

Clean Air Hospital Framework

Co-designed by Great Ormond Street Hospital and Global Action Plan



Great Ormond Street
Hospital for Children
NHS Foundation Trust



Foreword

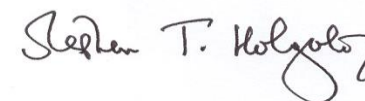
Air pollution is a public health crisis. Almost a third of preventable deaths in England are attributed to air pollution. And from cradle to grave it can affect us all, with hospitals seeing those whose health most suffers. Every year, tens of thousands of people come through the doors of our hospitals with conditions caused or exacerbated by air pollution, including asthma, stroke, cardiovascular disease, lung cancer, diabetes and premature birth.

I chaired the production of the *Every Breath We Take* report for the Royal College of Physicians and the Royal College of Paediatrics and Child Health to communicate the medical community's unequivocal evidence that air pollution requires urgent action to save and improve lives.

As providers and protectors of our nation's health, hospitals play a crucial role in solving this problem. That is why I so wholeheartedly support this Clean Air Hospital Framework, that Great Ormond Street Hospital has helped create, as it provides a clear, structured way for a hospital to address air pollution. And that is why I am so grateful to you for using this tool to develop and implement a clean air action plan so that we can help protect our patients and the public from air pollution.

There are things every hospital can do to have a significant and swift impact on air quality, such as encouraging more staff to leave the car at home and walk/cycle/take public transport to work, asking suppliers to consolidate deliveries and switch to ultra-low emission vehicles and training clinicians to provide air pollution information and advice to at-risk patients. But as influential local leaders there is so much more the health profession can do: by getting involved in local decision making to ensure local air quality improves and by supporting national actions to accelerate the move to cleaner air.

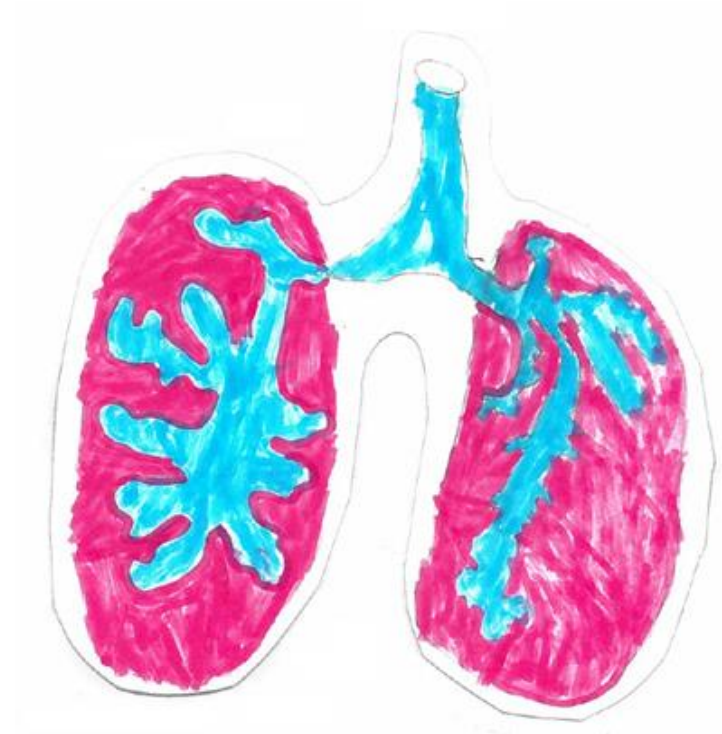
You have taken the important first step to use this framework to set the direction and inspire action to improve air quality and protect health in and around your hospital. And together, the health sector can make a real difference to the lives of millions.



Professor Stephen Holgate, MD DSc CSc FRCP FRCPath
FIBiol FBMS FMed Sci CBE
Trustee, Great Ormond Street Hospital Children's
Charity

Table of Contents

Foreword.....	2
Table of Contents	3
Clean Air Hospital Framework.....	4
What does a clean air hospital look like?	6
Using the framework to become a clean air hospital.....	7
Travel.....	9
Procurement and supply chain	15
Design and construction.....	19
Energy generation.....	23
Local air quality.....	26
Communication and training.....	29
Hospital outreach & leadership	34
Where to go for more support.....	37
Glossary.....	38



(Drawings used throughout the framework have been drawn by patients at Great Ormond Street Hospital)

Clean Air Hospital Framework

The World Health Organisation and the UK Government recognise that air pollution is the largest environmental health risk we face today. It causes heart and lung diseases, is linked to mental health issues and low birth weight and affects children's lung development. Every year, air pollution is estimated to be responsible for 36,000 deaths in the UK¹.

As a hospital, action is particularly important as air pollution makes existing patients' lives worse. In the UK, air pollution costs add up to more than £20 billion every year², and it causes over 20,200 respiratory and cardiovascular hospital admissions per annum³. Air pollution is responsible for an estimated 6 million sick days every year³ and is expected to cause 2.4 million new cases of disease in England between now and 2035⁴.

This Clean Air Hospital Framework sets out the vision for what it means to be a clean air hospital and how to get there, helping to reduce levels of air pollution

and helping people to protect their health. It enables hospitals to identify their current level of performance on tackling air pollution and to develop an action plan to improve air quality in and around the hospital, to benefit the health of staff, patients, visitors and the local community.

The framework's criteria aim to:

- Reduce the amount of air pollution directly created by the hospital
- Reduce the amount of air pollution that staff, patients and visitors to the hospital are exposed to
- Help the hospital increase its impact by mobilising others.

The Clean Air Hospital Framework is a tool that has been developed by Great Ormond Street Hospital and environmental charity Global Action Plan.

¹ Committee on the Medical Effects of Air Pollutants, Associations of long-term average concentrations of nitrogen dioxide with mortality

² Royal College of Physicians, Royal College of Paediatrics and Child Health, Every breath we take: the lifelong impact of air pollution

³ Royal College of Physicians, Reducing air pollution in the UK: Progress report 2018

⁴ Department for Environment Food & Rural Affairs, Clean Air Strategy 2019

Why become a clean air hospital?

There are over 400 hospitals in the UK, and 16,500 worldwide. Hospitals are not only at the sharp end of delivering care to those affected by air pollution, but they are a direct contributor to that air pollution as well: in England the NHS accounts for five percent of all road traffic.

