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<th>Author, Year (Reference)</th>
<th>Domain: Pain</th>
<th>Type of Review</th>
<th>End Date</th>
<th>Sites of Search</th>
<th>Intervention</th>
<th>Description of Subjects Included</th>
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<tr>
<td>Higginson et al., 2000 (25)</td>
<td>Symptom: Pain</td>
<td>Systematic review and meta-analysis</td>
<td>February to June 1999</td>
<td>72 citations including 5 systematic reviews, and 67 reports of 43 unique studies: 16 of 30 studies identified through reviews were randomized and controlled, as were 4 additional studies.</td>
<td>Intervention studies and analysis of site of death overlap completely with Gomes and Higginson's (80) update. Gysels and Higginson's (27) review addressed a much broader spectrum of issues within cancer care, unlike this one that focused on end stage, not specific to cancer.</td>
<td>Patients cared for by palliative care services (home care, hospital-based, and hospice in Europe, Australia, and the United States). Any intervention of more than 1 individual, at least 1 of whom has specialist training, or who spend all their working time in palliative care, in a hospital, home or community setting, or in a combination of these.</td>
<td>Patient and caregiver quality of life and symptoms, site of death, healthcare use and costs.</td>
<td>Short-, intermediate-, and long-term interventions</td>
<td>This review focused uniquely on a meta-analysis and review of the clinical effectiveness of palliative care teams.</td>
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</table>

Outcomes were extracted from all studies considered by the review. Patient outcomes were characterized as pain, other symptoms, quality of life, satisfaction, referral to other services, and therapeutic interventions. Twenty studies evaluated pain as an outcome, and standardized mean differences (SMD) were determined. The mean SMD was 0.41 (95% CI, 0.11 to 0.63) in favor of the effect of palliative care teams in reducing pain.

Carr et al., 2002 (26) | Symptoms: Pain and Depression | Systematic review | June 2001 | 34 RCTs of pain interventions | The pharmacologic and medical therapies for pain and depression are not addressed elsewhere. The findings about the effectiveness of psychosocial and educational changes are also addressed within Gysels and Higginson’s (27) systematic review of supportive cancer care. | Patients with cancer | Any treatment for cancer-related pain and depression | Pain | Most were intermediate-to-short-term |

The review updated a review conducted for the AHRQ 2 y earlier. Thirty-four new studies, 5 of which were studies of chemotherapeutic agents, addressed cancer pain, including bone metastases (additional studies addressed mucositis). The studies addressed breakthrough pain, nonsteroidal, adjunct analgesics, radiotherapy or radiopharmaceuticals, opioids trials, and biologics. This update was consistent with the original review that found consistent evidence for the efficacy of these interventions, although study heterogeneity (in intervention design as well as outcome) precluded meta-analysis. The review was also unable to address the preferred route of administration or comparisons among drugs. Eleven controlled trials of the effect of medications on depressive symptoms in cancer patients were identified (6 of which were randomized, 1 of which addressed depression prevention and 1 of which was a pain study that included a depression outcome). All studies of antidepressants for ≥ 6 wk demonstrated efficacy. Two studies that were limited to 4-wk trials did not. Two studies evaluated the effect of medications on depressive symptoms in cancer patients were identified (6 of which were randomized) 1 of which addressed depression prevention, and 1 of which was a pain study that included a depression outcome. All studies of antidepressants for six or more weeks demonstrated efficacy. Two studies which were limited to 4 week trials did not. 

11 controlled trials of the effect of medications on depressive symptoms in cancer patients were identified. 6 of which were randomized) 1 of which addressed depression prevention, and 1 of which was a pain study that included a depression outcome. All studies of antidepressants for six or more weeks demonstrated efficacy. Two studies which were limited to 4 week trials did not. Hundreds of studies addressed psychosocial interventions for depression, so the review only summarized meta-analyses. Psychosocial studies, including group or individual counseling, education, and social support strategies were effective.
| Gysels and Higginson, 2004 (27) | Symptoms: pain, dyspnea, and depression | Systematic review | March 2003 | 317 studies (22 overlapped multiple review domains), many studies addressed symptoms, although the review did not present results specifically by symptoms | 317 studies (22 overlapped multiple review domains), many studies addressed symptoms although the review did not present results specifically by symptoms | Partial overlap with other earlier reviews that covered aspects of care planning or support for caregivers of patients with cancer. This review was much more comprehensive and included a discussion of other reviews and meta-analyses relevant to the topic. | Patients with cancer | Any intervention to improve supportive or palliative care. Review examined diverse system interventions to improve aspects of supportive or palliative cancer care. These interventions included care coordination, promoting user involvement, face-to-face communication, improving information, psychological, spiritual, and social support, generalist and specialist palliative care delivery, rehabilitation, complementary and alternative therapies, and caregiver support, including bereavement. | Symptoms, quality of life; patient, caregiver, and provider satisfaction with care; knowledge; place of care and site of death; and utilization | Short-, intermediate-, and long-term interventions | The review covered a broad range of interventions, especially those related to the clinical organization of care to improve supportive care for cancer, although symptoms were not a specific aim of the review. |

