Assessment of blood lead (Pb) concentration among working women of reproductive age and children living in the vicinity of Pb battery industries in Bangladesh: A pilot study

Md Bayzidur Rahman[1], Md Atikul Islam[1,2], Mohammad Alauddin[3] and Mohammad Abul Hasnat[4]
[1]University of New South Wales, Australia
[2]Khulna University, Bangladesh
[3]Wagner College, USA
[4]Epidemiology Resource Centre, Australia and Bangladesh

The use of Lead Acid Batteries (LAB) has sharply risen because of enhanced demand in the transport sector in Bangladesh. About 97% LABs in Bangladesh are manufactured by recycling LABs. There are ~12,207 battery recycling/recharging establishments in Bangladesh engaging ~22,480 workers including 24.6% children. Workers in these industries are exposed to lead mainly through dermal absorption and inhalation. Absorbed lead can be stored in a person's bones for years and for pregnant women it passes into to the baby through blood. Lead can also be in breast milk. The pilot study examined the Blood Lead Level (BLL) among the reproductive aged women and the children under 5 to assess the level of exposure. Because the proportion of women is rapidly increasing the LAB industries in small city like Khulna (our study area) it is important to assess their current level of exposure to protect their health and the health of their babies. We recruited 62 women, 4 men and 9 children from different LAB industries including 2 controls. Our lab couldn't detect blood lead concentration >65 µg/dl. BLL data are available for 37 women, two men and 9 children. All the women working in the LAB handling shops and LAB manufacturing industry had BLL >65 µg/dl (range: 208-278) whereas the control woman had only 8.9 µg/dl. All but one child living in the vicinity of the LAB industries had BLL >55 (range: 55.2 to 240) and the control child had 20.5 µg/dl who were exposed to lead through sucking lead painted grill. Result of two men working in the LAB was available and they were >65 µg/dl. The exposure level is alarmingly high among all the exposed participants and according to CDC guidelines they should be pulled out from the work for rehabilitation.

Biography

Md Bayzidur Rahman was trained as an Environmental Scientist in Bangladesh before completing his PhD in Epidemiology and Biostatistics at the University of Sydney on environmental exposures and the risk of cancer. He has started working as a Lecturer in Biostatistics at the School of Public Health and Community Medicine, UNSW in January 2010 and promoted to Senior Lecturer in 2014. His research interests include multivariable methods, systematic review and meta-analysis, environmental exposure modeling and the epidemiology of cancer and environmental factors, advanced analysis of count data and analysis of data from clustered randomized trials. Since 2007, he has been working as a Consultant Biostatistician and Research Collaborator with many institutions including St Vincent's Hospital, Prince of Wales Royal Hospital for Women, The Cancer Council NSW, University of Newcastle, United Arab Emirates University and the University of Chicago.

bayzid@unsw.edu.au; b.rahman@unsw.edu.au

Notes: