Action on Air Pollution:
Collaboration and Public Health at Scale
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June 2016
EXECUTIVE SUMMARY

Air pollution is a critical issue for the health sector. Each year in the UK over 40,000 people die due to poor air quality. More than 9,500 of those premature deaths occur in London. These deaths are caused by long-term exposure to airborne pollution with local particulate matter attributing between 6.3-8.3% towards total premature mortality in London boroughs alone. For Barts Health NHS Trust this means between 142,500 and 200,000 members of its community are negatively impacted.

A recent report by the Royal College of Physicians (RCP) and Royal College of Paediatrics and Child Health (RCPCH) estimated that the impacts of air pollution costs the UK health economy around £20 billion a year. This is estimated to be double the cost of obesity and yet little is being done to tackle its effects.

Determined to change this landscape, Barts Health NHS Trust teamed up with the Greater London Authority (GLA), its four London boroughs and behavioural change charity, Global Action Plan, to create a cross-sector collaboration to take practical action for the benefit of its patients and local communities.

The Barts Health Cleaner Air for East London programme was named as an important example of best practice and cross-sector collaboration in the RCP and RCPCH report. It demonstrated that such collaboration can deliver measurable, long-term reductions in health inequalities and showcased the role healthcare providers can play in driving improvements in critical aspects of public health.

The programme was built around a series of practical projects which sought to engage and empower a wide range of individuals; from those delivering front-line care in hospitals and in the community, to those who were most affected and at risk from exposure. Its aim was simple - to improve the health of those who work and live across East London through two distinct actions; reducing direct emissions and reducing exposure to these emissions amongst those most at risk.

KEY FINDINGS

1. Health professionals are valuable and trusted messengers. They can effectively access those most at risk from poor air quality to deliver critical messages to help people protect themselves. Some of the Cleaner Air for East London projects found that harnessing clinicians to advise vulnerable patients on what mitigating actions to take was up to 33% more effective than typical direct mail campaigns.

2. Adding a degree of personalisation to the messaging enables individuals to contextualise and understand what it means to them and elicits a greater level of action. For example, linking the impact of their driving to the health of their own family or community in East London, particularly those of their children, stimulated greater motivation amongst Trust fleet drivers to adopt eco driving techniques.

3. Using localised information maps which showed high pollution routes made the previously intangible nature of air pollution feel real. This led to an increased awareness of the issues, an appreciation of the need to take action and a practical understanding of what these actions could be.

KEY ACHIEVEMENTS

- 100,000 people reached with key air pollution messages in East London
- 6,000 Cleaner Air packs distributed
- Approach recommended for the NHS in Royal College of Physicians and Royal College of Paediatrics and Child Health report
- Over 300 Barts Health professionals trained
- Over 300 volunteers engaged
- 95 pharmacists trained
- 5 hospitals and 4 GP surgeries participated in the programme

1 Royal College of Physicians and Royal College of Paediatrics and Child Health (2016), Every breath we take: the lifelong impact of air pollution
4 Royal College of Physicians and Royal College of Paediatrics and Child Health (2016), Every breath we take: the lifelong impact of air pollution.
On 23 February 2016, a working party at the RCP and RCPCH launched its inaugural report ‘Every breath we take: the lifelong impact of air pollution’. The report aimed to highlight the serious health effects of air pollution and the rising need to take action to tackle its effects. In addition to the 40,000 premature deaths air pollution causes in the UK each year, it is also linked to new onset asthma, as well as worsening existing asthma, progression and exacerbation of Chronic Obstructive Pulmonary Disease (COPD) and contributes to obesity, lung cancer, diabetes, reduced cognition and dementia – all of which is estimated to cost society £20 billion a year in the UK.

The Report was the first to examine the health implications of exposure to air pollution over a lifetime, highlighting that the developing heart, lung, brain, hormone systems and immunity of infants can all be harmed by increased levels of pollution leading to reduced growth, intelligence, coordination and development of the brain.

It also highlighted that people who live in deprived areas, such as those who live in the boroughs served by Barts Health, are often exposed to higher levels of air pollution as they tend to live, learn and/or work near busy roads. In addition those most vulnerable because of their age (elderly or young) or existing medical conditions are often more at risk. Add to this the confusing and often misleading pollutant emission figures of trusted brands – such as those producing new diesel vehicles, the proliferation of small packet delivery vehicles and the high use of diesel by various forms of motorised transport - and one sees that the situation is only likely to worsen.

