

## Toward Better Teamwork

### Recommendations for Improved Integration of Epidemiology and Risk Assessment

A four-person team of epidemiologists and risk assessors has taken a somewhat unusual step for their fields: working closely together. Concerned that their colleagues don't collaborate much, despite the interdependence of their work and their mutually shared goal of improving public health, the team developed recommendations designed to alleviate this problem [*EHP* 119(12):1671–1675; Fann et al.]. The recommendations focus on air pollution but could be adjusted to work for many other topics, such as water pollution, food contamination, or exposure biomarkers.

The primary focus of their recommendations is the need for epidemiologists to report specific data elements that would help risk assessors avoid misinterpreting epidemiologic findings, more accurately quantify risks, and better advise policy makers. These additional data could also help epidemiologists who conduct meta-analyses. The team says adding this information requires only modest adjustments in typical practices.

One straightforward suggestion is to report detailed data on all confounders considered—in the case of air pollution studies, this might include other pollutant exposures, use of air conditioning, and

demographic variables such as age, sex, race, income, and education. Researchers should also specify diagnostic codes used, list the data source, and provide as much detail as possible about nuances of the data, such as whether the code was considered the primary or secondary health end point, whether an emergency room visit led to hospital admission, and whether rates were age-adjusted.

To better characterize the pollutants being evaluated, the authors recommend including all time variables assessed (e.g., 8-hour, daily, annual), speciation of particulate matter, location of monitors, measurement method of the monitor instrument, and data on missing values and exceptional events. For statistical analyses, the recommendations include listing all uncertainty factors (e.g., *t*-statistics, *p*-value, 95% confidence interval, standard error of central estimate) and reporting null or statistically insignificant findings.

The authors say these commonsense ideas haven't been adopted by epidemiologists for a variety of reasons, such as lack of awareness about their importance to risk assessors, unavailability of the information in the base data, or lack of space due to journal restrictions (although some journals now publish supplemental data at no additional cost). They suggest that workshops involving both epidemiologists and risk assessors would help get these recommendations out to their colleagues.

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## Full of Beans?

### Early Soy Exposure Associated with Less Feminine Play in Girls

Animal studies have shown that sexually dimorphic behavior can be influenced by soy isoflavones—compounds with a structural and functional similarity to estrogen—but there is a lack of information regarding the effects of soy isoflavone exposure on postnatal child development. A new study reports an association between early soy feeding and less female-typical play behavior in young girls [*EHP* 119(12):1811–1816; Adgent et al.].

The authors analyzed gender role-play behaviors among 3,664 boys and 3,412 girls enrolled in the United Kingdom Avon Longitudinal Study of Parents and Children. They used feeding data from questionnaires completed by mothers at 1, 6, 15, and 24 months postpartum to divide children into four categories: “primarily breast” (breastfed for at least 6 months), “early formula” (introduced to nonsoy milk or infant formula at or before 4 months old, with sustained use at 6 months of age), “early soy” (introduced to soy milk or soy formula at or before 4 months old, with sustained use at 6 months of age), and “late soy” (introduced to soy milk or soy formula anytime between 5 and 15 months of age). The Preschool Activities Inventory (PSAI), which measures how often a child plays with certain toys, engages in certain activities, and displays certain characteristics over a month's time based on “masculine” or “feminine” classification, was used to assess gender-role play behavior at 30, 42, and 57 months of age.



Early exposure to soy infant formula was associated with less female-typical play in girls at age 42 months.

Focusing on outcomes at age 42 months to correspond with other, similar studies, the investigators found higher PSAI scores (indicating less typically feminine play) among “early soy” girls compared with “early formula” girls, but scores remained in the normal range for female play behavior. They saw no significant difference in girls' behavior when breastfeeding and early formula feeding were compared. They also observed marginally higher PSAI scores among “early soy” boys compared with other boys, and noted the lowest PSAI scores among boys who were primarily breastfed. However, no significant difference was observed between “early soy” and “early formula” boys. In both sexes, PSAI scores were higher if an older brother were present in the home and lower if an older sister were present. Maternal prenatal smoking also was associated with higher PSAI scores in both sexes, and higher maternal education was associated with lower scores in boys and higher scores in girls.

The authors acknowledge that soy users in the study were not exclusively fed soy formula in all instances, nor could they assess a dose–response relationship between soy feeding and PSAI score. These preliminary data suggest a subtle reduction in female-typical play behaviors at age 42 months in girls who were fed soy formula or soy milk early in life—an association that weakened by age 57 months. Replication of these findings in cohorts with more prevalent soy use and improved exposure assessment is needed.

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