The review underscores the relevance of these approaches for improving symptomatic care, although there was mixed evidence in favor of any particular approach with regard to pain or dyspnea. The review examined social support and spiritual care. Two systematic reviews and 15 studies, including 6 high-quality, RCTs addressed social support. These studies all highlighted the importance of bridging professional roles and multidisciplinary efforts to improve social support. Fifteen studies within the overall review examined various interventions with behavioral components that were generally effective for depression. All studies of spiritual support that were identified were low quality, pointing out the need for additional research.

Pan et al., 2000 (28) | Symptoms: pain and dyspnea | Systematic review | 1998 | 11 RCTs, 2 nonrandomized, controlled trials | 8 case reports | Low-quality studies overlapped with Lee et al. (31) | Patients receiving palliative or terminal care. | Complementary and alternative interventions for pain and dyspnea. | Pain and dyspnea | Not reported. | Extremely diverse (and mostly single) studies addressed TENSI, acupuncture, massage, aromatherapy, psychological therapies, music therapy, hypnosis, acupressure, breathing retraining, psychoanalysis, breath counseling. All studies were small (the largest of acupuncture was 239 and most others included 20–30 patients). Study quality was not evaluated, and no conclusions could be offered about the effectiveness of individual modalities. |

Wilson, 2004 (29) | Symptom: pain | Systematic review | September 2003 | 24 studies, designs not reported. | Intervention studies covered overlap almost completely with previous reviews by Higginson et al. (25) and Gysels and Higginson (27). | Patients with serious, chronic, or terminal illness | Palliative care and hospice service delivery innovations in hospital, home care, nursing home, and hospice settings. | Pain and other symptoms | Short-, intermediate-, and long-term interventions | Most studies identified were observational; but interventions identified were reviewed by Gysels and Higginson (27) and Higginson et al. (25). |

Knold et al., 2005 (30) | Symptoms: pain and depression | Systematic review | June 2004 | 34 RCTs and controlled clinical trials | N/A | None | Patients with cancer (16 advanced breast cancer, 22 addressed active treatment, and 12 post-treatment phase) | Physical exercise | Physical function and quality of life, including symptoms | 5 wk–12 mo | Approximately half of studies included some measure of quality of life or symptoms. Among these heterogeneous studies, a beneficial effect of exercise was noted on pain in 2 studies, and depression or anxiety in 3 studies. |
| Study Authors | Year | Symptom | Meta-analysis | Intervention | Randomization | Patients with cancer | Manual or ear acupuncture, electro-acupuncture | Pain | Immediate to 1 mo | 3 RCTs were identified, only 1 of which was high-quality (Jadad scale 5). This placebo-controlled, 3-arm study of ear acupuncture in 93 patients demonstrated efficacy using the visual analogue scale.

Furlan et al., 2006 (32) | Symptom: pain | May 2005 | 41 randomized trials | N/A | None | 60/9 patients with chronic noncancer pain, average age 58.1 y (range, 40–71), 63% female, 85% white | Any opioid administered for 7 or more. Trials were identified for codeine, morphine, tramadol, and propoxyphene | Intensity of pain relief, function, and opioid side effects | 1–16 wk | Thirty randomized, placebo-controlled trials identified, of which 28 were meta-analyzed (pain standardized mean difference [SMD], −0.60 [CI −0.69 to −0.50] Functional status (SMD, −0.31 [CI −0.41 to −0.22]). Side effects that occurred more commonly on opioids included constipation (risk difference [RD], 16%), nausea (RD, 15%), dizziness or vertigo (RD, 8%), somnolence or drowsiness (RD, 9%), vomiting (RD, 5%) and dry skin, itching, or pruritis (RD, 4%). Most trials addressed arthritis or neuropathic pain, and the degree to which they addressed late-stage disease is unclear.

