

Glyphosate Human Health Hazard Assessment: Open Literature Search

Open Literature Search for the Glyphosate Human Health Hazard Assessment

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Introduction

The agency strives to use high-quality studies when evaluating the hazard potential of pesticidal chemicals and considers a broad set of data during this process. In addition to guideline studies, required under 40 CFR Part 158, and non-guideline studies that are submitted to the Environmental Protection Agency (EPA) to support pesticide registration, EPA searches for relevant studies published in peer-reviewed scientific journals in the open literature. EPA may also examine reviews performed by other organizations and agencies to identify potentially relevant studies for consideration in our assessment. These studies provide information on a wide range of adverse health outcomes, different routes of exposures, varying durations, species differences, and lifestyle information; predominately from studies with laboratory animals in addition to human epidemiology studies. The Agency considers a broad range of toxicology data for each pesticide review, such as studies to evaluate acute, subchronic, and chronic toxicity; carcinogenicity; developmental and reproductive toxicity; neurotoxicity; genotoxicity; toxicokinetics; and studies evaluating dermal, inhalation, oral, eye irritation, skin irritation and skin sensitization. It also considers exposure data including but not limited to, environmental fate data, worker exposure data, and residue and decline studies.¹

The EPA's Office of Pesticide Programs (OPP) is currently reevaluating glyphosate as part of Registration Review, which is required by law every 15 years to ensure that pesticide products on the market continue to meet EPA's safety standards as science evolves and new information becomes available. In the case of glyphosate, there is a significant number of studies available in the open literature. Since the initiation of Registration Review, OPP has performed multiple searches of the open literature to identify, screen, and evaluate potentially relevant studies using systematic review. In addition, OPP has received additional studies to consider from the public, including those received during public comment periods² in the Registration Review process.

In recent years, EPA has moved toward systematic review processes to enhance the transparency of scientific literature reviews that support chemical-specific risk assessments to inform regulatory decision making, consistent with recommendations from the National Academy of Sciences National Research Council (NRC, 2011). The NRC defines systematic review as "a scientific investigation that focuses on a specific question and uses explicit, pre-specified scientific methods to identify, select, assess, and summarize the findings of similar but separate studies" (NRC, 2014). Systematic review enhances consistency, transparency, and reproducibility; promotes use of the best available science and reduces bias; and upholds scientific integrity. Using systematic review methods also ensures consistency with Executive Order 14303, Restoring Gold Standard Science and Gold Standard Science objectives.

OPP employs "fit-for-purpose" systematic reviews that rely on standard methods for ***collecting, evaluating, and integrating*** the scientific data supporting the agency's decision-making process. The

¹ 40 CFR Part 158 — Data Requirements for Pesticides, Subparts A–R, as amended (latest update: June 29, 2026)

² Multiple public comment periods have been held since glyphosate has been registered, including but not limited to: a 60-day public comment period from March 2, 2018 – April 30, 2018 on the EPA Draft Human and Ecological Risk Assessment; May 6 – June 4, 2019 on the petition to modify oat tolerance; May – September 3, 2019 for the 2019 Proposed Interim Registration Review Decision; and November 27, 2020 – March 12, 2021 for the draft biological evaluation for the Endangered Species Act

concept of fit for purpose implies that a particular activity or method is suitable for its intended use. Inherent in this definition is the concept that one size does not fit all situations and thus flexibility in the systematic review approach is allowed. OPP approaches to search and evaluate open literature studies are consistent with the common themes and workflow shared by systematic review approaches (i.e., problem formulation, explicit search strategy methods, study quality analysis and integration (as appropriate), and conclusions) published by several groups.³

To supplement the studies identified in previous open literature searches performed by EPA and Registration Review public comment periods, a new search was performed in March of 2026 to identify any potentially relevant articles published more recently (up to March 31, 2026). Similar to previous evaluations of the open literature, EPA is using systematic review methods to conduct a gold standard assessment of glyphosate toxicity. The purpose of this document is to provide details of the new searches, as well as a comprehensive list of studies that have been identified for consideration across all searches and public comment periods. The remainder of this document is organized by the following:

- *Section II Scoping and Problem Formulation*: provides information on the search objectives and specific aim of the new literature search.
- *Section III Search Strategy Methods*: details the previous and current search approaches that have been employed to identify studies for consideration.
- *Section IV Next Steps*: describes screening methods to evaluate potential relevance and quality of identified studies.

