4. Conclusions

A component-based approach is recommended for the exposure-based screening assessment of potential hazards to public health from exposure to this mixture. The recommendations include the estimation of a hazard index for the neurological effects of the chlorpyrifos, lead, and methylmercury components of this mixture. The subpopulation of greatest concern for neurological effects of this mixture includes infants, young children, and fetuses. In addition, a separate hazard quotient is to be estimated for the renal effects of inorganic mercury. This approach is appropriate when the hazard quotients of at least two of the components equal or exceed 0.1 (ATSDR 2001a). The WOE evaluation of interactions indicates that the overall impact of interactions among the components of the mixture on the additivity assumption (hazard index) for neurological effects is to decrease the predicted hazard. Thus, the hazard index may overestimate the degree of hazard, such that a hazard index only slightly greater than 1 may not require further evaluation. Confidence in this conclusion, as reflected in the BINWOE scores, is medium to medium low. Predictions of the impact of chlorpyrifos and lead on the renal toxicity of inorganic mercury are that chlorpyrifos may have a less-than-additive influence and lead may have a greater-than-additive influence, but confidence in both these conclusions is low. When the screening criteria are exceeded (hazard index significantly greater than 1 for neurological effects of chlorpyrifos, lead, and methylmercury; hazard quotient greater than 1 for renal effects of inorganic mercury), further evaluation is needed (ATSDR 2001a), using biomedical judgment and community-specific health outcome data, and taking into account community health concerns (ATSDR 1992).