then be used to create individual ICS action plans. To make sure that the framework is as applicable as possible for all ICSs in England, GAP will consult with other ICSs to understand their air quality needs and the needs of their population. Once the framework is complete, GAP with the NE&NC ICS will create an action plan for the region.

Appendix 1, Figure 5). This includes Ischaemic Heart Diseases (IHD), Chronic Obstructive Pulmonary Disease (COPD), stroke and lung cancer (see Framework development progress

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Appendix 1, Figure 5). The North East of England has more attributable deaths to air pollution per 100,000 people than London, despite London having considerably worse particulate pollution.⁵

There is no safe level of air pollution.³⁶ The legal UK annual average limit for compliance of nitrogen dioxide is four times higher than the World Health Organisation guideline.^{30,37} People with a lower socio-economic status, those with existing health conditions, and/or people with accumulated exposure to a range of stressors, are more susceptible to the health effects of air pollution.^{27,28} Crucially, these groups experience greater negative health effects of air pollution at a lower dose.^{38,39}

Table 1 - UK annual average limit targets for pollutants against World Health Organisation guidance.

Pollutant	UK annual average limit targets ($\mu\text{g}/\text{m}^3$)	WHO Guideline annual average limit ($\mu\text{g}/\text{m}^3$)
Nitrogen Dioxide (NO₂)	40	10

Particulate Matter 2.5	25	5
Particulate Matter 10	40	15

How is the NHS tackling emissions?

The stakeholder interviews highlighted that there would be overlap between any Clean Air Action Plan and the ICS Green Plan. Discussions also covered the opportunities and limitations around the sustainability goals set in the NHS Long Term Plan and Net Zero Strategy.

Improving air quality and reducing air pollution has co-benefits for decarbonisation, as many clean air actions will also contribute to tackling climate change. It was therefore felt that an **ICS Clean Air Framework** should aim to support existing national and regional net zero goals by reducing emissions from travel, energy, procurement and other key themes.

The health care system in England is responsible for an estimated 4-5% of the country's carbon footprint (around 20 million tonnes) and employs 1.3 million people, making it the largest employer in Europe.^{40,41}

The NHS is working to reduce carbon emissions from all sources and aims to reach net zero by 2040. Specifically related to air pollution, this includes:

- Cutting business mileage and fleet emissions by 20% by 2023/24.⁶
- Reducing 30 million outpatient appointments through better use of technology (6.7 billion road miles each year are attributable to patients and their visitors travelling to all NHS buildings regardless of service provided.⁴¹
- Phasing out coal and oil from heating.⁶
- Shifting at least 90% of the NHS fleet to low-emission vehicles by 2028.⁶
- Promoting and encouraging active travel and car sharing among staff.⁶

All of these actions will not only cut carbon dioxide but will reduce other air pollutants including nitrogen dioxide and particulate matter. These actions align with the “Delivering a Net Zero National Health Service” report which acknowledges a range of direct as well as indirect emissions associated with the NHS including carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs).^{42, 43}

Air Pollution in the North East and North Cumbria

Newcastle is the most polluted area in the North East with two Air Quality Management Areas (AQMAs) based in the city centre and in Gosforth.⁴⁴ Of the sites monitored in the city centre 90% are in exceedance or within 10% of objective values for nitrogen dioxide.⁴⁴ Newcastle city centre is required to implement a Clean Air Zone, which is expected in July 2022.⁴⁵

Gosforth, part of the A189 and B1318, regularly exceeds legal levels of nitrogen dioxide.⁴⁴ Busy junctions, street canyons and car prevalence are the main culprits.

Air Quality Management Areas (AQMAs) are declared when there is an exceedance, or likely exceedance, of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Other key areas of air pollution:

- Gateshead town centre, initially included in the proposed Clean Air Zone with Newcastle city centre, regularly exceeds pollution objectives for nitrogen dioxide.⁴⁴
- An 800m stretch of footpath of the A1058 from the Newcastle/Wallsend boundary in North Tyneside due to road traffic.⁴⁶
- Durham, where pollution levels are “discreet and highly localised.” Annual mean nitrogen dioxide concentrations exceed annual mean objectives at a number of sites within the city.⁴⁷
- As a rural county, air quality is generally good across Cumbria. There are, however, pockets within Carlisle where the annual mean objective for nitrogen dioxide is regularly exceeded.⁴⁸ As such, there are six AQMAs in the city. There are areas in Eden and Calderdale where air pollution levels are also noteworthy. In Eden, the highest level of pollutants are from major roads, M6 and A66.⁴⁹ In Hebden Bridge and Calderdale the concentrations of PM_{2.5} have increased as part of a rising trend. The reason for this is not well understood.⁵⁰
- Air pollution across the Tees Valley Districts – *Darlington, Hartlepool, Middlesbrough, Redcar* – according to the boroughs’ Annual Status Reports (ASRs) is “good” and meets legal standards for the UK. Indeed, no boroughs have declared AQMAs.^{51,52,53,54}
- Air pollution is relatively low in Northumberland given its rural nature and the fact that one quarter of the county is allocated National Park status. Northumberland’s only AQMA was revoked in 2012.⁵⁵
- Despite districts meeting annual air quality objectives, there are no ‘safe’ levels of air pollution exposure.⁵⁶ Annual averages do not take into account daily highs, micro-pollution environments and personal exposure through work and travel. The recent World Health Organisation guidelines on air pollution would make even the “cleanest” air in the North East non-compliant.^{30,44}



Figure 2 - Newcastle City Centre Air Quality Management Areas.⁵⁷

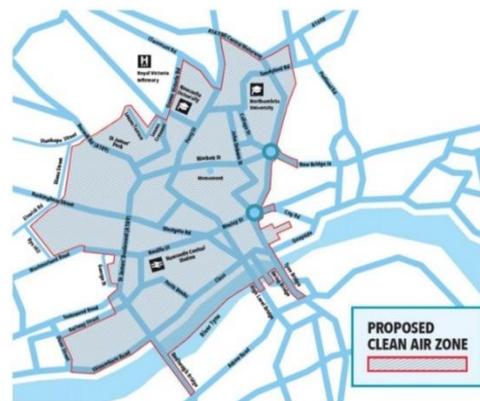


Figure 1 - Newcastle City Centre Proposed Clean Air Zone.⁵⁸

Local sources of air pollution

Road traffic emissions are the main source of nitrogen dioxide and particulate matter pollutants across the region.⁵⁶

- Within the 13 largest centres of employment in Tyne & Wear, eight are in Newcastle and Gateshead, the two most polluted areas.⁵⁹ This has implications for the three largest employers in the city (the NHS with 18,000 staff; the local authority with 5,000 staff; and the university) in terms of how they travel and their exposure to air pollution.^{60, 61}
- Durham Council specifically identify the proportionally high number of diesel cars as the main contributor to nitrogen dioxide pollution in the city.⁶²
- Figure 5 below displays point source emitters of nitrogen dioxide in the North Cumbria and North East ICS area.
- Car ownership in the North East is the lowest in England outside of London, however it is increasing.⁶³ Between 2003 and 2019, car ownership per household increased in the North East by 28%, (from 0.86 to 1.1 cars per household), the greatest increase of any region over that period.⁶³ Conversely, car ownership decreased in London over the same period. Those without access to a car in the North East was 28% in 2019, compared to 37% in 2003.⁶⁴

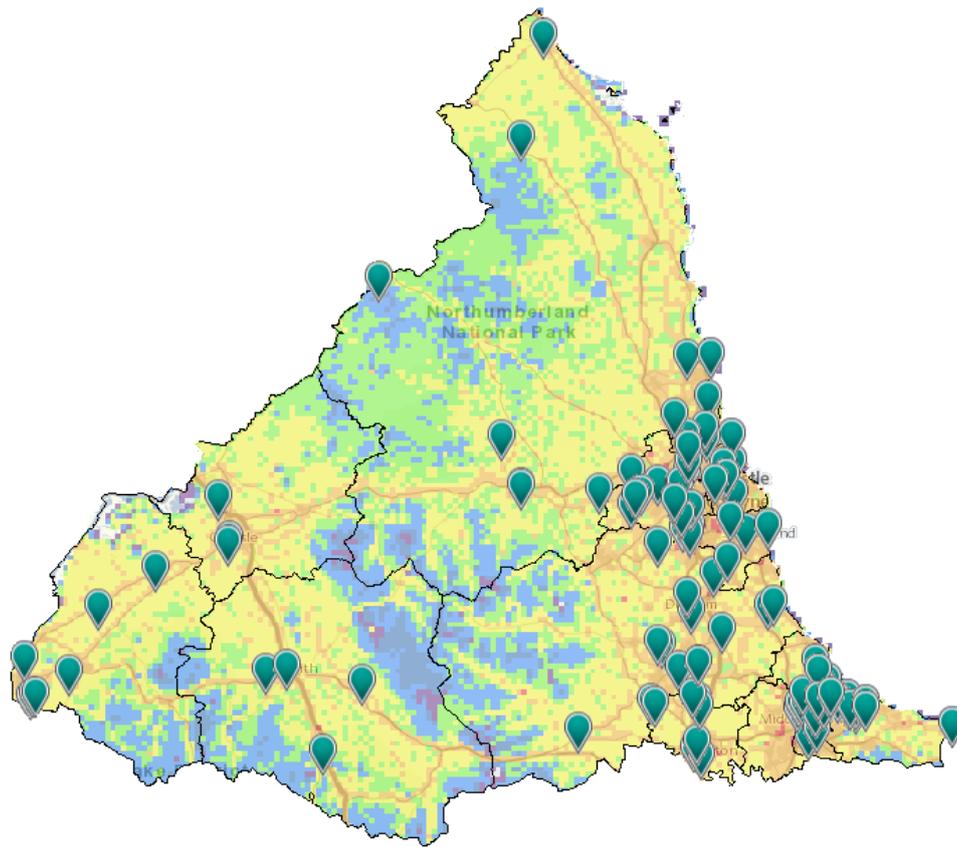


Figure 3 - Map showing nitrogen dioxide emissions and 'point sources emitters' in the North Cumbria and North East ICS area.⁶⁵

