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Approach to improve timing of early exposure in retrospect.
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Arsenic in drinking water as it occurs in Bangladesh and West Bengal is suspected to impair early child development. The assessment of arsenic exposure in relation to fetal development is important as source of drinking water might vary over time resulting in changes of exposure levels. Exposures occurring during early development may have persistent effects that need formal testing for cognitive and neurobehavioral functioning several years after the causative exposure occurred. The cross-sectional and retrospective design of many epidemiological studies therefore requires assessment of exposures during early development retrospectively. Recall of use of water source in relation to time of pregnancy may be hampered by the fact that women may not recall the actual calendar timing. Thus, misclassification of exposure in critical early life periods could bias findings towards the null.

Cultural specific memory anchors, milestones, and important regional events may help to improve recall and therefore timing of exposure under conditions were they cannot be measured directly during fetal and early child development. A methodological 2-step-approach is proposed. First, with representative focus groups from the target population regionally and culturally relevant milestones, salient memories and events are assessed using the Free Listing technique from cognitive anthropology. In a second step, the findings will be applied to create assessment tools (interviewer administered questionnaires, calendars). A critical comparative review of existing tools and a model for method development based on pilot data will be presented. This approach could be used for other developmental toxicants in similar settings.