I. Scoping and Problem Formulation

Problem formulation is the first critical step in a systematic review, which involves a review of the available information to define the scope of an assessment and key science issues to address while taking into consideration the regulatory context for the analysis. A clearly framed question creates structure and describes the approach to defining the search objectives to ensure that the search is fit-for-purpose. In the case of glyphosate, searches of the open literature are focused on identifying studies to inform the hazard assessment for human health risk assessment, such as toxicological, mechanistic, and epidemiological studies, to support Registration Review.

EPA routinely receives pesticide-specific residue and exposure data, therefore, a search of the open literature for available exposure data is not warranted. The exposure databases and the approaches used for OPP pesticide human health risk assessments were jointly developed working closely with other regulatory partners (i.e., California, Canada) and stakeholders to provide improved quality and consistency in exposure estimates. These robust databases and approaches have also been subjected to extensive external peer review (e.g., Joint Regulatory Committee, Human Studies Review Board

³ e.g., Rooney et al. (2014) Systematic review and evidence integration for literature-based environmental health science assessments. *Environ Health Perspect.* 122(7):711-8. doi: 10.1289/ehp.1307972; Woodruff and Sutton (2011) An Evidence-Based Medicine Methodology To Bridge The Gap Between Clinical And Environmental Health Sciences. *Health Affairs* 30:5, 931-937. Doi: 10.1377/hlthaff.2010.1219; National Toxicology Program Office of Health Assessment and Translation [OHAT]. (2019). *Handbook for conducting a literature-based health assessment using OHAT approach for systematic review and evidence integration*. https://ntp.niehs.nih.gov/sites/default/files/ntp/ohat/pubs/handbookmarch2019_508.pdf

(HSRB), Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel (FIFRA SAP) to further support scientific confidence in their use in pesticide evaluations. As such, the scope of open literature searches for glyphosate are focused on informing the hazard assessment for the human health risk assessment.

II. Search Strategy Methods

As previously mentioned, multiple searches and reviews of the open literature have been performed for glyphosate. This search strategy discussed below captures studies evaluating exposure to glyphosate alone and pesticide formulations containing glyphosate. These searches are documented in the following reviews:

- Glyphosate - Systematic Review of Open Literature (D417703; TXR#0056885; December 12, 2017), which includes a search performed in collaboration with Canada's Pesticide Regulatory Directorate⁴ and a subsequent search that was conducted by OPP to supplement the joint review with Canada.⁵
- Revised Glyphosate Issue Paper: Evaluation of Carcinogenic Potential (D444689; TXR# 0057688; December 12, 2017).⁶
- Glyphosate Tier II Incident Report (D417808; February 6, 2014).⁷

For convenience, the search strings used for each of the previous searches are provided in Appendix A and studies identified in all of these searches are listed in the attached spreadsheet. Further details can be found in their respective cited support documents.

To support the updated human health risk assessment for Registration Review, new searches were conducted using two complementary literature search strategies. First, a broad search was conducted to capture any potentially relevant toxicological studies (which may incidentally include some epidemiology studies). Second, a targeted search focused specifically on epidemiological evidence was conducted to ensure comprehensive identification of relevant epidemiological studies. The search terms for both strategies are described below. Any studies brought to EPA's attention after these searches were performed will also be considered for incorporation into the literature review.

Broad Search of Toxicology Literature to Support Human Health Risk Assessment

The current search for relevant toxicological data was intentionally broad to prioritize inclusiveness over specificity. As a result, formal Populations, Exposures, Comparators, and Outcomes (PECO) criteria were not established, and all potentially relevant studies are considered for screening for further evaluation.

⁴ Formerly known as Health Canada's Pest Management Regulatory Agency (PMRA).

⁵ <https://www.regulations.gov/document/EPA-HQ-OPP-2009-0361-0067>

⁶ <https://www.regulations.gov/document/EPA-HQ-OPP-2009-0361-0073>

⁷ <https://www.regulations.gov/document/EPA-HQ-OPP-2009-0361-0069>

The search was conducted on March 31, 2026, (date range October 5, 2015⁸ – March 31, 2026) using [PubMed](#) and [Web of Science](#). The following search terms were used:

(Glyphosate) OR (N-phosphonomethyl OR “Roundup”)) AND (rat OR mouse OR dog OR rabbit OR monkey OR mammal.