Tremont-Lukats et al., 2005 (33) | Symptom: dyspnea | December 2002 | 27 randomized, double-blind, controlled trials | N/A | None | Patients with nonneuropathic pain, average age 51.7 y, median size for trials was 28 | Systematically administered local anesthetictype drugs (mexilitine, lidocaine, and tocainamide) | Pain intensity (100 mm VAS most common) | Immediate to short-term | 10 trials evaluated lidocaine or mexilitine for chronic, neuropathic pain and found they were effective vs. placebo (weighted mean difference [WMD], −0.60 mm [CI −0.69 to −0.50]). Functional status (SMD, −0.31 [CI −0.41 to −0.22]). Side effects that occurred more commonly on opioids included constipation (risk difference [RD], 16%), nausea (RD, 15%), dizziness or vertigo (RD, 8%), somnolence or drowsiness (RD, 9%), vomiting (RD, 5%) and dry skin, itching, or pruritis (RD, 4%). Most trials addressed arthritis or neuropathic pain, and the degree to which they addressed late-stage disease is unclear.

Jennings et al., 2002 (61) | Symptom: dyspnea | May 1999 | 18 double-blind, RCTs | N/A | None | Patients with dyspnea from any disease. Two studies addressed cancer and 1 heart failure | Any opioid given to relieve dyspnea | Dyspnea (most studies used visual analogue scale) | Immediate (single-dose studies) to short-term, (multiple-dose duration not described.) | 16 of 18 studies had Jadad scores of 4, all of them only failing to describe randomization procedures. All studies were small with the total sample in the 18 studies of 293 and the largest study of 79 patients. Results across these studies were consistent, and 12 studies showed a pooled SMD, −0.31 (CI −0.50 to −0.13). No clinically significant adverse effects of opioids on respiratory function were noted in these studies.

Salman et al., 2003 (62) | Symptom: dyspnea | September 2000 | 20 randomized trials | N/A | None | Patients with COPD (FEV1<70% or FEV1/FVC <75%). Almost all studies addressed patients in their mid-60s. | Any type of rehabilitation (upper-extremity, lower-extremity, or respiratory muscle exercise) | Exercise capacity and dyspnea (12 studies used the CRQD) | 6–12 wk for patients with mild or moderate COPD (15 studies); 10 wk–2 mo for patients with severe COPD (6 studies) | Both walking distance and dyspnea outcomes were strongly related. Among all 12 studies that used the CRQD, 11 that included at least lower extremity training (vs. 1 that did not) demonstrated a pooled benefit. Of 3 studies of severe COPD, 2 that included at least 6 mo (vs. 1 of <3 mo) did not demonstrate benefit. Short- and longer-term trials were both effective in mild to moderate COPD.

Booth et al., 2004 (63) | Symptom: dyspnea | End date not reported (most recent trial 2001) | 37 studies, including 20 randomized designs | N/A | None | Patients with advanced cancer, heart failure, and COPD | Intermittent, ambulatory, and long-term oxygen therapy | All studies reported some measure of dyspnea (most commonly Borg or visual analogue scale) | Immediate, longer-term trials up to 12 wks | Most studies (22) were conducted to evaluate intermittent oxygen use during exertion for COPD. Of these, 13 demonstrated a benefit on dyspnea. Only 2 were negative, and others indicated increased endurance with equivalent dyspnea. Fewer studies evaluated COPD patients at rest, patients with cancer, or heart failure. With the exception of oxygen for exercise, evidence was mixed for all these conditions. 2 of 3 studies in advanced cancer showed benefit in crossover trials comparing room air.

