Research and Evidence to Improve Medicine: Palliative Care in North America

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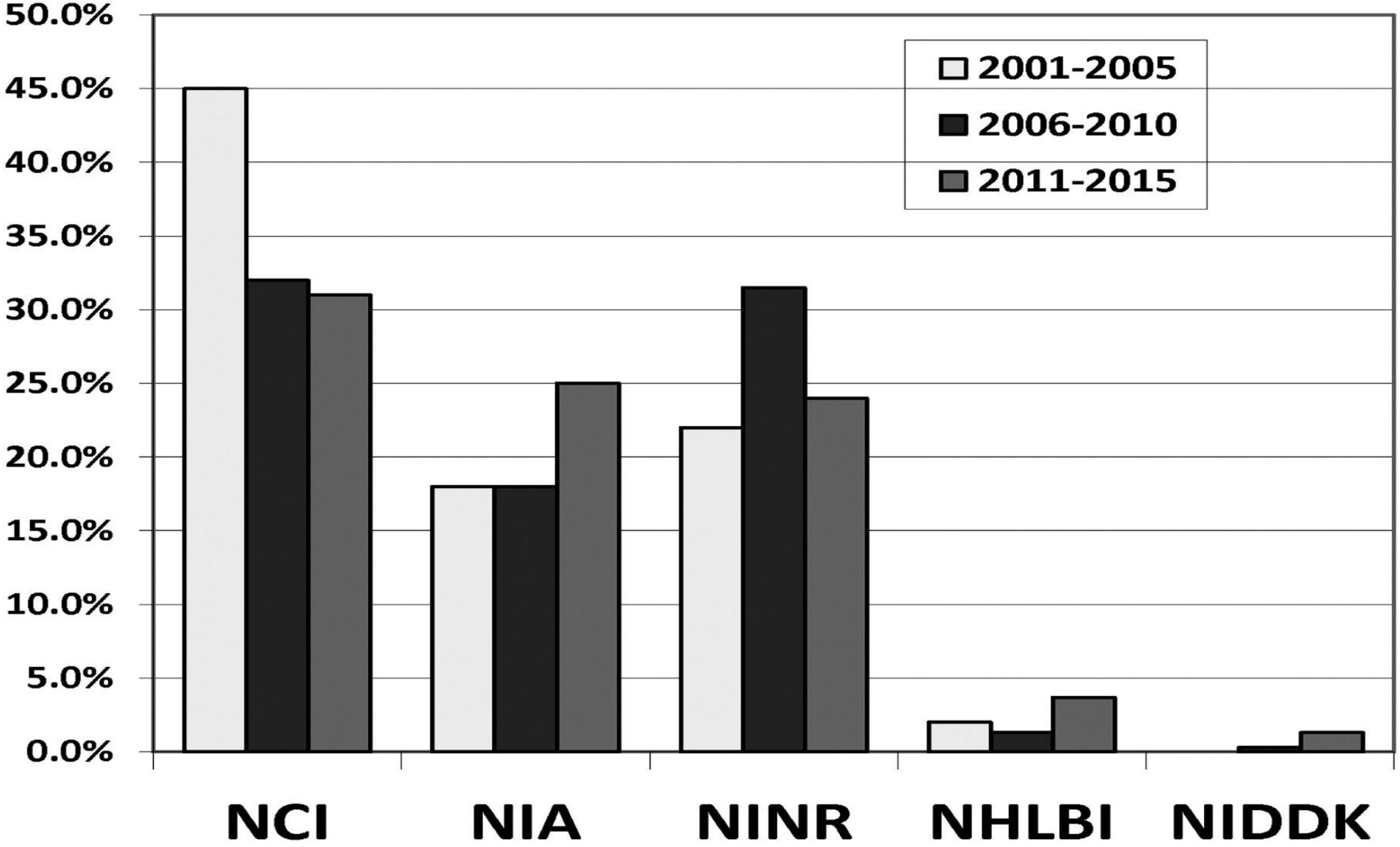
Objectives

- Structure and Process for Palliative Care research
- Funding
- Research outcomes
- Scope of research
- Co-operation
- Data availability and collection

- Landmark PC studies in North America affirming Palliative Care role in improving medical care experienced by patients and families
- Most studies involve observational research however increasing number of randomized controlled trials= practice-changing evidence

Funding of PC Research: US federal



Comparison of funding by institute, 2001–2005 versus 2006–2010 versus 2011–2015. NCI, National Cancer Institute; NHLBI, National Heart Lung Blood Institute; NIDDK, National Institute on Diabetes, Digestive and Kidney Diseases; NIA, National Institute on Aging; NINR, National Institute for Nursing Research.

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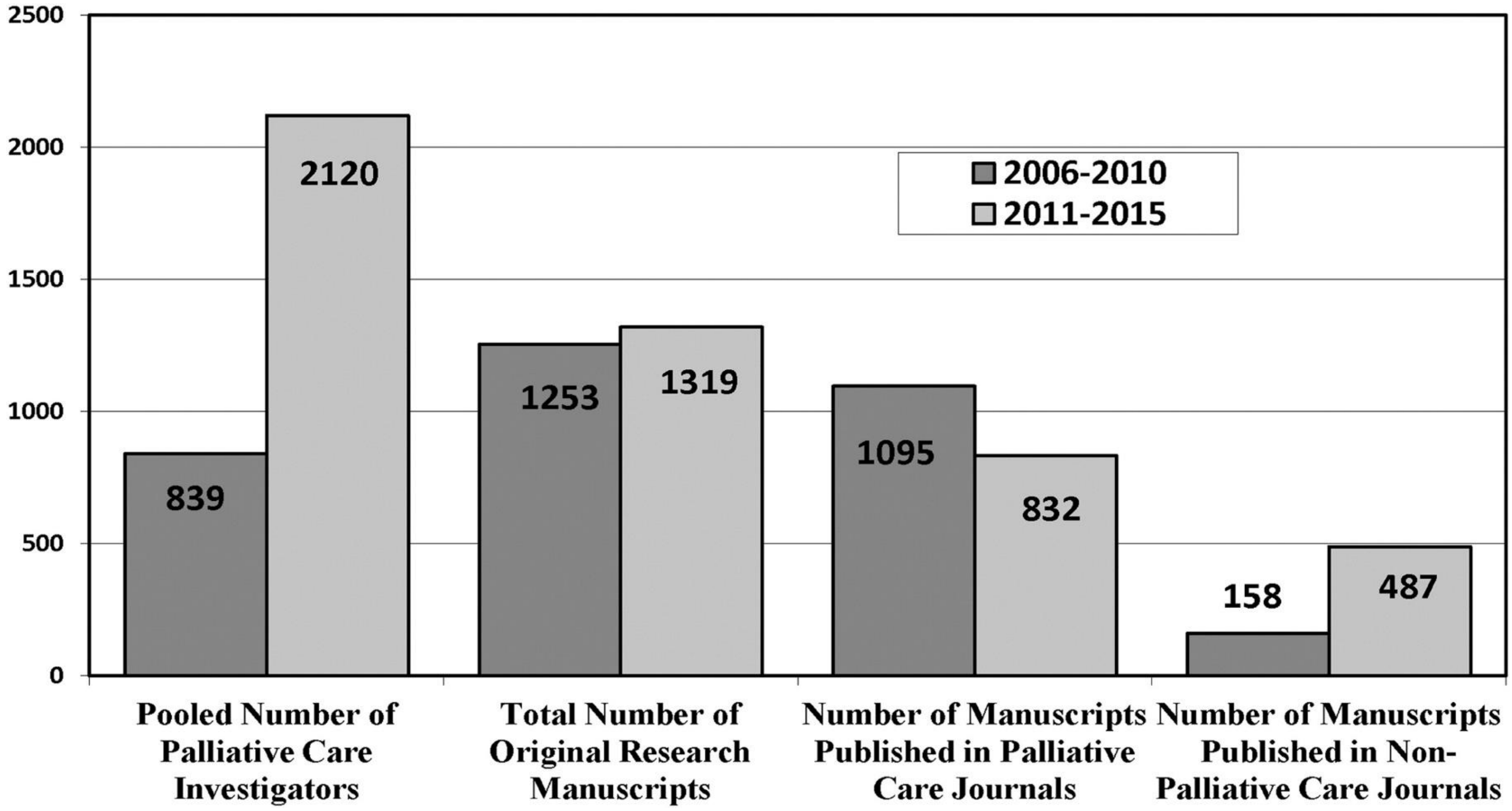
Comparison of palliative care articles

2006–2010 versus 2011–2015



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Other organizations addressing the need

- American Cancer Society
- Philanthropy: National Palliative Care Research Center
- Pilot grants for early and midcareer researchers
- Support of individual health care institutions is crucial, robust palliative care programs, researchers with salaries and internal grants
- Allowing time for mentoring of junior faculty

What should be measured?

