



Legislation and Statistical Evidence: Bill Language that Promotes High Quality Policy Making

ASA Scientific and Public Affairs Committee Guidance on Statistical Evidence, October 11, 2016

Background: The Family First Prevention Services Act (H.R. 5456, S.3065), passed by the U.S. House of Representatives in July 2016, contains the phrase “conventional standards of statistical significance.” The American Statistical Association (ASA) supports and applauds the trend in Congress toward evidence-based policymaking and the recognition in this bill of the importance of statistical science in furthering effective decision making. While the ASA is neutral on the overall content of the bill, the ASA Scientific and Public Affairs Committee does have concerns over the specific phrase, “conventional standards of statistical significance.” This phrase could be interpreted in a way that restricts the types of statistical methods that researchers and policy-makers could bring to bear on program evaluation, resulting in the use of sub-optimal or inappropriate methods. We understand that the bill’s authors did not intend for the phrase to have these effects and that the goal was to encode sound statistical practice, but a technical and literal interpretation of the phrase may have the opposite effect, as we now explain.

Statistical Issues: Technically and literally, “conventional standards of statistical significance” refers to significance testing methods developed by statisticians in the early 20th century. Modern statistical and data science methods that are routinely used in program evaluation—such as Bayesian modeling, decision analysis, and most big data techniques—do not satisfy this definition. These newer methods, when used objectively and appropriately, allow more accurate and more nuanced analysis than does significance testing or p-values alone.

Recommendations: We recommend that bills that include wording on statistical evidence avoid the technical phrase, “conventional methods of statistical significance.” In its place, we recommend phrasing that likewise connotes high rigor and objectivity, yet does not restrict the types of statistical methods that can be applied to find answers to policy-questions. Any of the following phrases would make clear that the bill does not intend to exclude certain statistical methods from program evaluation.

- “Widely accepted standards of statistical evidence”
- “Rigorous standards of statistical evidence”
- “Widely accepted methods of statistical analysis”
- “Rigorous methods of statistical analysis”

We also recommend that evidence-based policy be based on sound and validated study designs that consider all sources of error, assessments of the sensitivity of results to different assumptions, and the practical significance and implications of findings.

For questions, please contact Amy Nussbaum at nussbaum@amstat.org.