Health inequalities

Health challenges and health inequalities in the North East and North Cumbria

Health inequalities are defined as avoidable, unfair, systematic differences in health between different groups of people.⁶⁶ Health inequalities can be understood simply by the differences in the status of people's health and can be observed in people's ability to access care as well as their experience and the quality of that care. Health inequalities are also linked to environmental and behavioural risks, such as smoking, housing conditions and poor air quality.⁶⁷

Health inequalities can be categorised through four interrelated factors:

- Socio-economic factors, e.g., income
- Geography, e.g. regional, or whether urban or rural
- Protected characteristics, e.g. sex, ethnicity or disability
- Socially excluded groups

These non-medical factors are described by the World Health Organisation (WHO) as Social Determinants of Health (SDH) and can account for between 30-55% of health outcomes.⁶⁸ The WHO say SDH are the "conditions in which people are born, grow, live, work and age, and what power, money and resources they have access to," and go on to say that "the lower a person's social position, the worse his or her health."⁶⁸

Life expectancy and years of healthy life

Life expectancy and years of healthy life are two key measures of a population's health status. While population health has significantly improved in the North East over the last 30 years, compared to the rest of England it still performs particularly badly on the following two measures.⁴

- Life expectancy - In the North East of England life expectancy is, on average, two years lower for men and women compared to the rest of England and is almost four years lower for people in Middlesbrough.⁶⁹
- Poor Health - People in the North East of England spend proportionally more of their lives in poorer health, as well as being more likely to die from preventable disease.⁴ Healthy life expectancy at birth for males in the North-East of England is 59.5 years, compared to 66.1 years for males in the South East, a gap of 6.6 years. For females, the gap is 5.8 years.⁷⁰

Preventable and premature deaths

The North East has the highest preventable mortality rate in England at 223 per 100,000, which is 23% higher than the national average of 182 per 100,000.⁵ The main preventable premature deaths are:

- Cardiovascular disease (CVD) – Heart disease, strokes and related conditions account for 24% of all deaths in the North East (over 6,700 people) and 15% of all disability adjusted life years (DALYs).⁷¹
- Cancer mortality is higher in the North East than any other region of England, although this trend is falling.⁴ The North East has the highest rate of cancer incidence in England (646.1 patients diagnosed per 100,000).⁷²
- Preventable Liver disease in the North East is significantly higher than the national rate and is increasing at a higher rate compared to any other region.⁴ Additionally, rates of alcohol related admission to hospitals, and alcohol-associated deaths are the highest in England (reaching an all-time high in 2020).⁷³
- Respiratory disease has been a long-term problem in the North East, reflecting the industrial legacy and historically higher smoking rates.⁴ Despite high reductions in smoking from 2005-2010, smoking rates are still problematic in the North East and remain above the national rate.⁴

It is worth noting the North East population health improvements that took place between 1990 and 2010, with an increase in life expectancy and reduction in mortality.⁷⁴ After 2006, levels of health spending and staffing in the North East increased significantly as England allocated relatively more of its spending growth to the region but it is impossible to be definitive as to what may have led to the greater improvement in the North East at that time.⁷⁴

Digital exclusion as a factor of inequality

Digital exclusion is another facet of inequality in the UK, with only 51% of lower income households (earning between £6,000 – £10,000) having home internet access, compared to 99% of households with an income over £40,001.⁷⁵

Digital exclusion is better understood as a sliding scale of digital inclusion and literacy, rather than as binary measure of access. Five dimensions of digital inequalities are:

- Technical apparatus
- Autonomy of use
- Extent of social support networks
- Types of usage
- Skill level

The historic burden of ill health

The historic burden of ill health associated with industry in the North East is significant. Although now closed, the effects of coal mining are still being felt. A case study of the North East found that the longer a pit has been closed, the better the long-term health of the community.⁷⁶ Communities around coal mines are more likely to suffer cardiovascular and respiratory disease and poor health decreases with increasing distance from a coal mine.⁷⁶

The ex-miners themselves are more likely to be in poor health due to the direct effects of mining and are more likely to suffer from a long-term limiting illness compared to people in non-manual employment.⁷⁶ The families of ex-miners are also likely to be in poor health due to deprivation caused by lack of employment.⁷⁶

“Not many power stations are left, but the health problems remain.” -
Anonymous

The disproportionate effects of the COVID-19 pandemic

The effects of the COVID-19 pandemic were disproportionately felt in the North of England, with higher than average rates of COVID-19 mortality and unemployment.⁷⁷ Over the period of pandemic, March 2020 to April 2021, the North East experienced:

- A 10% higher mortality from COVID-19 per 100,000 people than the England average.⁷⁷
- A 7.4% unemployment rate, the greatest rate of any region in England.⁷⁷ The largest drop in mental wellbeing and greatest loneliness due to pronounced lockdown measures in the region.⁷⁷

These inequalities were found to persist even after accounting for age, ethnicity, deprivation and proportion of high-risk individuals, suggesting that the North is more susceptible to the adverse health shocks of the pandemics.⁷⁷

Our research

The research presented is desk-based which has been supplemented and informed by regional stakeholder interviews. As part of the desk-based research, we reviewed air pollution and public health reports from across the region to understand the sources of air pollution and the impacts on population health. We also reviewed sustainability strategies and green plans from the NE&NC ICS Sustainability Group and respective NHS Foundation Trusts.

Regional interviews were conducted with local and combined authorities, higher education institutions and networks which represented the region. Local interviews were with sustainability managers at trusts, engaged clinicians and primary care leaders. The research provides an introduction into health inequalities and air pollution in the North East and North Cumbria.

Research findings

- The North East has the poorest health in the country, with high levels of health inequalities.⁴
- There is a historic industrial burden of ill health in the North East relating to cardiovascular and impact on respiratory health that is still being felt.⁴
- Despite relatively low levels of air pollution across the region as whole, there are areas of high air pollution in some towns and city centres.⁴⁴
- People with lower socio-economic status, those with existing health conditions, and/or people with accumulated exposure to a range of stressors are more susceptible to the health effects of air pollution.^{26,27} Crucially, these groups experience greater negative health effects of air pollution at a lower dose.³⁸

- While many districts report meeting annual air quality objectives, there are *no* 'safe' levels of air pollution exposure.⁷⁸

A National ICS Clean Air Framework

This section focuses on the implementation of an ICS Clean Air Action Plan at a national level, highlighting opportunities for support and promotion. An ICS is an informal collaboration between local partners to improve the population health of local communities within a wider region.⁷⁹ This devolution of functions and resources shifts national decision-making closer to a regional and community level.⁷⁹

From July 2022, ICSs will become a formal entity with an official place within legislation.

The ICS forms the governance body for the entire region spanning across both primary and secondary care. Leaders from different organisations come together to form an ICS Management Board who make decisions in the interest of local population.

GAP conducted interviews with various national stakeholder groups (referenced in the appendix) with an invested interest in air quality, health inequalities and ICSs to understand the potential channels associated with sharing this work.

Support for a National ICS Clean Air Framework

A range of national stakeholders who were interviewed about the project, were supportive of the project's concept and confirmed that they would be willing to support a review process if a national framework was developed. These national stakeholders included Greener NHS, NHS England & Improvement (NHS E&I), Public Health England, Primary Care Respiratory Society, UK100 and the UK Health Alliance on Climate Change. National groups reflected on the rising interest of air quality issues, particularly across the NHS E&I teams.

The Greener NHS team highlighted that the previous iteration of the tool, the Clean Air Hospital Framework, had been well received by hospitals in terms of where to start on tackling air pollution and the practical actions/steps teams can take to see air quality improvements.

Opportunities to promote an ICS Clean Air Framework

- Opportunity to include information on the Integrated Care for Cleaner Air Toolkit in the Green Plan Guidance Tool.
- Promote the framework on the Future NHS Collaboration Platform.
- The ICS Green Plan workshops in Spring 2022 will provide an opportunity to showcase the finished ICS Clean Air Framework and share with other ICSs across the country.
- ICS Greener NHS leads (recruitment process is still underway).
- Link with the Net Zero leads across regions/Net Zero Boards (Greener NHS).
- Health Anchor Network.
- There is an opportunity for the project to connect with the seven regional Senior Responsible Officer (SRO) leads who head each Sustainability Transformation Partnership Area who are responsible for convening and chairing system-wide meetings, and conversations to secure a shared vision and plan.
- PHE stakeholder meeting in October 2021.

