

Supplementary Material A: Search string pain

Search strings for dyspnea, death rattle, fever, nausea and vomiting are available upon request.

MEDLINE/Pubmed

(“Nursing Homes”[MeSH Terms] OR "Nursing Home*" [Title/Abstract] OR “Housing for the Elderly”[MeSH Terms] OR “Housing for the Elderly”[Title/Abstract] OR “Homes for the Aged”[MeSH Terms] OR "Homes for the Aged"[Title/Abstract] OR “Long-term care”[MeSH Terms] OR “Long-term care”[Title/Abstract] OR “Long term care”[Title/Abstract] OR “Aged care facilit*”[Title/Abstract] OR “Aged, 80 and over”[MeSH Terms] OR "Elderly"[Title/Abstract] OR “Geriatrics”[MeSH Terms] OR “Geriatr*”[Title/Abstract] OR “Older patient*”[Title/Abstract] OR “Older person*”[Title/Abstract] OR “Older adult*”[Title/Abstract] OR “Advanced age”[Title/Abstract] OR “Octogenarian*”[Title/Abstract] OR “Nonagenarian*”[Title/Abstract] OR “Centenarian*”[Title/Abstract] OR “Frailty”[MeSH Terms] OR "Frail elderly"[Mesh] OR “Frail*”[Title/Abstract] OR “Vulnerable”[Title/Abstract] OR “Dementia”[MeSH Terms] OR “Dement*”[Title/Abstract] OR “Cognitive disease*”[Title/Abstract] OR “Cognitive decline”[Title/Abstract] OR “Cognitive impairment”[Title/Abstract] OR “Multimorbidity”[MeSH Terms] OR “Multimorbidit*”[Title/Abstract] OR “Polypatholog*”[Title/Abstract] OR “Multipatholog*”[Title/Abstract] OR “Cognitive dysfunction”[MeSH Terms] OR “Cognitive dysfunction*”[Title/Abstract] OR “Cognitive disfunction*”[Title/Abstract] OR “Cognitive disorder*”[Title/Abstract] OR “Neurocognitive disorders”[MeSH Terms] OR “Neurocognitive disorder*”[Title/Abstract] OR “Neurocognitive decline”[Title/Abstract] OR “Neurocognitive impairment”[Title/Abstract] OR “Neurocognitive disease”[Title/Abstract] OR "Aged"[MeSH Terms] OR "Aging"[Title/Abstract])
AND
(“Terminal Care”[MeSH Terms] OR “Terminal care”[Title/Abstract] OR “Terminal Treatment*”[Title/Abstract] OR “Terminal Condition”[Title/Abstract] OR "Terminal Disease*" [Title/Abstract] OR “Terminal Illness”[Title/Abstract] OR “Terminally ill”[Title/Abstract] OR “Terminally Sick*”[Title/Abstract] OR “Terminal Stadi*”[Title/Abstract] OR “Terminal Stag*”[Title/Abstract] OR “Terminal Phase*”[Title/Abstract] OR “Death”[MeSH Terms] OR “Deathbed”[Title/Abstract] OR “Dying”[Title/Abstract] OR “Last Day”[Title/Abstract] OR “Last days”[Title/Abstract] OR “Final day”[Title/Abstract] OR “Final days”[Title/Abstract] OR “Last Minute*”[Title/Abstract] OR “Final minute*”[Title/Abstract] OR “Last Hour*”[Title/Abstract] OR “Final hour*”[Title/Abstract] OR “Last Week*”[Title/Abstract] OR “Final week*”[Title/Abstract] OR “Final moment*”[Title/Abstract] OR “End of life”[Title/Abstract] OR “End-of-life”[Title/Abstract] OR “Palliative Medicine”[MeSH Terms] OR “Hospice and palliative care nursing”[MeSH Terms] OR “Palliative care”[MeSH Terms] OR “Palliative”[Title/Abstract] OR “Hospice Care”[MeSH Terms] OR “Hospice”[Title/Abstract] OR “Life Threatening”[Title/Abstract] OR “Palliation”[Title/Abstract] OR “Supportive Care”[Title/Abstract] OR “Supportive Treatment”[Title/Abstract] OR “Supportive Management”[Title/Abstract] OR “Patient comfort”[MeSH Terms] OR “Comfort*”[Title/Abstract] OR “Symptom relief”[Title/Abstract])
AND
(“Pharmacology”[MeSH Terms] OR “Pharmac*”[Title/Abstract] OR "Drug therapy"[MeSH Terms] OR "Drug therap*" [Title/Abstract] OR “Analgesics”[MeSH Terms] OR “Analgesic*”[Title/Abstract] OR “Analgesia”[MeSH Terms] OR “Analgesia”[Title/Abstract] OR “Analgesics, Opioid”[MeSH Terms] OR “Opioid*”[Title/Abstract] OR “Opiate alkaloids”[MeSH Terms] OR “Opiat*”[Title/Abstract] OR “narcotic*”[Title/Abstract] OR “Tramadol”[MeSH Terms] OR “Tramadol”[Title/Abstract] OR “Morphine”[MeSH Terms] OR “Morphin*”[Title/Abstract] OR “Morfin*”[Title/Abstract] OR “Oxycodone”[MeSH Terms] OR “Oxycodon*”[Title/Abstract] OR “Oxicodon*”[Title/Abstract] OR “Hydromorphone”[MeSH Terms] OR “Hydromorphin*”[Title/Abstract] OR “Hydromorphon*”[Title/Abstract] OR “Buprenorphine”[MeSH Terms] OR “Buprenorphin*”[Title/Abstract] OR “Buprenorfin*”[Title/Abstract] OR “Fentanyl”[MeSH Terms] OR “Fentanyl”[Title/Abstract] OR “Phentanyl”[Title/Abstract] OR “Fentanil”[Title/Abstract] OR “Pirinitramide”[MeSH Terms] OR “Piritramid*”[Title/Abstract] OR “Dipidolor*”[Title/Abstract] OR “Dipydolor*”[Title/Abstract] OR “Naltrexone”[MeSH Terms] OR “Methylnaltrexon*”[Title/Abstract] OR “Naltrexon*”[Title/Abstract] OR “Methadone”[MeSH Terms] OR “Methadon*”[Title/Abstract] OR “Anti-Inflammatory Agents, Non-Steroidal”[MeSH Terms] OR “Non-Steroidal Anti-inflammatory”[Title/Abstract] OR “NSAID*”[Title/Abstract] OR “Acetaminophen”[MeSH Terms] OR “Acetaminophen”[Title/Abstract] OR “paracetamol”[Title/Abstract] OR “Aspirin”[MeSH Terms] OR “Aspirin*”[Title/Abstract] OR “Dipyrrone”[MeSH Terms] OR “Dipyrrone”[Title/Abstract] OR “Metamizol*”[Title/Abstract] OR “methamizol*”[Title/Abstract] OR “Novalg*”[Title/Abstract] OR “Dipyrionium”[Title/Abstract] OR “Biopyrin”[Title/Abstract] OR “Pyralgin”[Title/Abstract] OR “Novaminsulfon*”[Title/Abstract] OR “Sulpyrin*”[Title/Abstract] OR “Optalgin*”[Title/Abstract] OR “Noramidopyrin*”[Title/Abstract] OR “Novamid*”[Title/Abstract] OR “Methampyrone*”[Title/Abstract] OR “Algopyrin*”[Title/Abstract] OR “Analgin*”[Title/Abstract] OR “Naron*”[Title/Abstract] OR “Nefopam”[MeSH Terms] OR “Nefopam”[Title/Abstract] OR "Aceclofenac" [Supplementary Concept] OR “aceclofenac”[Title/Abstract] OR “Diclofenac”[MeSH Terms] OR “Diclofenac”[Title/Abstract] OR “Ketorolac”[MeSH Terms] OR “Ketorolac”[Title/Abstract] OR “Ibuprofen”[MeSH Terms] OR “Ibuprofen”[Title/Abstract] OR “Naproxen”[MeSH Terms] OR “Naproxen”[Title/Abstract] OR “Meloxicam”[MeSH Terms] OR “Meloxicam”[Title/Abstract] OR “Piroxicam”[MeSH Terms] OR “Piroxicam”[Title/Abstract] OR “Tenoxicam” [Supplementary Concept] OR “Tenoxicam”[Title/Abstract] OR “Celecoxib”[MeSH Terms] OR “Celecoxib”[Title/Abstract] OR “Etoricoxib”[MeSH Terms] OR “Etoricoxib”[Title/Abstract] OR “Parecoxib” [Supplementary Concept] OR “Parecoxib”[Title/Abstract] OR “Glucocorticoids”[MeSH Terms] OR “Glucocorticoid*”[Title/Abstract] OR “Corticosteroid*”[Title/Abstract] OR “Betamethasone”[MeSH Terms] OR “Betamethason*”[Title/Abstract] OR “Dexamethasone”[MeSH Terms] OR “Dexamethason*”[Title/Abstract] OR “Methylprednisolone”[MeSH Terms] OR “Methylprednisolon*”[Title/Abstract] OR “Prednisolone”[MeSH Terms] OR “Prednisolon*”[Title/Abstract] OR “Prednisone”[MeSH Terms] OR “Prednison*”[Title/Abstract] OR “Hydrocortisone”[MeSH Terms] OR “Hydrocortison*”[Title/Abstract] OR “Carbamazepine”[MeSH Terms] OR “Carbamazepin*”[Title/Abstract] OR “Gabapentin”[MeSH Terms] OR “Gabapentin*”[Title/Abstract] OR “Pregabalin”[MeSH Terms] OR “Pregabalin*”[Title/Abstract] OR “Phenytoin”[MeSH Terms] OR “Phenytoin”[Title/Abstract] OR “Topiramate”[MeSH Terms] OR “Topiram*”[Title/Abstract] OR “Ketamine”[MeSH Terms] OR “Ketamin*”[Title/Abstract] OR “Clonidine”[MeSH Terms] OR “Clonidin*”[Title/Abstract] OR “Lidocaine”[MeSH Terms] OR “Lidocain*”[Title/Abstract] OR “Xylocain*”[Title/Abstract] OR "Butylscopolammonium Bromide"[MeSH Terms] OR “Butylscopol*”[Title/Abstract] OR “Butylhyoscin*”[Title/Abstract] OR “Scopolamine”[MeSH Terms] OR “Scopolamin*”[Title/Abstract])
AND
(“Pain”[MeSH Terms] OR “Pain”[Title/Abstract] OR “Pain Management”[MeSH Terms] OR “Painfull”[Title/Abstract] OR “Breakthrough Pain” [MeSH Terms] OR “Discomfort”[Title/Abstract] OR “Dyscomfort”[Title/Abstract] OR “Suffering”[Title/Abstract] OR “Agon*”[Title/Abstract] OR “Aching”[Title/Abstract] OR “Hurt*” [Title/Abstract] OR “Polyneuropathies”[MeSH Terms] OR “Polyneuropath*”[Title/Abstract] OR “Neuropath*”[Title/Abstract] OR “Neuralgia”[MeSH Terms] OR “Neuralg*”[Title/Abstract] OR “Antalg*”[Title/Abstract] OR “Colic”[MeSH Terms] OR “Colic*”[Title/Abstract] OR “Cramp*”[Title/Abstract] OR “Cancer pain”[MeSH Terms] OR “Cancer pain”[Title/Abstract])
NOT
(“Veterinary” [Subheading] OR “Veterinary”[Title/Abstract] OR “Animals”[MeSH Terms:noexp] OR "Models, Animal"[MeSH Terms] OR "Rodentia"[MeSH Terms] OR "Animal Experimentation"[MeSH Terms] OR "Animals, laboratory"[MeSH Terms] OR "Animal*" [Title/Abstract] OR "Mice"[Title/Abstract] OR "Mouse"[Title/Abstract] OR "Rats"[Title/Abstract] OR "Rat"[Title/Abstract] OR “In Vitro Techniques”[MeSH Terms] OR “In vitro”[Title/Abstract] OR “Cells”[MeSH Terms] OR

“Cell”[Title] OR “Child”[MeSH Terms] OR "Infant"[MeSH Terms] OR “Infant*”[Title/Abstract] OR “Adolescent”[MeSH Terms] OR “Adolescent*”[Title/Abstract] OR “Juvenile*”[Title/Abstract] OR "Pediatrics"[MeSH Terms] OR "Pediatric*”[Title/Abstract] OR "Paediatric*”[Title/Abstract] OR “Substance-Related Disorders”[MeSH Terms] OR “Addiction Medicine”[MeSH Terms] OR "Addiction Medicine"[Title/Abstract] OR “Surgical procedures, Operative”[MeSH Terms] OR “Surgical procedure*”[Title/Abstract] OR “Operating Rooms”[MeSH Terms] OR “Operating room*”[Title/Abstract] OR “Specialties, surgical”[MeSH Terms] OR “Intensive care units”[MeSH Terms] OR “Intensive care”[Title/Abstract] OR "Antineoplastic Agents"[MeSH Terms] OR “Chemotherap*”[Title/Abstract] OR “Psychiatric Department, Hospital”[MeSH Terms] OR “Psychiatric Department*”[Title/Abstract] OR “Psychiatric Service*”[Title/Abstract] OR “Psychiatric Ward*”[Title/Abstract] OR “Letter”[Publication Type] OR “Correspondence as topic”[MeSH Terms] OR “Editorial”[Publication Type] OR “Comment”[Publication Type] OR “Case Reports”[Publication Type] OR “Letter”[Title/Abstract] OR “Comment”[Title] OR “Case report*”[Title/Abstract] OR “Case”[Title] OR “Address”[Publication Type] OR “Clinical trial, veterinary”[Publication type])

