Supplementary

Appendix 1

Search strategy by database

Medline

- 1. Palliative Care/
- 2. terminal care/ or hospice care/
- 3. hospice.ti,ab,kf.
- 4. end of life.ti,ab,kf.
- 5. terminal*.ti,ab,kf.
- 6. palliative*.ti,ab,kf.
- 7. "serious* ill*".ti,ab,kf.
- 8. (("late stage" or advanced) adj3 (cancer or disease or illness)).ti,ab,kf.
- 9. or/1-8
- 10. health personnel/ or allied health personnel/ or case managers/ or medical staff/ or medical staff, hospital/ or hospitalists/ or nurses/ or nurse practitioners/ or nurse specialists/ or nurses, community health/ or nursing staff/ or exp physicians/
- 11. ((healthcare or care*) adj2 (provider* or person?el or professional* or staff)).ti,ab,kf.
- 12. ((health or community) adj1 (provider* or person?el or professional* or staff)).ti,ab,kf.
- 13. (nurse\$ or doctor\$ or team\$ or "primary care" or physician\$ or clinician\$).ti,kf.

14. or/10-13

- 15. exp Clinical Trial/
- 16. clinical trial*.ti,ab,kw.
- 17. exp Clinical Trials as Topic/
- 18. random*.ti,ab,kf.
- 19. rct*.ti,ab,kf.
- 20. nonrandom*.ti,ab,kf.
- 21. ((singl* or doubl* or tripl* or trebl*) adj3 (blind* or mask* or method* or procedure*)).ti,ab,kf.
- 22. single blind method/
- 23. double blind method/
- 24. Random Allocation/
- 25. systematic review*.ti,ab,kf,pt.
- 26. meta-analysis*.ti,ab,kf,pt.
- 27. or/15-26
- 28. education/ or inservice training/ or staff development/
- 29. ("knowledge based" or "program*" or "train*" or "education*" or "classroom" or "learning" or "teach*" or "simulation*" or "course*" or "curriculum*").ti,ab,kf.
- 30. 28 or 29
- 31. (practice* or behav* or competenc* or confidence or skill* or abilit* or quality or comfort or experience* or proficien* or expertise or provision* or knowledge or leadership or perception*).ti,ab,kf.
- 32. Health Knowledge, Attitudes, Practice/
- 33. professional competence/ or clinical competence/
- 34. or/31-33
- 35. 9 and 14 and 27 and 30 and 34
- 36. limit 35 to (english language and humans and yr="2000 2021")

EMBASE

- 1. Palliative Care/
- 2. terminal care/ or hospice care/
- 3. hospice.tw

- 4. end of life.tw.
- 5. terminal*.tw.
- 6. palliative*.tw.
- 7. "serious* ill*".tw.
- 8. (("late stage" or advanced) adj3 (cancer or disease or illness)).tw.
- 9. or/1-8
- 10. health personnel/ or allied health personnel/ or case managers/ or medical staff/ or medical staff, hospital/ or hospitalists/ or nurses/ or nurse practitioners/ or nurse specialists/ or nurses, community health/ or nursing staff/ or physicians/
- 11. ((healthcare or care*) adj2 (provider* or person?el or professional* or staff)).ti.
- 12. ((hospital or medical or health or community) adj1 (provider* or person?el or professional* or staff)).ti.
- 13. (nurse\$ or doctor\$ or team\$ or "primary care" or physician\$ or clinician\$ or nursing staff).ti.
- 14. or/11-13
- 15. exp Clinical Trial/
- 16. clinical trial*.tw.
- 17. exp "clinical trial (topic)"/
- 18. random*.ti,ab,kw.
- 19. rct*.ti,ab,kw.
- 20. nonrandom*.ti,ab,kw.
- 21. ((singl* or doubl* or tripl* or trebl*) adj3 (blind* or mask* or method* or procedure*)).ti,ab,kw.
- 22. single blind procedure/
- 23. double blind procedure/
- 24. randomization/
- 25. systematic review*.tw.
- 26. meta-analysis*.tw.
- 27. or/15-26
- 28. education/ or inservice training/ or staff development/
- 29. ("knowledge based" or "program*" or "train*" or "education*" or "classroom" or "learning" or "teach*" or "simulation*" or "course*" or "curriculum*").tw.
- 30. 28 or 29
- 31. (practice* or behav* or competenc* or confidence or skill* or abilit* or quality or comfort or experience* or proficien* or expertise or provision* or knowledge or leadership or perception*).tw.
- 32. Health Knowledge, Attitudes, Practice/
- 33. professional competence/ or clinical competence/
- 34. or/31-33
- 35. 9 and 14 and 27 and 30 and 34
- 36. limit 35 to (english language and humans and yr="2000 2022")

