



To: City Development

From: Adrian Davis

Date: 05/08/11

Subject: Essential Evidence on a page: No 72 Health risks and benefits of a bicycle sharing scheme

Top line: Public bicycle sharing schemes can deliver highly significant reductions in avoidable deaths as a result of people starting to cycle. Such schemes aimed at encouraging commuters to cycle are worth implementing in other cities, not only for the health benefits but also for potential co-benefits such as a reduction in air pollution and greenhouse gases.

Bicycle sharing schemes have become increasingly popular in countries throughout Europe, Asia, and America to encourage cycling as an alternative means of transport in urban areas. Large low cost rental systems (between 1000 and 50,000 bicycles) aimed at encouraging cycling for short urban trips and multimodality (cycling along with another mode of transit) for longer trips have been implemented by cities such as Lyon (2005), Stockholm (2006), Barcelona (2007), Seville (2007), Paris (2007), Toulouse (2007), Hangzhou (2008), Milan (2008), Brussels (2009), Montreal (2009), Mexico City (2010), London (2010), and Guangzhou (2010). In the United States, such large scale initiatives are being considered for Los Angeles and New York. The general impetus for these policies is more often the reduction of traffic congestion than the promotion of health.

Researchers studying the Bicing bicycle sharing scheme in Barcelona which was introduced in March 2007 reported that by August 2009, 182 062 people had subscribed to Bicing (11% of the population in Barcelona municipality), with 68% of trips being used for commuting to work or school and 37% combined with another mode of travel.¹ The mean distance travelled by Bicing on a working day was 3.29 km (mean duration 14.1 minutes) and at weekends was 4.15 km (17.8 minutes).

A health impact assessment framework was used to estimate the potential effects on health of cycling compared with travel by car. Exposure-response was estimated from existing studies and related to current exposure and health conditions in Barcelona. The researchers modelled the effects of causes of all deaths due to physical activity, road traffic incidents, and exposure to air pollution. They focused on residents of Barcelona who started cycling regularly using Bicing after its implementation therefore assessing the additional benefits from physical activity and additional risks due to incremental inhalation of air pollution and increased exposure of new cyclists to road traffic incidents compared with previous exposures as car users.

The study estimated 12.46 deaths were avoided each year. The number of deaths avoided varied from 7 to 21 per year depending on assumptions of the average age of those taking up cycling (33 or 48) with a higher average age for those starting cycling bringing a higher reduction in avoided deaths. Results corroborate the findings of two other published assessments of multiple risks and benefits of active transportation. This study provides the first assessment of multiple risks and benefits of a policy implemented to promote cycling and shows that a large increase in urban cycling trips is possible.

¹ Rojas-Rueda, D., de Nazelle, A., Tainto, M., Nieuwenhuijsen, M. 2011 The health risks and benefits of cycling in urban environments compared with car use: health impact assessment study, *British Medical Journal*, 343:d4521 doi: 10.1136/bmj.d4521 <http://www.bmj.com/content/343/bmj.d4521> free access