Changes in the way we live our lives have changed the air we breathe, not only in the outdoor environment but inside as well. These effects will be intensified further by continuing changes in our climate.

It is clear to imagine that if there were, for example, toxic substances in our water supply that led to the premature deaths of 40,000 people a year in the UK, there would be public outcry and a great sense of urgency to eliminate the risk; and yet we see the effects of air pollution having just such impact whilst very little happens to tackle the problem. The issue, of course, is complex. Air pollution is not a visible killer, nor are its effects widely publicised. We have an ever increasing reliance on the motor industry to service our desire for quick access to consumable items [unique to the UK - over 50% of the UK’s commercial fleet being comprised of diesel vehicles]. In 2012, road traffic in the UK was ten times higher than in 1949. Between 1995 and 2013, the total distance walked each year decreased by 30%. Breathing is, of course, a necessity to live - so the messaging around air pollution is one that is hard to deliver especially since the public consider the car almost as an extension of their home and living space. Couple this with the lack of visibility and voice of those who suffer most from pollution effects and there is a perfect storm created for inaction.

Ultimately, accountability is key. Everyone has some responsibility for reducing air pollution and real change will only occur when everyone accepts this responsibility and makes a concerted effort to take action. This includes European, national and local government, business, industry, schools and the NHS, as well as individuals in society at large. For progress to be made action must be taken to educate professionals and the public, promote alternatives to vehicles fuelled by fossil fuels, increase the levels of active travel, effectively monitor air pollution levels and measure its effects on health, protect those who are most at risk and lead by example. The Barts Health Cleaner Air for East London programme is doing just this. The RCP applauds this as a superb example of effectively delivering an integrated approach to reducing air pollution and its health impacts that embraces many of the RCP Report’s recommendations. Indeed, the timing of this initiative for East London could not be better. It is important that its learnings are not lost and that it is held as an example to others of the critical importance of tackling this national issue. What is urgently needed now is an equally important commitment from Central Government which recognises that air pollution is a major public health issue in the UK and sets out how, as a nation, we plan to effectively tackle this silent killer.

Professor Stephen T Holgate CBE, Chair of the RCP Working Party on Air Pollution.
The boroughs of Newham and Waltham Forest – also served by Barts Health – suffer from comparatively less pollution, as both are geographically further away from Central London and so are less affected by traffic congestion and intensity of population. Yet the significant level of pollution close to the main roads in the two boroughs cannot be overlooked. More residents are located close to these main roads in boroughs that are densely populated and are therefore at an increased risk of more intense levels of exposure. Serious levels of deprivation are prevalent in both boroughs. Links between deprivation and vulnerability put residents in both these boroughs at a higher risk of suffering from the effects of poor levels of air quality and increased levels of pollution.

By reducing the amount of harmful pollutants emitted into the air, and by reducing people’s exposure to these pollutants, the Cleaner Air for East London programme aspired to help East Londoners live longer and healthier lives.6

**PROGRAMME SUMMARY**

Over the three years, this programme prototyped seven projects using different approaches to tackle air pollution and reduce exposure amongst Barts Health patients, staff and visitors.

**PROJECT** | **APPROACH**
--- | ---
Breathe Better | project scoping & initial engagement
Warm and Well | reducing community based emissions
Breathing Spaces | creating green spaces
Protecting Patients & Waltham Forest Pharmacy | engaging pharmacists and clinicians as trusted messengers
Cleaner Fleets, Healthier Streets | training fleet drivers
Switch your Trip | shifting modes of transport

The overall aim was to better understand how to approach air quality as an issue, engage the hospital’s health professionals, supply chain and wider community and to effectively engage those most at risk of the negative effects of air pollution in a way that empowered and inspired them to take action.

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6 Institute of Health Equity Marmot report, UCL, 2010 and 2015
BREATHE BETTER

In order to establish a baseline of current knowledge, attitude and behaviours toward local air pollution, patients, staff and visitors at Barts Health hospitals were asked to complete a survey. The survey enabled the creation of a ‘Breathe Better’ plan which offered tailored advice to those who completed it, along with key recommendations to help people take action to protect themselves from the most harmful levels of air pollution.

