

Appendix 2 Identified studies

Study, author, date & location	Study design & aim	Setting, sample size & participant characteristics	Intervention	Quality assessment
Cross-sectional				
<p>GP practice of continuous deep sedation</p> <p>Anquinet(41), 2011, Belgium</p>	<p>Cross-sectional</p> <p>Aim: This study aimed to examine the characteristics of one type of palliative sedation, 'continuous deep sedation until death', for patients dying at home in Belgium</p>	<p>Setting: Home care;</p> <p>Participants GPs of 28 cases of continuous deep sedation until death at home, 192 control patients not receiving sedation.</p>	<p>Cross-sectional study, qualitative interviews of identified GPs</p>	<p>NOS Cross-sectional</p> <p>5/9</p>
<p>Continuous deep sedation in nursing home patients with dementia</p> <p>Anquinet(57), 2013, Netherlands</p>	<p>Cross-sectional</p> <p>Aim: This study described the characteristics of continuous deep sedation until death and the prior decision-making process of nursing home residents dying with dementia, evaluated according to sedation guideline recommendations</p>	<p>Setting: Nursing homes</p> <p>Participants: 20 nursing home residents dying with dementia or advanced dementia who had continuously deeply sedation until death</p>	<p>Continuous deep sedation</p>	<p>NOS Cross-sectional</p> <p>5/10</p>

<p>GP and oncologist morphine prescription for dyspnoea in terminal lung cancer patients.</p> <p>Ben Diane(51). 2005, France</p>	<p>Cross sectional</p> <p>Aim: To investigate personal, professional, attitudinal factors associated with the first-line prescription of morphine to terminal lung cancer patients with dyspnoea</p>	<p>Participants: Random sample of 217 oncologists (response rate 74%) and 502 GPs (response rate 45%)</p>	<p>Validated questionnaire including a clinical case of a patient with terminal lung cancer, with cough and anxiety.</p>	<p>NOS Cross-sectional 9/10</p>
<p>Pressure experienced by GPs in making decisions about deep sedation</p> <p>Blanker(62), 2012, Netherlands</p>	<p>Cross-sectional</p> <p>Aim: This study described the pressure experienced by general practitioners (GPs) in cases of continuous sedation after the introduction of the Dutch practice guideline</p>	<p>Setting: General practice</p> <p>Participants: 319 Of 918 Dutch GPs (43%) reporting on 250 patients who received continuous sedation</p>	<p>Survey questionnaire</p>	<p>NOS Cross-sectional 3/10</p>
<p>Blazekovic-Milakovic (34), 2006, Croatia</p>	<p>Cross-sectional</p> <p>Aim: To examine family physicians' views about the disclosure of the diagnosis and information about cancer to their patients and to their families; and establish which health professional is the most appropriate to pass this information on.</p>	<p>Setting: General Practice</p> <p>Participants. 314 GPs</p>	<p>Survey questionnaire</p>	<p>NOS Cross-sectional 5/10</p>

<p>Symptoms in patients receiving palliative care in general practice.</p> <p>Borgsteede (29), 2007, Netherlands</p>	<p>Cross-sectional</p> <p>Aim: to describe the prevalence of symptoms in patients receiving palliative care at home.</p>	<p>Setting national GP survey</p> <p>Participants: 1608 patients from GPs on national database who died in 1 year survey period</p>	<p>Questionnaire, GP reports of symptoms of those patients</p>	<p>NOS Cross-sectional</p> <p>9/10</p>
<p>Interdisciplinary cooperation of GPs in palliative care at home</p> <p>Borgsteede (49), Netherlands, 2007.</p>	<p>Cross-sectional</p> <p>Aim: To investigate the occurrence and predictors of interdisciplinary cooperation of GPs with other caregivers in palliative care at home.</p>	<p>Setting national GP survey</p> <p>Participants: 743 patients receiving home palliative care via GP at home</p>	<p>Questionnaire, GP reports of symptoms of those patients</p>	<p>NOS Cross-sectional</p> <p>9/10</p>
<p>GP survey on pain medication prescription in palliative care</p> <p>Borgsteede(54), 2009, Netherlands</p>	<p>Cross sectional</p> <p>Aim: to examine GP prescription of pain and adjuvant medication for palliative care patients at home in their last 3 months of life</p>	<p>Setting: GP practices</p> <p>Participants: representative sample of 95 GP practices registering all patient/GP contacts in 1 yr; 425 pts who died and received palliative care by GPs for at least 3-months</p>	<p>Symptoms, prescriptions collected from the Dutch National Survey of General Practice database. Post Mortem questionnaire completed by GPs for each patient dying during the study period.</p>	<p>NOS Cross-sectional</p> <p>9/10</p>

