Policy brief

2020

ANTICIPATE

Recommendations for mitigating air quality impacts associated with the 'NHS App'

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Executive summary

Key messages and recommendations

- Air pollution has considerable impacts on the UK economy, environment and human health.
- It is increasingly important that we take a systems-based approach across governments to identify the air pollution costs and benefits of policy.
- The ANTICIPATE project has created an interdisciplinary network, providing opportunities for the co-design of future research and advice needed to support the 'NHS App' as part of the NHS Long Term Plan transformative vision to deliver better healthcare.
- The ANTICIPATE Project has explored the consequences of the 'NHS App' with regards to air quality.
- It recommends a number of interventions to avoid or mitigate these consequences:
  - Include patient advice about the health impacts associated with indoor and outdoor air pollution in the NHS App.
  - Identify and assess the capacity to scale up on-demand patient transport booking services, especially those using greener forms of transport.
  - Assess the functionality, accuracy and usefulness of health supporting apps that could be included in the NHS Apps library.
  - Develop and include in the app a repository of volunteering opportunities, supporting groups and other means of social prescribing to encourage social connection beyond the home.
  - Use the app to increase the availability of telephone, video and eConsultations, particularly in care homes, to reduce the need for home visits or patients needing to travel to their local healthcare services.
  - Identify and assess the capacity for scaling up fulfilment services for delivering prescriptions (e.g. use of the Royal Mail or courier services).
  - Examine whether the app can provide users with advice about the health impacts associated with indoor and outdoor air pollution.

Scope of the problem

Air pollution has considerable impacts on the UK economy, environment and human health. The wider health and economic costs due to air pollution are estimated at £20 billion per year in the UK [1], but this is likely to underestimate the overall societal costs. Additional wider costs to society arise from increased morbidity from before birth to old age, additional care needs, opportunity costs and reduced economic productivity. Poor air quality also impacts on the natural and built physical environments, including reducing biodiversity and crop yields. The potential for economic and societal impact from reducing air pollution is substantial, however, as action to improve air quality becomes more about incremental gains and cumulative action, it is increasingly important that we take a systems-based approach to identifying the air pollution costs and benefits arising from public policies across government.

The UK public policy landscape is a highly interconnected system with complex interactions and feedback. We often view this as a set of discrete subsystems, rarely considering the landscape in its entirety and thereby limiting effective anticipation of the wider impacts and unintended consequences of policy decisions over both near and distant time horizons. Policy decisions should be resilient to a wide range of future scenarios, necessitating an integrated approach to policy appraisal beyond the confines of single Departments, and across all tiers of national and local Government.

The UK Clean Air Strategy outlines comprehensive actions across all parts of government to achieve stringent pollutant emissions targets by 2020 and 2030, with a goal to halve air quality related harms to human health [2]. This ambition is explicitly aligned with and will be co-delivered through existing long-term UK policy commitments, including the NHS long-term digital transformation through its introduction of the NHS app, recognising the broader connection between government policy areas for achieving benefits to public health.

The 'NHS App' is a key policy supporting the NHS digital transformation programme as part of the NHS Long Term Plan and aims to improve patients' access to digital health services. The 'NHS App', which will allow patients to book appointments with their GP, order repeat prescriptions and access their GP record, has been developed by NHS Digital and NHS England. It can also currently be used to access NHS 111, set patients' data sharing preferences, and record organ donation and end of life care preferences [3].

A wide range of scientific, technological, environmental, economic, political, legal, social and behavioural stressors will influence implementation of the 'NHS App', therefore contributing to future uncertainties (e.g. potential increase of exposure to indoor air pollution and a rise in the NHS' carbon footprint). While policy decisions are inherently political and subject to external constraints, provision of a robust and appropriate evidence base including the predicted impacts upon air quality, and therefore human health, is essential to ensure all decisions maximise desired outcomes and mitigate adverse impacts.

Future directions of the 'NHS App':

The NHS App could be used to do the following in the future:

- Signposting patients to access mental health apps and related services.
- Individuals could 'buy' health and social care packages (in the context of an ageing population).
- It could be used as a lifestyle item and could link to other digital devices (e.g. an Alexa-like device which is voice activated).
- Integration of a call back service via 111 and video conference calls.
- Use artificial intelligence to navigate patients to the right information and services.
- Increase linkages with patients' local health and care services.
- Provide different app interfaces for patients and clinicians.

There is also potential to extend it beyond primary care services.

The potential consequences of the 'NHS app' on the wider system:

The potential consequences of the future developments of the NHS app and its impact on air quality include:

- An increase in air pollution exposure, with the transition to digital services reducing the need to travel and increasing exposure to poor indoor air quality.
- Increased generation of electricity for electronic servers and cloud-based services could increase pollution and its carbon footprint.
- Reducing pressure on NHS services should lead to a reduced use of ambulances and patient transport, and lower supply chain demand for distribution of goods and ancillary services.
- If the NHS App signposts users to healthcare provider locations which are not the closest supplier of services, this could lead to longer journeys than necessary. This would also increase greenhouse gas emissions and adversely impact upon air quality.
- Use of digital services could contribute to loss of patient rapport with health professionals, impacting upon levels of trust and disclosure during consultations. This could leave vulnerable groups more exposed to social isolation and other health associated impacts, thereby contributing to health inequalities. This may also have adverse consequences upon continuity of care and effective clinical handover for people with long term and complex health issues, with affected individuals and communities being increasingly sensitive to impacts of air quality.