Healthstar

- 1. Palliative Care/
- 2. terminal care/ or hospice care/
- 3. hospice.ti,ab,kf.
- 4. end of life.ti,ab,kf.
- 5. terminal*.ti,ab,kf.
- 6. palliative*.ti,ab,kf.
- 7. "serious* ill*".ti,ab,kf.
- 8. (("late stage" or advanced) adj3 (cancer or disease or illness)).ti,ab,kf.
- 9. or/1-8
- 10. health personnel/ or allied health personnel/ or case managers/ or medical staff/ or medical staff, hospital/ or hospitalists/

- or nurses/ or nurse practitioners/ or nurse specialists/ or nurses, community health/ or nursing staff/ or exp physicians/
- 11. ((healthcare or care*) adj2 (provider* or person?el or professional* or staff)).ti,ab,kf.
- 12. ((health or community) adj1 (provider* or person?el or professional* or staff)).ti,ab,kf.
- 13. (nurse\$ or doctor\$ or team\$ or "primary care" or physician\$ or clinician\$).ti,kf.
- 14. or/10-13
- 15. exp Clinical Trial/
- 16. clinical trial*.ti,ab,kw.
- 17. exp Clinical Trials as Topic/
- 18. random*.ti,ab,kf.
- 19. rct*.ti,ab,kf.
- 20. nonrandom*.ti,ab,kf.
- 21. ((singl* or doubl* or tripl* or trebl*) adj3 (blind* or mask* or method* or procedure*)).ti,ab,kf.
- 22. single blind method/
- 23. double blind method/
- 24. Random Allocation/
- 25. systematic review*.ti,ab,kf,pt.
- 26. meta-analysis*.ti,ab,kf,pt.
- 27. or/15-26
- 28. education/ or inservice training/ or staff development/
- 29. ("knowledge based" or "program*" or "train*" or "education*" or "classroom" or "learning" or "teach*" or "simulation*" or "course*" or "curriculum*").ti,ab,kf.
- 30. 28 or 29
- 31. (practice* or behav* or competenc* or confidence or skill* or abilit* or quality or comfort or experience* or proficien* or expertise or provision* or knowledge or leadership or perception*).ti,ab,kf.
- 32. Health Knowledge, Attitudes, Practice/
- 33. professional competence/ or clinical competence/
- 34. or/31-33
- 35. 9 and 14 and 27 and 30 and 34
- 36. limit 35 to (english language and humans and yr="2000 2022")

Psychlit

- 1. Palliative Care/
- 2. hospice.tw.
- 3. end of life.tw.
- 4. terminal*.tw.
- 5. palliative*.tw.
- 6. "serious* ill*".tw.
- 7. (("late stage" or advanced) adj3 (cancer or disease or illness)).tw.
- 8. health personnel/ or allied health personnel/ or nurses/ or medical personnel/ or health personnel/ or physicians/ or general practitioners/ or family physicians/
- 9. ((healthcare or care*) adj2 (provider* or person?el or professional* or staff)).tw.
- 10. ((health or community) adj1 (provider* or person?el or professional* or staff)).tw.
- 11. (nurse? or doctor? or team? or "primary care" or physician? or clinician?).ti.
- 12. or/8-11
- 13. education/ or inservice training/ or Professional Development/
- 14. ("knowledge based" or "program*" or "train*" or "education*" or "classroom" or "learning" or "teach*" or "simulation*" or "course*" or "curriculum*").tw.
- 15. 13 or 14

