**Literature search strategy**

**Appendix 1.** Search strategy for PubMed

((POCD) OR (postoperative cogniti\*) OR (post-operative cogniti\*) OR (postoperative neurocogniti\*) OR (post-operative neurocogniti\*) OR (PND) OR (perioperative neurocogniti\*) OR (peri-operative neurocogniti\*)) AND ((rSO2) OR (cerebral oximetry) OR (cerebral oxygen\*) OR (cerebral regional oxygen\*) OR (regional oxygen\*) OR (regional tissue oxygen\*) OR (oxygen saturation\*) OR (NIRS) OR (near infrared spectroscopy) OR (near-infrared spectroscopy) OR (near infra-red spectroscopy)) AND ((aged\*) OR (old\*) OR (ageing\*) OR (geriatric\*) OR (elder\*))

**Appendix 2.** Search strategy for Web of Science

TS=(POCD OR postoperative cogniti\* OR post-operative cogniti\* OR postoperative neurocogniti\* OR post-operative neurocogniti\* OR PND OR perioperative neurocogniti\* OR peri-operative neurocogniti\*) AND TS=(rSO2 OR cerebral oximetry OR cerebral oxygen\* OR cerebral regional oxygen\* OR regional oxygen\* OR regional tissue oxygen\* OR oxygen saturation\* OR NIRS OR “near” infrared spectroscopy OR near-infrared spectroscopy OR “near” infra-red spectroscopy) AND TS=(aged\* OR old\* OR ageing\* OR geriatric\* OR elder\*)

**Appendix 3.** Search strategy for Embase

#1

'POCD':ab,ti OR 'postoperative cogniti\*':ab,ti OR 'post-operative cogniti\*':ab,ti OR 'postoperative neurocogniti\*':ab,ti OR 'post-operative neurocogniti\*':ab,ti OR 'PND':ab,ti OR 'perioperative neurocogniti\*':ab,ti OR 'peri-operative neurocogniti\*':ab,ti

#2

'rSO2':ab,ti OR 'cerebral oximetry':ab,ti OR 'cerebral oxygen\*':ab,ti OR 'cerebral regional oxygen\*':ab,ti OR 'regional oxygen\*':ab,ti OR 'regional tissue oxygen\*':ab,ti OR 'oxygen saturation\*':ab,ti OR 'nirs':ab,ti OR 'near infrared spectroscopy':ab,ti OR 'near-infrared spectroscopy':ab,ti OR 'near infra-red spectroscopy':ab,ti

# 3

'aged\*':ab,ti OR 'old\*':ab,ti OR 'ageing\*':ab,ti OR 'geriatric\*':ab,ti OR 'elder\*':ab,ti

# 4

#1 AND #2 AND #3

**Appendix 4.** Search strategy for Cochrane Library

#1

"POCD":ti,ab,kw OR "postoperative cogniti\*":ti,ab,kw OR "post-operative cogniti\*":ti,ab,kw OR "postoperative neurocogniti\*":ti,ab,kw OR "post-operative neurocogniti\*":ti,ab,kw OR "PND":ti,ab,kw OR " perioperative neurocogniti\*":ti,ab,kw OR " peri-operative neurocogniti\*":ti,ab,kw

#2

"rSO2":ti,ab,kw OR "cerebral oximetry":ti,ab,kw OR "cerebral oxygen\*":ti,ab,kw OR "cerebral regional oxygen\*":ti,ab,kw OR "regional oxygen\*":ti,ab,kw OR "regional tissue oxygen\*":ti,ab,kw OR "oxygen saturation\*":ti,ab,kw OR "NIRS":ti,ab,kw OR "near infrared spectroscopy":ti,ab,kw OR "near-infrared spectroscopy":ti,ab,kw OR "near infra-red spectroscopy":ti,ab,kw

# 3

"aged\*":ti,ab,kw OR "old\*":ti,ab,kw OR "ageing\*":ti,ab,kw OR "geriatric\*":ti,ab,kw OR "elder\*":ti,ab,kw

# 4

#1 AND #2 AND #3