EMBASE

('Nursing home'/exp OR 'Nursing home\$':ti,ab OR 'Institutionalized elderly'/exp OR Institutionalized NEAR/3 elderly OR 'Home for the aged'/exp OR home\$ NEAR/4 aged OR 'Long-term care' NEAR/3 facilit* OR 'Long term care' NEAR/3 facilit* OR 'Aged care facilit*':ti,ab OR 'Very elderly'/exp OR 'elderly':ti,ab OR 'Aged hospital patient'/exp OR 'Aged hospital patient':ti,ab OR 'Geriatric care'/exp OR 'Geriatrics'/de OR 'Geriatr*':ti,ab OR 'Older patient\$':ti,ab OR 'Older person\$':ti,ab OR 'Older adult\$':ti,ab OR 'Advanced age':ti,ab OR 'Octogenarian\$':ti,ab OR 'Nonagenarian\$':ti,ab OR 'Centenarian\$':ti,ab OR 'Frailty'/exp OR 'Frail elderly'/exp OR 'Frail':ti,ab OR 'Frailty':ti,ab OR 'Vulnerable population'/exp OR 'Dementia'/de OR 'Dement*':ti,ab OR 'Cognitive aging'/de OR 'Cognitive decline':ti,ab OR 'Cognitive impairment':ti,ab OR 'Cognitive defect'/de OR 'Cognitive dysfunction*':ti,ab OR 'Cognitive disfunction*':ti,ab OR 'Cognitive disorder\$':ti,ab OR 'Memory disorder'/de OR 'Neurocognitive disorder\$':ti,ab OR 'Neurocognitive decline':ti,ab OR 'Multiple chronic conditions'/exp OR 'Multimorbidit*':ti,ab OR 'Polypatholog*':ti,ab OR 'Multipatholog*':ti,ab OR 'Aged'/de OR 'Aging'/de OR 'Aging':ti,ab)