- PHE Knowledge Hub (Khub).
- Primary Care Respiratory Society (PCRS) communications channels.
- PCRS & BTS Integrated Care event in October and Autumn 2022.
- Opportunity for the AHSN network, individual AHSNs and the NHSA to share.
- Opportunity for NHS Confed to share.

Specific opportunities and limitations for a North East and North Cumbria ICS Clean Air Framework

GAP conducted interviews with various national, regional, and local stakeholder groups to inform findings as detailed in appendix 2. These interviews were held with key stakeholders across primary and secondary care, as well as local authorities from the four integrated care partnerships to determine how air pollution can be tackled on a systemic level.

Interviews with stakeholders reflected on how the **Clean Air Hospital Framework** could potentially be scaled and applied across an ICS, and how an ICS could develop, own and implement a Clean Air Action Plan.

The Clean Air Hospital Framework was developed in collaboration with Great Ormond Street Hospital in 2018 as a free toolkit that hospitals can use to improve air quality in and around hospital sites. The Framework focused on improving air quality through an individual hospital’s actions while the actions were not connected with other organisations within an ICS region. The ICS Clean Air Framework aims to join up different hospital trusts and organisations to provide a collective effort to tackle air pollution.

Working with stakeholders, 12 key themes emerged which covered the opportunities and limitations of a potential ICS-level Clean Air Framework. The table below lists the 12 themes and the opportunities and limitations identified.

Strategic Decision Making

<i>Opportunity</i>	A systemic approach with clear site leadership will raise the profile of air quality across the region. Encouraging board-level support and system-wide engagement.
<i>Opportunity</i>	A ‘Health in all Policies’ approach is an NHS policy approach to address population health and reduce inequalities.
<i>Opportunity</i>	Collaborate with local anchor institutions to bring a health voice to infrastructure, industry and agriculture projects that result in poor air quality. Health sectors should have a voice in the planning and decision-making process.
<i>Opportunity</i>	There are real opportunities to integrate with other stakeholders (anchor institutions, businesses and health charities). The ICS could support education and work in partnership to influence decisions that impact public health.

Whole Health Care Approach

<i>Opportunity</i>	Wider scope to expand the Clean Air Hospital Framework to also include ambulance trusts, mental health trusts, primary care perspectives and wider ICS governance. Many co-benefits of improving air quality in primary and secondary care, such as improvements to travel behaviours and consolidating deliveries from couriers.
<i>Opportunity</i>	Opportunity to share learnings across the system. Integrating air pollution into existing campaigns such as smoking, inhaler work streams and respiratory targets. Good opportunity to increase learning within clinical models of care as prevention and optimisation of long-term conditions.
<i>Limitation</i>	Primary care can be complex and organisations are structured more like a business than a hospital or acute trust. They have their own ways of working, different priorities and operational autonomy, despite being influenced by the PCN. This will need to be factored into framework design. Given this complexity, it may be difficult to reach all appropriate channels

across primary care.

Transport

<i>Opportunity</i>	Scope for the ICS to influence better sustainable transport connections, by working together and making links with local government. In response to current public transport types being expensive and not well linked, especially between transport hubs. Transport Plan for North East is currently under review, but this only cover Newcastle and not issues in the wider area. BSIP is currently under review - £800m plan to improve buses could be an opportunity.
<i>Opportunity</i>	Potential to advise on transport options for both rural and urban environments, and to include shift work. Increase hours of availability of buses. Staff community bus scheme to take staff home after shifts, focused on reducing miles by planning routes.
<i>Opportunity</i>	Grey fleet including community nursing needs to be addressed. Incentives for updating/upgrading vehicles to meet AQ standards.
<i>Opportunity</i>	Review travel behaviours from an organisational and regional perspective. Influence staff behaviour through training and comms, as well as infrastructure changes to shift transport modes.
<i>Opportunity</i>	Some existing transport routes are considered tricky and have affected patients' ability to get to appointments. There is an opportunity to have appointments closer to home (e.g., more facilities at GPs). Community hubs for patients in rural/deprived areas Bus stops to be installed with a set distance of the reception.
<i>Opportunity</i>	The ICS could support a regional wide campaign to reduce idling.

Health Sector Voice

<i>Opportunity</i>	The health sector needs to highlight burden of disease and number of deaths linked to air pollution every day across the region. This is an opportunity to be a good motivator of action as improving air quality will benefit health outcomes and meet net zero objectives.
<i>Opportunity</i>	ICS can use its voice to support policies that will reduce air pollution such as clean air zones and can also influence infrastructure changes in the region that may have a negative impact on air pollution such as the widening of the A1.
<i>Opportunity</i>	Potential for the health sector to support lower traffic areas around places where vulnerable groups are - e.g., schools/hospitals.

Local Authority Collaboration

<i>Opportunity</i>	Once councils declare a climate emergency, there is more of a proactive partnership between the trust and local authority. Need to make links between health outcomes associated with climate change and air pollution.
<i>Opportunity</i>	Engagement with local authority and health sectors presents opportunities to change public awareness on the impact of air pollution and the importance of driving less. Possible campaigns for high pollution days, public transport.
<i>Limitation</i>	Working partnerships between local authorities and health organisations currently rely on voluntary collaboration with no legal agreement to work together.

Existing Infrastructure

<i>Opportunity</i>	Work with local authority around the clean air zone to encourage people not to drive, especially if this is worsening health inequalities. Focus to be placed on messaging.
<i>Limitation</i>	There are not enough charging points in the city centres. A region wide approach is needed to improve the charging infrastructure with a potential to enable health professionals with access

to any NHS site to charge (equity of access to charging infrastructure).

Procurement

<i>Opportunity</i>	Strategic and systemic ICS support to consolidate procurement decisions so that purchasing is done on a need's basis. Electric bike courier services, sustainable supplier contract agreements. Central hubs to store deliveries.
<i>Opportunity</i>	Could identify a sustainability lead within the procurement team to champion the framework.
<i>Limitation</i>	Procurement systems were described by some stakeholders as very complex and hard to influence.

Engaging Patients Through Educating Staff

<i>Opportunity</i>	Extra training provided to staff to know the health impacts of air pollution and what they can do directly to reduce air pollution. Utilise learning from Health Professional Networks and include links to learning on e-updates.
<i>Opportunity</i>	Train staff to have effective conversations with patients on air pollution. Target specific disciplines that have regular conversations with patients that suffer health impacts of air pollution - e.g., respiratory, paediatric, cardiology, GPs, midwifery teams. Share learnings from Mobilising Health Professionals work. Community staff may be particularly well placed to engage patients about air pollution - they travel to patient homes and are trusted by patient groups.
<i>Opportunity</i>	Clinicians will follow guidance from royal colleges as opposed to sustainability teams - need to gain top-down support from national bodies and royal colleges.
<i>Opportunity</i>	Target specific disciplines that have regular conversations with patients that suffer health impacts of air pollution - e.g., respiratory, paediatric, cardiology and midwifery teams. Share learnings from Mobilising Health Professionals work.
<i>Opportunity</i>	NHS staff (across all providers) may not feel included in the decision-making process, staff need to be engaged on the topic. Give the NHS priority when doing consultations regarding air quality, to make sure staff feel included. Decisions should be made by staff who have an invested interest (e.g., Green Champions), to make the process fair.
<i>Opportunity</i>	Education on air pollution could be improved and the impact it has on the health of local populations.
<i>Limitation</i>	There is currently no obligation to discuss air pollution in asthma/COPD reviews, or when talking to cardiac patients.
<i>Limitation</i>	Communicating to all staff across the ICS will be challenging given the lack of a central messaging system. Could explore working with NHS Business Authority through pay slip communications.
<i>Limitation</i>	Public health has not been used to push sustainable practices or net zero practices.
<i>Limitation</i>	Need to ensure that sustainable transport alternatives suggested to patients are appropriate. E.g., some will be reliant on cars, some may not drive in the first place.

Green Plans

<i>Limitation</i>	Air quality is much harder to measure than carbon emissions despite the many co-benefits and clear linkages.
<i>Limitation</i>	Trusts are not focusing on air quality improvements as it hasn't been included as a Green NHS priority.
<i>Opportunity</i>	Including air pollution within work on green plans make a much more direct link between tackling emissions and improving patient health in the immediate.

Location, Size and Structure (region wide approach)

<i>Opportunity</i>	North Cumbria in particular needs to feel included. The Framework needs to focus on both rural and urban environments. Geographical issues needed to be considered, in particular rural settings.
<i>Opportunity</i>	Need to make sure not a single site/acute trust is used as the main focus. Mental health trusts and ambulance trusts each have 50+ sites. Filter actions through ICS organisations (ambulance trust, mental health trust, primary care perspectives).
<i>Limitation</i>	Some trusts cover a large geographic region, meaning that different sites have different sustainability challenges and priorities. This also means that improvements to travel infrastructure and plans for influencing travel behaviours cannot be generalised.

