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EVIDENCE BASED PUBLIC HEALTH POLICY AND PRACTICE

Health impact assessment as an agent of policy change: improving the health impacts of the mayor of London's draft transport strategy

J Mindell, L Sheridan, M Joffe, H Samson-Barry, S Atkinson

J Epidemiol Community Health 2004;**58**:169–174. doi: 10.1136/jech.2003.012385**Objective:** To increase the positive and mitigate the negative health impacts of the mayor's draft transport strategy for London.**Design:** A rapid prospective health impact assessment (HIA) of the penultimate draft of the strategy, using a review commissioned by the regional director of public health; an appraisal of congestion charging; and a participatory workshop. Two audits of changes were performed to assess the impact on policy of the HIA process.**Setting:** Regional government policy development.**Intervention:** Recommendations from the rapid HIA were fed back into the drafting process.**Main outcome measure:** Changes (a) between the penultimate draft and the draft for public consultation and (b) between that and the final mayoral strategy.**Results:** The draft transport strategy published for consultation differed in a number of respects from the previous version. Almost all the recommendations from the HIA were incorporated into the final strategy. Significant changes included promoting sustainable travel plans for workplaces and schools; giving priority to infrastructure and services that benefit London's deprived communities; increased emphasis on promoting walking and cycling and reducing reliance on private cars; and a commitment to track the health impacts of the final strategy and its implementation. Specific additions included re-allocating road space.**Conclusion:** HIA was successful in influencing the transport strategy for London, resulting in several improvements from a health viewpoint. HIA is an effective method both for bringing about significant change in policy proposals and in increasing policy makers' understanding of determinants of health and hence in changing attitudes of policy makers.

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In May 2000, a mayor and Greater London Assembly were elected for London. Although not responsible for the NHS, the mayor has a considerable influence on Londoners' health,¹ and, with the Greater London Authority (GLA), has a responsibility to improve the health of Londoners. Transport was one of four priority areas in the London Health Strategy.² In July 2001, the mayor formally made public proposals for congestion charging to reduce London's traffic problems.

Commuting, congestion, and complaints about public transport are not new issues for the capital.³ Hackney coaches, 17th century precursors of taxis, caused such problems by the 1650s that Cromwell brought in regulations for their control.³ The first omnibus was introduced in 1829; the hansom cab was invented in 1834. By 1863, Metropolitan trains ran every 15 minutes, conveying 30 000 passengers daily. There were electric street lights, electric trams, and tube trains in deep tunnels by the late 19th century. In 1914, there were 8000 taxis in London.³ Inequities in relation to the advantages and disadvantages of transport are also not new, being noted in 1636.³

The 1963 Buchanan report to the Ministry of Transport recommended road pricing, subsidised public transport, parking policies, and area permits but only parking restrictions were implemented.⁴ Transport trends nationally have shown more and longer journeys, with a higher proportion undertaken by private car and a steady decline in public transport, especially bus use, walking, and cycling except in London, where bus travel increased by 25% from 1989/91 to 1999/2001.⁵ A major increase in car use is the "school run": the proportion of children nationally travelling to school by

car increased from 16% in 1985/86⁶ and has fluctuated around 25%–30% since 1997/99.^{6–8}

The number of cars entering central London during morning peak hours rose during the 20th century but fell by 13% from 1990 to 2000.⁸ London residents' number of trips by car or bus for journeys over 50 metres fluctuated from the mid-1980s to the late 1990s^{8–9} but trips by bicycle and foot declined by 13% and 21% respectively during the 1990s.⁸ By 2001/02, cars were used for 18% of trips under one mile and 61% of trips of one to two miles in Great Britain.¹⁰ Londoners travel by car for a smaller proportion of their journeys than residents of other areas of Britain¹⁰ but the average distance walked by Londoners declined by 15% from 280 miles in 1989/91⁸ to 237 in 1998/2001.¹¹ Average traffic speeds in central London at the end of the 20th century⁹ were similar to those before motor vehicles were used.¹²

Transport has well recognised effects on health^{13–14} and inequalities.^{15–17} Health impact assessment (HIA)¹⁸ is one of the three themes underpinning the London Health Strategy.² HIA is "a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population"¹⁹; considering the impacts on inequalities is integral to HIA.¹⁹

Abbreviations: HAI, health impact assessment; GLA, Greater London Assembly

When the mayor proposed introducing congestion charging, JM and HSB suggested conducting an HIA of the proposals.