Focused Search of Epidemiology Literature to Support Human Health Risk Assessment

A focused search for epidemiological studies was conducted using [PubMed](#), [PubMed Central](#), and [Science Direct](#), and included all published articles from January 1, 1980 through March 27, 2026 to identify more recent information. This literature search aimed to identify original, peer-reviewed articles on epidemiologic studies that reported risk estimates for the association between exposure to glyphosate and human health outcomes.

The literature search methodology for the focused search for epidemiology studies followed the guidance provided in the National Toxicology Program/Office of Health Assessment and Translation (NTP/OHAT) *Handbook for Conducting a Literature-Based Health Assessment Using OHAT Approach for Systematic Review and Evidence Integration*.⁹ For the epidemiology search, the following PECO criteria below guided the inclusion/exclusion criteria and selection of terms:

- Population of interest: Population studied must be humans with no restrictions, including no restrictions on age, life stage, sex, country of residence/origin, race/ethnicity, lifestyle, or occupation.
- Exposure: Exposure studied must be to glyphosate in any application via any route of exposure.
- Comparator: Exposed or case populations must be compared to a population with low/no exposure or to non-cases to arrive at a risk/effect size estimate of a health outcome associated with glyphosate exposure.
- Outcome: All reported human health effects, with no restrictions on human system affected (effects could be based on survey or other self-report, medical records, biomarkers, publicly available health data, or measurements from human sample populations).
- Database searches were conducted in “All” fields in PubMed and Science Direct. In PubMed Central, “Body – All Words,” were used for the search term glyphosate. Each specific pesticide search term was combined with additional search terms related to health outcomes, epidemiology, etc. The chemical term, glyphosate [MeSH]¹⁰ was combined with other search terms. Terms within each row were combined with “OR”, and terms between rows were combined with “AND”, except for the Excluded Terms, which were combined with either “NOT” or “AND NOT.” Additionally, in PubMed, the “human” filter was used, and in Science Direct, the search was limited to “Articles” and “Review Articles.”

⁸ October 5, 2015 was the end date of the previous literature search (see additional information in Appendix A).

⁹ National Toxicology Program/Office of Health Assessment and Translation (NTP/OHAT) *Handbook for Conducting a Literature-Based Health Assessment Using OHAT Approach for Systematic Review and Evidence Integration*
https://ntp.niehs.nih.gov/sites/default/files/ntp/ohat/pubs/handbookmarch2019_508.pdf

¹⁰ [MeSH] indicates a Medical Subject Headings National Library of Medicine (NLM) controlled vocabulary thesaurus used for indexing articles for PubMed

Literature Search Terms used in PubMed and Pub Med Central	
Exposure Terms	Herbicides[MeSH Terms] OR fungicides, industrial[MeSH Terms] OR pesticides[MeSH Terms] OR delayed effects, prenatal exposure[MeSH Terms] OR skin absorption[MeSH Terms] OR accident, occupational[MeSH Terms] OR food contamination[MeSH Terms] OR environmental exposure[MeSH Terms] OR occupational exposure[MeSH Terms] OR poisoning[MeSH Subheading] OR toxicity[MeSH Subheading] OR expos* OR poison* OR toxic* OR contamin* OR absorb* OR ingest* OR consum* OR drink* OR accident* OR intoxication* OR ingest*
Epidemiologic Methods Terms	epidemiologic methods[MeSH Terms] OR epidemiologic studies[MeSH Terms] OR incidence[MeSH Terms] OR epidemiology[MeSH Subheading] OR epidemiolog* OR cross-sectional OR case control OR cohort OR longitudinal OR retrospective OR prospective OR occupational stud* OR environmental stud* OR community stud* OR health survey*
Health Outcomes/ Disease Terms	health effect* OR health impact* OR adverse effects[MeSH Subheading] OR illness* OR environmental illness[MeSH Terms] OR occupational illnesses[MeSH Terms] OR agricultural workers' disease[MeSH Terms] OR disease* OR medical OR hospital* OR mortality OR death OR pregnancy outcome* OR Pregnancy outcome[MeSH Terms] OR birth defect* OR birth weight OR birth weight[MeSH Terms] OR Parkinson OR Parkinson's OR paralysis agitans OR Parkinson's disease[MeSH Terms] OR amyotrophic lateral sclerosis OR neurologi* OR neurotoxi* OR neurodegenerat* OR neuromuscular* OR neurodegenerative disease[MeSH Terms] OR kidney OR renal OR arthritis OR respirat* OR pulmonary OR lung OR thyroid OR cardiac OR myocardial OR cancer* OR carcinogen* OR neoplasm[MeSH Terms] OR leukemia OR myeloma OR lymphoma OR Hodgkin OR sarcoma OR liver[MeSH Terms] OR hepat* OR lymphatic system[MeSH Terms] OR thyroid[MeSH Terms] OR thyroid hormones[MeSH Terms] OR liver OR morbidity Dermatitis, occupational [MeSH Terms] OR dermat*
Excluded Terms (Title only)	rat OR rats OR suicide OR fish OR case report* OR rodent* OR drug* OR medicine* OR mouse OR mice OR monkey* OR bird* OR treatment* OR therapy* OR prognostic OR prognosis OR avian OR trout OR leaf OR leaves OR beetle* OR invertebrate* OR zebrafish OR mites OR "Agent Orange" OR "algae" OR "plant" OR "preharvest" OR "harvest"

