

Systematic Review and New Tools for Information Management and Data Display

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Systematic reviews use a standardized methodology to identify relevant research and to report and critically appraise data from the studies that are included in a review. The systematic review format helps provide a structure to guide identification and determination of literature for inclusion, as well as extraction of data from studies, assessment of study quality and reporting, and synthesis of data toward reaching a conclusion. Currently, systematic reviews are most utilized in clinical epidemiology for health care interventions although there is increasing interest in adopting this format in the environmental health sciences and risk assessment.¹

The Office of Health Assessment and Translation (OHAT) within the Division of the NTP is in the process of incorporating systematic review methodology into its literature-based evaluations to improve the transparency of how the evaluation was conducted and conclusions reached. OHAT is using an industry standard systematic review software program to track included and excluded studies and for data extraction of included studies. To help visualize study results, OHAT has developed the Meta Data Viewer software program for graphic display of individual or aggregated epidemiology study results, animal toxicology data, and mechanistic data. The NTP intends to make public the data extraction files for a given evaluation in a format that will permit data mining by others. Implementation of systematic review by OHAT will add clarity and transparency to the process of refining the scope of an evaluation, identifying studies, and developing conclusions. As a next step, OHAT is working on outlining a more transparent framework for integrating the evidence, both within an evidence stream for human and animal studies and across evidence streams, to include consideration of mechanistic data.

This presentation will (1) discuss some of the basic concepts of systematic review, (2) highlight the software-based information management tools that have been developed by OHAT to facilitate systematic review, (3) discuss strategies used to refine the scope of an evaluation, and (4) discuss next steps in the process of improving the transparency of how evidence is integrated to reach “level of concern” conclusions in NTP monographs.

¹ EFSA. 2010. Application of systematic review methodology to food and feed safety assessments to support decision making (Available online: www.efsa.europa.eu) <<http://www.efsa.europa.eu>>. EFSA Journal 8(6): 1637 [1690 pp.]

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