Rain et al., 2005 (64) | Symptom: dyspnea | April 2004 | 20 RCTs | N/A | None | Patients with stable COPD | Theophylline treatment for 27 | Dyspnea, patient preference, and walk distance | Not reported | Only 2 studies reported dyspnea and wheezing using similar numerical scale. Together, they found nonsignificant improvements in symptoms. Five other studies reported disparate measures of symptoms, all of which reported improvement in the intervention group. |
Shukla et al., 2006 (65)  
**Symptom:** dyspnea  
**Meta-analysis**  
December 2005  
54 RCTs of crossover or parallel design from 33 unique studies  
N/A  
None  
Patients with symptoms, stable airflow obstruction (FEV1 <75%). Patients could be receiving inhaled steroids. Trials were included if FEV1FVC was <70% at baseline.  
Long-acting β-agonists (fomoterol or salmeterol) vs. anticholinergics (ipatropium or tiotropium) or placebo with or without rescue β-agonists  
Dyspnea-free days, rescue medication use and exacerbations, and dyspnea self-report  
4–16 wk  
Few studies reported symptom-free days and nights, and measures were heterogeneous. Twelve studies comparing long-acting β-agonists to placebo reduced exacerbations (odds ratio [OR], 0.74 [CI, 0.64 to 0.87]). Four studies reported hospitalization and the pooled effect indicated reduced risk of hospitalization. No difference was noted vs. anticholinergics. Two studies comparing long acting β-agonists to placebo reported dyspnea using the Transitional Dyspnea Index and the pooled effect for the odds ratio of clinically meaningful improvement in dyspnea was 1.70 (CI 1.25 to 2.31, P <0.001). No difference in TDI was noted in 2 studies that compared long acting β-agonists to anticholinergics.

Roffe et al., 2005 (71)  
**Symptom:** depression  
**Systematic review**  
Search termination not reported but most recent citation 2002  
6 RCTs  
N/A  
None  
Patients with mixed-stage cancer  
Guided imagery, imagery, or visualization as the sole adjuvant to patients undergoing therapy, or sole palliative therapy  
Depression, anxiety  
Immediate to 3 wks  
Only 4 of 6 studies were published and all were small and of low quality. No conclusions could be drawn about the effectiveness of guided imagery.

Walsh et al., 1998 (75)  
**Advance care planning**  
**Systematic review**  
August 1997  
10 RCTs  
N/A  
Four of 10 studies also cited by Gysels and Higginson (27)  
Cancer outpatients  
Communication interventions to improve breaking bad news, including written summaries and audiotapes  
Knowledge recall, understanding, satisfaction, psychological well-being  
5 d–5 mo  
Inconsistent effects on knowledge and satisfaction noted, and few studies addressed psychological adjustment.

Hanson et al., 1997 (76)  
**Advance care planning**  
**Systematic review**  
March 1996  
16 studies, 7 of which were randomized trials  
N/A  
This review and its conclusions overlap almost entirely with Guo and Harstall (79)  
Healthy and chronically ill outpatients  
Interventions to improve end-of-life care  
Advance directive completion  
Not reported  
All the studies addressed end-of-life discussions and advance directive completion.

Baggs, 2002 (77)  
**Advance care planning**  
**Systematic review**  
2000  
86 reports of some overlapping studies including multiple reports from 4 intervention trials, 3 of which were randomized  
Mostly observational studies. Interventions covered by Higginson et al. (25)  
Patients with advanced or terminal illness, age >45 y  
Interventions addressed hospital-based, end-of-life care  
Diverse  
Not reported  
The few and diverse nature of the interventions precludes conclusions about effective practices to improve care.

Song, 2004 (78)  
**Advance care planning**  
**Systematic review**  
December 2002  
7 studies, including 5 RCTs  
2 observational studies  
No other review aimed to characterize effective outcomes. Healthy or chronically ill, mostly older people, mostly inpatient contexts. One study addressed inpatients.  
Discussions about end-of-life care  
Satisfaction, emotional well-being  
Not reported  
Few studies have evaluated effective outcomes of advance care planning. Three studies; 2 of which were randomized, showed improved satisfaction or emotional well-being following discussions. No study demonstrated a worsening of satisfaction or emotional well-being following care planning discussions.
The review was intended to identify studies supporting advance directive implementation. Six of the RCTs, as well as studies addressed in the review, support the effectiveness of various communication interventions (prompts to physicians, physician–patient communication, education) to improve advance directive completion rates in outpatient and nursing home settings.

Omas and Higginson, 2006 (86)  Advance care planning  Meta-analysis  September 2004  58 studies, including 3 RCTs and 1 quasi-experimental study  54 observational studies  Studies through 1999 were addressed in a previous report (4)  Terminally ill patients with cancer  Intervention studies included various palliative care or hospice services  Site of death  Not reported

The review identified a limited number of interventional studies. 17 factors were associated with home death in the observational literature, including low functional status, preferences, previous receipt of home care and its intensity, living with relatives, and extended family support.