The GLA Act obliges the mayor to consider health, equalities, and sustainability as underpinning themes of all his policies. The mayor agreed with his health advisor (SA) that his draft strategies would be assessed for potential health impacts. This was a novel concept for the transport planners; they cautiously agreed to the desk top rapid review. Regional health staff were seconded to the GLA at the time. A rapid evidence based review of congestion charging, based on the ROCOL report²⁰ assuming a £5 charge and with and without other concomitant policies found overall major health benefits, including reductions in inequalities, that were larger and affected more people than the predicted negative effects (appendix A, available on the journal web site <http://www.jech.com/supplemental>).²¹ An HIA of the entire draft mayoral transport strategy for London, which was then in an early stage of preparation, was then organised.

METHOD

Through the regional health staff seconded into the GLA (HSB), JM and LS received an early confidential draft of the strategy for comments on health impacts. We were able to be very positive about the initial proposals, which focused on encouraging a modal shift from private car to public transport use. We recommended an increase in emphasis on active transport (walking and cycling), particularly for targets for the first five years of the strategy both because of the beneficial health and environmental effects and because it is much cheaper and easier than the major structural rail proposals.

The regional health staff organised a participatory rapid appraisal HIA of the GLA draft of the strategy to fit in with the political processes. The assembly draft was the first time the document was in the public domain and was available for participatory HIA. The very limited time between publication of the assembly draft and the public consultation draft (box 1) allowed only a month to:

- organise the workshop (box 2), including inviting stakeholders and speakers and distributing the summary of a rapid review of evidence on transport and health commissioned by the RDPH, London²²; the congestion charging review (appendix A)²¹; and a booklet on HIA for transport²³ to those attending;

Box 1 Timescale for development of the mayor's transport strategy for London

- December 1999: publication of report of the Road Charging Options for London (ROCOL) group²⁰
- July 2000: work started on drafting mayor's transport strategy
- 17 October 2000: early draft received for rapid appraisal by 0900 18 October
- 27 October 2000: *Greater London Assembly Draft of transport strategy* published (1)
- 14 November 2000: HIA participatory workshop held
- 23 November 2000: HIA reported to London Health Commission
- 12 December 2000: HIA reported to GLA Environment Committee
- 11 January 2001: publication of *Public Consultation draft* (2)
- 10 July 2001: publication of *Final Strategy* (3)

Box 2 Stakeholders invited to the participatory workshop

- London Health Commission Members
- Members of the Environment Committee of the Greater London Assembly
- Academics specialising in HIA or transport and health
- Public health practitioners
- Staff from the Greater London Authority, local authorities, and health authorities
- Police
- Others representing groups such as the elderly population, women, the disabled, public transport users and providers, private car users, cyclists, and pedestrians.

- hold the participatory workshop;
- report the outcome to the London Health Commission and the Greater London Assembly's Environment Committee; and
- give the resulting recommendations to the transport planners for use in the re-drafting process.

Details of the method used in the participatory workshop are described elsewhere.²⁴

LS performed a changes audit that was reported to the London Health Commission, comparing the assembly draft (box 1 (1)) with the public consultation draft (box 1 (2)) to assess the impact on policy of the HIA process. The public consultation draft went out to statutory and public consultation, then the final strategy (box 1 (3)) was published.²⁵ A further audit of changes compared the public consultation draft with the final strategy.

RESULTS

Key themes that emerged from the HIA were:

- Increased promotion of modes of transport other than the car (public transport, walking, and cycling) and reducing reliance on private cars
- Linking transport, economic and spatial development to encourage the development of economically and socially sustainable communities

Key points

- Transport affects health in several ways, and therefore transport policy initiatives could be regarded as a means of improving health. However, the worlds of transport planning and of health promotion seldom overlap.
- A rapid health impact appraisal of the London Mayor's Draft Transport Strategy used summaries of published evidence and a stakeholder workshop.
- Significant changes to the strategy resulted, including a greater focus on policies that benefit deprived communities; an increased emphasis on promoting physically active travel and reducing reliance on private cars; and re-allocating road space.
- Health impact assessment influenced the London Mayor's strategy on transport

- Linking proposals for the greatest benefits to health, for example, linking proposals for congestion charging with vehicles' emissions and with proposals for low emission zones
- Encouraging and improving safety for vulnerable modes of transport (cycling and walking) through road space reallocation and segregation
- Involvement of boroughs in the development and implementation of plans to improve transport
- Development of baseline statistics and targets for transport improvement and health gain.