Air pollution in and around hospitals comes from multiple sources (Figure 1), from transport to and from the site for patients, visitors, staff and deliveries to the materials used to build the hospital and keep it clean, increasing and exacerbating health risks for patients, staff and visitors. Tackling air pollution is therefore a health opportunity. In addition, activities that reduce air pollution can have health co-benefits: increased walking and cycling reduce the risk of heart disease, stroke, cancer, diabetes and promote mental wellbeing. Actions that reduce air pollution reduce health risks from climate change, such as heat-related deaths and flood-related illness.

Hospitals can take ownership of this major health problem and lead by example, as role models, educators and champions. Hospitals have a duty of care to their patients and staff, and therefore have the opportunity to take a visible leading role in providing as healthy an environment as possible, including tackling air pollution. By becoming a clean air hospital, the hospital has a strong basis from which to work with others to implement measures to cut air pollution (eg vehicle standards, traffic control, cycle paths).

Health professionals are some of the most trusted members of society and are therefore well placed to provide the 660,000⁵ patients seen each day in the UK with advice on how to reduce air pollution and protect their health from air pollution.



Figure 1: Sources of air pollution in and around a hospital

⁵ <https://www.nhs.uk/using-the-nhs/about-the-nhs/the-nhs/>

What does a clean air hospital look like?

A clean air hospital works to improve air quality outside and inside the hospital, provides advice to help protect staff, patient and public health from air pollution and works with others to champion the case for clean air locally and nationally (Figure 2).

A clean air hospital realises key opportunities to improve air pollution and protect health as a:

Role model:

- Minimises air pollution from staff, visitor and patient travel
- Reduces air pollution from procurement and the supply chain
- Minimises emissions from building design and construction
- Reduces emissions from energy generation
- Minimises air pollution levels inside the hospital

Educator:

- Informs staff about air pollution risks and how to reduce pollution
- Trains clinicians to provide air pollution information and advice to patients
- Communicates with visitors and wider public to help them protect their health from air pollution

Champion:

- Works with local partners to improve area-wide air quality
- Supports national initiatives and influences others to improve national air quality



Figure 2: Example features of a clean air hospital

Using the framework to become a clean air hospital

Key areas

This self-assessment framework is based on a points system in seven key areas: travel, procurement and supply chain, building design and construction, energy generation, local air quality, communication & training, and hospital outreach and leadership.



Travel



Local air quality



Design & construction



Procurement & supply chain



Communication & training



Energy generation



Hospital outreach & leadership

Timescale

The journey to become a clean air hospital may take time, while some actions can be carried out quickly, some of the actions may need to be integrated into more long term and strategic planning for the hospital.

Set yourselves targets for actions to be implemented over the first year, two years, five years and 10 years. The framework is ambitious in scope and should become part of overall hospital strategy.

Collaboration

Air pollution is not the responsibility of one single department of the hospital – it cuts across all of them – and becoming a clean air hospital is a collaborative effort that will require a whole-hospital approach.

Bringing this group of people together at an initial workshop will help you to identify the opportunities that cross over departments, set priorities and develop a coherent action plan to advance your hospital through the framework.

- As a starting point, we recommend that you get in contact with senior representatives from finance, facilities, travel, communications and clinicians, including representatives from different care pathways, to introduce the framework.
- Gain insights from their areas of speciality and explore what excellence could look like to them. Take them through the framework, agree next steps and decide how you will work together to achieve them.

Set up a clean air hospital working group to keep your action plan progressing, and book regular meetings (face-to-face or virtual).

Keep your Board regularly updated on your progress to becoming a clean air hospital (every six months).

Points system

Go through each section of the framework and score yourself against the criteria according to what the hospital is currently doing. Different sections of the framework have different points totals available to them, depending on the nature of the topic. In total 1079 points are available across the framework. Basic criteria are worth 1 point each, getting there criteria are worth 5 points each, and excellent criteria are worth 10 points each. Once each section is complete, fill in the summary tables below to give you an understanding of where your hospital is on the journey to become a clean air hospital.

Depending on your hospital location, size, structure and set-up there may be criteria that cannot be completed by you on site. In these instances, it may be possible for you to meet the actions in alternative ways. Throughout the framework we have tried not to be restrictive in how the criteria are met, giving you the creative freedom to identify the best way to make your hospital into a clean air hospital.

Action plan

At the end of each section there is space for you to create your clean air hospital action plan. List the actions you need to take to progress towards becoming an excellent clean air hospital. Assign a responsible person for each action and a date for completion, and track progress against these actions at your clean air hospital working group meetings.

Section	Points achieved	Out of a maximum	%
Travel		297	
Procurement & supply chain		151	
Design & construction		191	
Energy generation		67	
Local air quality		81	
Communication & training		188	
Hospital outreach & leadership		104	
Total percentage rating		1079	

Percent	Outcome
<10%	Basic
10-30%	Starting out
30-50%	Getting There
50-70%	Good
70% and above	Excellent
Date: % scored:	We are:

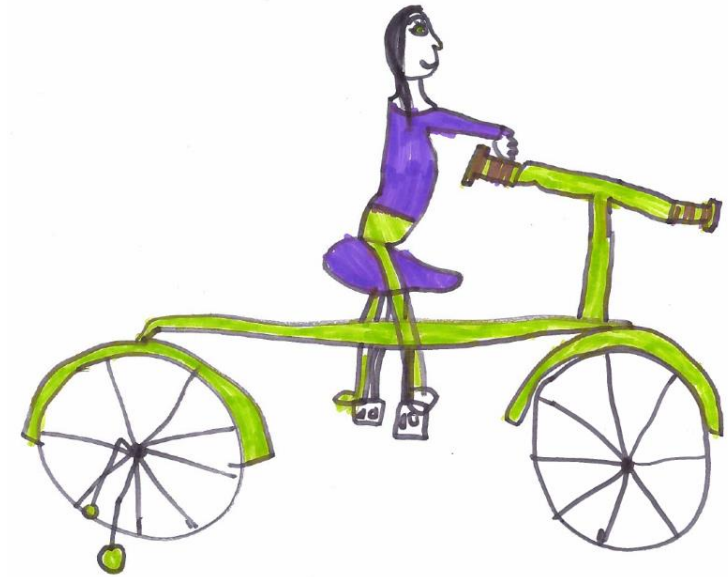


Travel

There are currently more vehicles on the road than ever before. Road transport is the biggest source of nitrogen dioxide in the UK, which causes inflammation of the airways, exacerbates existing heart and lung conditions shortening lives, and increases susceptibility to respiratory infections and allergens, leading to rising costs and increased strain on health services. The total health cost to the UK from cars and vans is £6 billion each year.