AND
(‘Terminal care’/de OR ‘Terminal care’:ti,ab OR ‘Terminal treatment\$’:ti,ab OR ‘Terminal condition\$’:ti,ab OR ‘Terminal disease’/exp OR ‘Terminal disease\$’:ti,ab OR ‘Terminal illness’:ti,ab OR ‘Terminally ill patient’/exp OR ‘Terminally ill’:ti,ab OR ‘Terminally sick’:ti,ab OR ‘Terminal stadi*’:ti,ab OR ‘Terminal stag*’:ti,ab OR ‘Terminal phase\$’:ti,ab OR ‘Dying’/exp OR ‘Deathbed’:ti,ab OR ‘Dying’:ti,ab OR last NEAR/1 day\$ NEAR/3 life OR final NEAR/1 day\$ NEAR/3 life OR last NEAR/1 minute\$ NEAR/3 life OR final NEAR/1 minute\$ NEAR/3 life OR last NEAR/1 hour\$ NEAR/3 life OR final NEAR/1 hour\$ NEAR/3 life OR last NEAR/1 week\$ NEAR/3 life OR final NEAR/1 week\$ NEAR/3 life OR ‘Final moment\$’:ti,ab OR ‘End-of life’/exp OR ‘End of life’:ti,ab OR ‘End-of-life’:ti,ab OR ‘Palliative therapy’/de OR ‘Palliative’/exp OR ‘Hospice’/exp OR ‘Hospice care’/exp OR ‘Hospice’:ti,ab OR ‘Palliation’:ti,ab OR ‘Supportive care’/exp OR ‘Supportive care’:ti,ab OR ‘Supportive treatment\$’:ti,ab OR ‘Supportive Management’:ti,ab OR ‘Patient comfort’/exp OR ‘Patient comfort’:ti,ab OR ‘Symptom relief’:ti,ab)

AND
(‘morphin*’:ti,ab OR 'morfin*':ti,ab OR 'morphine':ti,ab OR 'oxycodone'/exp OR 'oxycodone':ti,ab OR 'oxycodon*':ti,ab OR 'oxicodone':ti,ab OR 'hydromorphone':ti,ab OR 'hydromorphine':ti,ab OR 'buprenorphine':ti,ab OR 'buprenorphin*':ti,ab OR 'buprenorfine':ti,ab OR 'buprenorfin*':ti,ab OR 'fentanyl derivative'/exp OR 'fentanyl':ti,ab OR 'phentanyl':ti,ab OR 'fentanil':ti,ab OR 'Pirinitramide':ti,ab OR 'Pirinitramid*':ti,ab OR 'dipidolor':ti,ab OR 'dipydolor':ti,ab OR 'naltrexone'/exp OR 'naltrexon\$':ti,ab OR 'naltrexon*':ti,ab OR 'methylnaltrexon\$':ti,ab OR 'methylnaltrexon*':ti,ab OR 'methadone'/exp OR 'methadone':ti,ab OR 'methadon*':ti,ab OR 'antiinflammatory agent'/exp OR 'Non-Steroidal Anti-Inflammatory':ti,ab OR 'NSAID\$':ti,ab OR 'paracetamol'/exp OR 'paracetamol':ti,ab OR 'acetaminophen':ti,ab OR 'acetylsalicylic acid'/exp OR 'aspirin':ti,ab OR 'dipyron'/exp OR 'dipyron':ti,ab OR 'metamizol\$':ti,ab OR 'methamizol\$':ti,ab OR 'novalg*':ti,ab OR 'dipyrionium':ti,ab OR 'biopyrrin'/exp OR 'biopyrrin':ti,ab OR 'Pyralgin':ti,ab OR 'Novaminsulfon':ti,ab OR 'Sulpyrin\$':ti,ab OR 'optalgin'/exp OR 'optalgin':ti,ab OR 'Noramidopyrin\$':ti,ab OR 'Novamid*':ti,ab OR 'Methampyrone':ti,ab OR 'Algopyrin\$':ti,ab OR 'Analgin\$':ti,ab OR 'naron\$':ti,ab OR 'nefopam':ti,ab OR 'Aceclofenac':ti,ab OR 'diclofenac':ti,ab OR 'Ketorolac':ti,ab OR 'ibuprofen':ti,ab OR 'naproxen':ti,ab OR 'meloxicam':ti,ab OR 'piroxicam':ti,ab OR 'tenoxicam':ti,ab OR 'celecoxib':ti,ab OR 'Etoricoxib':ti,ab OR 'Parecoxib':ti,ab OR 'glucocorticoid'/exp OR 'glucocorticoid\$':ti,ab OR 'corticosteroid'/exp OR 'corticosteroid\$':ti,ab OR 'Betamethason\$':ti,ab OR 'Betamethason*':ti,ab OR 'Dexamethason\$':ti,ab OR 'Methylprednisolon\$':ti,ab OR 'Methylprednisolon*':ti,ab OR 'prednisolon\$':ti,ab OR 'prednisolon*':ti,ab OR 'Prednison\$':ti,ab OR 'Prednison*':ti,ab OR 'Hydrocortison\$':ti,ab OR 'Hydrocortison\$':ti,ab OR 'carbamazepine'/exp OR 'carbamazepine\$':ti,ab OR 'gabapentin'/exp OR 'gabapentin\$':ti,ab OR 'Pregabalin\$':ti,ab OR 'phenytoin'/exp OR 'phenytoin':ti,ab OR 'topiramate'/exp OR 'topiramate':ti,ab OR 'topiram*':ti,ab OR 'ketamine'/exp OR 'ketamin\$':ti,ab OR 'clonidine'/exp OR 'clonidin\$':ti,ab OR 'lidocaine'/exp OR 'lidocain\$':ti,ab OR 'Xylocain\$':ti,ab OR 'scopolamine butyl bromide'/exp OR 'butylscopol*':ti,ab OR 'Butylhyoscin\$':ti,ab OR 'Butylhyoscin*':ti,ab OR 'scopolamine'/exp OR 'scopolamin\$':ti,ab OR 'scopolamin*':ti,ab)