GP management of terminal care	Cross sectional	Setting: Primary care clinics in a regional health network.	Questionnaire survey	NOS Cross-sectional
Canto(36), 2000, Spain	Aim: Ascertain the attitudes and training needs of primary health care (PHC) professionals regarding the management of terminal cancer patients.	Participants: 224 GPs and 186 nurses. 313(76.3%) response rate.		5/10
French-Norwegian GP cancer care comparison	Cross sectional questionnaire - Aim: to explore the diagnostic and therapeutic responsibility role of GPs in the two countries with regard to cancer.	Random sampling of GP's identified through national health boards. Asked to fill in questionnaires for each patient with cancer - 348 GP's participated (7% response rate).	Questionnaire survey	NOS Cross-sectional
Demagny(39), 2009, France and Norway				3/10
Continuous palliative sedation	Cohort	Setting: General practice;	Retrospective case record review	NOS Cross-Sectional
Donker(56), 2013, Netherlands	Aim: This study aimed to gain more insight into the trends of and reasons for palliative sedation in Dutch general practice	Participants: 183 cases of palliative sedation from 56 general practices following continuous deep sedation, identified from Dutch Sentinel General Practice Network.		5/9

To determine if GPs agree with symptom identification	Cohort	Setting: Community based patients	Completion of a validated symptom effect score	NOS Cross-sectional
Ewing(33), 2006, England	Aim: To investigate agreement on symptom assessments between patients at home and GPs and district nurses.	Participants: 74 patients paired with GPs, 52 patients paired with district nurses		5/9
Self-perceived confidence in providing end of life care	Cross-sectional	Setting: General Practice, internists across USA.	Questionnaire asking about the frequency of palliative care provided, and confidence in providing it.	NOS Cross-sectional
Farber(63), 2004, USA	Aim: To ascertain how frequently Primary Care Physicians are involved in each of the different components in end-of-life care and their perceived competence in each of these areas.	Participants: 462/972 (48%), 50:50 general practitioners and internists.		3/10

<p>GP confidence in administering subcutaneous medicine</p> <p>Gorlen(78), 2012, Denmark</p>	<p>Cross-sectional</p> <p>Aim: To determine the extent to which GPs used fixed SC needles in the last days of patients' lives, to establish whether GPs felt confident being principally responsible for palliative trajectories and whether their confidence was associated with GP characteristics</p>	<p>Setting: Copenhagen, Denmark.</p> <p>Participants: 204 of all 332 GPs practicing in the city. (61.4%)</p>	<p>Cross-sectional questionnaire</p> <p>Questions covered the GPs' use of SC medication/ needle and their confidence in taking responsibility for their use</p>	<p>NOS Cross-sectional</p> <p>5/10</p>
<p>Perceived tasks and barriers to GP palliative care</p> <p>Groot(66), 2007, Netherlands</p>	<p>Cross-sectional</p> <p>Aim: to identify the prevalence of such problems in providing palliative care and its determinants.</p>	<p>Setting: General Practice</p> <p>Sample size: 320 GPs (62.3% response)</p>	<p>Questionnaire survey</p>	<p>NOS Cross-Sectional</p> <p>4/10</p>

Sensitive issues in end of life care	Cross-sectional	Setting: Specialist, general and nursing home practice	Questionnaire survey	NOS Cross-sectional
Hasselaar(58), 2008, Netherlands	Aim: This study aimed to examine the following sensitive issues involved in continuous deep sedation: artificial hydration, sedation for nonphysical discomfort, the relationship between continuous deep sedation and euthanasia, and patient involvement in decision making for continuous deep sedation	Sample size: 727 medical specialists, 626 general practitioners, and 111 nursing home physicians and the patients to whom they last administered continuous deep sedation (n=304)		3/10
Readiness of GPs to prescribe methadone.	Cross-sectional	Setting Family Physicians in British Columbia, Canada	Questionnaire survey	NOS Cross-sectional
Hawley(73), 2013, Canada	Aim: To determine the barriers to family physicians becoming authorized to prescribe methadone for pain in palliative care.	Sample size 204 respondents from 870 randomly selected Family physicians		4/10
Age-related difference in end-of-life care/symptom experience for the elderly cancer patients dying at home.	Cross sectional	Setting 16 GP clinics	Data collected on symptoms and end-of life care in the last 2 days of life. Post-mortem questionnaire completed by GPs referring to medical record plus clinical recall of case	NOS Cross-sectional
Hirakawa(53), 2007, Japan	Aim: to describe age-related differences in symptom experience and care receipt of elderly cancer patients at end-of-life	Participants: 240 consecutive ≥ 65 yrs old decedents - cancer pts who died at home. Two groups: 65-74 yrs old (n=66) and ≥ 75 yrs old (N=51).		5/10