- 16. (practice* or behav* or competenc* or confidence or skill* or abilit* or quality or comfort or experience* or proficien* or expertise or provision* or knowledge or leadership or perception*).tw.
- 17. Health Knowledge/
- 18. professional competence/
- 19. or/1-7
- 20. or/16-18
- 21. 19 and 12 and 15 and 20
- 22. (crossover procedure or double blind procedure or placebo\$ or randomization or random sample or single blind procedure).sh.
- 23. exp clinical trial/ or cross-over studies/ or double-blind method/ or random allocation/ or randomized controlled trials as topic/ or single-blind method/
- 24. (crossover or cross over).tw.
- 25. (((single\$ or doubl\$ or tripl\$) adj5 blind\$) or mask\$ or dummy or singleblind\$ or doubleblind\$ or tripleblind\$).tw.
- 26. (placebo\$ or random\$).mp.
- 27. (clinical trial\$ or controlled clinical trial\$ or random\$).pt. or treatment outcome\$.mp.
- 28. (literature review* or systematic review* or meta anal*).tw.
- 29. or/22-28
- 30. 21 and 29
- 31. 30
- 32. limit 31 to (human and english language and yr="2000 -Current")

CINAHL

- S1. MH "Palliative Care"
- S2. MH "terminal care" OR MH "hospice care"
- S3. TI hospice OR AB hospice
- S4. TI "end of life" OR AB "end of life"
- S5. TI terminal* OR AB terminal*
- S6. TI palliative* OR AB palliative*
- S7. TI "serious* ill*" OR AB "serious* ill*"
- S8. TI (("late stage" or advanced) N3 (cancer or disease or illness)) OR AB (("late stage" or advanced) N3 (cancer or disease or illness))
- S9. S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8
- S10. MH "health personnel" or MH "allied health personnel" or MH "case managers" or MH "medical staff" or MH "medical staff, hospital" or MH "hospitalists" or MH "nurses" or MH "nurse practitioners" or MH "nurse specialists" or MH "community health nursing" or MH "nursing staff" or MH "physicians"
- S11. TI ((healthcare OR care*) N2 (provider* OR person#el OR professional* OR staff))
- S12. AB ((healthcare OR care*) N2 (provider* OR person#el OR professional* OR staff))
- S13. TI ((health OR community) N1 (provider* OR person#el OR professional* OR staff))
- S14. AB ((health OR community) N1 (provider* OR person#el OR professional* OR staff))
- S15. TI (nurse# OR doctor# OR team# OR "primary care" OR physician# OR clinician#)
- S16. S10 OR S11 OR S12 OR S13 OR S14 OR S15
- S17. MH education OR MH "inservice training" OR MH "staff development"
- S18. TI ("knowledge based" OR "program*" OR "train*" OR "education*" OR "classroom" OR "learning" OR "teach*" OR "simulation*" OR "course*" OR "curriculum*")
- S19. AB ("knowledge based" OR "program*" OR "train*" OR "education*" OR "classroom" OR "learning" OR "teach*" OR "simulation*" OR "course*" OR "curriculum*")
- S20. S17 OR S18 OR S19

- S21. TI (practice* OR behav* OR competenc* OR confidence OR skill* OR abilit* OR quality OR comfort OR experience* OR proficien* OR expertise OR provision* OR knowledge OR leadership OR perception*)
- S22. AB (practice* OR behav* OR competenc* OR confidence OR skill* OR abilit* OR quality OR comfort OR experience* OR proficien* OR expertise OR provision* OR knowledge OR leadership OR perception*)
- S23. MH Health Knowledge OR MH Professional Knowledge
- S24. MH professional competence OR MH clinical competence
- S25. S21 OR S22 OR S23 OR S24
- S26. S9 AND S16 AND S20 AND S25
- S27. MH "Systematic Review"
- S28. MH "Meta Analysis"
- S29. TI (metaanal* or "meta anal*" or metasynthes* or "meta synethes*") or AB (metaanal* or "meta anal*" or metasynthes* or "meta synethes*")
- S30. TI ("systematic review*") or AB ("systematic review*")
- S31. TI (clinical N2 trial*) or AB (clinical N2 trial*)
- S32. MH "Clinical Trials"
- S33. MH "Random Assignment"
- S34. TI (single blind* or double blind* or treble blind* or singleblind* or doubleblind* or trebleblind* or trebleblind* or AB (single blind* or double blind* or trebleblind* or mask* or dummy* or singleblind* or doubleblind* or trebleblind* or tripleblind*)
- S35. TI ((singl* OR doubl* OR tripl* OR trebl*) N3 mask*) or AB ((singl* OR doubl* OR tripl* OR trebl*) N3 mask*)
- S36. TI (random* OR rct*) OR AB (random* OR rct*)
- S37. S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36
- S38. S26 AND S37
- S39. S26 AND S37 Limiters Published Date: 20000101-20220431; English Language