In a report presented to the London Health Commission meeting in January 2002,²⁶ a number of changes were noted in the draft strategy that met the recommendations of the HIA. Many recommendations had been incorporated and there was greater emphasis on the areas that could improve health (table 1). Significant changes included:

- promoting sustainable travel plans for workplaces and schools;
- giving priority to infrastructure and services that benefit London's deprived communities;
- increased promotion of walking and cycling; and
- a commitment to track the health impacts of the final strategy and its implementation.

Much of the document concentrated on improvements in the public transport system to encourage modal shift for travel, including improved access to public transport for all, especially previously disadvantaged groups. Most recommendations from the HIA were incorporated into the final strategy.

Much of the thrust of the strategy was about making London a more accessible city, enhancing its economic development and leading to the development of more jobs. The transport strategy should help to address social exclusion by taking account of the needs of all Londoners to access jobs, facilities, and services. A number of policies ensured that the needs of deprived communities and those with specific travel needs are taken into account, as well as highlighting the effects of the employment and training policies of transport companies themselves. For example, the final version of the strategy emphasised the need to integrate transport investment with economic development, developing business regions and regeneration areas, with better links to regeneration areas planned and improved transport links for the development of East London. The affordability of public transport was addressed and the need for transport to assist in addressing social inclusion and equality of opportunity. The specific travel needs considered included the needs of those with disabilities, the elderly population, as well as the needs of those whose preference is to walk or cycle.

Road space reallocation was not mentioned in the early drafts but was a recommendation of the HIA. The final strategy recommended use of street space reallocation to assist road safety initiatives; support bus, pedestrian, and cyclist initiatives; and ensure that congestion charging does not lead to diverted traffic using unsuitable streets.

Some particularly important areas for local transport, recommended by the HIA and included in the final draft, were low speed limit zones, the development of safer routes to school, and home zones. The HIA also raised door to door and community transport, included in a separate chapter of the final strategy.

The strategy committed Transport for London to "review, develop and implement overall Transport Strategy performance indicators", with some collection of new data proposed, especially consumer opinion. The HIA recommended a subset of health related indicators, including indicators relating to access and regeneration. An important addition to the

strategy was a set of targets for road traffic accident reduction (table 2). The GLA proposed quality of life and environmental indicators, within the GLA's principal purposes of economic and social development, wealth creation and environmental improvement.

DISCUSSION

Stakeholder involvement

The HIA involved a wide group of stakeholders, representing professional transport groups, statutory agencies, private sector, and voluntary organisations with a remit for vulnerable groups. The only professional transport groups not represented were taxi drivers and freight operators. As the time frame was short and mechanisms for public participation were not fully set up, it was not possible to invite individual Londoners to participate, only those representing organisations. However, the London Health Commission members themselves come from a wide range of organisations and reflect the sex and ethnic make up of the London population; and the draft strategy went out for consultation to the general public as well as to statutory consultees, with widespread advertising of this.

Attributing causality

The changes from the Assembly draft to the public consultation draft were definitely attributable to the HIA. Changes between the public consultation draft and the final strategy might have been attributable to other consultation responses, or such responses may have added weight to recommendations from the HIA. (There was very little time between reporting our recommendations and publication of the public consultation draft, so changes attributable to the HIA did not necessarily appear in the public consultation draft (H Abraham, personal communication)). Transport planners at Transport for London and the GLA told us that most of the changes noted in the final strategy as concordant with the HIA recommendations were attributable to the HIA process (H Abraham, personal communication). The mayor himself attributed to the recommendations of the HIA the emphasis in the final Transport Strategy on increasing walking and cycling, reducing reliance on private cars, and reducing the need to travel.²⁷

Reasons for success

We engaged with the policy makers and they participated in the HIA workshop. We had to overcome initial unease but knew enough about the subject to be confident of showing overall health gain. We could praise much of the strategy and we made constructive suggestions to further enhance health gain and mitigate problems. This helped create a positive reaction towards our recommendations among the policy makers.

Monitoring and evaluation

This paper is an impact evaluation²⁸ of the HIA; the process evaluation of the London rapid appraisal HIAs will be reported elsewhere (Bowen C, *et al*, manuscript in preparation). The next step is an outcome evaluation, monitoring the effects of the proposals once implemented. The GLA is monitoring its own performance through the indicators it has developed and consulted on. The London Health Commission has proposed indicators: some are specifically health related, while most relate to the wider determinants of health. Transport for London is monitoring the effects of congestion charging. It is important that external evaluation also occurs and that health impacts are included.