Higginson et al., 2000 (25)  Advance care planning  Systematic review and meta-analysis  February to June 1999  72 citations, including 5 systematic reviews and 67 reports of 43 unique studies identified through reviews were randomized and controlled, as were 4 additional studies.

Changes and analysis of site of death overlap completely with Gomes and Higginson’s (80) update. Patients cared for by palliative care services (home care, hospital-based, and hospice in Europe, Australia, and the United States)

Any intervention of more than 1 individual, at least 1 who has specialist training or spends all their working time in palliative care, in a hospital, home or community setting, or in a combination of these.

Patient and caregiver quality of life and symptoms, site of death, healthcare utilization, and costs. Short-term, intermediate-, and long-term interventions

This review focused uniquely on a meta-analysis and review of the clinical effectiveness of palliative care teams. Many of the palliative interventions are included in a later update focused specifically on cancer. Gysels and Higginson (27).

Outcomes were extracted from all studies considered by the review. 9 studies included information on home death rate. Although the SMD was significant (0.28), excluding 1, large, outlier study (National Hospice Study) reduced the estimate of effect and its significance 0.18 (CI = 0.07 to 0.33).

Shalowitz et al., 2008 (81)  Advance care planning  Systematic review  December 2004  16 studies, including 2 interventions  14 observational studies  None  The 2 intervention trials addressed whether discussing patient preferences improved surrogate concordance accuracy.

Patient–surrogate concordance  Not reported

Only 2 of 16 studies evaluated interventions. Observational studies indicated that surrogates often understood patient preferences (88% concordance for 19,526 paired responses); however, the 2 intervention studies were ineffective in improving surrogate concordance.

Wilson, 2004 (29)  Advance care planning  Systematic review  September 2003  11 studies, design not reported  Design not reported

Intervention studies covered in Wilson overlap almost completely with previous reviews by Higginson et al., (25) and Gysels and Higginson (27)

Patients with serious, chronic, or terminal illness

Palliative care and hospice service delivery innovations in hospital, home care, nursing home, and hospice settings. Advance directive completion

Short-term, intermediate, and long-term interventions

Most studies identified were observational, but interventions identified were reviewed by Gysels and Higginson (27) and Higginson et al. (25).

<table>
<thead>
<tr>
<th>Studies</th>
<th>Coordination of care, including RCTs</th>
<th>Information enhancement</th>
<th>Patients with cancer</th>
<th>Symptoms, quality of life, patient, caregiver, and provider satisfaction with care, knowledge, place of care and site of death, utilization</th>
<th>Short-, intermediate-, and long-term interventions</th>
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</thead>
<tbody>
<tr>
<td>317</td>
<td>22 overlapping multiple review domains, 13 studies</td>
<td>2 observational studies address coordination, 5 addressed information enhancement</td>
<td>Any intervention to improve supportive or palliative care. Review examined diverse system interventions to improve aspects of supportive or palliative cancer care. These interventions included care coordination, promoting user involvement, face-to-face communication, improving information, psychological, spiritual, and social support, generalist and specialist palliative care delivery, rehabilitation, complementary and alternative therapies, and caregiver support including bereavement.</td>
<td>The review covered a broad range of interventions, especially those related to the clinical organization of care, to improve supportive care for cancer.</td>
<td>2 meta-analyses (discussing 23 RCTs) and 11 RCTs addressed face-to-face communication. 2 meta-analyses, 1 of which included 10 RCTs and 17 additional RCTs on information enhancement.</td>
</tr>
</tbody>
</table>
Higginson et al., 2000 (25)  Continuity Meta-analysis  February to June 1999  72 citations including 5 systematic reviews, and 67 reports of 43 unique studies; 15 / 30 studies identified through reviews were randomized and controlled, as were 4 additional studies.  14 / 30 studies identified through systematic reviews were retrospective or observational, as were 10 of the additional studies.  Changes and analysis of site of death overlap completely with Gomes and Higginson's (80) update.  Patients cared for by palliative care services (home care, hospital-based, and hospice) in Europe, Australia, and the United States.  Any intervention of more than one individual, at least one of whom has specialist training, or who spends all their working time in palliative care, in a hospital, home / community setting or in a combination of these.  Patient and caregiver quality of life and symptoms, site of death, healthcare utilization, costs.