By reducing the number of vehicles on the road, and reducing the pollutants emitted from those vehicles that are still necessary, we can improve the air quality directly around our hospitals, and in our communities.

The travel section of the framework covers travel by staff, visitors and patients. 297 points are available within this section.



	Basic		Getting There		Excellent
Hospital travel planning (providing information and encouraging lower pollution travel)	You provide staff, patients and visitors information that shows public transport routes in the local area. <input type="checkbox"/>		You provide staff, patients and visitors clear and accessible maps of public transport, walking and cycling routes to/from the hospital in the local area. <input type="checkbox"/>		Taxis booked by the hospital are zero tailpipe emission vehicles. <input type="checkbox"/>
	The hospital site is safe, pleasant and easy to get around for cyclists, pedestrians and people with disabilities. <input type="checkbox"/>		You have campaigns to promote active travel and public transport to visitors and staff. <input type="checkbox"/>		You work in partnership with the local authority to ensure planning and development decisions minimise air pollution. <input type="checkbox"/>
	Taxis are not allowed to leave their engines running (idling) when waiting near the hospital. <input type="checkbox"/>		You encourage and facilitate car sharing for colleagues that live close to one another. <input type="checkbox"/>		

	Basic		Getting There		Excellent
	You create a travel hierarchy for travel to and from the hospital for staff and patient travel. <input type="checkbox"/>		There are incentives for staff to use lower pollution travel choices. For example, bike loans and allowing staff to opt into a cycle to work scheme. <input type="checkbox"/>		
Walking and cycling infrastructure / facilities	There are some facilities available for people who want to walk /cycle /run to site eg some showers and some lockers on sites. <input type="checkbox"/>		There is a sufficient level of facilities available for staff, patients and visitors who want to walk /cycle /run to site eg plentiful changing areas, storage areas and showers in all relevant buildings. <input type="checkbox"/>		Staff who walk or cycle are given benefits of equal or greater value than vehicle mileage /subsidy offered on car parking. <input type="checkbox"/>
	There is some cycling and walking infrastructure on site, where possible, such as traffic-free routes to your buildings for pedestrians and cyclists. <input type="checkbox"/>		There is a sufficient level of infrastructure available for staff, patients and visitors who want to walk /cycle /run to site eg cycle paths and secure bike storage at all buildings on site. <input type="checkbox"/>		Secure cycle parking facilities are provided for adapted cycles, including tricycles, hand cycles and recumbent bikes. <input type="checkbox"/>
	You provide staff, patients and visitors information that shows where the relevant walking and cycling infrastructure /facilities are located eg at travel helpdesks, signage and leaflets on site. <input type="checkbox"/>		You offer staff incentives for use of public transport, cycling and walking to, from and for work eg free breakfast days. <input type="checkbox"/>		You monitor and evaluate travel habits from patient, staff, visitors and hospital deliveries. You create targets for reducing unnecessary trips and monitor whether people feel safe and happy walking and cycling on site and address concerns. <input type="checkbox"/>
	You seek staff opinion on measures to improve walking /cycling access. <input type="checkbox"/>		Your cycle mileage rates are competitive with those for driving. <input type="checkbox"/>		
	A pedestrian audit has been carried out on the site and on access routes. <input type="checkbox"/>				

	Basic		Getting There		Excellent	
Zero emission vehicle infrastructure	You have some fuelling /charging infrastructure for staff with zero tailpipe emission vehicles.	<input type="checkbox"/>	30% of parking spaces have access to charging infrastructure for zero tailpipe emission vehicles – for staff, visitors and patients.	<input type="checkbox"/>	Sufficient charging infrastructure is available for all vehicles coming to site to be able to charge during their stay.	<input type="checkbox"/>
	You support local plans for zero tailpipe emission public transport.	<input type="checkbox"/>	There are is some fuelling / charging infrastructure for zero tailpipe emission fleet vehicles and ambulances.	<input type="checkbox"/>	You install fuelling/ charging infrastructure so that zero tailpipe emission vehicles in delivery bays can charge while unloading /loading.	<input type="checkbox"/>
	You provide opportunities for staff to trial zero tailpipe emission vehicles.	<input type="checkbox"/>	You offer discounts or incentives to support staff installing zero tailpipe emission infrastructure at home.	<input type="checkbox"/>	All fleet vehicles and ambulances operate as zero tailpipe emission vehicles.	<input type="checkbox"/>
Parking for all vehicles	You look into parking fees as a mechanism to discourage staff and visitors from driving to site.	<input type="checkbox"/>	You use incentives and disincentives to reduce the need for vehicle parking, for example staff that car share get priority parking.	<input type="checkbox"/>	Parking spaces for those with most need are a priority. Disabled and parent and child spaces make up at least 50% of all available car parking spaces.	<input type="checkbox"/>
	The hospital has a no idling policy for all vehicles on site.	<input type="checkbox"/>	You work with the local authority to link with local park and ride services so that people don't need to drive onto the site.	<input type="checkbox"/>	You work with the local authority to encourage the implementation of local park and ride facilities.	<input type="checkbox"/>
	Parking is monitored at the hospital and reduction targets are set.	<input type="checkbox"/>	You have a no idling policy for all vehicles that is enforced on site.	<input type="checkbox"/>	You provide shuttle bus services for people who are ill-served by public transport.	<input type="checkbox"/>
Travel to and from the hospital (patient transport & ambulances)	Patient transport providers are required to train their staff on no idling and energy efficient driving behaviours.	<input type="checkbox"/>	Patient journeys are planned to support multiple picks up or drop offs on route, where appropriate, in order to minimise single passenger journeys (eg collecting patients for regular dialysis).	<input type="checkbox"/>	All patient transport vehicles are ultra-low emission or electric vehicles.	<input type="checkbox"/>