Digital Appointments

<i>Opportunity</i>	Reducing patient emissions is a big opportunity. Create a decision tree / framework for HCP's to utilise as a guide to assess the appropriateness of consultation medium. Whether face to face, phone or virtual, there is an opportunity to reduce patient travel but to also ensure patient choice, patient safety and utilisation of the correct medium.
<i>Limitation</i>	Public opinion of online consultations for some is shifting towards wanting more in-person meetings with doctors after COVID-19 restrictions. This may be temporary and longer term thinking on digital appointments is needed.
<i>Limitation</i>	Digital exclusion – access to facilities is a particular risk in rural areas and deprived urban areas. Development of community groups that allow patients to access IT services to make appointments.

Greening

<i>Opportunity</i>	The ICS could map out the effect of 'greening' on reducing air pollution. Possible follow up areas include work on the NHS Forest, TfL greening guidance, CAHF existing recommendations on greening.
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COVID-19

<i>Opportunity</i>	Organisations may not go back to the same working pattern as before, more are working from home indefinitely. If this is spread across the rest of the ICS this is an opportunity to reduce air pollution, as staff will be commuting less.
<i>Opportunity</i>	The pandemic showed that we can act and change quickly in a time of crisis. This concern needs to be translated in terms of pro-environmental behaviour change.
<i>Opportunity</i>	Important to link the health outcomes of COVID and air pollution. For example, air pollution increases the risks and complications of death from COVID.
<i>Limitation</i>	Air quality and sustainability is seen as less of a priority given the pandemic.
<i>Limitation</i>	Staff are busier than ever and there is risk for key individuals to be deployed in new roles. Clinicians have less time to devote to other health issues.
<i>Limitation</i>	COVID-19 has resulted in people using public transport less, with an increase in active travel and working from home.

Other key points of feedback from our stakeholders:

- There are several areas in which the NHS and the North East and North Cumbria ICS Sustainability Strategy are already tackling air pollution, despite air pollution not being mentioned in the NHS Green Plan guidance.
- A distinct ICS Clean Air Action Plan will support development of the ICS Green Plan and will co-benefit the NHS and NHS Net Zero Strategy.
- The action plan will provide a platform for cross sector collaboration across the system, which is an essential element of integration across the region to increase the health outcomes at a population level.
- There are several examples of best practice across the region to learn from. The NE&NC ICS Sustainability Group is well placed to share this and encourage others to adopt similar projects and initiatives to avoid reinventing the wheel.
- Opportunities for an **ICS Clean Air Framework** are centred around strategic decision making, tackling health inequalities, primary care inclusion through a whole health care approach, procurement, transport, and engaging patients at a population level.
- Limitations to consider when applying an **ICS Clean Air Framework** include competing priorities specifically linked to existing infrastructure, prioritisation of decarbonisation within existing green plans, large geographic spread, location and size organisations, and engagement with primary care.

North East and North Cumbria ICS and tackling carbon emissions

Due to the lack of legal framework, ICS maturity differs across the country. The North East and North Cumbria ICS is one of the biggest in the country and made up of four Integrated Care Partnerships (ICPs) – see Figure 3. The ICS Management Board meet quarterly and were made aware of the project to develop an **ICS Clean Air Framework** in August 2021. The ICS has a dedicated ICS sustainability group made up of leaders across health and social care, with academic institutions and local authorities. The aim of this group is to tackle sustainability issues within the region and develop a Green Plan (Green Plans must be submitted to Greener NHS by March 2022).

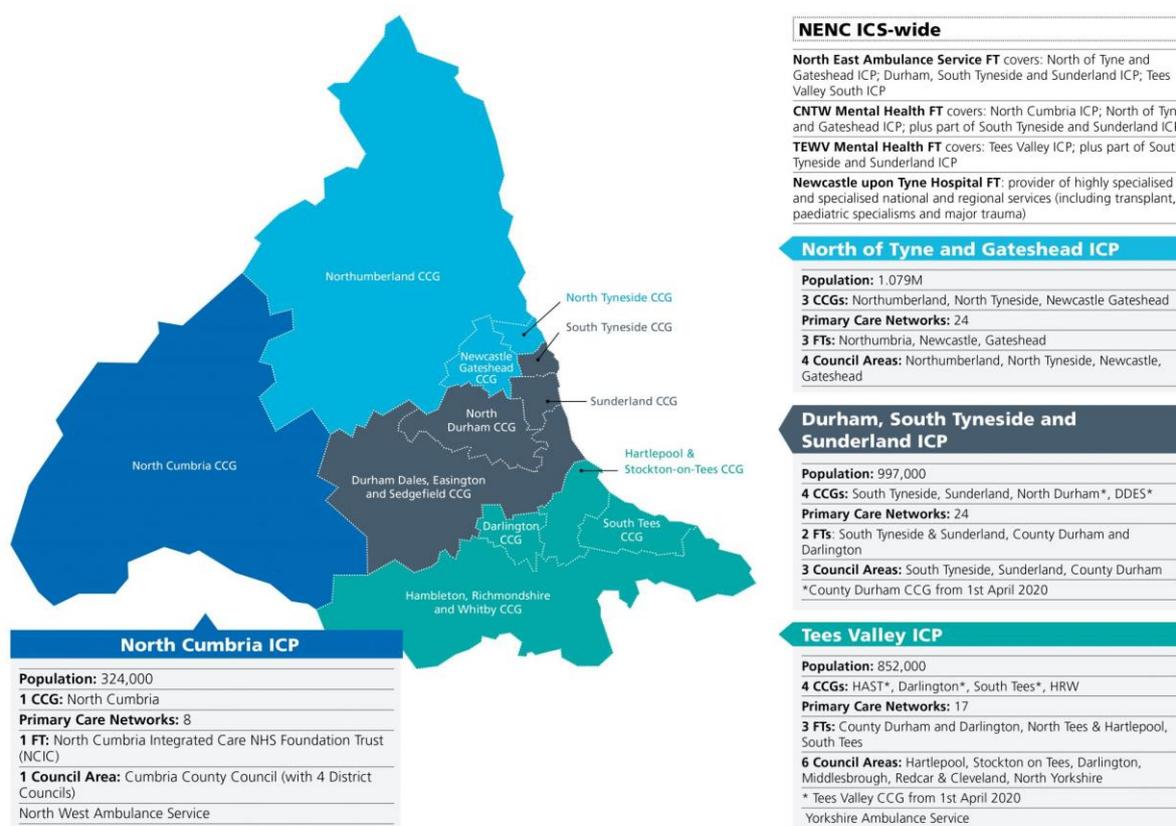


Figure 4 - North East & North Cumbria Integrated Care System.⁸⁰

North East and North Cumbria ICS Sustainability Group

The key goal of the ICS Sustainability Group is to support the development of Green Plans. However, ICS still do not function as a legal entity, which means that trusts are not liable and have the autonomy to be executive and make their own decisions. * At present, ICSs are only advisory with no legislative power to demonstrate change at a trust level. However, NHS England and NHS Improvement have put forward a set of five recommendations to reform the legislation powers of an ICS.⁸¹ Five stakeholder interviews were held with members of the North East and North Cumbria ICS Sustainability Group. The Sustainability Group will be central to action on air pollution across the ICS. They would also be the natural owners of any Clean Air Framework and/or action plan developed, as leadership and collaboration stems from a central team to spread awareness and disseminate learning across the system.

The group is split over different workstreams that tackle specific sustainability issues. For example, the people workstream are reviewing the ICS Sustainability Group branding to improve communications across the system and the biodiversity workstream discuss opportunities to green the NHS estate.

From the outset, the Sustainability Group is much further ahead in terms of its development compared to other ICSs – but there were still comments from stakeholder groups that highlighted certain limitations.

Overall, the group are engaged, but it is difficult to maximise engagement across the ICS because it is so big, and the structure is so complex.

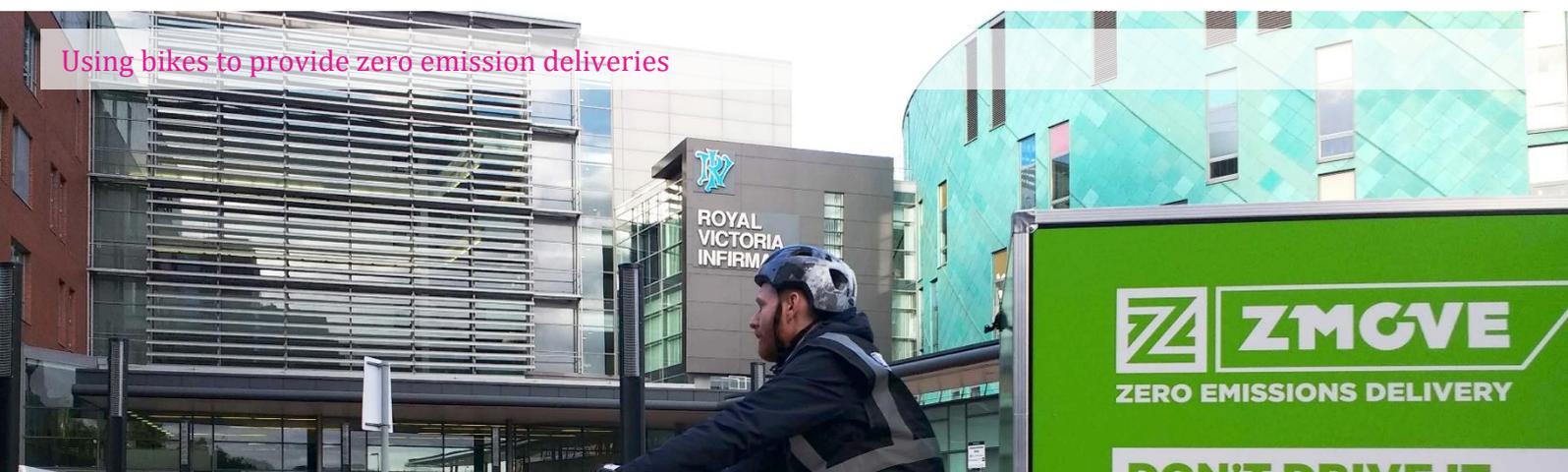
* ICS's to be legal entities by July 1st, 2022

What is the North East and North Cumbria ICS doing to tackle emissions?