Regional medical professionals confidence in providing palliative care Hirooka(68), 2014, Japan	Cross-sectional Aim: Explores confidence in the ability to provide palliative care and associated difficulties and to explore correlations between these variables	Setting: Japan Participants: 7905 medical professionals surveyed, responses from 409 hospital doctors, 235 general practitioners, 2160 hospital nurses and 115 home visiting nurses completed them.	Cross-sectional mail survey	NOS Cross-sectional 6/10
Palliative care consultations Kuin(35), 2004, Netherlands	Cross sectional Aim: investigate the type of problems encountered by PC community teams through phone consultations deal with.	Setting: community palliative care consultation team. Participants: 2040 phone consultations from professionals Participants were nurses and doctors working in palliative care.	Retrospective case note analysis	NOS Cross-sectional 7/10
Communication between specialists and GPs in head and neck cancer treatment. Ledeboer(38), 2006, Netherlands	Cross sectional questionnaire Aim: to find possible gaps in care and communication and to use the GPs ideas to improve the cancer centre's performance	Setting Head and neck cancer patients in general practices Population: 55 GPs whose patient utilised the service. 41 of 55 GP responded (75%).	Questionnaire survey	NOS Cross-sectional 8/10

GP reasons to phone palliative care advice line for pain management. Linklater(50), 2009, Scotland	Cross sectional Aim: To identify the reasons for GPs contacting specialist advice line about pain issues.	Setting: Records from phone advice line Participants: All phone calls recorded between 2000 and 2006 to the palliative care advice line (n=146), all calls from GPs for pain management were included (N=244)	Record of each call including patient details, reason for calling, advice given.	NOS Cross-sectional 6/10
GP attitudes towards treating terminally ill patients. Mas(52), 2010, France.	Cross sectional Aim: To understand what factors influence GP decision to prescribe opioids and make frequent home visits to dying patients.	Setting: convenience sample of French GPs Participants: 115/150 GPs (78% response rate)	48 vignettes of dying pts with all combinations of the patient and GP studied factors In 478 scenarios of dying patients. GPs assessed acceptability of opioid prescription and of frequent home visits.	NOS Cross-sectional 7/10
Audit of palliative care by English rural GPs Mitchell(30), 2003, UK	Retrospective case audit Aim: to identify services provided to pall care patient by GP's	Setting: rural primary care Population: 93 patients who had died, cared for by 15 GPs	Retrospective case audit	NOS Cross-sectional 6/10

GP knowledge and use of palliative radiotherapy Olson(75), 2012, Canada.	Cross-sectional Aim: To assess the relationships between GPs' referral for palliative RT, knowledge of indications for palliative RT, and prior training in palliative care and radiotherapy.	Setting: British Columbia Participants: 333/1000 (33%) urban and rural GPs	Cross-sectional mail survey	NOS Cross-sectional 7/10
Community-based audit of cancer pain management by GPs Oxenham(48), 2003, Scotland	Cross sectional Aim: To describe community-based cancer pain management by GPs.	Participants: 88% of Lanarkshire GP practices Patients visited at home (n=541pts) and 3259 home visits)	Pain audit tool developed by multidisciplinary group using modified Delphi Technique.	NOS Cross-sectional 6/10
Opioid prescribing in terminal cancer Salvato(71), 2003, Italy	Cohort Aim: The rate and adequacy of opioid prescribing. Attitudes in prescribing opioid analgesics by general practitioners of the Treviso district in 2001.	Setting: Treviso district (Veneto Region) Participants:2125 patients prescribed opioids for end stage cancer between 1993-2000. GPs sent questionnaires = 104/320 (32.5% response)	Descriptive statistics for demographics, type of opioid. Relational statistics to determine patterns of opioid prescription. Standardised dose units used to determine adequacy of dosing. Questionnaires seeking responses about what patients fear when prescribing opioids.	NOS Cross-sectional 10/10