	Basic	Getting There	Excellent
	<p>Ambulance drivers are asked not to idle on site. <input type="checkbox"/></p>	<p>Some patient transport vehicles are ultra-low or zero tailpipe emission vehicles. <input type="checkbox"/></p> <p>You encourage all the suppliers with fleets you work with to sign up to the Clean Van Commitment and switch to zero tailpipe emission vehicles. <input type="checkbox"/></p> <p>You actively work with hospital vehicle providers to help them move to ultra-low emission or electric vehicles. <input type="checkbox"/></p>	<p>Ambulances are all ultra-low emission or electric vehicles. <input type="checkbox"/></p>
Routes to minimise travel	<p>Appointments and processes are designed to avoid return appointments whenever possible, so travel to and from the hospital is minimised. <input type="checkbox"/></p> <p>Staff are supported to work from home, where appropriate. <input type="checkbox"/></p> <p>Home visits, discharge arrangements and community-based services are managed in ways that minimise the need for travel. <input type="checkbox"/></p>	<p>You have facilities for providing remote appointments and care, where appropriate, and offer these to all patients. <input type="checkbox"/></p> <p>Remote appointments are made possible through video conferencing. <input type="checkbox"/></p> <p>Planning tools such as GIS (Geographical Information Systems) are used to maximise transport and travel efficiency. <input type="checkbox"/></p>	<p>New technologies are developed and trialled such as telemedicine, IT networks, video conferencing, pneumatic tube systems etc. <input type="checkbox"/></p>
Reporting on progress	<p>You keep track of the number of people who cycle, walk or drive to work (eg through an annual survey). <input type="checkbox"/></p>	<p>There is an annual travel survey that asks how people get to work, how far they travel and if anything would make it easier for them to travel to work not by car. You publish results of the travel survey. <input type="checkbox"/></p>	<p>You use the NHS Sustainable Development Unit Health Outcomes Travel Tool and communicate the progress against fleet and business mileage, TNOx and TPM2.5 to the Board. <input type="checkbox"/></p>

	Basic		Getting There		Excellent	
	You keep track of how patients and visitors travel to and from the hospital (eg through questionnaires).	<input type="checkbox"/>	Staff and patient travel forms part of your overall sustainability reporting.	<input type="checkbox"/>	You regularly update your Board on staff, patient and visitor travel.	<input type="checkbox"/>
			You clearly communicate the number of people travelling sustainably to normalise these behaviours.	<input type="checkbox"/>		
Travel Score	Total no. of 1-point actions (max 21 points available)		Total no. of 5-point actions (max 25 x 5 points available)		Total no. of 10-point actions (max 16 x 10 points available)	
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 297 points available for this section.					

What travel actions will we be taking forward?

Activity	Person responsible	Date to be completed by



Procurement and supply chain

From medical supplies and food ingredients to office stationary, hospitals require lots of materials to keep them running. Sustainable purchasing decisions can help to maximise the positive benefits of the materials while minimising the negative impacts on the environment, the hospital budget and air quality.

Low pollution procurement decisions, which change the way deliveries are managed, the frequency of deliveries and collections, and the types of products that are being purchased, can improve air quality directly in and around the hospital. Sustainable procurement choices can also trigger wider change through engaging with suppliers and creating improvements in your supply chain that can affect other customers.

This section of the framework covers the choices that are made around purchasing, the relationships with suppliers, and the delivery of materials. 151 points are available within this section.

	Basic		Getting There		Excellent	
Procurement and supply chain management (who we are buying from)	You communicate that you are a clean air hospital to your suppliers and through the tendering process ask them to provide information on how they can support your ambitions to improve air quality. <input type="checkbox"/>		All new contracts and tenders require at least one appropriate air pollution KPI, such as specifying combined deliveries, zero tailpipe emission vehicles, or other appropriate measures. <input type="checkbox"/>		You only buy goods and services from suppliers that are actively working to reduce air pollution. <input type="checkbox"/>	
	You regularly talk to your suppliers about how they can further reduce air pollution. <input type="checkbox"/>		Activities that minimise air pollution during suppliers' time on site (eg no idling) are included in the contract specification. <input type="checkbox"/>		All contractors travelling to and from site have zero tailpipe emission vehicles. <input type="checkbox"/>	
	You prioritise goods and services from suppliers and contractors that already make commitments to tackling air pollution. <input type="checkbox"/>		You have developed a cross functional project team to limit the number of deliveries to site and improve purchasing choices in partnership with other hospitals. <input type="checkbox"/>		All suppliers sign up to the Clean Van Commitment . <input type="checkbox"/>	

	Basic		Getting There		Excellent	
	<p>You encourage your suppliers to sign up to the Clean Van Commitment. <input type="checkbox"/></p>		<p>Suppliers are kept updated of all air quality developments happening at the hospital and discuss collaboration and opportunities for improvement. <input type="checkbox"/></p> <p>You work with your suppliers to find ways to consolidate and minimise deliveries to site. <input type="checkbox"/></p>		<p>You develop a supplier air quality programme and offer training to your suppliers to improve their performance on tackling air pollution. <input type="checkbox"/></p> <p>To allow bulk purchasing, and reduce the number of deliveries to site, you hold non-essential products in a warehouse located away from site. When additional items are required, they are brought in outside of rush hour. <input type="checkbox"/></p>	
Internal ordering (how do we buy and how much do we buy)	<p>Staff are supported to implement processes to reduce the frequency of deliveries, and the number of urgent deliveries. <input type="checkbox"/></p> <p>Staff are encouraged to order through centralised systems. <input type="checkbox"/></p>		<p>Urgent goods (those required same or next day) are ordered from local suppliers, where possible, or those using zero tailpipe emission vehicles. <input type="checkbox"/></p> <p>All ordering is done through a central system. <input type="checkbox"/></p>			
Items purchased (what we are buying)	<p>Procurement staff are aware of low pollution product options eg low VOC paints, odourless cleaning products and seek them out where possible. <input type="checkbox"/></p> <p>All cleaning products are fragrance free, where possible. <input type="checkbox"/></p>		<p>You have a researched list of low pollution product alternatives and buy them as often as possible. <input type="checkbox"/></p>		<p>Air quality and delivery impacts are considered when approval for any new item is sought. <input type="checkbox"/></p> <p>You only buy goods and services that are fully compliant with the air quality criteria outlined in the supply chain process. <input type="checkbox"/></p>	