AND
(‘pain’/exp OR 'analgesia'/exp OR 'pain management':ti,ab OR 'Breakthrough Pain':ti,ab OR 'pain':ti,ab OR 'painful':ti,ab OR 'discomfort'/exp OR 'discomfort':ti,ab OR 'dyscomfort':ti,ab OR 'suffering'/exp OR 'suffering':ti,ab OR 'agony'/exp OR 'agony':ti,ab OR 'aching':ti,ab OR 'hurt':ti,ab OR 'hurt*':ti,ab OR 'polyneuropathy'/exp OR 'polyneuropathy':ti,ab OR 'polyneuropath*':ti,ab OR 'neuralgia'/exp OR 'neuralgia':ti,ab OR 'neuralg*':ti,ab OR 'analgesic agent'/exp OR 'antalgic':ti,ab OR 'colic'/exp OR 'colic*':ti,ab OR 'cramp\$':ti,ab OR 'cancer pain':ti,ab)

NOT
(‘Veterinary medicine’/exp OR ‘Veterinary study’/exp OR ‘Veterinary’:ti,ab OR ‘Animal’/de OR ‘Animal model’/exp OR ‘Rodent’/exp OR ‘Animal experiment’/exp OR ‘Experimental animal’/exp OR ‘Animal tissue, cells or cell components’/exp OR ‘Animals’:ti,ab OR ‘Mouse’/exp OR ‘Mouse’:ti,ab OR ‘Mice’:ti,ab OR ‘Rat’/exp OR ‘Rat\$’:ti,ab OR ‘In vitro study’/exp OR ‘In vitro’:ti,ab OR ‘Cells’/exp OR ‘Cell*’:ti,ab OR ‘Child’/exp OR ‘Infant’/exp OR ‘Infant\$’:ti,ab OR ‘Adolescent’/exp OR ‘Adolescent\$’:ti,ab OR ‘Juvenile’/exp OR ‘Juvenile\$’:ti,ab OR ‘Young adult’/exp OR ‘Pedicatrics’/exp OR ‘Pediatric\$’:ti,ab OR ‘Paediatric\$’:ti,ab OR ‘Drug dependence’:exp OR ‘Addiction medicine’/exp OR ‘Addiction Medicine’:ti,ab OR ‘Surgery’/exp OR ‘Surgical procedure\$’:ti,ab OR ‘Operating room’/exp OR ‘Operating room\$’:ti,ab OR ‘Intensive care’/exp OR ‘Intensive care unit\$’:ti,ab OR ‘Cancer chemotherapy’/exp OR Palliative NEAR/2 chemotherapy OR ‘Psychiatric department’/exp OR ‘Psychiatric department\$’:ti,ab OR ‘Psychiatric service\$’:ti,ab OR ‘Psychiatric ward\$’:ti,ab OR ‘Letter’/exp OR ‘Note’/exp OR ‘Editorial’/exp OR ‘Case report’/exp OR ‘Letter\$’:ti,ab OR ‘Editorial’:ti,ab OR ‘Case’:ti OR ‘Case report’:ti,ab)