Family Physician attitudes towards cancer treatments and palliative care	Cross-sectional Aim: To assess family physicians' views on common indications for palliative radiotherapy and to determine whether this influences patient referral	Setting: eastern Ontario Participants: 172/344 GPs	Cross sectional survey assessing GP palliative care practice and referral patterns for palliative radiation therapy; knowledge of radiation therapy, contact with radiation oncologists, past education in radiation therapy.	NOS Cross-sectional 3/10
Samant(76), 2006, Canada				
Clinical problems in patients with high grade glioma	Cross-sectional Aim: The purpose of this study was to explore specific problems and needs experienced in the end-of-life phase of patients with high grade glioma	Setting: Neuro-oncology outpatient clinic; Sample size: 55 patients who subsequently died	Retrospective case review	NOS Cross-sectional Studies 3/10
Sizoo(44), 2010, Netherlands				
Oxycodone use survey	Cross-sectional Aim: To evaluate the prescribing of oxycodone inpatients at a tertiary care centre	Setting: Hospice (day care and inpatients) Participants 51 patients who were taking oxycodone	Prospective clinical record review. Determine prevalence of oxycodone use by different health professional groups	NOS Cross-sectional 2/10
Todd(70), 2013, England				

<p>Phone advice by palliative care trained GPs to colleagues re palliative sedation and euthanasia</p>	<p>Cross sectional</p> <p>Aim: This study aimed to reveal how often and in what way palliative sedation and euthanasia were discussed in consultations between specially trained GPs and those receiving advice</p>	<p>Setting: General practice;</p> <p>Participants: 415 analysed consultations between GP with palliative care training and general practitioners without palliative care training</p>	<p>Cohort, quantitative and qualitative case note review</p>	<p>NOS Cross-Sectional</p> <p>5/9</p>
<p>van Heest(61), 2009, Netherlands</p>				
<p>Physician-Reported Symptoms and Interventions in People with Intellectual Disabilities Approaching End of Life</p>	<p>Cross-sectional</p> <p>Aims: To determine the prevalence rates of symptoms at the moment of physicians' recognition, and treatments offered in the period to death</p>	<p>Setting: home and institutional care</p> <p>Participants – ID physicians caring for 81 patients with ID varying from mild to profound</p>	<p>Cross-sectional retrospective death assessment completed by the patient's doctor.</p>	<p>NOS Cross-Sectional</p> <p>5/10</p>
<p>Vriemoeth, 2016, Netherlands(28)</p>				

Referral to radiation therapy –GP practices	Cross-sectional	Setting: General Practice	Survey questionnaire	NOS Cross-sectional
Vulto(74), 2009, Belgium	Aim: To evaluate knowledge of palliative radiation therapy and factors which influence GP referrals	Participants: 498/1100 GPs		2/10
GP perspective of terminal care at home	Cross-sectional	Setting: General Practice and home	Survey questionnaire	NOS Cross-sectional
Walsh(65), 2001, Ireland	Aim: To identify the problems experienced by GPs when caring for terminally ill cancer patients at home, and about their perceived needs for both further training and support services.	Participants: 102/200 (51%) GPs		2/10
Danish general practitioners' self-reported competences in end-of-life care	Cross-sectional	Setting - Central Denmark	Cross-sectional questionnaire	NOS Cross-sectional
Wintheriek (2016)(37) Denmark	Aims: To assess to which degree GPs report to provide EOL care with regard to patients with different diseases, their confidence with being a key worker, their organisation of EOL care and their medical and psychosocial EOL care skills	Participants: 573/742 GPs (all registered GPs in central Denmark. (68% response)	Self report of confidence in offering palliative care	5/8

Cohort studies

Factors associated with opioid prescribing in cancer pain	Cohort	Setting: UIK GP Research Database (GPRD)	Characteristics associated with opioid prescribing were investigated by using generalized estimation equation models.	NOS Cohort 6/9
Higginson(72), 2012, England	Aim: To determine time trends and characteristics associated with opioid analgesic prescribing to patients with cancer who are approaching the end of life.	Participants: 29,825 patients diagnosed with five common cancers - lung (34.2%), colorectal (19.9%), female breast (21.6%), prostate (19.1%), and head and neck (5.2%) who died between 2000 and 2008.		