	Basic		Getting There		Excellent	
	Liquid products are chosen in preference to sprays, where appropriate.	<input type="checkbox"/>			An internal need request is generated before purchasing new items. If department A doesn't need an item – it is offered to department B.	<input type="checkbox"/>
Couriers (deliveries and collections)	Couriers prioritise use of pedal bike couriers where possible.	<input type="checkbox"/>	Couriers combine pick-ups and drop offs to reduce total number of journeys.	<input type="checkbox"/>	Couriers only use ultra-low/zero tailpipe emission vehicles.	<input type="checkbox"/>
	The hospital provides a click and collect location for staff, patients, visitors and the local community to reduce the overall number of vehicles on the road.	<input type="checkbox"/>	Personal deliveries that don't make use of the hospital's click and collect facilities are not allowed.	<input type="checkbox"/>		
Procurement & Deliveries Score	Total no. of 1-point actions (max 10 points available)		Total no. of 5-point actions (max 10 x 5 points available)		Total no. of 10-point actions (max 9 x 10 points available)	
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 151 points available for this section.					

What procurement and supply chain actions will we be taking forward?

Activity	Person responsible	Date to be completed by



Design and construction

When new hospital buildings are being designed and built, or existing buildings are being retrofitted, there are lots of opportunities to mitigate air pollution and reduce negative health impacts.

Designing a new space with clean air as a core part of the design will make the future operation of the building as a clean air hospital much easier.

The construction (and demolition) process itself can also be a substantial source of air pollution to the local environment, dust and generators, and should be considered carefully, especially as prolonged building works can have negative impacts on neighbours in the local community.

This section of the framework covers building layout, material choices, building site traffic and construction site impacts. 191 points are available within this section.



eg

186

	Basic		Getting There		Excellent	
Design	Green space is included in project designs, and pollution absorbing plants are specifically chosen and planted.	<input type="checkbox"/>	Building design puts activities that will help minimise air pollution at the centre of plans (eg cycle parking is prominent, rather than hidden).	<input type="checkbox"/>	All building projects are designed to meet the requirements of BREEAM Outstanding, achieving all credits that relate to air quality.	<input type="checkbox"/>
	Buildings are designed to reduce ongoing energy demand.	<input type="checkbox"/>	Barrier planting is included to capture and reduce the spread of air pollution.	<input type="checkbox"/>	Hospitals work with local authorities during the design phase to ensure high levels of public transport provision and cycle routes are available to access the site.	<input type="checkbox"/>
			Stairs are signposted and easily accessible for those who can use them, instead of the lift.	<input type="checkbox"/>	Innovative approaches to cleaning are embedded in building design (eg use of ultra violet (UV) lights for cleaning).	<input type="checkbox"/>

Basic		Getting There		Excellent
		There are quiet green spaces in the hospital, and where possible, a green lung wall and / or green roof. <input type="checkbox"/>		
Layout	Offices facilities are designed so that equipment that contributes to indoor air pollution (such as fax machines, photocopying machines and printers) is kept away from wards. <input type="checkbox"/>	Green spaces are at the heart of wards. <input type="checkbox"/>		Layout is designed to increase use of stairs and minimise the use of lifts and escalators. <input type="checkbox"/>
	With any new construction, consideration is given to minimising air pollution around wards, especially where patients are already vulnerable eg maternity, heart and lungs. <input type="checkbox"/>			
Building materials and equipment	Building materials are chosen that minimise pollution (eg low VOC insulation, flooring and paints). <input type="checkbox"/>	Recycled/upcycled building materials that are low emission are embedded in the project where possible. <input type="checkbox"/>		Materials are chosen with long-life and future recyclability in mind. <input type="checkbox"/>
		<input type="checkbox"/>		Promising technologies to improve air quality are trialled in the hospital where appropriate. <input type="checkbox"/>
Construction/ demolition site	Clear information is provided at construction delivery points to discourage engine idling. <input type="checkbox"/>	Deliveries to site are restricted to take place outside of rush hours as much as possible. <input type="checkbox"/>		Vehicles bringing deliveries to site are also used to remove waste, packaging etc. to reduce the number of separate waste collections required. <input type="checkbox"/>
	Staff are trained to communicate and enforce the no idling policy. <input type="checkbox"/>	Some deliveries to site are carried out by electric vehicles. <input type="checkbox"/>		All deliveries to site are carried out by electric vehicles. <input type="checkbox"/>

	Basic		Getting There		Excellent	
	All construction vehicles meet FORS standards.	<input type="checkbox"/>	Deliveries to site are consolidated to minimise the number of vehicles coming on site.	<input type="checkbox"/>	All on site generators are hybrid machines, allowing smaller generators to be used and reducing diesel consumption on site.	<input type="checkbox"/>
	The construction site is registered with the Considerate Constructors Scheme and meets the code's requirement to minimise dust.	<input type="checkbox"/>	Dust levels are monitored as part of air pollution monitoring during construction.	<input type="checkbox"/>	Any site lighting required for working is low energy/LED, and powered by non-diesel options (eg hydrogen fuel cells).	<input type="checkbox"/>
	On site generators are well maintained and are positioned to reduce the spread of dust to surrounding areas.	<input type="checkbox"/>	Dust threshold levels are set to be ambitious compared to local requirements.	<input type="checkbox"/>	Work is halted if agreed dust levels are breached, until measures are put in place to reduce levels in the future.	<input type="checkbox"/>
	A no idling policy is enforced for non-road mobile machinery, including excavators, loaders, bulldozers etc.	<input type="checkbox"/>	When there are building works, everything possible is done to minimise the pollution impact on patients, staff and visitors.	<input type="checkbox"/>	Non-road mobile machinery is selected to reduce pollution (eg hybrid excavator).	<input type="checkbox"/>
Construction & Design Score	Total no. of 1-point actions (max 11 points available)		Total no. of 5-point actions (max 13 x 5 points available)		Total no. of 10-point actions (max 11 x 10 points available)	
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 191 points available for this section.					