WARM AND WELL

Warm and Well was an innovative project that engaged community-based staff (e.g. occupational therapists, community nurses and physiotherapists) as key messengers to share key health messages with those most at risk of fuel poverty and in areas with high average domestic gas use. The initiative built on work previously carried out by the Trust and aimed to improve access to critical information in order to help those most at risk, whilst reducing emissions within the community.

PROTECTING PATIENTS

In order to deliver messages effectively to patients on the importance and benefits of protecting themselves against harmful levels of air pollution, a ‘train the trainer’ approach was adopted with key clinicians and community health staff. This approach empowered Barts Health clinicians to give their vulnerable patients practical advice on how to access key information around daily pollution levels, reduce their exposure and take action to protect themselves. These messages were based around three key actions:

1) KNOW THE FORECAST
2) TAKE LOWER POLLUTION ROUTES
3) TRAVEL OUTSIDE RUSH HOUR

OUTCOMES

- 399 patients, staff and visitors were engaged via planting days, workshops and distribution of Cleaner Air handouts
- 90 pollution-reducing plants were planted at three Barts Health sites
- 18 plaques prompting awareness and action were placed alongside the plants
- More than 21,000 people reached through media interest

“People in London are more aware of air pollution but they may not necessarily know the ways in which to deal with it. That’s why the air pollution talks at the [respiratory] rehab groups are very important.”

MATT HAIR, ARCaRe PHYSIOTHERAPIST VOLUNTEER

Breathing Spaces

Existing green spaces across three Barts Health hospital sites were transformed into Breathing Spaces with the help of volunteers from the East London Gardening Society. The volunteers planted 90 carefully selected air quality improving plants and placed handmade signs to raise awareness about the benefits to local air quality.

OUTCOMES

- 399 patients, staff and visitors were engaged via planting days, workshops and distribution of Cleaner Air handouts
- All patients interviewed or surveyed reported at least one behaviour change as a result of the advice given by Barts Health clinicians
- 85 of the trained clinicians said they had improved their knowledge of air pollution and its effects and felt more equipped to give their patients advice to reduce their exposure
- 89% of the clinicians surveyed found the training useful

“Air pollution has a negative impact on people’s lives, By planting a single seed, you are taking action, strengthening communities and helping towards better air quality in London”

KHADIZA, VOLUNTEER

“I would never ever listen to what anyone said when they were knocking on the door; I agree that you have to take an approach where it comes from a trusted source like a hospital doctor or GP”

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SWITCH YOUR TRIP

Emissions from vehicles are a significant contributor to air pollution. Switch Your Trip helped Barts Health staff contribute to achieving cleaner air in East London by finding healthier, more active, ways to travel to work. Staff at the five main Barts Health sites were engaged to think about how they travel to and from work, and between hospital sites, and were encouraged to switch their trips by walking, cycling or car sharing.

OUTCOMES

- 130 participants logged 8,251 miles of journeys – enough miles to reach Rio de Janeiro
- 771 journeys were switched, of which 104 were from single car use

CLEANER FLEETS, HEALTHIER STREETS

Each year Barts Health transports approximately 858,000 patients over 815,868 miles through 286,000 journeys across London, and beyond. This activity is necessary to ensure patients are brought to and from the hospitals safely but also contributes to air pollution.

In order to tackle this, Eco Driving Simulators were used to train drivers from ERS Medical, the hospital’s transport providers, to reduce the impact of their driving on local air pollution.

OUTCOMES

Using Telematics data to evidence the impact showed a 63% improvement across four behaviours in the first month of engagement.

BEHAVIOIRS

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<tr>
<td>HARSH ACCELERATION</td>
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<td>OVER REVOLUTIONS PER MINUTE (RPM)</td>
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"I enjoy the walking part of my journey as it gives me thinking time and I feel better physically and mentally."

SHARON, PARTICIPANT FROM WHIPPS CROSS HOSPITAL

"It’s about engaging with our drivers, getting them to understand the impact of their actions and how they affect the way that we operate."