Policy recommendations and gaps in existing knowledge:

We recommend a variety of interventions which can be used to avoid or mitigate the negative impacts on air quality associated with the development of the NHS app. Examples of these interventions, the stakeholders involved and the timescales in which intervention could be made can be found in Appendix 1.

Specifically, we recommend the following interventions:

- Identify and develop a repository of volunteering opportunities, supporting groups and other means of social prescribing to encourage social connection beyond the home and making this available for everyone who needs it to access it (e.g. members of public and social prescribing network).
- Increase the use and availability of telephone, video and eConsultations, particularly in care homes, to reduce the need for home visits or patients needing to travel to their local healthcare services.
- Identify and assess the capacity for scaling up on-demand patient transport booking services, especially those using greener transport modes.
- Assess the functionality, accuracy and usefulness of health supporting apps to be included in the NHS Apps Library.
- Produce patient orientated advice about the health impacts associated with indoor and outdoor air pollution.
- Assess the capacity to scale up fulfilment services for delivering prescriptions (e.g. the use of Royal Mail or courier services).
- Assess the capacity for producing live notifications linked to the NHS app to provide targeted patient advice about actions to mitigate outdoor and indoor air pollution exposure.

There are gaps in knowledge that still need to be addressed. These include:

- The health-related impacts of indoor air quality.
- Quantifying the carbon emissions associated with NHS cloud-based storage uptake.
- Estimating the greenhouse gas emissions associated with NHS staff and patient modes of travel and healthcare services.

It will be necessary to collaborate and raise awareness of the issues in this briefing for priority research agendas and future mitigation strategies, both within the Department of Health and Social Care and across relevant government agencies, health service providers, regulators and funding agencies.

Examples of existing interventions:

Examples of existing projects and schemes which could be used more widely to mitigate some of the above consequences of the NHS App and its impact on air quality include:

- Within Oxford city the 'Pick Me Up' app-based responsive on-demand transport service has been operational since 2018: https://pickmeup.oxfordbus.co.uk/
- The Conservation Volunteers 'Green Gyms': https://www.tcv.org.uk/greengym
- Befriending services: https://www.ageuk.org.uk/services/befriending-services/
- Ask A&E app: https://www.uhb.nhs.uk/ask
- NHS SDU HOTT: https://www.sduhealth.org.uk/delivery/measure/health-outcomes-travel-tool.aspx
- NHS WaitLess app: https://www.nhs.uk/apps-library/waitless/

The ANTICIPATE Project:

'Actively anticipating the unintended consequences on air quality of future public policies' (ANTICIPATE) is a Natural Environment Research Council (NERC) funded project forming part of its Clean Air Programme. It is bringing together policy analysts and policy makers from the UK central government, devolved administrations and local and regional authorities, stakeholders from business and civil society organisations, and academics and researchers to explore forthcoming policy initiatives for their consequences (intended or unintended, positive or negative) on air quality.

The project aims to:

- Better understand the unanticipated consequences of public policies with regard to air quality;
- Experiment with and develop new and improved techniques to explore the wider consequences of policy outside of their core areas of intended impact, focusing on air quality;
- Enable rethinking and improvement of prospective policy options at the appraisal stage to take account of their implications for air quality, helping to dissolve institutional and cultural barriers between Government Departments, administrative authorities and other public bodies;
- Disseminate the insights relating to appropriate use of methods for assessing the implications of future policy in the form of a guidance Manual, bridging the gap between academic research and policy formulation;
- Develop an enduring community of policy makers and researchers that is aware of and concerned about the implications of public policy on air quality.

References

1. RCP & RCPCH, *Every breath we take*, 2016.
2. Defra, *Air quality: Clean Air Strategy* 2018.
3. NHS App: https://www.nhs.uk/using-the-nhs/nhs-services/the-nhs-app/

Appendix 1: Action plan and moving forward

Intervention type	Stakeholders involved	Timescale in which intervention could be possible
Fulfilment services for delivering prescriptions (e.g. use of the Royal Mail services). Already exists and linked to the NHS app.	NHS Digital, pharmaceutical companies.	Now
Volunteering opportunities, supporting groups and other means of social prescribing. Having a Repository available about where people can go to increase social connection.	NCVO, volunteering organisations, local authorities, social prescribing network, GPs, and social care services.	Near future - depends on how a database or repository could be put together and to increase people's awareness of the schemes.
Advice notifications via the NHS app (or linking to other existing air quality apps) about indoor/outdoor air quality and suggestions on how to mitigate their impacts on patient health.	NHS Digital, DEFRA,	1 year
Health advice online about indoor air quality (e.g. preventative information).	RCPCA, NHS Digital,	1-2 years
"Pick me up" mobile app. Being able to book a mode of transport on demand to go to healthcare services. Could be added to the NHS app.	Bus operators, local authorities, national bus timetable and NHS Digital.	2-5 years.
Reduction in home visits by using video conference calls via the NHS app. Could be effective in care homes.	Clinicians, patients, NHS Digital and care homes/providers.	5 years
Mobile app library on the NHS app, already exists (function waiting to be released).	NHS Digital	10 years + (Due to assessing which apps to include in the library).

Appendix 2: Project team members and workshop attendees

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