The North East and North Cumbria ICS Sustainability group set out priority areas for action. Among those with most relevance to air pollution are:

- Reducing business millage by 20%
- Offering fuel efficient driving training
- Creating a network of NHS accessible vehicles charge points
- Reducing patient travel
- Use of consolidation centres with electric vehicles to complete final miles to the hospital
- Reducing use of blue gas (desflurane, nitrous oxide and Entonox)
- Preventing incidences of respiratory conditions, including one third of asthma cases, COPD and lung cancer through health promotion, active travel and patient centred care

Using bikes to provide zero emission deliveries



In-depth analysis of opportunities and limitations of an ICS Clean Air Framework

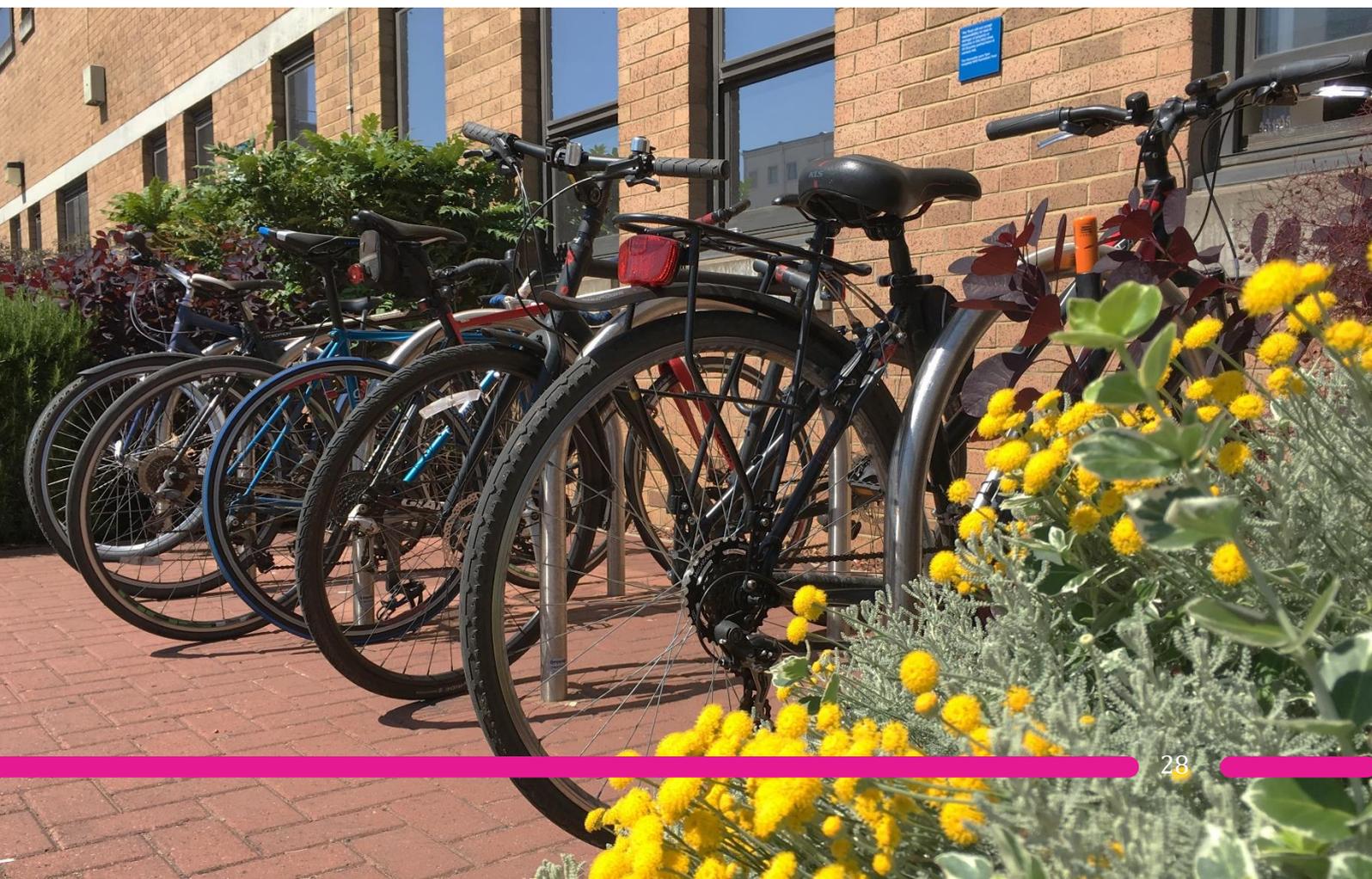
The stakeholder interviews highlighted many benefits and opportunities that an **ICS Clean Air Framework** and a subsequent **Clean Air Action Plan** might have for organisations across the region. Given the priority to decarbonise and the emphasis to reduce health inequalities, there are many health and climate co-benefits to reducing air pollution.

At the same time improving the air quality across a region of 3 million people is challenging and this project will encounter a range of risks. The stakeholder interviews indicated that there may be certain limitations that impact an organisation's ability to reduce air pollution.

The suggestions are drawn from ideas shared in a range of interviews and a virtual workshop held with stakeholders at regional and local levels.

Points to Consider

- NHS E&I highlighted that it would be helpful for the framework to be tailored around ICS in more rural or urban settings.
- NHS E&I recommended linking closely with patients through the development of the framework and made suggestions on organisations to speak to on this.
- PCRS emphasised the need for the framework to be manageable in terms of not being too time consuming. They also suggested practical incentives to primary care to secure their engagement – consider nudge behaviours.



- Increase engagement through existing channels to reach the 64,000 employees across the ICS through payslip communication via NHS Business Authority.
- In addition to all of the themes outlined in this chapter, it was felt that communications and staff training were key themes applicable for every organisation to spread awareness about air pollution, and as such should also be included as sections in any clean air action plan and the **ICS Clean Air Framework**.

Primary Care in the ICS

Primary care is more complex than secondary care. Organisations are structured more like a business than a healthcare organisation, which has impacted the ability to disseminate learning and implement a set of systemic sustainability actions.

ICSs were established to improve the connection between primary and secondary care. Trusts and practices were asked to form collaborative arrangements where leaders across Primary Care Networks (PCN) and secondary services work together.

However, the stakeholder group felt that the ICSs began to have more of a secondary care function. Due to a lack of resources and complex structure, the bigger focus is now on secondary care. Improvements rely on greater leadership at a PCN level.

For various reasons, decarbonisation and sustainability efforts have focused on secondary care, however this presents an opportunity for primary care to act on air pollution as it is a public health issue which influences health inequalities and exacerbates a number of existing health conditions.

With more leadership and a national programme of support, which is disseminated to the regions, primary care can step-up and respond to air pollution. This will give primary care a more equal footing in the ICS Sustainability Group and the system as a whole.

Strategic Decision Making

- ICS level decision making provides an opportunity to raise awareness of air pollution across the whole region.
- Opportunities to collaborate with anchor institutions, bring a health voice into projects, and local planning applications.
- Opportunities for integration with other local stakeholders, providing education and influencing decision making.

A system approach with clear leadership will raise the profile of air quality across the region. With board-level support and system-wide engagement, the tool could inform decisions and collaborations with external stakeholders and influence action and investment to tackle air pollution.

Strategic decision-making at a regional and cross sector level should emanate from local and combined authorities. An ICS relies on voluntary collaboration between local authorities and health organisations, therefore, to have impact, strategic decisions should be made by all organisations that might affect regional air quality.

Air pollution is undeniably a hyperlocal issue, framed as a regional challenge and tackled across the whole system. Responding to air pollution requires the collaboration of local anchor institutions, as the local authority should be factoring in health outcomes and environmental impacts that the NHS cannot normally influence outside of an ICS structure.

There is real opportunity for the region to act on air pollution by strategically collaborating, to influence decision making on development projects that are out of the direct control of the NHS, as the construction and operation of these projects has an impact on local population health. Anchor institutions will be pivotal in making these changes, including providing educational tools to the general public.

For example, industry, infrastructure, and agriculture projects can result in poor air quality - highlighting the importance of factoring in a health sector response in the planning and decision-making process is vital to improve air quality across the region.

