THE HEALTH IMPACT OF CONTAMINATED LAND

RESEARCH IMPACT

Working with the Institute of Occupational Medicine and using biological monitoring, this project will improve our understanding of human exposure to soil contaminants. A human physiologically-based pharmacokinetic (PBPK) model will be developed to correlate external concentrations and internal human doses.

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‘This project has extended IOMs capability to measure human exposure from the analysis of blood and other biological samples, and it offers great opportunities to help us influence the approaches taken to manage land contaminated with metals and other chemicals.’

John Cherrie
Principal Scientist

BACKGROUND
As contaminated land poses a potential risk to human health, the Institute of Occupational Medicine (IOM) advises clients on the health risks of chemical contamination. It is also prioritising the development of biological monitoring capability for selected metals. However, current models are highly conservative and could result in sites being left derelict, or unnecessary remedial costs. Metal contaminants are known to occur in urban allotments and gardens so this research will quantify exposure to selected metals by allotment users in Scotland.

OUR RESEARCH
Sites with low-level metal contamination were identified and adult users were recruited to provide biological samples in order to measure internal doses following exposure. Biological monitoring methods were developed and validated in the pilot phase of the study to improve understanding of actual exposures. The data will be used in conjunction with a human PBPK model to improve our understanding of internal doses resulting from exposure to allotment soil contamination. This will enable IOM (and others) to provide better advice to clients.

OUR IMPACT
This research will develop IOM’s capability to undertake biological monitoring for metals as part of their exposure work. It will also reduce unnecessary remedial work on brownfield land and promote sustainable contaminated land management.

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