Methods An online questionnaire was designed with three blank space questions and was sent to all staff members on the PICU via electronic mail and posters were put on the unit with a QR code for easy access. Humorous cartoons were used in the questionnaire to encourage responses. These were placed in staff areas as well as the parents' room to encourage parent involvement. An electronic sustainability diary was uploaded online to document past projects, current projects, future plans and contact details.

Results The questionnaire generated 89 suggestions from 35 respondents. The majority of these were from nursing staff (68.5%), as well as doctors (14.3%), domestic services (8.6%), pharmacy team (5.7%) and dietitians (2.9%).

Suggestions were categorised into 6 sub-categories: Equipment, PPE, Waste, Drugs, Environment and Patient Bedside. The top 6 desired changes were 1) Re-introduce recycling bins (51%) 2) Reduce unnecessary glove use (22%) 3) Reduce unnecessary apron use (22%), 4) Minimise drug wastage (13%) 5) Reduce unnecessary lights being left on (13%) 6) Reduce the amount of bedside trolley equipment thrown out between new patients (13%).

Conclusion The sustainability working group created a sustainability calendar with monthly themes starting with the most popular suggestion from the survey. This calendar will be displayed in staffing areas and every month an audit will be conducted to assess the intervention. Audit results will be added to this calendar and a monthly Sustainability newsletter. The sustainability diary will facilitate handover for incoming working group members and as a way of reporting to senior managers. In future, we hope we can expand this approach to a trust-wide level to increase the impact on climate change. Listening to staff and acting on what they feel needs to be changed is crucial to make everyday practice sustainable.

REFERENCE
1. Michie, S. B*ehaviour change wheel: a new method for characterising and designing behaviour change interventions.*

897 IMPACT ON CHILD HEALTH OF CLIMATE CHANGE MITIGATION POLICIES: A SYSTEMATIC REVIEW

Roberto Picetti, Rachel Juel, James Milner, Filiz Karakas, Paul Wilkinson, Alan Dangour, Robert Hughes. *London School of Hygiene and Tropical Medicine*

Aims Research on impact on health of climate mitigation has been focused on adults, but the climate crisis, and policies to mitigate it, are likely to have a significant impact on children. We reviewed studies that modeled health impacts deriving from mitigation policies aimed at reducing greenhouse gasses (GHGs) and specifically included populations 18 years old and younger.

Methods Our review is reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) updated guidelines. The systematic review methods were published in advance of data collection on the PROSPERO register (protocol number CRD42021271717). We systematically searched the following databases: OvidSP MEDLINE, OvidSP PubMed, OvidSP EMBASE, Global Health, Scopus, and ISI Web of Science from 1 January 1990 until 25 July 2021. We adapted the PICOS model to frame our selection criteria:

Participants children and adolescents ≤ 18 years old

Intervention any intervention intended (or expected) to reduce GHGs emissions

Comparator baseline levels of air pollutants, or business as usual scenario

Outcome any health outcomes

Study design modeled scenarios simulating exposures and health impacts.

Additionally, studies had to be published peer-reviewed papers in English. Animal studies were excluded as were reviews and systematic reviews (the reference lists of which were searched for relevant studies). After removal of duplicates, titles and abstracts of records obtained through the search were screened for relevance. Quantitative estimates (number or percentage reduction of cases, relative risks, or other measures of association) and 95% confidence intervals, or other measures of uncertainty, of the effect of mitigation measures on health outcomes were extracted from each study.

Results After removing duplicates, 23,513 unique records were screened based on titles and abstracts, and 85 were included for full text review. In total, 20 records reported results on health impacts in children and adolescents 18 years old and younger linked to climate change mitigation scenarios. These studies were conducted mostly in USA (n=8), and Europe (n=6). There were four types of simulated interventions: ambient air pollution, household pollution, economy and energy, and transportation. Most simulations (n=19) modeled health impacts related to respiratory diseases. The two most studied pollutants were particulate matter (PM2.5, n=10) and nitrogen dioxide (n=7). The magnitude of the health impacts varied depending on the extent of the modeled intervention. Almost all studies modeled near-term effects of mitigation policies. There was a high heterogeneity of assumptions such as the distribution of pollutants, meteorological conditions, and model specifications between studies.

Conclusion This systematic review shows that the mitigation of GHGs emissions may have important health impacts in children and adolescents. However, the number of studies that specifically simulated health impacts in children is very limited and is largely limited to studies estimating the impact of changes in air quality. Further research, especially that exploring other connections between climate mitigation and child health is urgently needed to inform policy.