[MeSH] indicates a Medical Subject Headings, which is a National Library of Medicine (NLM) controlled vocabulary thesaurus used for indexing articles for PubMed.

* Indicates truncation (i.e., that alternate endings were searched)

Literature Search Terms used in Science Direct	
Epidemiologic Methods Terms	(epidemiology OR "cross-sectional" OR "case-control" OR cohort OR "occupational study" OR "environmental study" OR "epidemiologic study" OR "health survey")
Excluded Terms (Title only)	NOT (rat OR rats OR suicide OR fish OR rodent OR drug OR mice OR bird)

Epidemiology studies identified in the broad toxicology search described above were cross-checked with the findings of the focused epidemiology search to ensure completeness. In addition to the peer-reviewed literature search described above, a search for relevant publications from the Agricultural Health Study (AHS) prospective cohort was conducted. The AHS is a federally funded study that evaluates associations between pesticide exposures and cancer and other health outcomes and represents a collaborative effort between the U.S. National Cancer Institute (NCI), National Institute of Environmental Health Sciences, Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health, and the U.S. EPA. The AHS maintains on its website an electronic list of publications on the AHS cohort.¹¹ These publications were imported into Endnote (EndNote™, Clarivate) and searched for “glyphosate” OR “AMPA” OR

¹¹ Agricultural Health Study Publications: <https://aghealth.nih.gov/news/publications.html>

“Aminomethylphosphonic acid” using the “Any Field + PDF with Notes” search function to ensure all AHS publications relevant to the epidemiology literature review were identified. AHS publications that satisfied the inclusion/exclusion criteria as described above were selected for inclusion in the epidemiology literature review in 2024. The process was repeated in September 2025 and March 2026.

To enhance the comprehensiveness of the systematic review, references within found publications were also examined to identify any additional relevant publications that were not previously captured in either the peer reviewed literature search or the AHS.

III. Next Steps

All studies identified for consideration from previous and current literature searches are listed in the accompanying spreadsheet. The spreadsheet also includes studies identified and submitted to the Agency through public comment dockets.

OPP is currently screening and evaluating studies identified in the current literature searches using the approach outlined in **Figure 1**. **Step 1** is the literature search (discussed above in Section III). **Step 2** of the literature review involves a “Title-Abstract” screening to remove citations that are clearly not relevant/would not inform the human health hazard assessment. Studies that are identified as potentially relevant at this stage move forward to **Step 3**, a “Full-Text screening”, which involves a detailed evaluation of the full-text of the article to determine if it is of adequate quality and relevant for human health risk assessment.

For **Steps 2 and 3**, the selection and review of relevant publications available in the open literature is informed by OPP’s *Guidance for Considering and Using Open Literature Toxicity Studies to Support Human Health Risk Assessment*¹² and *Framework for Incorporating Human Epidemiologic & Incident Data in Health Risk Assessment*.¹³ These guidances draw from OPP’s long standing experience for review of guideline and non-guideline studies submitted to support pesticide registrations, as well as epidemiological studies. Although these guidances focus on identifying mammalian *in vivo* toxicity and epidemiological studies, their general principles and criteria can also apply to other study types (e.g., pharmacokinetic, metabolism, mechanism of toxicity and *in vitro* studies). For example, OPP’s *Guidance for Considering and Using Open Literature Toxicity Studies to Support Human Health Risk Assessment* provides the following minimum criteria for journal articles/publications to be eligible for consideration:

- The toxic effects are related to defined chemical exposure;
- The toxic effects are on an appropriate test animal species;
- The presence or absence of toxicological effects is observed;
- A chemical concentration/dose or application rate is reported;
- An explicit duration of exposure is included;
- Toxicology information is reported for the chemical of interest or its structural analog;
- The article is available in the English language;

¹² <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/guidance-considering-and-using-open-literature>

¹³ <https://www3.epa.gov/pesticides/EPA-HQ-OPP-2008-0316-DRAFT-0075.pdf>

- The study results are presented as a full article (i.e., not an abstract);
- The paper is a publicly available document;
- The paper is the primary source of the data;¹⁴
- Treatment(s) are compared to acceptable controls;
- The location of the study (e.g., laboratory vs. field) is reported;
- Adequate data are provided on the chemical tested (i.e., test article characterization);
- Adequate data are provided on the species tested;
- The study results (findings) are adequately reported; and
- The study findings are relevant to assessing human health risks.

Because comprehensive literature searches are intentionally designed to maximize inclusiveness, many retrieved studies are not directly relevant to the assessment objectives. Studies that do not meet the predefined relevance criteria are screened out prior to detailed evaluation, allowing resources to be focused on studies with the greatest potential to inform human health risk assessment. This approach promotes efficient use of resources while maintaining a transparent and scientifically rigorous review process. Studies that are considered potentially relevant after full-text screening move forward to **Step 4, “In-Depth Review and Study Summary”**.

At this stage, there is a rigorous evaluation of study quality, methods, results, relevance, and impact to determine which studies warrant the creation of summary reviews, often referred to as data evaluation records (DERs). For a literature study to be considered impactful for regulatory decision making, it should demonstrate sufficient relevance, reliability and utility to support human health risk assessment. Many of the criteria used to evaluate studies are informed by principles embedded in the EPA (OPPTS/OCSP 870 series)¹⁵ and Organisation for Economic Co-operation and Development (OECD)¹⁶ Test Guidelines. In addition to criteria noted above, key considerations for impact include whether the study tested a dose range that is sufficient to consider dose-response relationships, employed a sound study design (e.g., appropriate control groups, adequate sample size and statistical power, well-defined endpoints measured using appropriate and accepted methods), used appropriate statistical analyses, and provided adequate and transparent reporting of methods and findings. Even a scientifically sound study may have limited impact if it cannot inform regulatory decisions or conclusions. Impactful studies for regulatory decision making generally are most useful when they support hazard characterization, inform point-of-departure selection, contribute to benchmark dose modeling, clarify sensitive lifestyles or populations, reduce uncertainty in the risk assessment, and/or provide critical information not available from guideline studies.

In the final step (**Step 5**), studies determined to be potentially impactful will be incorporated into the human health risk assessment to support Registration Review. Human health risk assessments are based on the totality of the available high-quality evidence, not on findings of any single study in isolation. Impactful studies identified through this process are evaluated alongside guideline studies and other scientifically reliable information using a weight-of-evidence approach. A weight of evidence

¹⁴ Note: OPP does not rely on review articles but will evaluate review articles to determine if there are any potentially relevant studies to consider in its assessments that were not identified in its open literature searches. Individual studies will be subjected to independent review by OPP. Relevant review articles are marked as “potentially relevant*” in the accompanying spreadsheet.

¹⁵ <https://www.epa.gov/test-guidelines-pesticides-and-toxic-substances/series-870-health-effects-test-guidelines>

¹⁶ <https://www.oecd.org/en/topics/sub-issues/testing-of-chemicals/test-guidelines.html>

approach is an integrative and interpretive process that takes into consideration the strengths and weaknesses of all the available data to make scientifically robust decisions. The results of the hazard assessment literature searches for glyphosate will be presented in the human health risk assessment to support Registration Review.