Health in all Policies (HiAP)

There is a real opportunity to work strategically with stakeholders across the system to promote a 'Health in all Policies' approach to regional decision making. HiAP is a recognised policy approach to address population health and reduce inequalities.

This approach will aim to align air quality metrics within policies across the system, specifically focusing on areas in transport, education, healthcare, local government and procurement.

Strategic decision-making across the region, with a view to collaborate across healthcare and local government through the lens of a HiAP approach, is a key opportunity as part of the ICS Clean Air action plan.

Whole Health Care Approach

- Opportunities to fully involve all areas of the ICS in framework, including primary care.
- Opportunities to share learning across the ICS, with Trusts sharing information and tools.
- Possible limitation in that primary care is treated more like a business, working towards different priorities, and may be harder to collaborate with on air pollution.

Discussions with the ICS Sustainability Group highlighted that top-down environmental actions have historically focused on secondary care, whereas very little has been asked of primary care in terms of action on sustainability. Therefore, this framework and developing an ICS Clean Air Action Plan provides a good opportunity to get primary care more involved.

By working collectively and acting as leaders across primary and secondary care, an integrated approach will join the dots across the fragmented system. It is important to reach out to pharmacies, dentists and other primary care organisations.

To make the ICS framework successful it needs to be appropriate for all areas of an ICS. The main limitation of an ICS level framework is that primary care is structured more as a business than a hospital or acute trust, more considerations are needed within the framework on Primary Care providers. Each practice, surgery, pharmacy or dentist have their own priorities and methods of working – which are somewhat influenced by the Primary Care Network, but they still have operational autonomy.

“There needs to be better integration across primary and secondary care, as the ICS is often only considered as a secondary care function... Primary care needs more support.”

Northumbria Health care NHS Foundation Trust

While there are key opportunities for working with primary care, this complexity will make communications and messaging harder to reach all the appropriate channels to guarantee meaningful change.

“Primary care is structured differently, there is no agreement on what a green plan is or what the priorities are. More strategy is needed.”

Anonymous

In addition, given the different working structures and governance models of primary care organisations – accountability of the clean air action plan will be a challenge as primary care providers often do not have a sustainability specialist within the team. Ensuring clear communication from the top and providing a set of easy to implement actions are ways to mitigate this limitation. It is worth considering how we can have a unifying approach in our roll out.

There are many competing priorities across primary care, so this tool presents an opportunity to share learnings across the system to ensure that staff understand the impact of air pollution on patient health. Integrating air pollution into existing campaigns such as smoking and inhaler use would be a good opportunity to increase learning.

Air pollution targets could be embedded in respiratory targets and inhaler work streams, sitting within clinical models of care as prevention and optimisations of long-term conditions.

Transport

- Opportunities throughout the region to improve public transport links and affordability. Health sector groups across the ICSs could work with LAs and transport providers on routes and planning for public transport and active travel.
- Opportunity to influence staff travel behaviours across the ICS on more sustainable routes.
- ICS could work to combine efforts to update more polluting vehicles.

The purpose of an ICS is to drive change at a regional level to tackle systemic problems. Across systems organisations should be influencing regional transport planning to provide feasible alternatives that prioritise positive health outcomes, with a strong focus on improving public transport. ICSs need to consider long-term solutions to shift people away from individual car use, by improving public transport and providing infrastructure for active travel.

Suggested activities included ICSs and Local Authorities working together to understand how people travel to work, to look at where active travel can be supported, and to review patient pathways and understand how they are impacting air pollution.

On an organisational level, NHS E&I highlighted that consolidating fleets and electric vehicles would be an obvious opportunity area for ICS. At certain hospitals the main traffic to site is staff as there are not many patients or visitors. This provides the opportunity to influence staff behaviours through training and communications, as well influencing transport companies to provide services that meet the needs of shift workers. There is the potential for trusts to provide a community mini-bus service for staff to assist with shift working and staff based in rural areas.

ICSs should be involved with planning applications that are submitted within their authority, to participate in the formal discussions surrounding the plans. ICSs and LAs should work together to improve public transport connections, with a focus of improving hubs and linking routes together. ICSs should implement bus stops (and routes) to all their sites, to allow for patients to reach services sustainably. Public transport routes could also be planned with a view of optimal coverage within areas of deprivation, ensuring equitable access. There is also the potential to create ‘consultation pods’ at existing rural sites to allow patients to meet with specialist doctors at regional hospitals via digital appointments, but without the need to travel.

“Public transport is currently a disincentive.”
Stakeholder from phase 1 workshop

Health Sector Voice

- Opportunities for ICSs to advise on local planning decisions to give a health care perspective.
- Opportunity for ICSs to champion low traffic areas around vulnerable groups.

The ICS is formed of healthcare organisations and local authorities, which both aim to protect the public health of local residents. ICSs should be involved in the decision making for projects that will affect the region they serve; this could include providing inputs to champion minimising air pollution via infrastructure developments, to highlight the health benefits of policies such as clean air zones when delivered well for example. This allows ICSs to ask important health related questions, offer alternative solutions, and provide a health sector input into discussions.

A possible example is the A1, which is currently being widened. The ICS should be asking developers why the road needs to be widened, as it will affect the air quality around a number of healthcare sites. If it is to support increased volumes of traffic, then there is an opportunity for the ICS to champion alternatives to decrease the volume of traffic so that road expansions are not necessary, and health is protected. Other examples of policies the ICS could champion include clean air zones, active travel schemes, better home working policies, and improved public transport.

Local Authority Collaboration

- Opportunity for health sector and local authorities to work together more closely on air pollution via the ICS to create real change and improve public awareness.
- Opportunity to work with anchor institutions to improve health outcomes.
- Possible limitation in that health organisations and local authorities currently work together on a voluntary basis which can limit progress.

Integrated care systems continue to rely on voluntary collaboration between primary care, secondary care, and local authorities, as there is currently no legal agreement to work together with no formal structure in place, local authorities are not compelled to engage with health care organisations despite the clear linkages of positive health outcomes. This presents an opportunity to work together on key issues that affect both types of organisations, and to work with other anchor institutions within the ICS boundary.

A regional approach to tackle air pollution with many different stakeholders working together across an integrated care system offers a huge opportunity to address some of the health inequalities highlighted in Section A. Local authorities and NHS trusts need to come together and stop working in isolation.

It is important to utilise the advantages of each anchor institution with the aim of improving health outcomes, as both types of organisations are attempting to achieve the same result. Bringing in local authorities, with their planning departments, together with NHS trusts that can be the health voice of change, has an opportunity to make big local changes.

Greater links need to be made between health organisations and local authorities to engage on issues such as improvements to infrastructure, local green space, housing development, industry and agriculture.

“There needs to be an integrated approach across local authorities and the health sector to act on air pollution.” -
Gateshead Healthcare NHS FT

One trust reported of a proactive partnership with the local authority after the council had declared a climate emergency which could be used to raise public awareness on the importance of improving air quality. The climate strategy with associated net zero targets encouraged local collaboration between both anchor institutions. During stakeholder interviews it was reported that health organisations have historically had very little influence to engage local authorities. If there is any involvement in the planning process, there is limited conversation about sustainability.

There is the potential to work with local authorities to deliver on demand warning messaging about high pollution days to personal mobiles, to encourage individuals to reduce use of personal vehicles on those days. Demand messaging could be done alongside low pollution zones, with LAs providing advertisement on reducing air pollution to improve health. Alongside public messaging, councils and LAs should be encouraged to provide education on the links between public health and sustainable practices.

Existing Infrastructure

- Opportunities to work with local authorities on current policies to reduce pollution, including active travel schemes, support for clean air zones and low traffic areas.
- The region needs a more coordinated approach to EV charging infrastructure.

While new infrastructure projects rely on local collaboration between partners in the ICS, it is worth noting that existing infrastructure also influences air quality around healthcare sites. While some saw this as a limitation, it could be argued that ICSs also have a responsibility to influence decision-making on improvements to existing infrastructure, such as through roads, as well as new projects.

A potential opportunity is to reduce traffic levels around vulnerable groups where possible – such as schools or healthcare facilities. This requires collaboration on a mass scale and public engagement will be critical, yet the opportunity for change is massive. Newcastle tried to implement a Clean Air Zone (CAZ), but this policy was met with opposition from some local residents. With greater engagement from the health sector, the positive impacts of such policies as well as the impacts on health of poor air quality could be better communicated to residents by the ICS. As section A highlighted, deprived communities are disproportionately affected by commuter routes, and many would benefit from schemes such as CAZs.

A region wide approach is needed to improve charging infrastructure, current locations to charge electric cars are limiting especially in city centres. ICSs can work with healthcare sites to provide charging points that can be used by the public and staff, to increase the equity of charging points.

Procurement

- Opportunity to consolidate procurement decisions, only buying when needed.
- Opportunity to develop procurement teams to have sustainability champions/managers.
- Current opinion on the purchasing system is negative and needs overhauling.

There are many opportunities across primary and secondary care for an **ICS Clean Air Framework** to influence procurement decisions. Procurement is a challenging department across the health sector, as it relies on collaboration with external suppliers and decisions are made at trust-level but are influenced by a central NHS team.

