# Online Supplementary Material 1 – Search strategy

Search carried out on January 4th 2021

PICO process:

Patient/population: Adult patients with brain metastases

Intervention: Whole-brain radiotherapy (WBRT) and/or stereotactic radiosurgery (SRS)

Comparison/control: Not applicable

Outcome: Objective cognitive functioning

**Pubmed**

("Brain Neoplasms/secondary"[Mesh] OR brain metastas\*[Title/Abstract] OR metastatic brain\*[Title/Abstract])

AND

(Radiotherapy [MESH:NoExp] OR radiotherapy [Subheading] OR Radiosurgery [MESH] OR radiotherap\*[Title/Abstract] OR radiation therap\*[Title/Abstract] OR brain irradiation [Title/Abstract] OR radiosurg\*[Title/Abstract] OR stereotactic radio\* [Title/Abstract] OR SRS [Title/Abstract] OR SRT [Title/Abstract] OR gamma Knife [Title/Abstract] OR GKRS [Title/Abstract] OR GKS[Title/Abstract] OR GK[Title/Abstract] OR whole brain radio\* [Title/Abstract] OR WBRT [Title/Abstract])

AND

 (Neurocognitive Disorders [Mesh:NoExp] OR Cognition Disorders [Mesh:NoExp] OR Cognitive Dysfunction[Mesh] OR cognition [mesh] OR neuropsychology [MESH] OR Neuropsychological Tests [mesh] OR Memory [Mesh] OR Verbal learning [Mesh] OR Learning [Mesh] OR Psychomotor Performance [Mesh] OR Problem Solving [Mesh] OR Executive Function [Mesh] OR Mild Cognitive Impairment [Title/Abstract] OR Cogniti\*[Title/Abstract] OR Neuropsychology\* [Title/Abstract] OR Neurocogniti\* [Title/Abstract] OR NCF [Title/Abstract] OR Memory [Title/Abstract] OR Verbal Learning [Title/Abstract] OR Learning [Title/Abstract] OR Psychomotor Performance [Title/Abstract] OR Problem Solving [Title/Abstract] OR Executive Function [Title/Abstract] OR Digit Span [Title/Abstract] OR Digit Symbol [Title/Abstract] OR WAIS [Title/Abstract] OR Wechsler\* [Title/Abstract] OR WMS [Title/Abstract] OR Trail Making Test [Title/Abstract] OR TMT [Title/Abstract] OR Hopkins Verbal Learning Test [Title/Abstract] OR HVLT [Title/Abstract] OR Hopkins Verbal Learning Test Revised [Title/Abstract] OR Rey Auditory Verbal Learning Test [Title/Abstract] OR RAVLT [Title/Abstract]OR Pegboard [Title/Abstract] OR Controlled Oral Word Association\* [Title/Abstract] OR COWA [Title/Abstract] OR COWAT [Title/Abstract] OR Verbal Fluency [Title/Abstract] OR Semantic Fluency [Title/Abstract] OR Phonemic Fluency [Title/Abstract])

**Embase**

('brain metastasis'/exp OR 'brain metastas\*':ti,ab,kw OR 'metastatic brain\*':ti,ab,kw)

AND

('radiotherapy'/de OR 'radiosurgery'/de OR 'skull irradiation'/exp OR 'brain radiation'/exp OR 'stereotactic radiosurgery'/exp OR 'stereotactic radiotherapy'/exp OR 'gamma knife radiosurgery'/exp OR 'radiotherap\*':ti,ab,kw OR 'radiation therap\*':ti,ab,kw OR 'brain irradiation':ti,ab,kw OR 'radiosurg\*':ti,ab,kw OR 'stereotactic radio\*':ti,ab,kw OR 'srs':ti,ab,kw OR 'srt':ti,ab,kw OR 'gamma knife':ti,ab,kw OR 'gkrs':ti,ab,kw OR 'gks':ti,ab,kw OR 'gk':ti,ab,kw OR 'whole brain radio\*':ti,ab,kw OR 'wbrt':ti,ab,kw)

AND

('disorders of higher cerebral function'/de OR 'cognitive defect'/exp OR 'cognition'/de OR 'attention'/exp OR 'cognitive reserve'/exp OR 'executive function'/exp OR 'verbal learning'/exp OR 'mental capacity'/exp OR 'social cognition'/exp OR 'neuropsychology'/exp OR 'cognitive function test'/exp OR 'neuropsychological test'/exp OR 'memory'/exp OR 'memory disorder'/de OR 'amnesia'/exp OR 'attention disturbance'/exp OR 'psychomotor performance'/de OR 'mild cognitive impairment':ti,ab,kw OR 'cogniti\*':ti,ab,kw OR 'neuropsychology\*':ti,ab,kw OR 'neurocogniti\*':ti,ab,kw OR 'ncf':ti,ab,kw OR 'attention':ti,ab,kw OR 'memory':ti,ab,kw OR 'verbal learning':ti,ab,kw OR 'learning':ti,ab,kw OR 'psychomotor performance':ti,ab,kw OR 'problem solving':ti,ab,kw OR 'executive function':ti,ab,kw OR 'digit span':ti,ab,kw OR 'digit symbol':ti,ab,kw OR 'wais':ti,ab,kw OR 'wechsler\*':ti,ab,kw OR 'wms':ti,ab,kw OR 'trail making test':ti,ab,kw OR 'tmt':ti,ab,kw OR 'hopkins verbal learning test':ti,ab,kw OR 'hvlt':ti,ab,kw OR 'hopkins verbal learning test revised':ti,ab,kw OR 'rey auditory verbal learning test':ti,ab,kw OR 'ravlt':ti,ab,kw OR 'pegboard':ti,ab,kw OR 'controlled oral word association\*':ti,ab,kw OR 'cowa':ti,ab,kw OR 'cowat':ti,ab,kw OR 'verbal fluency':ti,ab,kw OR 'semantic fluency':ti,ab,kw OR 'phonemic fluency':ti,ab,kw)

AND [embase]/lim

AND ('article'/it OR 'article in press'/it)