What design and construction actions will we be taking forward?

[illegible]



Energy generation

The way that a hospital meets its energy requirements has an impact on the air pollution generated directly on site, such as through gas boilers and CHP units, and also at the point of electricity generation, such as fossil fuel power plants. Actions taken to reduce the total amount of energy consumed by the hospital will all therefore help to improve air pollution.

This section of the framework includes on site energy generation and electricity procurement. 67 points are available within this section.

	Basic	Getting There	Excellent
CHP and on site boilers	All on site boilers, incinerators and CHP units are regularly and well maintained to minimise the emissions that they create. <input type="checkbox"/>	There are no on site incinerators, whether owned by the hospital or private contractors, and medical waste is processed off site. <input type="checkbox"/>	There is no combustion of fossil fuels or biomass for heating or electricity generation on site. <input type="checkbox"/>
	Back-up generators are well maintained and tested to minimise their contribution to local air pollution. <input type="checkbox"/>	Only essential items are incinerated at all. Segregation of waste is encouraged, and single use items are designed out where possible. <input type="checkbox"/>	
	Local air pollution levels are monitored to determine appropriate times to carry out generator tests. <input type="checkbox"/>	CHP plants and boilers are sized appropriately to minimise the total amount of fuel required by the site and are designed to avoid any rejected heat. <input type="checkbox"/>	
	CHP units are regularly reviewed to ensure they are providing a net carbon benefit compared to grid energy supplies. <input type="checkbox"/>	Boilers and CHP system operate at efficiencies of at least 90%. <input type="checkbox"/>	
	All exhaust flues are positioned to reduce the direct impact on the <input type="checkbox"/>	CHP and boilers have scrubbers fitted to exhausts. <input type="checkbox"/>	

	Basic		Getting There		Excellent	
	surrounding environment, considering prevailing wind directions and positioning of most vulnerable patients, and openable windows.		All standalone gas boilers are replaced with electric. <input type="checkbox"/>			
Electricity	Electricity suppliers are selected that have a high renewable content in their fuel mix. <input type="checkbox"/>		Electricity is provided by a 100% green tariff. <input type="checkbox"/>		The hospital generates 100% of its own energy from zero emission renewable sources (which may be a mix of on site and offsite). <input type="checkbox"/>	
	There is some on site renewable energy generation. <input type="checkbox"/>		On site zero emission renewable energy contributes at least 30% to the hospital's energy mix. <input type="checkbox"/>			
Energy Generation Score	Total no. of 1-point actions (max 7 points available)		Total no. of 5-point actions (max 8 x 5 points available)		Total no. of 10-point actions (max 2 x 10 points available)	
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 67 points available for this section.					

What energy generation actions will we be taking forward?

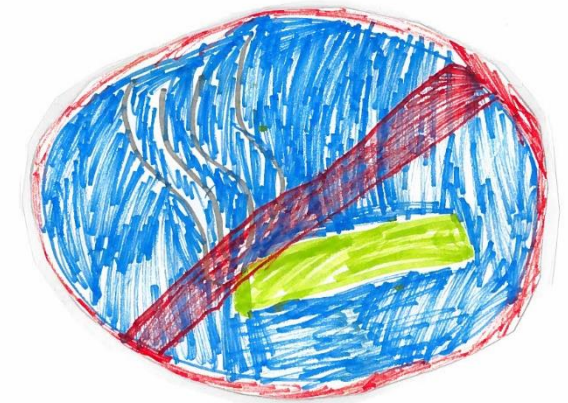
[illegible]



Local air quality

Bringing an awareness of air quality into your hospital and improving indoor air pollution can benefit patient health. It can also improve the wellbeing of staff and visitors by increasing the amount of green space, reducing the number of harsh chemicals used and creating a healthier environment.

This section of the framework looks at monitoring of air quality, ventilation, plants and local pollutants. 81 points are available within this section.



	Basic		Getting There		Excellent
Ventilation	Windows can open safely and securely. <input type="checkbox"/>		Ventilation systems allows a mixture of fresh and recirculated air depending on what is required within different areas of the hospital (eg clinical fresh, administration recirculated). <input type="checkbox"/>		New fans are sourced to be the most efficient, such as using low friction magno drives. <input type="checkbox"/>
	Windows that face main roads are shut when possible and indoor ventilation is used to ensure air flow. <input type="checkbox"/>		Incoming air mix can be adjusted based on external or internal air pollution levels. <input type="checkbox"/>		
Air quality monitoring	You monitor air pollution levels on site at hospital entrances, drop-off zones and pick-up points. <input type="checkbox"/>		You monitor air pollution levels inside as well as outside and showcase results. Monitoring should use MCERT approved devices or equivalent. <input type="checkbox"/>		You monitor air pollution levels across the hospital, showcase the results and use the information to improve air quality on site and set targets for improvement. <input type="checkbox"/>
	An indoor air quality audit has been carried out to identify sources of indoor air pollution. <input type="checkbox"/>		Indoor air quality audits are carried out at regular intervals. <input type="checkbox"/>		You regularly monitor your progress on indoor air pollution. <input type="checkbox"/>

Basic		Getting There		Excellent	
		You work with local air quality teams, such as with your local authority to understand the local pollution levels.			
Plant life	Where it is safe to have them, there are air quality improving plants across the hospital (eg spider plants). <input type="checkbox"/>	Patients are encouraged to spend time in the green spaces if /when it is appropriate for them to do so. <input type="checkbox"/>		Staff have easy access to green space on the hospital site. <input type="checkbox"/>	
Smoking	Hospitals are no smoking sites. <input type="checkbox"/>	Staff are trained and feel comfortable enforcing no smoking rules. <input type="checkbox"/>			
Local Air Quality Score	Total no. of 1-point actions (max 6 points available)		Total no. of 5-point actions (max 6 x 5 points available)		Total no. of 10-point actions (max 4 x 10 points available)
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 81 points available for this section.				

What local air quality actions will we be taking forward?