Outcomes were extracted from all studies considered by the review. 9 studies included information on home death rate. Although the SMD was significant (0.28), excluding one, large outlier study (National Hospice Study) reduced the estimate of effect and its significance (0.18, 95% CI -0.07 to 0.33).

McAlister et al., 2004 (116)  Continuity Meta-analysis  2003  29 randomized trials  N/A  Focused on outpatient heart failure care and broad inclusion criteria.

Based on a priori decision and confirmed by tests of homogeneity, studies were evaluated based on whether they were multidisciplinary team oriented, focused on enhancing patient self care, or used telephone coordination. Multidisciplinary teams demonstrated the most impact on mortality risk (risk ratio [RR] 0.75, 95% CI 0.59 to 0.96), heart failure (RR 0.74, 95% CI 0.63 to 0.87) and all-cause hospitalizations (RR 0.81, 95% CI 0.71 to 0.92). Other strategies were beneficial, but less so.

Phillips et al., 2004 (117)  Continuity Meta-analysis  October 2003  18 randomized controlled studies  N/A  Narrowly construed to evaluate high-quality studies of readmission, the study overlaps partially with McAlister (24) and Windham (29) which was broader in aims and design inclusion criteria.

Older (>55 y) patients discharged from the hospital with heart failure. 3304 patients in the included studies were 62% male and 14% nonwhite. Mean participant age was >70 y in 16/18 trials and mean left ventricular ejection fraction <40% in 8 trials.

Interventions targeting heart failure with components for inpatient care and post-discharge support. In 14 studies, there was a trend toward lower mortality among intervention patients, and in 6 studies a greater percentage improvement in quality of life scores.

Ram et al., 2004 (114)  Continuity Meta-analysis  May 2003  7 randomized trials  N/A  None

Hospital at home versus hospitalization  Mortality (8 studies) and readmission (7 studies)  2–3 mo  Mortality (relative risk 0.89, 95% CI 0.72 to 1.12) and hospital re-admission (relative risk 0.95, 95% CI 0.86 to 1.05) were not significantly different compared with inpatient care. Costs were significantly lower in four studies (1 Spanish, 1 Australian) that reported it favoring hospital at home.

Changes and analysis of site of death overlap completely with Gomes and Higginson's (80) update.
Immediate to Heterogeneity and limited outcomes did not allow for synthesis, but there were no benefits to special home care services for patients with cancer. Very few high quality studies were identified.

Patients with cancer

Intervention aimed at more than 1 aspect of care with the main goal of improving home support

Nurse-led or coordinated case management

Quality of life,-readmission

Immediate to 8 mos

Heterogeneity and limited outcomes did not allow for synthesis, but there were no benefits to special home care services for patients with cancer. Very few high quality studies were identified.

Patients with moderate to severe chronic obstructive pulmonary disease (COPD)

Intervention studies covered in Wilson overlap almost completely with prior reviews by Higginson et al. (25) and Gysels and Higginson (27)

Nurse-led or coordinated case management

Mortality, readmission, and quality of life (7 studies) and disability (5 studies)

3–12 mo

2 studies evaluated interventions of only 1 mo with little evidence of benefit. Meta-analysis of longer term interventions indicated no difference in mortality (odds ratio 0.85, 95% CI 0.58 to 1.26), as well as quality of life, disability, or emotional well-being. Mixed evidence was found (2 trials favoring, 3 not favoring) with respect to reducing readmission.

Patients with serious, chronic, or terminal illness

Palliative care and hospice service delivery innovations in hospital, home care, nursing home, and hospice settings.

Communication and site of care

Not reported

Most studies identified were observational, but interventions identified were reviewed by Gysels and Higginson (27) and Higginson et al. (25). One summary covered nurse case management, finding mixed evidence, although only 4 relevant RCTs were cited.

Patients with heart failure (median study size, 63)

Interventions to reduce utilization

Hospital admissions (29 studies), hospital days, and other utilization measures

Not reported

More effective studies used a variety of interventions including close monitoring of symptoms by nurses or care managers. Education was common component of effective programs, and they often included a multidisciplinary team component (e.g., physician, nurse, and case managers).

Patients with heart failure (median study size, 63)

Interventions designed to reduce burden for caregivers of patients with dementia

Caregiver burden

Immediate to 8 mo

Weighted pooled effect of 21 homogenous interventions was insignificant (-0.08, 95% CI -0.19 to 0.02). Examining specific intervention types, 3 multi-component studies showed a small effect on burden (0.46, 95% CI 0.14 to 0.78), although other intervention types did not.

