

Widespread inorganic drinking water contamination in Australia – its prevalence and impact on public health management

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Environmental contamination research in Australia has given little attention to household drinking water supplies, despite international research highlighting the potential health risks of inorganic contaminants.

Our investigations incorporate a community engagement and education program to assist in accessing samples and study sites and to facilitate an understanding of inorganic environmental exposures in understudied parts of the continent. In order to identify contamination sources we have applied a range of analytical techniques including lead isotope fingerprinting. Research findings have identified persistent and elevated arsenic, lead, copper and manganese in rural Australian drinking water and its infrastructure. Current data shows that maximum concentrations in potable water for lead and copper exceed 500 µg/L and 3000 µg/L, respectively, with town, tank, and bore supplies all contributing contaminants to drinking water. Major water transfer pipelines have also contributed to environmental contamination through the weathering and deposition of paint and solder leaving soils contaminated with up to 20,000 mg/kg of lead.

The research identifies a suite of previously unrecognized exposure issues associated with drinking water supplies in Australia. Research outcomes will be used to drive change in the existing health management strategies and regulatory policy.