

# HEALTH RISK ASSESSMENT OF ARSENIC INTAKE OF BEIJING RESIDENTS THROUGH DRINKING WATER

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**Background and Aims:** Multiple studies have showed an association between long-term exposure to arsenic by drinking water and development of cancer and Non-cancer adverse effects. However, few studies were conducted to assess on arsenic intake of the general population from drinking water in China. To understand the effects for arsenic in Beijing residents, a pilot survey was conducted to assess the health risk in which the ingestion rate and exposure duration of the individuals should be require computing Average daily dose (ADD).

**Methods:** We conducted a multi-stage sampling survey to interview 270 Beijing residents in winter (November to December) in 2009 and in summer (June to August) in 2010. Subjects were required to answer questions about water intake and tap water samples were collected to analyze at current residence. Hazard Quotient (HQ) and Oral reference dose (RFD) was computed according to a health risk assessment model.

**Results:** The concentration of arsenic ranged from <0.1ug/L to 26.20 ug /L, 5(1.9%) of all samples were higher than 10 ug/L. The arsenic concentration of arsenic in summer was slightly higher than of in winter. A positive correlation between ADD and concentration, exposure duration, ingestion rate were observed .However, a negative but non-significant correlation between ADD and body weight was also observed. For non-cancer effects, Only 1 (0.4%) of ADD exceeded the oral reference Dose ( $3 \times 10^{-4}$  mg /Kg. d). For cancer risks, there was 6 (1.4%) residents who had chance risk when compared to the highest safe standard (1 in 10,000), additionally, there was 175 (65%) residents when using the lowest safe standard for cancer risk (1 in 1000, 000).

**Conclusions:** Part of Beijing residents faced the health risk for arsenic through drinking water, among them who lived in the northeast of Beijing for long years may be at the greatest risk.

## References:

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