Strategic and systemic support from the ICS can engage the board to support procurement decisions that prioritise sustainability. This is because it is important to gain top-down support to raise awareness throughout the trust, especially in terms of the whole lifecycle cost of air pollution. There is the potential to nominate a sustainability lead within procurement teams who is given extra training of sustainable procurement and who can be a go to person for other staff to ask for advice on sustainable buying.

Potential opportunities in procurement include consolidated deliveries, electric bike courier services, and sustainable supplier contract agreements. There is also the opportunity for the region to collaborate, whereby a central hub stores deliveries and trusts work in partnership. NHS E&I also felt that the consolidation of goods and services across the ICS would be a useful area to make savings and reduce emissions.

Safe pedestrian infrastructure



Engaging Patients Through Educating Staff

- Opportunity for trust wide training on the effects of air pollution, with focused training in specialist clinical areas.
- Opportunity to work with Royal Colleges to spread awareness on air pollution.
- Community staff are well placed to share air pollution education with patients.
- Communication to staff at an ICS level can be limiting as there is no central messaging system.
- Opportunity to connect with regional medical schools to educate future healthcare professionals.

It is vitally important to engage patients on the health impacts of air pollution. As trusted messengers in society, health professionals are well placed to engage patients on this topic. However, health professionals across primary and secondary care do not currently receive formal training on air pollution, despite the many numerous health conditions associated with bad air quality. By educating health professionals to have conversations with patients, there is an opportunity to inform vulnerable patients about the sources and impacts of air pollution. It is crucial that vulnerable patients know how to protect their health by avoiding exposure and reducing emission contribution.

Within primary care it was reported that GPs have a lack of understanding of what to say to patients in terms of avoiding and reducing air pollution. Clear messaging and training needs to be circulated throughout general practice so that GPs can have effective communications with vulnerable patients. Staff training needs to cover how to communicate with patients so that the information shared is effective.

A mitigation strategy of the limitation around clinician and GP training is the distribution of resources developed by GAP as part of the Mobilising Health Professionals project. This includes the GP projects that work with health professionals across general practice to train GPs on talking to patients about air pollution. These resources are tailored for respiratory and paediatric clinicians, and a new set of resources are being developed for general practice.

It was highlighted by two separate trusts that community staff are best placed to engage with patients about air pollution, as they travel to patient homes and are generally trusted with patient groups. For example, at Gateshead Health NHS Foundation Trust there are over 400 community staff members who can engage patients about this issue. Community staff will know their patients well, and know the best way to start conversations with patients on behaviour changes such as changing transport modes.

It is also important to target specific disciplines within secondary care that have regular conversations vulnerable patients about the health impacts of air pollution. Health professionals working across respiratory, paediatric, cardiology and midwifery teams should be engaging patients on this topic, but this also presents an opportunity for specialised clinicians to spread learning throughout the trust. A review on the need to talk to asthma/COPD patients about the effects of air pollution needs to be completed to assess the benefits of this.

Board-level commitment and trust-wide training are opportunities to maximise this. The stakeholder interviews highlighted that clinicians should follow guidance from the royal colleges, as opposed to internal sustainability teams. Gaining top-down support from national bodies and royal colleges is key to spread the message about air pollution.

“It is important to engage clinicians who have exposure to vulnerable patients regularly, there is only so much that sustainability teams can do.”
Cumbria, Northumberland, Tyne & Wear NHS Foundation Trust

Green Plans

- Air quality is not currently a requirement of green plans, limiting the exposure of the issue to Trusts.
- Including air pollution within work on green plans makes a much more direct link between tackling emissions and improving patient health in the immediate.
- Air quality is considered hard to measure, limiting peoples understanding of the current situation.
- A framework has the potential to capture and measure information that some NHS Trusts may not be tracking from other organisations such as local air quality, health inequalities and adjacent traffic.

Green Plans have been developed by Greener NHS, with the requirement of Trusts to develop a Green Plan to detail their approaches to reducing their emissions. It is also expected that ICSs will develop their own Green Plans that are based on the strategies of their member organisations’ plans. At an organisational level, an ICS Clean Air Action Plan will support the development of a trust’s Green Plan.

Greener NHS released the Net Zero Delivery Report in 2020, which laid out a roadmap for achieving net zero by 2040. This has meant that decarbonisation is the number one priority to tackle the climate crisis.⁴² While it was seen as an opportunity to align the net zero goals with the co-benefits of air pollution, it could be argued that Greener NHS’ priority on decarbonisation overshadows the importance of improving air quality.

Air quality is considered more challenging to measure (e.g., footprinting) compared to carbon footprinting. Greener NHS stated that air quality is considerably harder to measure, being part of the reason why Greener NHS did not include air quality measures into the Green Plan Guidance and why it is not considered as important by some Trusts. Advice needs to be developed for ICSs to share methods for measuring air emission, at a trust and individual scale.

The health case will therefore be very important to make throughout Green Plans – highlighting the burden of disease, number of deaths and pressure on the health system linked to air pollution every single day to ensure action on air pollution is appropriately prioritised. Given its immediate and current health impacts it is also a good motivator of action, which will benefit health outcomes and climate change/decarbonisation objectives.

Geographic Region, Location, and Size

- Opportunity for the framework to include both rural and urban settings, making it applicable to all ICSs and trusts.
- Geographical size of Trusts and ICSs differ making it challenging for the framework to be applicable to all.

It was stated by some trusts – namely Cumbria, Northumberland Tyne and Wear NHS Foundation Trust and Northumbria Healthcare NHS Foundation Trust – that their estates cover a large geographic region. The former reporting to have up to 50 separate sites. This means that there are different sites with different sustainability challenges and priorities.

Given the large scale of organisations in the ICS, communication and engagement throughout the system is limited. There are 64,000 staff that work across the ICS, so it is challenging to reach the number of people needed to deliver actions. There is an opportunity to mitigate this is through NHS Business Authority and communicating to staff members through payslip engagement. Clean air messaging and actions from the project must consider these differences.

The location of a trust can limit the progress of clean air projects and initiatives. For example, Gateshead Healthcare NHS Foundation Trust is located at the top of a hill which deters staff from opting to use active travel. The trust has tried to implement electric bikes, but greater incentivisation from the ICS is needed to increase uptake.

Whatever tool is created through the project will need to reflect the differences of those living in rural versus urban areas. For example, shifting to public transport and active transport routes may be more feasible for those in latter areas.

A potential opportunity in the way ICSs can influence the geographic scale of trusts is through a set of flexible actions that trusts of different sizes and structures can apply. Board-level commitment and collaboration with the local authority are ways to mitigate this limitation.

Digital Appointments and Engagement

- Digital appointments reduce emissions from patient travel.
- Digital appointments are not suitable for all patients or health conditions.
- Limitations on who can currently access online appointments, digital exclusion is an issue in the North East and North Cumbria.

Remote and digital appointments are a key part of the NHS plan to reducing patient and visitor journeys and emissions. Within the NHS' long-term plan, their aim is to digitally enable primary and outpatient care, making this mainstream across the NHS. This is to provide convenient ways for patients to access advice and care, with every patient being able to choose the digital option. Digital appointments have increased due to the COVID-19 pandemic, with many lessons learnt and a foundation that can be built on to continue digital appointments in the future.

The NHS also acknowledges that people who are digitally excluded are at risk of reduced access to services and worse health outcomes.⁸² Digital exclusion is a particular risk across the North East in rural areas, deprived urban areas, and some smaller towns.⁸³

It is important to consider digital barriers and digital exclusion and the implications of this work. Any air pollution reduction measures or messages must aim to not further alienate the digitally excluded population. Decision trees could be created for each patient to make sure they are accessing the right services for them, with certain diseases/consultations always being seen in person.

COVID-19 has changed some public opinion on digital appointments, with some patients wanting in person appointments. However, this may be a temporary opinion and may change in time.

Greening

- Opportunity to research the effects of greening on air pollution.

Stakeholders raised greening (e.g., tree cover) in the North East and North Cumbria as an opportunity to prevent the effects of air pollution and to reduce overall air pollution in the area. Further research is needed to examine the effects of greening in urban areas to tackle air pollution, with guidance from researchers on the best location for trees/shrubs.

There is the opportunity for ICSs to become more involved with the NHS Forest Initiative, that plans to plant a tree for every NHS staff member. This would mean that in the North East and North Cumbria ICS region, it would plant over 60,000 trees.

COVID-19

- Opportunity to maintain working from home and reducing commuting emissions.
- The pandemic has shown that behavioural change is possible and there is an opportunity to use this to work towards lowering air emissions.
- Opportunity to stress the impact of air pollution on COVID-19 health outcomes, showing a link between pollution and health.
- Limitations to current staff availability to tackle air pollution due to resource focus on COVID-19.
- The pandemic has shifted people away from public transport, it will be challenging to get the general public using public transport again.

The stakeholder interviews indicated that there are certain limitations which the ICS cannot influence to improve air quality, currently the COVID-19 pandemic. It is important to note that engagement and collaboration of other stakeholder groups is needed to mitigate these limitations. The lasting effect of COVID-19 on the health sector was reported by various stakeholders. The health impact of the global pandemic has meant that work on sustainability and air quality is limited and has become less of a priority.