Although transport affects health in several ways, the worlds of transport planning and of health promotion seldom overlap. The use of health impact assessment in London was successful in influencing the transport strategy, resulting in

Table 1 Changes in mayoral transport strategy consequent on the health impact assessment

HIA recommendation	Changes in public consultation draft	Further changes in published strategy
1 Promoting other modes of transport—public transport, walking and cycling, —and reducing reliance on private cars	Public transport improvements to encourage a modal shift Safety and security for public transport users. Improved safety for pedestrians. Cross referencing between chapters of the strategy may increase the likelihood of these proposals being implemented, for example, the need for safe cycle parking on London streets and for London Underground and National Rail users. A chapter on "Linkages" draws together transport proposals to ensure their complementarity with regards to walking and cycling.	The need to have improved facilities for the carriage of cycles on trains Plans to work with boroughs to develop an effective means to monitor the extent of walking in central, inner and outer London, and also to produce a Walking Plan for London.
2 Linking transport, economic development and spatial development to encourage the development of economically and socially sustainable communities	Discussed in the chapters on Linkages and "Streets for All" An objective of the transport strategy is to help address social exclusion.	Gives priority to transport proposals which support sustainable economic growth, will include work with the LDA and other relevant agencies to facilitate economic development and regeneration in key areas. Transport priorities include improving accessibility to employment.
3 Linking proposals for the greatest benefits to health, for example, linking congestion charging with emissions and with low emission zones	Not included in this draft. A link with emission levels appears to be ruled out in a statement that "there would be no premium charge for larger commercial vehicles" which generally are responsible for higher levels of emissions. A commitment to working with the boroughs to develop this policy.	The final version of the strategy included exemptions from charges for alternative fuel vehicles, but the HIA proposal to link congestion charges with emissions and with low emission zones was otherwise not implemented.
4 Encouraging vulnerable modes of transport (cycling and walking) through road space reallocation and segregation	Some discussion on this in chapter 4G, Allocation of street space: stated that it is important to use: "street space allocation to assist road safety initiatives; support bus, pedestrian and cyclist initiatives; and ensure that proposals such as the proposed central London congestion charging scheme do not result in diverted traffic using unsuitable streets."	Greater emphasis on options which could improve health. On minor roads "there is a presumption in favour of access and amenity, particularly for residents, buses, pedestrians and cyclists" considered particularly important that street space allocation used to assist road safety initiatives; support bus, pedestrian and cyclist initiatives; and ensure that proposals such as the proposed central London congestion charging scheme do not result in diverted traffic using unsuitable streets.
5 Involvement of boroughs in the development and implementation of plans to improve transport	Recognition throughout the document of the need to involve boroughs at almost every stage of the strategy. Additional recognition of the need to involve other organisations—statutory, private and voluntary sector—in the implementation of the strategy.	No further changes
6 Development of baseline statistics and targets for transport improvement and health gain	Some collection of new data suggested, especially consumer opinion. Proposes the development of "a series of high level performance indicators, which may necessitate the collection of new data".	Commits TfL to "review, develop and implement overall Transport Strategy performance indicators" to include mode share of walking and cycling, and notes that TfL will also collect many more detailed indicators—not explicitly discussed in the Strategy—to track its performance.
Other issues addressed in later drafts of the strategy which had been discussed in the HIA		
Social exclusion and regeneration <i>The London Health Commission stated that one of the key areas in which the strategy has the potential to improve health is in "Linking transport, economic development and spatial development to encourage the development of economically and socially sustainable communities".</i>	Addressed in a number of places in this draft, for example, "The transport system must promote regeneration of deprived areas and link them to training and employment opportunities to the advantage of local communities, social cohesion and of the wider London economy."	Further increased emphasis on reducing social exclusion
Women <i>The particular needs of women were discussed in the HIA meetings</i>	A commitment to consult women on transport policies and their needs are addressed in this draft	No further changes
Information	A commitment to roll out "Countdown" (an up to the minute information system at bus stops) and to improve information on the Underground.	No further changes
The transport objectives	Where changes have been made to the objectives not all will have more positive impact on health, for example, T18: In merging former objectives T10 and T19 the new objective "Improve the safety and security of the transport system" has lost the aim to "reduce road accident injuries and fatalities, particularly in children". Other changes are positive:	No further changes

