

Summary

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This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Key endpoints covered

66. EFSA, HRB and CADTH address the three key endpoints under consideration, with ANSES focusing on neurodevelopmental and thyroid effects and NTP confined to neurodevelopment and cognition.

Databases

67. PubMed/Medline would seem a good starting point for an updated literature search as this features in all of the key expert group reviews.

68. Other databases used by multiple expert groups: Embase (NTP, HRB and CADTH), Web of Science (WoS; EFSA and NTP), and the Cochrane library (HRB and CADTH), while NTP was the only expert group to address Chinese database

searching.

Literature search date

69. ANSES and EFSA searches covered the period up to early 2024 (or late 2023 in the case of the targeted EFSA searches), while NTP searches were generally up to 2020 (children's IQ searches were updated to October 2023), and HRB and CADTH covered up to 2021 and 2017 (or 2018), respectively.

Chemical search terms

70. The EFSA list of chemical search terms seems to be the most comprehensive, though other expert groups (e.g. NTP) include unique terms.

71. The TRACE list specifies relevant fluoride chemicals (e.g. simple salts) for potential inclusion in the search strategy. It is likely that these would be covered by the generic fluoride search terms in the key expert group reviews.

Toxicity search terms

72. The EFSA list appears to be the most comprehensive, with both general searches and targeted searches for the three key endpoints under consideration. However, the NTP search contains a more extensive set of neurotoxicity search terms.

Species search terms

73. EFSA and NTP use specific search terms to capture both human and experimental animal data (ANSES covers both sets of data without using specific search terms), while HRB and CADTH focus only on human data. NTP noted that updated searches for experimental data did not strengthen the confidence assessment based on the human evidence available and removed the animal evidence stream from later drafts of the publication.

74. The various EFSA searches incorporate slightly different terms to cover/exclude experimental animal data. The set of terms to be used in subsequent searches will need careful consideration.

Preliminary overview

75. Table 1 below provides an overview of the search details for the key reviews, focusing on PubMed/Medline.

76. The EFSA review would appear to be a good starting point for development of a search strategy, as it is recent and relatively comprehensive in terms of the endpoints covered and the chemical, toxicity and species search terms included.

Table 1: Overview of search strategies from existing reviews

Expert group	Key endpoints covered	Databases	Search date	Chemical search terms	Toxicity search terms	Species search terms
ANSES	Neurodevelopment and thyroid	PubMed	March 2024	“sodium fluoride” OR Fluoride OR NaF.	Brief list of targeted terms.	No specific search terms (review covers human and experimental animal data).
EFSA	Neurotoxicity, bone and thyroid	PubMed; WoS	January 2024 (or October 2023 for targeted search on bone outcomes).	Shortlist of general fluoridation terms, and specific fluorides.	Extensive lists of general and targeted terms.	Human and experimental animal terms.

Expert group	Key endpoints covered	Databases	Search date	Chemical search terms	Toxicity search terms	Species search terms
NTP	Neurodevelopment and cognition	Biosis; Embase; PsycINFO; PubMed; Scopus; WoS; CNKI; Wanfang	May 2020 (or October 2023 for searches on childrens IQ).	Shortlist of general fluoridation terms.	Extensive lists of targeted terms.	Human and experimental animal terms.
HRB	Neuropsychological, bone, and endocrine (thyroid)	Medline; Embase; Cochrane (Library Central); LILACS; Epistemonikos; Prospero	September 2021.	Shortlist of general fluoridation terms.	None included.	Human terms only.

Expert Key endpoints group covered	Databases	Search date	Chemical search terms	Toxicity search terms	Species search terms
CADTH	Medline; Embase; Cochrane (Central Register of Controlled Trials; Database of Systematic Reviews; Methodology Register, Database of Abstracts of Reviews of Effects); Health Technology Assessment; CINAHL; PubMed; Scopus	October 2017 (possibly December 2018).	Shortlist of general fluoridation terms (including subtopics).	None included.	Human terms only.

Updated searches

77. Preliminary searches were conducted in February 2026 in PubMed, using the EFSA search strings (conducted in October 2023 and January 2024) as a basis (key searches 1A, 2A, 3A, 4A and 5A), but with various modifications to account for potential areas of improvement in the search strategy: key searches 1B, 2B and 3B incorporated the more extensive set of neurotoxicity search terms utilised by the NTP; searches 1C, 2C and 3C incorporated the unique chemical search terms included by the NTP; searches 1D, 2D and 3D incorporated the unique chemical search terms included from TRACE (these were found not to impact the number of hits, hence retrospective searching was deemed

unnecessary in PubMed/Medline); searches 1E, 2E and 3E are retrospective searches to cover the intervening period between the NTP and EFSA search dates, incorporating the more extensive set of neurotoxicity search terms utilised by the NTP; searches 1F, 2F and 3F are retrospective searches to cover the intervening period between the NTP and EFSA search dates, incorporating the unique chemical search terms utilised by the NTP. Table 2 - Table 5 below provide an overview of the number of hits for each of the updated key searches.

Table 2: Preliminary PubMed/Medline search results - key search 1 (human)

Sub-search	Description	PubMed hits	WoS hits	De-duplicated
1A	Based on EFSA search.	2827	TBC	TBC
1B	As for 1A but with NTP neurotoxicity terms.	2996	TBC	TBC
1C	As for 1A but with NTP chemical terms.	4764 (3014 removing fluorin*[tiab] due to a particularly high number of hits, presumably on fluorine itself).	TBC	TBC
1D	As for 1A but with TRACE chemical terms.	2827	TBC	TBC
1E	Retrospective version of 1A (with NTP neurotoxicity terms).	208	TBC	TBC

1F	Retrospective version of 1A (with NTP chemical terms).	2508 (301 removing fluorin*[tiab] as for 1C).	TBC	TBC
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Table 3: Preliminary search results - key search 2 (animal)

Sub-search	Description	PubMed hits	WoS hits	De-duplicated
2A	Based on EFSA search.	309	TBC	TBC
2B	As for 2A but with NTP neurotoxicity terms.	312	TBC	TBC
2C	As for 2A but with NTP chemical terms.	317 (without fluorin*[tiab] as for 1C).	TBC	TBC
2D	As for 2A but with TRACE chemical terms.	309	TBC	TBC
2E	Retrospective version of 2A (with NTP neurotoxicity terms).	3	TBC	TBC
2F	Retrospective version of 2A (with NTP chemical terms).	14 (without fluorin*[tiab] as for 1F).	TBC	TBC

Table 4: Preliminary search results - key search 3 (targeted neurotoxicity)

Sub-search	Description	PubMed hits	WoS hits	De-duplicated
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3A	Based on EFSA search.	509	TBC	TBC
3B	As for 3A but with NTP neurotoxicity terms.	556	TBC	TBC
3C	As for 3A but with NTP chemical terms.	566 (without fluorin*[tiab] as for 1C).	TBC	TBC
3D	As for 3A but with TRACE chemical terms.	509	TBC	TBC
3E	Retrospective version of 3A (with NTP neurotoxicity terms).	56	TBC	TBC
3F	Retrospective version of 3A (with NTP chemical terms).	97 (without fluorin*[tiab] as for 1C).	TBC	TBC

Table 5: Preliminary search results - key searches 4 (targeted bone) and 5 (targeted thyroid)

Sub-search	Description	PubMed hits	WoS hits	De-duplicated
4A	Based on EFSA search.	286	TBC	TBC
5A	Based on EFSA search.	39	TBC	TBC