Acton and Kang, 2001 (132)

Caregiving burden

Meta-analysis

1999

24 reports, including 13 experimental studies and 14 quasi-experimental or before and after evaluations

N/A

The study was dementia-specific, so narrower than Sorenson (133) and more stringent designs than Yin (130)

1254 caregivers of patients with dementia (mean 51 participants per study)

Interventions designed to reduce burden for caregivers of patients with dementia

Caregiver burden

Immediate to 8 mo

The findings of this review were similar to those of Acton and Winter’s (131) methodologically more stringent and quantitative review.

Acton and Winter, 2002 (131)

Caregiving burden

Systematic review

2001

73 published and unpublished reports, all of which had either control group or pre-post design

N/A

This review overlaps with Acton’s other review, and discusses a wider range of study designs using a qualitative synthesis

Caregivers of patients with dementia

Interventions designed to reduce burden for caregivers of patients with dementia

Caregiver burden, knowledge, psychosocial wellbeing

Immediate to 1 year

The findings of this review were similar to those of Acton and Winter’s (131) methodologically more stringent and quantitative review.
The review covered a broad range of interventions, especially those related to the clinical organization of care, to improve supportive care for cancer. With respect to services for caregivers, studies were too diverse to draw conclusions related to specific supportive strategies. Intermediate, and long term symptoms, interventions quality of life, patient, caregiver, and provider satisfaction with care, knowledge, place of care and site of death, utilization. Patients with any intervention to improve supportive or palliative care. Review examined diverse system interventions to improve aspects of supportive or palliative cancer care. These interventions included care coordination, promoting user involvement, face to face communication, improving information, psychological, spiritual, and social support, generalist and specialist palliative care delivery, rehabilitation, complementary and alternative therapies, and caregiver support including bereavement. Gomes and Higginson's (80) update of site of death overlap. Meta-analysis of site of death. Symptom reduction is a significant factor in improving the quality of care for patients with cancer and improving quality of life for caregivers. Meta-analysis showed that interventions can lead to an immediate benefit in burden (75 studies), depression (53 studies), wellbeing (28 studies) knowledge (48 studies), and symptoms in the care recipient (41 studies). These effects were maintained in follow-up for burden, depression, wellbeing, and knowledge. Among randomized studies, effects were diminished but benefits maintained for burden (45 studies, -0.12, 95% CI -0.16 to -0.07), depression (40 studies, -0.06, 95% CI -0.11 to -0.01), knowledge (34 studies, 0.37, 95% CI 0.27 to 0.46), and the symptoms among the care recipient (34 studies, -0.12, 95% CI -0.20 to -0.03).
<table>
<thead>
<tr>
<th>Reference</th>
<th>Type of Study</th>
<th>Methodological Details</th>
<th>Year</th>
<th>Number of Studies</th>
<th>Key Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilkinson et al., 1999 (129)</td>
<td>Caregiving burden</td>
<td>Systematic review</td>
<td>June 1998</td>
<td>83 studies identified, 22 'key papers' highlighted in the paper, of which 3 are randomized designs</td>
<td>Terminal illness patients</td>
</tr>
<tr>
<td>Wilson, 2004 (29)</td>
<td>Caregiving burden</td>
<td>Systematic review</td>
<td>September 2003</td>
<td>3 reviews and 8 studies, design not reported</td>
<td>Intervention studies covered in Wilson overlap almost completely with prior reviews by Higginson et al. (25) and Gysels and Higginson (27)</td>
</tr>
<tr>
<td>Yin et al., 2002 (130)</td>
<td>Caregiving burden</td>
<td>Meta-analysis</td>
<td>2000</td>
<td>26 studies included 17 randomized designs</td>
<td>Similar review aim to Sorenson (133) but narrower methodological criteria. About half of studies overlap.</td>
</tr>
</tbody>
</table>

* Reviews may have had broader aims or the studies may have included other outcomes, but those that are most relevant to this review are highlighted. Three reviews addressed multiple domains and each of these reviews is described in each section to which it was relevant. AHRQ = Agency for Healthcare Research and Quality; COPD = Chronic Respiratory Disease Questionnaire; OR = odds ratio; RCT = randomized controlled trial; RD = risk difference; SMD = standardized mean difference; WMD = weighted mean difference.