Hazard Assessment Literature Search

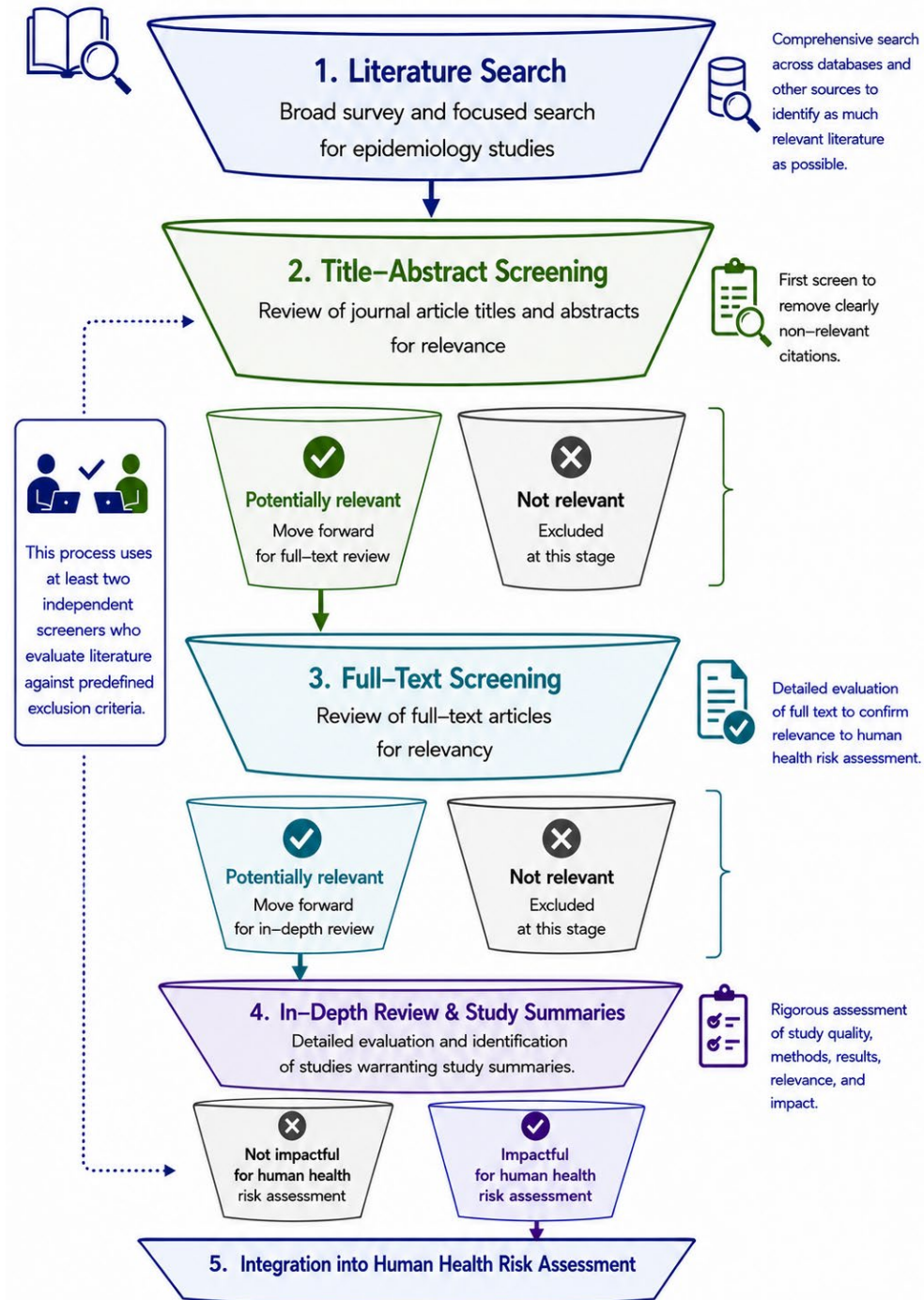


Figure 1: Process for Identifying Open Literature for Consideration in Hazard Assessment for Human Health Risk Assessments.

Appendix A: Search Strings of Previous Literature Searches

Glyphosate- Systematic Review of Open Literature (D417703; TXR#0056885; 12-DEC-2017)

Joint Review with Canada

The search was conducted at <http://www.scirus.com> under the following subject areas: Life Sciences, Agriculture and Biological Sciences, Pharmacology, Medicine, and Neuroscience.