Cochrane Library

MeSH descriptor: [Palliative Care] explode all trees 1709

- #2 "terminal care":ti,ab,kw 706
- #3 hospice:ti,ab,kw 864
- #4 "end of life":ti,ab,kw 1387
- #5 palliative:ti,ab,kw 7868
- #6 "serious* ill*":ti,ab,kw 1
- #7 #1 OR #2 OR #3 OR #4 OR #5 OR #6 9063
- #8 ("knowledge based" or "program*" or "train*" or "education*" or "classroom" or "learning" or "teach*" or "simulation*" or "course*" or "curriculum*"):ti,ab,kw 250634
- #9 (practice* or behav* or competenc* or confidence or skill* or abilit* or quality or comfort or experience* or proficien* or expertise or provision* or knowledge or leadership or perception*):ti,ab,kw 565744
- #10 (nurse\$ or doctor\$ or team\$ or "primary care" or physician\$ or clinician\$):ti,ab,kw 98870
- #11 MeSH descriptor: [Health Personnel] explode all trees 9751
- #12 #10 OR #11104652
- #13 #7 AND #8 AND #9 AND #12 in Cochrane Reviews 5

Table S1 Included study measures by category Outcome category - number of studies (number of

QUALITY OF COMMUNICATION - 13 (12)

Epstein, 2017

Goelz, 2011

Koropchak, 2006

Szmuilowicz, 2010

Harnischfeger, 2020

Van den Block, 2020

Brown, 2018

Curtis, 2013

Slort, 2013

Epstein, 2017

Seow, 2021

Harnischfeger, 2020

Harnischfeger, 2020

Van den Block, 2020 Okumura-Hiroshige, 2020

Hallford 2011 [McCabe]

Van den Block, 2020

Uslu-Sahan, 2020

Van den Block, 2020

Hallford 2011 [McCabe]

Van den Block, 2020

Harnischfeger, 2020

PATIENT OR FAMILY SATISFACTION / EXPERIENCE - 12 studies (6)

Koropchak, 2006

Catania, 2017

Curtis, 2011

Curtis, 2011

Liu, 2020

Curtis, 2013

Walczak, 2014

Broese, 2020

Broese, 2020

Ahlström, 2018

Agar, 2015

Walczak, 2014

Van den Block, 2020

Harnischfeger, 2020

Lamppu, 2019; 2021

Van den Block, 2020

Wilkinson, 2008

Paladino, 2019; Bernacki, 2019

Broese, 2020

Seow, 2021

Omidi, 2020

Agar, 2015

Bishop, 2019

Kruse, 2008

Liu, 2020

Lin, 2021

Walczak, 2014

Paladino, 2019; Bernacki, 2019

PALLIATIVE CARE KNOWLEDGE / CONFIDENCE - 13 (4)

Wilkinson, 2008 Wilkinson, 2008

communication-focused studies) lead author, year

Outcome measures (36 studies included)

Communication behaviors scale (study created)

Communication competence (study created tool)

Communication in Oncology (COM-ON) Checklist

Communication Skills Confidence Questionnaire

Quality of Communication (QOC) Questionnaire

Communication Skills Rating Scale

(study created)

created)

Conversations and domains discussed

Active Patient Participation Coding [APPC] (engaging patients in consultation)

Communication in Oncology (COM-ON) Checklist (German version)

Family Perception of Physician-Family Communication (FPPFC)

Roter Interaction Analysis System (RIAS) availability items

Verona VR-CoDES (responding to patients' emotions)

CAPACITI Competencies Survey (study created)

Capacity to Adopt a Palliative Approach Tool (CAPA)

End-of-Life Professional Caregiver Survey (EPCS) End-of-Life Professional Caregiver Survey (EPCS)

End-of-Life Professional Caregiver Survey (EPCS)

Knowledge of depression survey (study created)

Palliative Care Knowledge Test (PCKT)