Key sustainability individuals have been deployed into new COVID-19 roles and clinicians have much less time devoted to other health issues. However, it is important to reflect on the lessons learnt from the pandemic.

“COVID-19 has highlighted the need to learn and act fast in a time of crisis, there’s a need to translate this concern and change sustainable behaviours in the same manner.”

County Durham and Darlington NHS Foundation Trust

It should be noted that there is a detrimental link between the health outcomes of COVID-19 cases and air pollution. Air pollution can cause health conditions that increase the risks of complications and death from COVID-19.⁸⁴

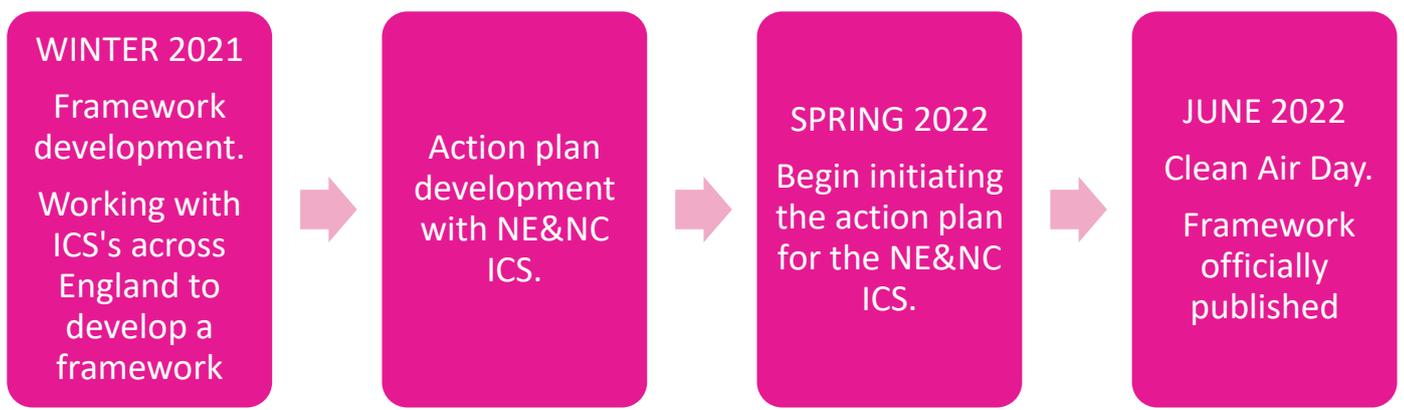
One recent study suggested that an increase in people’s long-term exposure to PM_{2.5} is associated with more COVID-19 cases, more hospital admissions and more deaths as one of several risk factors for diseases leading to susceptibility.⁸⁴ Responding to air pollution should form part of a longer term COVID-19 response.

The pandemic has shown that we can act and change quickly in a time of crisis, and this needs to be translated into pro-environmental behaviour change.

An outcome of the pandemic and its associated lockdowns have resulted in a reduction of people traveling to work in offices, lessening air pollution. There is the opportunity for the ICS to encourage staff and business to maintain this style of home working, with some organisations already stating that they will not return to the office at the same level as before. Although people have been commuting less, there has been a decrease in the use of public transport due to safety concerns with people preferring to use their own vehicles or to work from home.

Framework development progress

The next phase of this project is to develop the framework using the opportunities and limitations raised by the stakeholders. This framework will then be used to create individual ICS action plans. To make sure that the framework is as applicable as possible for all ICSs in England, GAP will consult with other ICSs to understand their air quality needs and the needs of their population. Once the framework is complete, GAP with the NE&NC ICS will create an action plan for the region.



Appendix 1

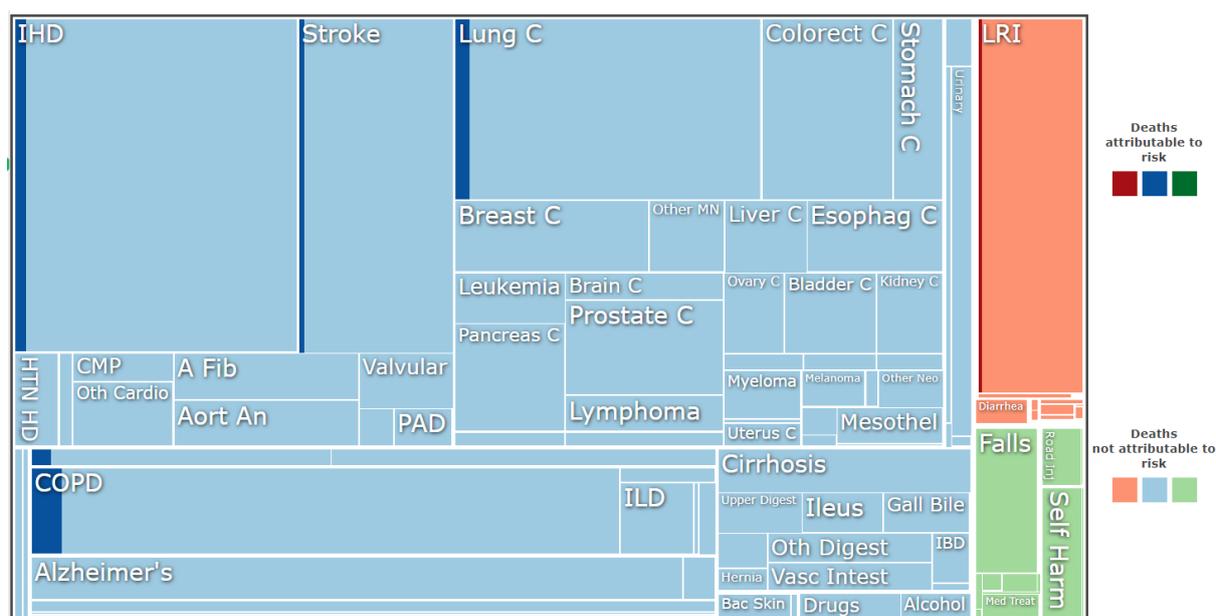


Figure 5 - North East England, both sexes, all ages, 2019 deaths attributable to air pollution in the North East of England.⁸⁵

The size of each box indicates the proportion of associated deaths to disease (blue), infection (orange) or accident (green) in the North East of England. IHD (Ischaemic Heart Diseases) is the leading cause of death. The darker shade of blue (or orange) indicates the attributable proportion of air pollution to the associated cause of death.

Values are shown in the table below.

Cause of death	Total deaths (%)	Air pollution risk factor attribution
Ischaemic Heart Diseases	14.83%	4% (1.95% – 6.21%)
Lung cancer	8.71%	4.7% (2.12% - 7.98%)
Chronic obstructive pulmonary disease (COPD)	8.15%	5.16% (2.24% - 8.66%)
Stroke	8.06%	3.77% (1.83% – 5.91%)
Lower respiratory infection	6.43%	2.99% (1.27% - 5.67%)
Diabetes	0.89	6.44% (2.9% - 11.15%)

Appendix 2 Stakeholder Interviews

Local Organisations

- Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust
- County Durham and Darlington NHS Foundation Trust
- Northumbria Healthcare NHS Foundation Trust
- Gateshead Healthcare NHS Foundation Trust
- Greener Practice North East (NHS Ocean)
- North Tyneside CCG
- Redcar and Cleveland Borough Council
- Newcastle City Council
- North of Tyne Combined Authority

Regional Organisations

- North East England Climate Coalition (NEECCo)
- Northumbria University
- Newcastle Hospitals NHS Foundation Trust
- Public Health England (regional)
- North East Commission Support Group (NECS)
- Academic Health Science Network for the North East and North Cumbria
- NHS Business Services Authority
- National Urban Observatory Facility Newcastle

National Organisations

- NHS England & Improvement - National Sustainability & EFM Workforce Lead
- NHS England – Health Inequalities Lead
- Greener NHS
- UK 100
- UKHACC
- Public Health England
- Primary Care Respiratory Society

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The logo for Global Action Plan features the words "global", "action", and "plan" stacked vertically in a white, lowercase, sans-serif font. The text is contained within a white, rounded rectangular frame that has a tail extending downwards and to the left. Below the frame, the tagline "OUR LIVES. OUR PLANET." is written in a smaller, white, uppercase, sans-serif font.

global
action
plan

OUR LIVES. OUR PLANET.

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ABPI CODE OF PRACTICE CERTIFICATION
Non-Promotional

Product/Disease State	:	not specified
Document Number	:	NP-GB-102795
Document Type	:	Non Promotional Communication
Document Subtype	:	Disease awareness materials
Intended Channel	:	
End Audience	:	
Date of First Use	:	5/17/2022
Title/Description	:	Integrated Care for Cleaner Air Tackling air pollution across the North East and North Cumbria ICS Understanding the Levers for Change
Objective	:	To illustrate the impact of poor air quality on quality of life, impact of health inequalities on exposure to poor air quality.

This certificate certifies that the signatory has looked at the final electronic form of the item to which no subsequent amendments will be made to ensure that, in their belief, it complies with the ABPI Code of Practice.

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