LEE JACKSON, GROUP HEAD OF FLEET SERVICES

WALTHAM FOREST PHARMACIES

Pharmacists are a key community health resource and often access patients who may not directly engage with hospitals. The pharmacy engagement programme aimed to reach those patients in order to spread knowledge and empower more people in the community.

This project was devised as a sub-project working parallel to the Barts Health NHS Trust Cleaner Air for East London project. The project was commissioned by Waltham Forest Council.

"Those [patients] that have taken [the packs] have said they think it is useful. It was information about their roads and area that they didn’t know. They were surprised how dirty their streets were."

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BARTS HEALTH NHS TRUST
Fiona Daly – Associate Director for Sustainability and Patient Transport

‘Barts Health is committed to reducing the health and social inequalities seen across East London. As an organisation we see first-hand the negative impact poor air quality has on both our patients and vulnerable members of our communities, and we are driven to actively change this for the better. In leading the Cleaner Air for East London programme we have been able to start to make a difference within our own health communities, and importantly to engage with key members of the health and academic communities to drive this change. We have been able to break down the barriers between key sectors and organisations in order to drive a truly collaborative partnership programme with measurable impact. The power of this approach is one that can be used across the NHS to drive more wide scale change for other healthcare organisations.’

GREATER LONDON AUTHORITY
Annette Figueiredo - Principal Policy and Programme Officer

‘It has been a fantastic experience sitting as the Greater London Authority representative on the project steering group. The results show what really can be done when organisations work together to encourage Londoners to change their behaviour to avoid exposure to poor air quality. Funded, in part, by the Mayor’s Air Quality Fund, this project has gone some way to help meet the GLA’s work on reducing exposure and improve air quality in London.’

LONDON BOROUGH OF WALTHAM FOREST
Ana Ventura - Air Quality Officer

‘Getting involved in this project presented a real opportunity for Waltham Forest Council to reach out to those most at risk from exposure to air pollution, and influence real change. Through this project we have been able to raise awareness of air pollution and its potential impacts on health, and bring about some important changes both in behaviours and environment that will contribute to making a significant improvement to air quality going forward.’

CITY OF LONDON CORPORATION
Ruth Calderwood – Environmental Policy Officer

‘The City of London Corporation teamed up with Barts Health to reach out to people who have illnesses that make them vulnerable to poor air quality. We hope to continue to work with Barts in the City looking at further ways local air quality can be improved by focussing on freight movements as part of a proposed Low Emission Neighbourhood.’

LONDON BOROUGH OF TOWER HAMLETS
Councillor Ayas Miah – Cabinet Member for Environment

‘Tower Hamlets is committed to improving the health and well-being of our residents by increasing awareness on the impacts of air pollution. We have worked in collaboration with partners like Barts Health and other London boroughs through the successful Cleaner Air for East London project to raise the issue of air pollution in London to improve public health. The success of the project is an example of how air pollution can be tackled in Tower Hamlets and London.’

LONDON BOROUGH OF NEWHAM
Councillor Clive Furness - Mayoral Advisor for Adults and Health

‘This project has strived to drive down air pollution in parts of the borough and to encourage healthier lifestyles through walking or cycling to work. The support provided to vulnerable residents to help them to understand how to avoid high pollution levels while travelling in East London is invaluable and will make a huge difference to their health and well-being. Hopefully this partnership will have a lasting impact on our residents’ quality of life.’

GLOBAL ACTION PLAN
Caroline Watson – Partner

‘The Barts Health Cleaner Air for East London programme has proven to be a real exemplar of collaboration between local government and the health sector. The results show that if we work together to provide the training, tools and materials to health practitioners it can make a real impact to patient care while also tackling the causes of air pollution. We’re excited to see how we can continue to work in partnership to scale up this approach with local government and NHS Trusts across the country.’
A CLEAR REDUCTION IN AIR POLLUTION

Alongside the core programme Barts Health NHS Trust has engaged in a number of broader air pollution reduction initiatives, such as no-idling days in the City of London. The programmes, including the Cleaner Air for East London programme, have undoubtedly impacted the reduction of air pollution and showcase how a health provider can contribute, at scale, to improving public health and reducing health inequalities in their communities. This is particularly evident in the City of London where, as a result of the work at St. Bartholomew’s hospital site, the City of London has seen their pollution levels drop within EU limits.