Nurses' Competency in the Provision of Palliative Care survey

Palliative Care for Advanced Dementia Questionnaire (qPAD)

Palliative Care Practices of Registered Nurses Survey (adapted)

Palliative Care Survey (PCS- Knowledge of palliative care)

Self-Efficacy in Palliative Care Scale (SEPC) (German version)

Perceptions on End-of-Life Care Questionnaire

Self-Efficacy in End-of-Life Care Survey (S-EOLC)

Acceptability of intervention survey (study created)

Quality of Dying and Death Questionnaire (QODD)

Quality of Dying and Death Questionnaire (QODD)

Quality of Dying in Long-Term Care (QOD-LTC)

Satisfaction with provided care (study created)

Your Experience of Palliative Care Questionnaire

Satisfaction with care (study created)

Quality of End-Of-Life Care (QEOLC) Questionnaire

Quality of Dying and Death Questionnaire (QODD) Short Form

Family perceptions survey (study created)

Family Satisfaction in the ICU (FS-ICU)

Patient Satisfaction Questionnaire

Opinions on palliative care (RotterdamMove2PC) survey

Standardized Patient Survey Global Score (SPS) (study created)

Confidence in dealing with palliative care related topics (study created)

Consideration of palliative care principles (based on EAPC-competencies) (study

EOL care nursing knowledge scale for Japanese geriatric nurses (ELNKS-JG)

Self-efficacy in Detecting and Managing Depression Questionnaire (adapted)

Study created survey based on items from prior surveys (Outcome expectancies;

Quality of Physician-Patient-Interaction Questionnaire (QQPPI) (German version)

Satisfaction with Care at the End-of-Life in Dementia (SWC-EOLD) scale

Satisfaction with Care at the End-of-Life in Dementia (SWC-EOLD) scale Satisfaction with Care at the End-of-Life in Dementia (SWC-EOLD) scale

Satisfaction with care provided to patients question (study created)

Confidence; Comfort level for addressing patients' emotional concerns)

Palliative care communication competence survey (study created)

Rating of doctor's communication skills and manner during consultations scale

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Paladino, 2019; Bernacki, 2019
                                                        Concordance with patient's end-of-life goals (study created)
                                                        Control Preferences Scale (CPS) (Decision making)
  Totten, 2019
                                                        Control Preferences Scale (CPS) (Decision making) (adapted)
  Walczak, 2014
  Epstein, 2017
                                                        Estimated 2-year survival and curability of the patient's cancer (agreement with
                                                        patient's estimate)
  Totten, 2019
                                                        Goal-concordant care survey (study created)
  Llobera, 2017
                                                        Identification and Classification of Patients Needing Palliative Care Questionnaire
                                                        (IDC-PAL)
  Seow, 2021
                                                        Identification of Patients Needing Palliative Care Approach
  Walczak, 2014
                                                        Information Styles Questionnaire (ISQ) (adapted - 2 items)
  Paladino, 2019; Bernacki, 2019
                                                        Life Priorities survey for patients survey (study created)
  Paladino, 2019; Bernacki, 2019
                                                        Median 2-year survival
  Ahlström, 2018
                                                        Oral health provided
  Ahlström, 2018
                                                        Participant Observation Ethnography
  Lin, 2021
                                                        Substitute Decision Maker Attitude Global Score (SDMA) (study created)
                                                        Substitute Decision Maker Attitude Scale (SDMA) (study created)
  Lin, 2021
  Lin, 2021
                                                        Substitute Decision Maker Attitude Score (SDMA) (study created)
  Agar, 2015
                                                        Symptom Management at the End of life in Dementia (SM-EOLD)
  Agar, 2015
                                                        Symptom management last day
  Ahlström, 2018
                                                        Symptom management provided
  Curtis, 2011
                                                        Time from admission to withdrawal of mechanical ventilation
  Walczak, 2014
                                                        Understanding of life expectancy from physician scale (study created)
  Kinley, 2014
                                                        Use of integrated care pathway (ICP) for last days of life
  Hallford 2011 [McCabe]
                                                        Changes in staff practices (interview)
                                                        Preparedness for implementation (focus group)
  Ahlström, 2018
  Kinley, 2014
                                                        Themes of challenging issues (focus group)
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                                                                                                     https://dx.doi.org/10.21037/apm-22-947
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