



Economic costs of air pollution in Accra, Ghana

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ABBREVIATIONS

AMA	Accra Metropolitan Area
BRT	bus rapid transit
BT	benefit transfer
CCAC	Climate and Clean Air Coalition
COPD	chronic obstructive pulmonary disease
DHS	Demographic Health Survey
GDP	gross domestic product
ICD	International Code of Diseases
IHD	ischaemic heart disease
iSTaT	Integrated Sustainable Transport Health Assessment Tool
KBTH	Korle-Bu Teaching Hospital
NCPI	National Consumer Price Index
NHIS	National Health Insurance Scheme
OECD	Organisation for Economic Co-operation and Development
PM	particulate matter
PPP	purchasing power parity
RTI	road traffic injuries
SD	standard deviation
SES	socioeconomic status
UHI	Urban Health Initiative (WHO)
VSL	value of statistical life
WHO	World Health Organization
WTP	willingness to pay

PREFACE

Economic impact assessments play an essential role in supporting countries achieve their goals towards controlling air pollution and climate actions. The main objectives of this study were to assess the economic costs of selected diseases and road traffic injuries (RTI) to the public health sector, patients and their families in the metropolitan region of Accra, Ghana.

This is a cross-sectional study, with retrospective and prospective data collection, using a mix of methods: questionnaire application, interviews with medical and non-medical personnel and government officers, and a review of the literature.

Although all patients had some type of health care insurance, not all hospital costs were covered by this type of assistance. For patients who had RTI, only 59% of their total costs per hospitalization, on average US\$ 1257 (median: US\$ 638) were covered. Patients with chronic obstructive pulmonary disease (COPD) had their costs per hospitalization fully covered: US\$ 4480 (US\$ 1005); while the costs for those with ischaemic heart disease (IHD): US\$ 1854 (US\$ 1090); lung cancer: US\$ 1889 (US\$ 1365); stroke: US\$ 1691 (US\$ 1064); and pneumonia in children: US\$ 477 (US\$ 277) were partly covered (65%, 79%, 73% and 84%, respectively). Patients and their families also faced high indirect costs, mainly related to the loss of income due to the illness. For the period of hospitalization, patients with lung cancer had the highest average indirect costs, per hospitalization, of US\$ 1035 (US\$ 22), with the loss of income corresponding to almost 100% of the total indirect cost. Costs were also high for those with IHD: US\$ 490 (US\$ 21); RTI: US\$ 301 (US\$ 28); pneumonia in children: US\$ 161 (US\$ 33); and stroke: US\$ 114 (US\$ 55). When we look at the distribution of indirect costs amongst those patients who work in the informal sector, costs are even more substantial for some categories of patients.

In conclusion, air pollution affects everyone; however, the poor seem to suffer the most. In Accra, 45% of our sample were considered to be in the first and second quintiles of socioeconomic status (the poorest and poor). In addition, more than 80% of the active economically population (15 years old and over) are in the informal market, with an average annual income of US\$ 612–857. This means that for some patients, medical costs alone could represent double their annual earnings. In our sample,

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