The graph below shows the average levels of air pollution in the City of London decreasing over a 10 year period. This shows that work in the borough has created a trend for reduction in air pollution. It also shows that the work undertaken by the Cleaner Air for East London programme (undertaken throughout 2014-2015) saw the levels reduced within the safe EU limits for pollution.

The RCP’s Every Breath We Take report (2016) estimates that the adverse impact on public health caused by pollution costs the UK economy more than £20 billion per year. This is just under 16% of the current annual NHS budget of around £116 billion. The table overleaf demonstrates the huge opportunity for environmental and health medication efficiencies across the system.

Now that air quality is recognised medically as a major public health issue, and the published costs to the health system are significant, commissioners play a critical role in directing finances toward actively encouraging the delivery of preventive interventions. This approach would enable health organisations to focus on ensuring cost efficiencies are driven throughout the system, improve the outcomes for patients and see an improvement in public health.

This approach would drive long-term financial, social, environmental and health medication efficiencies across the system.

RECOMMENDATIONS
THE ROLE OF COMMISSIONING IN DRIVING PREVENTION
Commissioners have a key role to play in driving the active delivery of prevention in healthcare. Traditionally commissioning has been focused on treatment, especially for large providers, as opposed to prevention. There are examples, however, e.g. smoking and obesity, where there is a recognition in the value of preventative care, but these are limited and air pollution programmes are not currently viewed in the same vein.

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EMBEDDING ADVICE INTO CARE PATHWAYS
In order to effectively nurture a network of health professionals who can act as trusted messengers to access at-risk patients, it is critical to embed air pollution messaging and changes in behaviours into existing care pathway models.

Health professionals are already time pressured and have limited face-to-face time with their patients, so delivering proven messages and techniques to empower patients with knowledge and information to protect themselves is important. Early intervention will also reduce long-term pressures within the system.

HEALTH SECTOR LEADING BY EXAMPLE
The NHS is one of the largest employers in the UK and a significant contributor to commuter, visitor, supplier and staff traffic. Therefore, it is well positioned to lead by example. Hospital Trusts across the country should take practical action to reduce their contribution to air pollution through the emissions they generate.

TRUSTS AND LOCAL AUTHORITY COLLABORATION
A key success factor of the Cleaner Air for East London programme was its open, collaborative approach. The projects have shown the strength and impact that working together, across sectors, can have in delivering short-term cross-sector objectives for a variety of stakeholders, and drive a focus on long-term improvements for the health system as a whole. It demonstrates the need to create synergies between organisations and to break down barriers to work together towards a common goal.

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It also shows the need to harness the knowledge and expertise of a variety of partners in order to deliver the best results.

**ESTABLISH CLEAR LINKS BETWEEN EDUCATION, ACADEMIC RESEARCH AND HEALTHCARE ORGANISATIONS**

Now that there is a growing body of evidence about the health implications of poor air quality and a recognition that it has a direct impact on the health and well-being of so many, it is important to consider ways in which we can drive the open sharing of data and information at scale, increase research and, in particular, identify person-specific, granular cost benefits to the system of tackling air pollution.

Building this cohesive approach would help build the business case for further investment in air pollution prevention measures and allow commissioners and Trusts alike to invest in, and focus their efforts upon, the most effective preventative care methods available.

**INCREASING REACH AND ENGAGEMENT**

In order to widen the impact of the Cleaner Air for East London programme, widescale engagement is needed to reach organisations and help them understand how they too could have a positive role to play in tackling this silent killer. One way this could be achieved is through the creation of a National Clean Air Day that would bring much needed understanding to both the public and healthcare professionals, and would empower people to take action to protect themselves and their loved ones from excessive levels of pollution.

The long-term impacts of such a day would be to reduce the health impacts and inequalities caused by air pollution by increasing awareness, engagement and action.

Given the numbers of people cited as being affected, and Defra’s own forecasts that our most polluted cities will still be above the legal EU limits of pollution until 2030, we feel such a day could deliver measurable change for the health system in the UK.

**ACKNOWLEDGEMENTS**

This project would not have been possible without the unwavering support, commitment, dedication and tenacity of many people. We would like to extend our thanks and gratitude to everyone who has helped us to achieve what we have to date, and to all those who will help us in the future.