Appendix

Appendix 1.1 Search strategy

We initially designed a search strategy to identify studies that report looking at ("risk" or a variety of exposures) AND (glioma or some form of glioma) AND (are systematic reviews). Secondly, we searched for primary studies that examined glioma risk.

Objective: To identify exposures that have been examined to determine whether they increase or decrease the risk of glioma.

Search strategy

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to October 23, 2018>

Search Strategy:

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1 RISK/ or RISK FACTORS/ or RISK ASSESSMENT/ (1014706)

2 risk?.ti. (428332)

3 or/1-2 (1157671)

4 exp Dietary Exposure/ (230)

5 exp Dietary Supplements/ (65089)

6 Environmental Exposure/ (68610)

7 Environmental Pollutants/ (33564)

8 (exposure or exposures).ab. /freq=3 (150975)

9 exp Electromagnetic Radiation/ or Radiation Exposure/ (312014)

10 Occupational Exposure/ (50817)

11 Maternal Exposure/ (7807)

12 Prenatal Exposure Delayed Effects/ (26172)

13 Paternal Exposure/ (959)

14 or/4-13 (647879)

15 exp Glioma/ (75734)

16 (glioma\* or astrocytoma\* or ependymoma\* or oligodendroglioma\* or glioblastoma\* or ganglioglioma\* or gliosarcoma\*).ti,ab,kf. (83941)

17 Brain Neoplasms/ (102804)

18 ((brain or intracranial) adj (cancer? or neoplasm? or tumo?r)).ti,ab,kf. (30109)

19 or/15-18 (161379)

20 (3 or 14) and 19 (6426)

21 (systematic or structured or evidence or trials or studies).ti. and ((review or overview or look or examination or update\* or summary).ti. or review.pt.) (168578)

22 (0266-4623 or 1469-493X or 1366-5278 or 1530-440X or 2046-4053).is. (17208)

23 meta-analysis.pt. or (meta-analys\* or meta analys\* or metaanalys\* or meta synth\* or meta-synth\* or metasynth\*).ti,ab,kf,hw. (164110)

24 ((systematic or meta) adj2 (analys\* or review)).ti,kf. or ((systematic\* or quantitativ\* or methodologic\*) adj5 (review\* or overview\*)).ti,ab,kf,sh. or (quantitativ$ adj5 synthesis$).ti,ab,kf,hw. (202947)

25 (integrative research review\* or research integration).tw. or scoping review?.ti,kf. or (review.ti,kf,pt. and (trials as topic or studies as topic).hw.) or (evidence adj3 review\*).ti,ab,kf. (174987)

26 review.pt. and ((medline or medlars or embase or pubmed or scisearch or psychinfo or psycinfo or psychlit or psyclit or cinahl or electronic database\* or bibliographic database\* or computeri#ed database\* or online database\* or pooling or pooled or mantel haenszel or peto or dersimonian or der simonian or fixed effect or ((hand adj2 search\*) or (manual\* adj2 search\*))).tw,hw. or (retraction of publication or retracted publication).pt.) (137291)

27 or/21-26 (476874)

28 20 and 27 (438)

29 ((brain or intracranial) and (cancer? or neoplasm\* or tumo?r)).ti. (12572)

30 cancer?.ti. (889225)

31 ((brain or intracranial) and (cancer? or neoplasm\* or tumo?r)).ab,kf. (87722)

32 (glioma\* or astrocytoma\* or ependymoma\* or oligodendroglioma\* or glioblastoma\* or ganglioglioma\* or gliosarcoma\*).ab,kf. (77234)

33 30 and (31 or 32) (12813)

34 29 or 33 (22213)

35 (3 or 14) and 27 and 34 (159)

36 28 or 35 (492)

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to October 31, 2018>

Search Strategy:

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1 Brain Neoplasms/ep, et, pc [Epidemiology, Etiology, Prevention & Control] (5447)

2 exp Glioma/ep, et, pc [Epidemiology, Etiology, Prevention & Control] (2608)

3 1 or 2 (6432)

4 exp odds ratio/ or proportional hazards models/ or exp risk/ or incidence/ (1288930)

5 exp Dietary Exposure/ (254)

6 exp Dietary Supplements/ (65265)

7 Environmental Exposure/ (68679)

8 Environmental Pollutants/ (33590)

9 exp Electromagnetic Radiation/ or Radiation Exposure/ (312311)