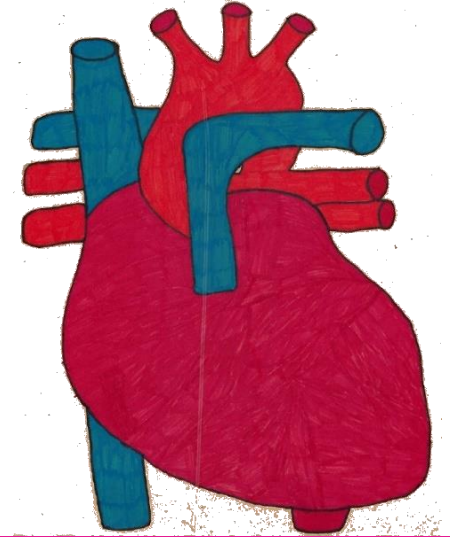
Activity	Person responsible	Date to be completed by



Communication and training

As well as improving air quality through hospital operations, a clean air hospital empowers healthcare professionals to use their position as trusted messengers to provide air pollution advice to patients, helping them to protect their health on a daily basis, and helping to prevent their readmission to hospital. Providing clear information, training and support to staff, patients and visitors to help them understand the sources of air pollution and how to reduce and avoid exposure to air pollution will help improve air pollution across the community and help improve health outcomes.

This section of the framework looks at training staff, providing advice to patients, engaging the hospital Board and sharing information across the hospital. 188 points are available within this section.



	Basic		Getting There		Excellent
Clinical advice	Basic information on the health impacts of air pollution, and actions to protect health, is available on the hospital website to all staff, patients and visitors. <input type="checkbox"/>		Clinicians provide information and advice on air pollution to all patients. <input type="checkbox"/>		Clinicians in cardiac, respiratory and maternity units keep up-to-date on the latest health information on air pollution to inform patient advice. <input type="checkbox"/>
	Clinicians provide information on air pollution to patients in the respiratory, cardiac and maternity departments. <input type="checkbox"/>		Clinicians discuss sources of air pollution and its health impacts with vulnerable patients to help them take air pollution into account when managing their health. <input type="checkbox"/>		Social prescribing of air quality audits is in place, and support is available for patients to implement the recommendations of these audits. <input type="checkbox"/>
	There is clear signage to local green areas (in and around the hospital), outdoor green gyms, and clean air walking and cycling routes. <input type="checkbox"/>				

	Basic		Getting There		Excellent	
Engaging patients	Air pollution information is on display in waiting areas.	<input type="checkbox"/>	Air pollution information and activity packs are available to patients and visitors of all ages throughout their stays.	<input type="checkbox"/>	Hospital schools incorporate air pollution information into their citizenship and science lessons.	<input type="checkbox"/>
	Information from the hospital's clean air action plan is available and shared with patients to communicate what actions, and why, the hospital is taking to improve air quality.	<input type="checkbox"/>	Workshops on reducing exposure to air pollution are provided for the most vulnerable patients eg cardiac, respiratory, maternity.	<input type="checkbox"/>	You organise pop up science experiments to get children and other patients engaged in air pollution to help understand its importance.	<input type="checkbox"/>
			Play specialists incorporate clean air messaging into work with children.	<input type="checkbox"/>		
Board level commitment	Your Board is aware of the World Health Organisation standards for air pollution.	<input type="checkbox"/>	Your Board has set a target for the hospital to reduce air pollution levels inside and outside the hospital.	<input type="checkbox"/>	You are on track to meet your own air pollution targets and the Board is fully supportive of your clean air action plan.	<input type="checkbox"/>
			Feedback is provided on your clean air action plan successes over the previous 12 months, and this is shared publicly.	<input type="checkbox"/>		
Training	Information on air quality and its health impacts is included in staff induction.	<input type="checkbox"/>	Staff are trained in using products correctly to reduce the levels and impact of indoor air pollution.	<input type="checkbox"/>	You work with local universities to incorporate air pollution into their nursing and medical training.	<input type="checkbox"/>
	Air quality issues and procedures are included in the induction process for all on site contractors.	<input type="checkbox"/>	Air quality champions are selected to remind colleagues of best practice and support change at the hospital.	<input type="checkbox"/>	There are opportunities for staff to volunteer in clean air activities.	<input type="checkbox"/>

	Basic		Getting There		Excellent
	<p>No idling training is available for all new staff and is compulsory for staff who drive as part of their role. This includes advice on how to drive more fuel efficiently. <input type="checkbox"/></p> <p>Staff understand that air pollution is a serious risk to patient health. They are aware air pollution is a factor in patient recovery. <input type="checkbox"/></p>		<p>There is at least one member of staff who leads on indoor air quality in the hospital. <input type="checkbox"/></p> <p>You provide area-specific training for staff working with the most vulnerable patients, so that they can provide advice to patients on reducing and avoiding air pollution to protect their health. <input type="checkbox"/></p>		
Communication within the hospital	<p>You inform staff about the health impacts of air pollution and an action that they can do. <input type="checkbox"/></p> <p>You share information about actions for avoiding and reducing air pollution on Clean Air Day. <input type="checkbox"/></p> <p>You tie clean air messaging into the hospital's values and principles. <input type="checkbox"/></p>		<p>You build your clean air action plan into the hospital-wide communication plan, integrating with other events and messaging throughout the year, where relevant. <input type="checkbox"/></p> <p>You involve staff and patients in the development of air quality communication materials. <input type="checkbox"/></p> <p>You are a Supporter of Clean Air Day and on Clean Air Day visibly and creatively communicate about air pollution across the hospital to staff, patients, contractors and visitors. <input type="checkbox"/></p>		<p>All patients and visitors to the hospital are informed about air pollution and how to get to/ from the hospital with minimum contribution and exposure to air pollution. <input type="checkbox"/></p> <p>You publicise clean air maps of the area so staff, patients and visitors know the low pollution areas/routes nearby. <input type="checkbox"/></p> <p>You are a vocal and active supporter of Clean Air Day, running events for staff, patients and the local community. <input type="checkbox"/></p>

Basic		Getting There		Excellent	
		Lunch time walks along quiet routes are promoted and information is available to staff on green spaces near the hospital. <input type="checkbox"/>			
Communication & Training Score	Total no. of 1-point actions (max 13 points available)		Total no. of 5-point actions (max 16 x 5 points available)		Total no. of 10-point actions (max 10 x 10 points available)
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 188 points available for this section.				