Supplementary Material B: MMAT

Randomized controlled trials (RCT)		Clear research question? (S1)	Collected data addresses research questions? (S2)	Appropriate randomization? (2.1)	Comparable groups at baseline? (2.2)	Complete outcome data? (2.3)	Outcome assessors blinded? (2.4)	Did participants adhere to the intervention? (2.5)	Comments
Clark et al. (Australia, 2008)	Death rattle	Yes	Yes	Yes	Yes	Yes	Yes	Yes	. Main goal of the study was to achieve consent and conduct of a RCT at the end of life. . New questionnaire was developed. . Only descriptive data.
Heisler et al. (USA, 2013)	Death rattle	Yes	Yes	Yes	Yes	No	Yes	Yes	. 20% of patients died during study protocol. . Single dose study with short follow-up. . Trial was stopped prematurely because of futility.
Mercadante et al. (Italy, 2018)	Death rattle	Yes	Yes	Yes	Yes	Yes	No	Yes	. 40% palliative sedation in prophylactic group vs 61.4%.
Van Esch et al. (the Netherlands, 2018 and 2021)	Death rattle	Yes	Yes	Yes	No	Yes	Yes	Yes	. Scopolamine group had more patients with history of COPD, lung cancer and recent smoking.
Wildiers et al. (2009, Belgium)	Death rattle	Yes	Yes	Yes	Yes	Yes	No	Yes	. No placebo control group. . Not blinded.
Quantitative non-randomized studies		Clear research question? (S1)	Collected data addresses research questions? (S2)	Representative population? (3.1)	Appropriate measurements regarding outcome and intervention? (3.2)	Complete outcome data? (3.3)	Confounders accounted for? (3.4)	Intervention administered as intended? (3.5)	Comments
Fürst et al. (Sweden, 2020)	Pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	. Required survival >3days after starting CSCI. - Sedated patients were excluded. Includes some patients <65y.
Golcic et al. (Croatia, 2020)	Pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	. Only 83.9% of patients died in the hospice.

Hugel et al. (2006, UK)	Death rattle	Yes	Yes	Yes	Yes	No	No	Yes	. Time period of collected data differs between the two groups, 1999 vs 2002. . Significant difference in survival. . Possible observer bias. . 10.7% non-recorded observations in hyoscine group vs 1.4%.
Mori et al. (2021, Japan)	Dyspnea	Yes	Yes	Unclear	Yes	Yes	No	Yes	. Time until death is only mentioned as a median duration. Some patients might have survived for a longer period than the scope of our review.
Rashidi et al. (Australia, 2011)	Dyspnea and pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	. Significantly different scores appetite, bowel problems and nausea while evaluation of gastrointestinal complaints is very challenging in the dying phase. . No reason for the prescriptions was given.
Quantitative descriptive studies		Clear research question? (S1)	Collected data addresses research questions? (S2)	Relevant sampling strategy? (4.1)	Representative sampling strategy? (4.2)	Appropriate measurements? (4.3)	Low risk of nonresponsive bias? (4.4)	Appropriate statistical analysis? (4.5)	Comments
Benitez-Rosario et al. (Spain, 2018)	Dyspnea	Yes	Yes	Yes	Yes	Yes	No	Yes	. High attrition rate 81.9%. . Patients whom it was difficult to assess symptom intensity derived from mental deterioration were excluded from the study. . The only patients without relief of dyspnea were excluded after 24h.
Golcic et al. (Croatia, 2018)	Pain	No	Unclear	Yes	Yes	Yes	Yes	Yes	. When assuming the research question as stated in table 1-2 all requirements are met. . Oncology population with prior exposure to opioids. . No pain score was measured.

									. Effect on pain not reported, no side effects e.g. constipation or delirium reported. . Only 83.8% of patients died in the hospice
Matsuda et al. (Japan, 2017)	Dyspnea	Yes	Yes	Yes	Yes	Yes	Yes	Yes	. Last observation carried forward method for 4 out of 25 patients unable to rate dyspnea on NRS after 2 or 4 hours (due to sleep or decreased consciousness). . All patients with interstitial pneumonia.
Wildiers et al. (Belgium, 2002)	Death rattle	No	/	/	/	/	/	/	. Vague research question.