10 Occupational Exposure/ (50884)

11 Maternal Exposure/ or Paternal Exposure/ (8360)

12 Prenatal Exposure Delayed Effects/ (26209)

13 (exposure or exposures).ab. /freq=3 (151047)

14 or/4-13 (1877144)

15 3 and 14 (2036)

16 (glioma\* or astrocytoma\* or ependymoma\* or oligodendroglioma\* or glioblastoma\* or ganglioglioma\* or gliosarcoma\*).ti. (53122)

17 (glioma or gliomas or astrocytoma or astrocytomas or ependymoma or ependymomas or oligodendroglioma or oligodendrogliomas or glioblastoma or glioblastomas or ganglioglioma or gangliogliomas or gliosarcoma or gliosarcomas).ab. /freq=3 (31313)

18 16 or 17 (58591)

19 (risk or risks).ab. /freq=3 (453104)

20 (risk or risks).ti. (425590)

21 19 or 20 (685558)

22 18 and 21 (986)

23 ((protective or protect against or protective against or risk? or risk factor\* or cause\* or aetiology or etiology) adj4 (glioma\* or astrocytoma\* or ependymoma\* or oligodendroglioma\* or glioblastoma\* or ganglioglioma\* or gliosarcoma\*)).ti,ab. (1666)

24 (3 or 14 or 18 or 21) and 23 (1565)

25 ((protective or protect against or protective against or risk? or risk factor\* or cause\* or aetiology or etiology) adj2 (glioma\* or astrocytoma\* or ependymoma\* or oligodendroglioma\* or glioblastoma\* or ganglioglioma\* or gliosarcoma\*)).ti,ab. (958)

26 15 or 22 or 24 or 25 (3578)

27 epidemiologic studies/ or follow-up studies/ or longitudinal studies/ or prospective studies/ or retrospective studies/ (1681804)

28 exp case control studies/ (950490)

29 exp cohort studies/ (1792765)

30 (control\* adj2 (trial or study or studies)).ti,ab,kf. (326781)

31 (case control\* or case series or (cohort adj (analys\* or compar\* or data or study or studies))).ti,ab,kf. (342843)

32 ((observational or followup or follow-up) adj (data or study or studies)).ti,ab,kf. (155721)

33 (longitudinal or retrospective or prospective).ti,ab,kf. (1100474)

34 (case control\* or cohort? or follow-up or followup or longitudinal or prospective or retrospective or observational or population).ti. (592634)

35 (registry or registries).ti,ab,kf,hw. (141624)

36 (trial or study).ti,ab,kf. (7119324)

37 (case? adj4 control?).ab. (143788)

38 or/27-37 (8224376)

39 (systematic or structured or evidence or trials or studies).ti. and ((review or overview or look or examination or update\* or summary).ti. or review.pt.) (168847)

40 (0266-4623 or 1469-493X or 1366-5278 or 1530-440X or 2046-4053).is. (17232)

41 meta-analysis.pt. or (meta-analys\* or meta analys\* or metaanalys\* or meta synth\* or meta-synth\* or metasynth\*).ti,ab,kf,hw. (164371)

42 ((systematic or meta) adj2 (analys\* or review)).ti,kf. or ((systematic\* or quantitativ\* or methodologic\*) adj5 (review\* or overview\*)).ti,ab,kf,sh. or (quantitativ$ adj5 synthesis$).ti,ab,kf,hw. (203270)

43 (integrative research review\* or research integration).tw. or scoping review?.ti,kf. or (review.ti,kf,pt. and (trials as topic or studies as topic).hw.) or (evidence adj3 review\*).ti,ab,kf. (175267)

44 review.pt. and ((medline or medlars or embase or pubmed or scisearch or psychinfo or psycinfo or psychlit or psyclit or cinahl or electronic database\* or bibliographic database\* or computeri#ed database\* or online database\* or pooling or pooled or mantel haenszel or peto or dersimonian or der simonian or fixed effect or ((hand adj2 search\*) or (manual\* adj2 search\*))).tw,hw. or (retraction of publication or retracted publication).pt.) (137670)

45 or/39-44 (477526)

46 ("in data review" or in process or "pubmed not medline").st. (3159728)

47 26 and (38 or 45 or 46) (2653)

48 animals/ not humans/ (4477311)

49 47 not 48 (2607)

To ensure the same references were not screened twice, a duplicate screen was run with the results from both searches. The second search yield 2358 unique studies.