1. Reproduction/Developmental Toxicity (Date of Search: Jan-Feb, 2012)
 - In search bar, the keywords Glyphosate and Reproduct* toxicity were entered.
 - Other search terms used were Glyphosate and developmental toxicity.
2. Short-term Toxicity/Long term Toxicity/Oncogenicity (Date of Search: December, 2011-Feb, 2012)
 - In search bar, the keywords Glyphosate and chronic toxicity studies were entered.
 - The search results captured in the previous searches (e.g. Glyphosate and Reproduct* toxicity) were not reported.
 - Searching the keywords Glyphosate and Tumours or Tumors did not result in meaningful results. Results were not considered relevant to human health (e.g. Impact of glyphosate on the development, fertility and demography of *Chrysoperla externa* (Neuroptera: Chrysopidae): ecological approach)
 - Other terms searched were glyphosate and mammalian toxicity, glyphosate and short term toxicity studies, and glyphosate and toxicity.
 - Regulatory reports that were not captured in scirus.com were also included in this section because they contain several published toxicology studies.
3. In Vitro/Genotoxicity/Endocrine Studies (Date of Search: Nov-Dec, 2011)
 - In search bar, the keywords Glyphosate and Endocrine were entered.
 - The search results captured in the previous searches (e.g. Glyphosate and Reproduct* toxicity) were not reported.
 - Other terms searched were Glyphosate and genotoxicity.
4. Epidemiology Studies/Incident Reports
 - In search bar, the keywords Glyphosate and Epidemiology were entered.
 - The search results captured in the previous searches (e.g. Glyphosate and Reproduct* toxicity) were not reported.

Subsequent OPP search (following the joint literature review with Canada described above)

A search was conducted on October 5, 2015 for studies published from January 1, 2012 to October 5, 2015 using the following search string in PubMed:

(((((glyphosate) NOT plants)) NOT frogs) NOT tadpoles AND (("2012/01/01"[PDat] : "2015/10/05"[PDat]))

Revised Glyphosate Issue Paper: Evaluation of Carcinogenic Potential (D444689; TXR# 0057688; 12-DEC-2017). This search and review was focused on evaluating the potential carcinogenicity of glyphosate.

A search was conducted on May 6, 2016 in PubMed and Web of Science using the following search string:

((glyphosate OR "1071-83-6" OR roundup OR "N-(Phosphonomethyl)glycine") AND (aneuploid* OR chromosom* OR clastogenic* OR "DNA damag*" OR "DNA adduct*" OR genome* OR genotoxic* OR micronucle* OR cancer* OR carcinogen* OR oncogenic* OR mutagen* OR cytotoxic* OR tumor* OR tumour* OR malignanc* OR neoplasm* OR *oma)) NOT (fish* OR frog* OR tadpole* OR insect* OR eco* OR amphibian* OR reptil* OR invertebrate* OR fly OR flies OR aquatic OR bird* OR aqueous OR water OR yeast* OR worm* OR earthworm* OR bacteria* OR lichen OR resist* OR "herbicide resist")

Due to differences with using Science Direct, the search string was slightly changed. This search was also conducted on May 6, 2016:

((glyphosate OR "1071-83-6" OR roundup OR "N-(Phosphonomethyl)glycine") AND (aneuploid* OR chromosom* OR clastogenic* OR (DNA pre/2 (damag* OR adduct*)) OR genome* OR genotoxic* OR micronucle* OR cancer* OR carcinogen* OR oncogenic* OR mutagen* OR cytotoxic* OR tumor* OR tumour* OR malignanc* OR neoplasm* OR *oma)) AND NOT (eco* OR fish* OR frog* OR tadpole* OR invertebrate* OR bird* OR insect* OR fly OR flies OR amphibian* OR reptil* OR yeast* OR aquatic OR aqueous OR water OR worm* OR earthworm* OR bacteria* OR lichen OR resist* OR "herbicide resist")

Glyphosate Tier II Incident Report (D417808; 6-FEB-2014)

PubMed: (((Glyphosate[tw] OR (N-(phosphonomethyl)glycine[tw]) OR glyphosate[tw] OR Roundup[tw] OR yerbimat[tw] OR (glyphosate hydrochloride (2:1)[tw]) AND (humans[tw] AND (epidemiologic studies[tw] OR cohort*[tw] OR case control[tw] OR cross section*[tw] OR cluster*[tw] OR environmental exposure*[tw] OR occupational exposure*[tw] OR ecologic stud*[tw] OR aggregate stud*[tw]))))

Web of Science: (((((Glyphosate OR (N-(phosphonomethyl)glycine) OR glyphosate OR Roundup OR yerbimat OR (glyphosate hydrochloride (2:1))) AND human AND (epidemiologic stud* OR cohort* OR case control OR cross section* OR cluster* OR environmental exposure* OR occupational exposure* OR ecologic stud* OR aggregate stud*))))

Google Scholar (Date searched 11/20/13): [glyphosate epidemiology cohort OR "case control" OR "cross sectional" "human health risk"]