Qualitative studies

Factors supporting good partnership working between generalist and specialist palliative care services	Qualitative	Setting: General practice and hospice.	Focus groups	CASP ² Qualitative 16/18
Gardiner(69), 2012, England	Aim: to explore the attitudes of health care professionals to opioid prescribing in generalist end of life care	Participants: GP Focus groups (N=19); Hospice focus groups (N=12).		

Effect of the Shipman murders on the prescription of opioids for dyspnoea in terminal COPD. Gott(45), 2010, England.	Qualitative Aim: To explore the impact of the Shipman murders on the opioid prescribing practice for severe dyspnoea in terminal COPD, in primary and secondary care settings.	Setting: sociodemographically contrasting areas of England. Participants: 3 focus groups were held in primary care settings (N=19 health professionals) and 2 secondary care settings (N=20 health professionals)	Focus groups to explore barriers and facilitators of optimum palliative care management in advanced COPD.	CASP Qualitative 18/20
Perceived tasks and barriers to GP palliative Care Groot (58), 2005, Netherlands	Qualitative Aim: To investigate GPs' task perception and barriers involved in palliative care	Setting regional Netherlands Participants – 22 GPs with interest in palliative care in three focus groups meeting	Focus groups	CASP Qualitative 17/18
Facilitators and barriers to primary care involvement in palliative care Hong(64), 2010, Hong Kong	Qualitative Aim: to investigate the willingness and barriers for primary care physicians in providing palliative care	Setting: Family Medicine Department in a regional cluster in Kowloon Central / Kowloon East, Hong Kong	Focus groups and individual interviews	CASP Qualitative 15/18
GP experience of psychosocial care of dying patients Kelly(40), 2008, Australia	Qualitative - to examine experiences and perceptions of GPs providing PC	Set in GP clinics, 15 GP's who had referred patients recently to a Pall Care service were interviewed, convenience sampling.	Qual interview	CASP Qualitative 19/20

Symptoms and problems in the final week of life	Qualitative	Setting: Belgium	Semi-structured interview	CASP Qualitative
Leemans(32) (2012), Belgium	Aim: Explore patients' functional, cognitive, physical and psychological burden in last 3 months of life	Examined the deaths of 228 patients - asking 205 GP's (90% response rate) to participate in semi-structured interview via telephone. Setting of GP clinic		Not available (abstract only)
Belgian GP's perspective on terminal sedation	Qualitative	Setting: Home care	Semi-structured interviews	CASP Qualitative
Sercu(60), 2014, Belgium	Aim: This study explored palliative sedation practice in end-of-life (EoL) home care	Participants: 52 GPs who practice end of life care in the home care setting		15/18
Continuous deep sedation in home end of life care	Study design: Qualitative	Setting: General practice, nursing homes, hospitals	Semi-structured interviews	CASP Qualitative
Swart(59), 2014, Netherlands	Aim: This study examined the considerations concerning the indications for continuous palliative sedation (CPS) and the issues that influence these considerations	Participants: physicians (54) and nurses (36) working in general practice, nursing homes, and hospitals		16/18

<p>Attitudes and experiences of GPs and respiratory therapists in opioid use by GPs and respiratory therapists for dyspnoea in advanced COPD.</p>	<p>Qualitative</p> <p>Aim: To explore experiences in treating advanced OPD and their attitudes regarding the use of opioids for dyspnoea in this context</p>	<p>Setting: southern New Brunswick primary care</p> <p>Participants: Convenience sample of 10 GPs and 8 respiratory therapists experienced in providing care for advanced COPD patients</p>	<p>Individual semi-structured interviews.</p>	<p>CASP qualitative</p> <p>19/20</p>
<p>Young(46), 2012, Canada</p>				
<p>GP management of depression at end of life</p>	<p>Qualitative</p> <p>Aim: This study explored variation in family physicians' opinions regarding the recognition, diagnosis, and management of depression in palliative care patients</p>	<p>Setting: General Practice</p> <p>Participants: 22 GPs</p>	<p>Focus groups</p>	<p>CASP Qualitative</p> <p>16/18</p>
<p>Warmenhoven(55), 2012, Netherlands</p>				