



THE OXFORD TRANSPORT STRATEGY: IMPACT OF A TRAFFIC INTERVENTION ON PEF AND WHEEZE AMONG CHILDREN

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WINNING ABSTRACT: The Oxford Transport Strategy (OTS) was a major traffic intervention implemented in June 1999. It involved a wide range of permanent changes focused primarily on the city centre of Oxford (England).

We aimed to assess the impact of OTS on peak expiratory flow (PEF) and respiratory symptoms among city schoolchildren. Between 1998 and 2000, 1389 children aged 6–10 years were visited 2–3 times a year for 5-day periods. On each day of each visit, we measured their PEF and enquired about respiratory symptoms including wheeze (n=19260 child-days of data). Exposure to traffic pre and post-OTS was estimated by the change in modelled traffic on the street nearest the home.

Pre-OTS traffic levels were relatively low compared to other major cities, but post-OTS changes in children's exposure varied considerably; from a drop of 11184 to an increase of 9240 vehicles/24hrs. Adjusted regression analyses showed a statistically significant improvement in PEF (beta=5.71 L·min⁻¹, 95% CI (3.28, 8.18)) and wheeze (OR=0.80, 95% CI (0.69, 0.92)) post-OTS. The impact of OTS on PEF was greater among children living near roads where traffic decreased compared to those living where there had been an increase. This association was only found among children currently receiving treatment for asthma and those in socio-economic classes III–V.

These results suggest that even in cities with relatively low traffic levels interventions can result in improvements in the respiratory health of children. These benefits may be especially pertinent to children with pre-existing respiratory problems and those from less affluent socio-economic backgrounds.



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MY JOB AND THE UNIT IN WHICH I WORK

After completing my MSc in Statistics at Dalhousie University (Halifax, Canada), I became a medical statistician at the Dept of Occupational and Environmental Medicine, the Royal Brompton Hospital (London, UK) and the National Heart and Lung Institute, Imperial College (London). Here I began

studying the impact of the Oxford Transport System (OTS) on respiratory health. As well as this project, I have also been involved in a series of other epidemiological studies of asthma and allergies in the department.

The Dept of Occupational and Environmental Medicine is highly active in both population-based and immunological studies of the effects of environmental and occupational exposures on respiratory health. Alongside this, the department runs the longest established clinical service for occupational asthma in Europe. We take on clinical referrals as well as perform immunological testing, workplace visits and studies across the UK.

MY WINNING POSTER AS PART OF MY RESEARCH

This poster is part of a wider research study assessing the impact of the OTS on the health of residents. The principal component was a dynamic cohort study of 1,389 schoolchildren aged 6–10 yrs. The children attended all seven first schools in central Oxford and were visited two to three times a year between 1998 and 2000. At each school visit, children had their peak flows measured and completed a breathing diary enquiring about their respiratory symptoms on the previous day. This data was supplemented by parental questionnaires enquiring about exposures in the home and the child's medical history.

The second component of the study involved examining hospital admissions and deaths due to cardio-respiratory causes in Oxford between 1998 and 2000. Daily events were assessed for associations with daily pollution levels and changes post-OTS.

STATEMENT OF INTEREST: None declared.

**MY RESEARCH AS PART OF MY WORKING GROUP/
RESEARCH TEAM**

This research forms part of EMITS (Environmental Monitoring of an Integrated Transport Strategy), a multi-disciplinary research group responsible for assessing the impact of the OTS on various aspects of life in Oxford. EMITS was coordinated by Oxford County Council and financed by the European Life Programme. The National Heart and Lung Institute, under the direction of Dr Paul Cullinan, was responsible for the public health arm of the project.

Our research team consisted primarily of Dr Cullinan, myself and Fiona Goddard who worked with another research nurse in Oxford to conduct the school visits between 1998 and 2000.

We also worked closely with Roger Pitman and Samantha Tharme at Oxford County Council who provided pollution and traffic data. The partnerships formed between EMITS partners allowed for the pooling of resources which benefited the entire EMITS team.

**THE IMPACT OF MY WORK ON CLINICAL OR RESEARCH
PRACTICE**

Traffic intervention studies are very rare. As such, the results of this study will be able to offer evidence to those in the epidemiological community and those involved in traffic planning of the potential impacts of traffic congestion-reducing schemes.