What communication and training actions will we be taking forward?

Activity	Person responsible	Date to be completed by



Hospital outreach & leadership

As an authoritative and trusted member of the local community, hospitals can contribute to wider, local decision helping to improve air pollution across the local area. Working in partnership with local authorities and other partners to make them aware of the health risks and burden of air pollution, and helping to ensure that local decisions, eg planning, transport, take air pollution into account can help improve local air quality and the health of the local population. Hospitals can also use their influence to impact decision making in wider society.

This section of the framework looks at how the hospital can amplify its impact to improve air pollution in the local area and beyond. 104 points are available within this section.

	Basic		Getting There		Excellent	
Community engagement	You engage with the community and staff to gauge opinions on topics that affect local air quality, and feed these into hospital decision making.	<input type="checkbox"/>	You help the local community to understand more about the health impacts of air pollution and how to protect their health by offering free lung function checks.	<input type="checkbox"/>	You share how you achieve success with other hospitals (through case studies, networking events, conferences etc) to help others achieve more.	<input type="checkbox"/>
	You encourage local businesses to take part in activities that reduce air pollution and communicate the benefits to the wider community of improving air quality.	<input type="checkbox"/>	You have a visible public engagement campaign on an aspect of air pollution with health information provided to the community through eg local media, social media.	<input type="checkbox"/>	You support wider air quality campaigns, lending your expertise to support change and increase visibility of the topic.	<input type="checkbox"/>
			The hospital makes physical resources available for the benefit of the community, such as green spaces and cycle parking.	<input type="checkbox"/>	You get involved in a nationwide campaign to increase your reach when talking about air quality.	<input type="checkbox"/>
					The hospital engages in community outreach eg linking with school programmes on air pollution.	<input type="checkbox"/>

	Basic		Getting There		Excellent	
Influencing for change	You contribute to local decision making eg planning /developments, transport infrastructure, to ensure that air pollution is taken into account.	<input type="checkbox"/>	You provide patients with access to air pollution information and support them to use their voice to champion for change within their communities.	<input type="checkbox"/>	You use case studies from your hospital to advocate for national change at a government level to showcase that these changes are practical and achievable.	<input type="checkbox"/>
	You work in partnership with local organisations eg council, local businesses, to implement local changes eg clean air zones.	<input type="checkbox"/>	You encourage local and national organisations to act faster on tackling air pollution eg by talking/writing to local politicians and/or car manufacturers asking for urgent action to reduce air pollution.	<input type="checkbox"/>	The hospital is a key partner in local groups and is committed to developing initiatives and strategies to improve public health.	<input type="checkbox"/>
			You work with local businesses and encourage them to sign up to the Clean Van Commitment .	<input type="checkbox"/>	The hospital works with local government to help staff gain better access to affordable accommodation within clean commuting distances.	<input type="checkbox"/>
Outreach Score	Total no. of 1-point actions (max 4 points available)		Total no. of 5-point actions (max 6 x 5 points available)		Total no. of 10-point actions (max 7 x 10 points available)	
	Total score (eg 5 x 1-point activities, 3 x 5-point activities and 4 x 10-point activities would give a total score for this section of 60). Max of 104 points available for this section.					

What hospital outreach and leadership actions will we be taking forward?

[illegible]

Where to go for more support

The Clean Air Day website (cleanairday.org.uk) has lots of information on the health impacts of air pollution, actions that individuals can take to reduce their contribution and exposure to air pollution, and resources to help you to engage people on the topic, including lesson plans for children, and communication materials for health professionals.

The UK Health Alliance on Climate Change (www.ukhealthalliance.org) brings together doctors, nurses and other health professionals to advocate for responses to climate change that protect and promote public health.

The Sustainable Development Unit (www.sduhealth.org.uk) helps organisations across health and care embed and promote sustainable development in order to reduce emissions, save money and improve the health of people and communities.

UK Air (uk-air.defra.gov.uk) provides forecasting, air pollution monitoring and information on air pollution across the UK.

Public Health England has shared guidance on air pollution on their Health Matters pages (www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution)

NICE has shared guidance on outdoor air quality and health (www.nice.org.uk/guidance/ng70)



Glossary

Charging infrastructure/ fuelling – Refers to the facilities and equipment that is needed to offer the power supply/fuel for zero tailpipe emission vehicles.

Cross functional project team - A cross-functional team is a group of people with different functional expertise working towards a common goal. It may include people from finance, marketing, operations, and human resources departments. Typically, it includes employees from all levels of an organisation.

Hospital - We have used the word “hospital” throughout this document, however depending on your set up, it may be more appropriate to think in terms of your trust as a whole.

Idling (no idling) - Idling refers to running a vehicle's engine when the vehicle is not in motion. This commonly occurs when drivers are stopped at a red light, waiting while parked outside a business or residence, or otherwise stationary with the engine running.

Last mile delivery - Defined as the movement of goods from a transportation hub to the final delivery destination. The focus of last mile logistics in this context is to deliver items to the user by creating as little negative impact on the community /individual as possible.

Low VOC materials - VOC stands for volatile organic compounds, that are harmful to the environment and humans. Low VOC products/ materials are therefore better for health. Some paints, sealants, adhesives, cleaning products etc. are now labelled as low or zero VOC.

Trusted health messenger – In this context a trusted health messenger is a member of the hospital staff that is trusted by the local and wider community based on their knowledge and skills within the health industry. Messages that

are shared via these individuals can be very effective in triggering change amongst the population.

Ultra-low emission vehicle - Ultra-low emission vehicle (ULEV) is the term used to describe any vehicle that uses low carbon technologies, emits less than 75g of CO₂/km from the tailpipe and is capable of operating in zero tailpipe emission mode for a range of at least ten miles

Zero emission vehicle (ZEV) /Zero tailpipe emission vehicle - Refers to a vehicle that emits no exhaust gas from the onboard source of power.



Great Ormond Street Hospital for Children

NHS Foundation Trust

Global Action Plan, 9-13 Kean Street, London, WC2B 4AY

Telephone 020 7420 4444

Charity registered in England and Wales No. 1026148, in Scotland No. SC041260

Registered company in England and Wales No. 2838296

VAT No. 625 994 009