929 CHILD HEALTH BENEFITS FROM REDUCED AIR POLLUTION IN 16 CITIES THROUGH 'NET ZERO' GREENHOUSE GAS EMISSIONS

[1]James Milner, [1]Robert Hughes, [2]Sourangsu Chowdhury, [1]Roberto Picetti, [3]Rakesh Ghosh, [4]Jos Lelieveld, [1]Alan Dangour, [1]Paul Wilkinson. [1]*London School of Hygiene and Tropical Medicine;* [2]*Max Planck Institute for Chemistry;* [3]*University of California San Francisco;* [4]*Max Planck Institute for Chemistry*
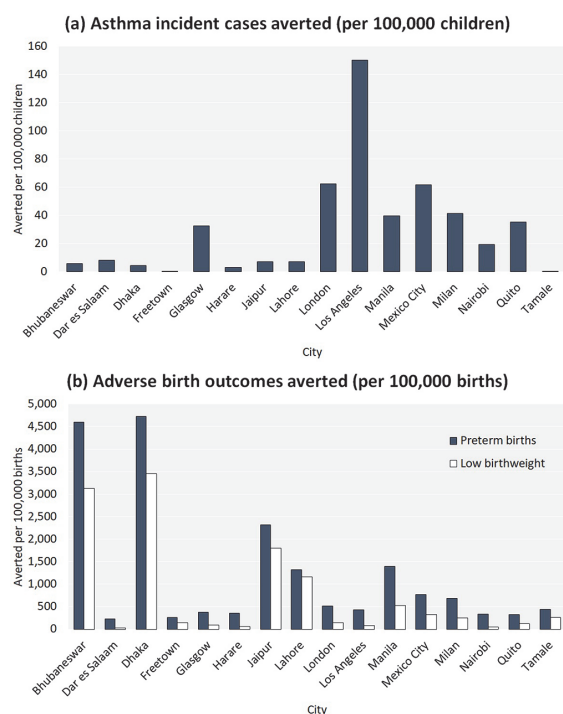
Aims Actions to reduce greenhouse gas emissions will also reduce emissions of air pollutants that are harmful to the health of children. This work aimed to assess the magnitude of air pollution reductions that could be achieved in 16 cities through ambitious global climate change mitigation action and the resulting impact on the health of children and young people.

Methods We modelled current concentrations of fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2) air pollution at 1x1 km resolution in 16 global cities (Bhubaneswar, Dar es

Salaam, Dhaka, Freetown, Glasgow, Harare, Jaipur, Lahore, London, Los Angeles, Manila, Mexico City, Milan, Nairobi, Quito and Tamale) using a general circulation/atmospheric chemistry model. Air pollution levels under a 'net zero' scenario were estimated by removing all global combustion-related emissions from land transport, industries, domestic energy use and energy generation. We calculated the resulting impact on childhood asthma incidence (from reduced NO_2) and adverse birth outcomes (low birthweight and preterm births from reduced $PM_{2.5}$) in each city using a comparative risk assessment approach, parameterised with country-specific asthma incidence and birth outcome data for 2019 from the Global Burden of Disease (GBD) study and exposure-response functions from high-quality published meta-analyses.

Results If global air pollution levels were reduced by actions to achieve net zero, we estimate that more than 20,000 cases of childhood asthma, 22,000 low birthweight births and 43,000 premature births could be averted annually across the 16 cities in total. This represents almost a quarter of the current annual asthma incidence in these cities and a reduction of about 10% for adverse birth outcomes. Figure 1 shows the results for each city (per 100,000 children for asthma and per 100,00 births for adverse birth outcomes). At city-level, Los Angeles, Mexico City, and Manila would see the greatest reduction in childhood asthma annually, with 7,200, 5,700 and 4,000 new cases averted respectively. Dhaka, Manila and Lahore would see the greatest reduction in premature births annually, with 23,800, 7,000 and 4,600 cases prevented respectively. The same cities would see the largest benefits with regard to low birthweight births, with 13,500, 2,500 and 3,100 cases averted. There are however large variations in the modelled impacts between cities and our estimates are less certain in some cities than others. In part, the large differences are likely to reflect greater uncertainty in the modelled air pollution reductions in some regions and significant limitations of the available health data in certain locations (in particular South Asia and Africa).

Abstract 929 Figure 1

Conclusion Through analysis of 16 cities, this work demonstrates that reaching 'net zero' greenhouse gas emissions globally would lead to considerable reduction in air pollution with the benefit of substantial decreases in childhood asthma incidence and adverse birth outcomes. The results represent the effects of global action, rather than specific actions in individual cities, demonstrating the benefits of collective action for tackling climate change and reducing air pollution. Nonetheless, analyses of this type are constrained by a number of limitations, in particular poor health data in some areas.

---

939 **DONT BURN THE KIDS' FUTURE- NHS STAFF KNOWLEDGE ON CLIMATE CHANGE**

[1]Rosie Anderson, [2]Victoria Khaukha, [2]Aamena Patel, [1]Jyothi Srinivas. [1]Milton Keynes University Hospital; [2]University of Buckingham Medical School

Aims In light of the implementation of the Greener NHS National Program to deliver a net zero NHS by 2040, we set out to

(1) explore the attitudes of healthcare workers towards climate change within workplace

(2) educate healthcare workers regarding matters of climate change

(3) introduce new strategies to minimise carbon footprint in the work environment.

Methods We designed an online 24-question survey including topics on climate change, carbon footprint and NHS waste. This questionnaire was distributed to all staff in Milton Keynes Hospital over 2 months in winter 2021 via QR codes, email and WhatsApp.

Results We received 101 responses from healthcare workers of various specialties within MKUH Foundation Trust. Demographics showed F:M ratio of 72:25 and age ranges between 20-70 years. The respondents included medical students, doctors, nurses, allied health professionals and the administrative team.

Climate Change 90% staff are concerned or very concerned about climate change and 85% make choices based on climate change daily or weekly. These choices relate to the disposal of waste (96% respondents cited), energy consumption (73%), food (70%) and choice of transport (48.5%). However, 57% respondents didn't make the same choices at work.

82% respondents felt NHS contributes to climate change mainly by clinical waste such as single use plastic, inefficient energy use, anaesthetic drugs, transport and food. Only 22% felt NHS was proactively trying to reduce carbon emissions and only 13% said NHS helped them make greener choices.

NHS Waste 63% staff agreed that the NHS is wasteful in its resources and another 32% were unsure. The 5 biggest sources of emissions cited were- waste disposal (71%), energy supply (68%), staff and patient travel (49.5%), procurement of goods (47.5%) and pharmaceuticals (39.6%).

NHS wastage made staff feel frustrated, disappointed, concerned and angry.

When asked to name any NHS initiatives, staff mentioned cycle to work schemes, solar panels and recycling. However, 25% of respondents were unaware of any NHS initiatives.

Education on Climate change

82% staff said they did not have enough training on carbon emissions and 85% would like more information on