Table 1 Continued

HIA recommendation	Changes in public consultation draft	Further changes in published strategy
Travel to work and school <i>The HIA discussed "Transport as an integral part of sustainable development of communities"</i> Consultation on policies and initiatives	T6: Young people are added to the list of those whose specific needs should be addressed. T8: The TfL workforce should reflect London's "population" and diversity and "press for greater equality of opportunity in other transport agencies." T13: Improve sustainable access to from and within London's town centres for people, goods, and services A new section, which states that TfL will work with others to encourage people and organisations to adopt more sustainable modes of transport will include the development of school and workplace travel plans. A commitment to consult with the public on policies and initiatives, especially with vulnerable groups	The development of safer routes to school and 20 mph home zones are important aspects of developing local transport initiatives <i>No further changes</i>
Making public transport more affordable	Proposals to reduce exclusion of the low waged and to develop a "Smartcard" should make travel less expensive where a journey requires changes in mode of transport.	<i>No further changes</i>
Streets for all	A larger section with greater detail of the issues, but gaps still exist, for example, no mention of improved cycle parking while this is included in the motorcycles section.	This section further enhanced to support facilities for cyclists and pedestrians.
Road safety and speed limits <i>The London Health Commission recommended that 20 mph speed limits should be introduced in "home zones" and near schools</i>	Road safety addressed well with a proposal that " <i>Transport for London will develop London's first Road safety Plan</i> " 20 mph speed limits addressed although their introduction is the responsibility of the boroughs.	20 mph home zones included in the final version of the strategy
Community transport	Benefits of community transport and the taxicard systems stated, and a desire to see these areas expanded. Suggestion that the community transport sector could assist in driver training, customer care and other training programmes.	<i>No further changes</i>
Accessibility	A commitment to improved accessibility of public transport to all users including those who have impaired mobility. It should play its part in improving their access to facilities and services.	On minor roads (non A roads) " <i>there is a presumption in favour of access and amenity, particularly for residents, buses, pedestrians and cyclists</i> " <i>No further changes</i>
The seamless journey <i>The need for improved interchange between transport modes was raised by the London Health Commission</i>	This is addressed in some detail in the draft.	

Table 2 Proposed indicators

Health indicators on road safety and accidents to be included	Final transport strategy
National targets: 40% reduction in total number killed or seriously injured in road accidents; 50% reduction in number of children killed or seriously injured; 10% reduction in slight casualty rate, (number of people slightly injured per 100 million vehicle kilometres).	In addition to the targets identified in the draft strategy, the GLA was committed to reviewing state of the environment indicators including consideration of health indicators; developing high level quality of life indicators.
Additional London targets: 40% reduction in number of pedestrians killed or seriously injured in road accidents; 40% reduction in number of cyclists and of motorcyclists killed or seriously injured in road accidents.	It was noted that it would be advantageous to integrate indicators of transport impacts on health in these wider frameworks so that they are embedded in on-going processes.

changes to increase health benefits, including reducing inequalities. HIA also increased policy makers' understanding of the relevance of determinants of health.

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CONTRIBUTORS

Jennifer Mindell (Imperial College London) and Hilary Samson-Barry (seconded from NHSE London to the Greater London Authority (GLA)) had the original idea of appraising the health impacts of the

congestion charging proposals; JM and Mike Joffe conducted the desk top appraisal of those proposals.

Sue Atkinson (RDPH, London) commissioned reviews of the evidence on the effects of transport on health and convinced the mayor of the benefit of HIA of the mayoral strategies.

HSB proposed to the Mayor that as part of his duty to promote health of Londoners he should ensure HIAs were undertaken for all his strategies—the mayor agreed and the London Health Commission agreed to lead these.

JM, MJ, and Linda Sheridan (public health specialist registrar seconded to the GLA) prepared the documents for the HIA workshop, including a summary of the evidence; HSB, JM, LS, Erica Ison (consultant), and SA organised the HIA; Henry Abraham (Transport for London/GLA), EI and JM gave presentations at the workshop, which was facilitated by HSB and EI; Jane Biddulph (Research

Policy implications

- Local, regional, and national governments' actions have major impacts on health, its determinants, and inequalities in these. The introduction of health impact assessment (HIA) is an opportunity to remedy the lack of consideration of health impacts by such organisations. In London, HIA was successful in influencing the transport strategy, resulting in several improvements from a health viewpoint. HIA also increases policy makers' understanding of determinants of health.

fellow, University College London) wrote up the discussions from the workshop; LS and HSB reported back the HIA results to the sponsoring bodies and to the transport planners; and LS carried out both change audits.

JM wrote the first draft of the paper. JM, MJ, LS, HSB, SA, and Caron Bowen contributed to subsequent drafts of the paper. JM is the guarantor.



The appendix is available to view on the journal web site (<http://www.jech.com/supplemental>).

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