More than 150 years ago, Florence Nightingale used to record that her patients left hospital “dead, relieved, or unrelieved.” But for 60 years the health system has routinely recorded only whether they left dead or alive *Timmins BMJ 2008*

Research outcomes

- PC relieves suffering due to symptoms such as pain, psychosocial and spiritual distress, and is applicable early in the illness in conjunction with other therapies that are intended to prolong life
- Patient-centered and patient –reported outcomes have always been a PC research focus

Factors considered important at end of life

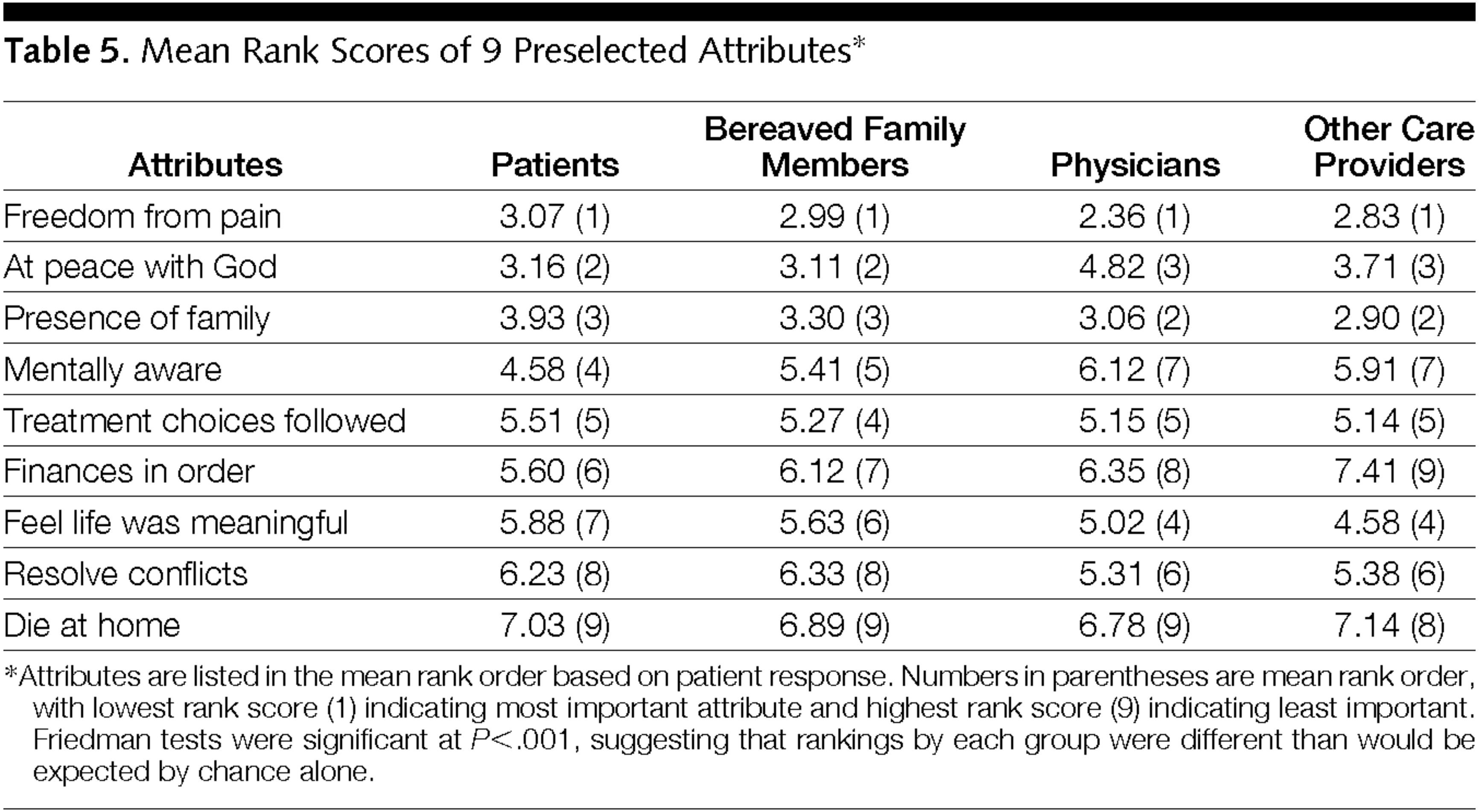


Table 5. Mean Rank Scores of 9 Preselected Attributes*

Attributes	Patients	Bereaved Family Members	Physicians	Other Care Providers
Freedom from pain	3.07 (1)	2.99 (1)	2.36 (1)	2.83 (1)
At peace with God	3.16 (2)	3.11 (2)	4.82 (3)	3.71 (3)
Presence of family	3.93 (3)	3.30 (3)	3.06 (2)	2.90 (2)
Mentally aware	4.58 (4)	5.41 (5)	6.12 (7)	5.91 (7)
Treatment choices followed	5.51 (5)	5.27 (4)	5.15 (5)	5.14 (5)
Finances in order	5.60 (6)	6.12 (7)	6.35 (8)	7.41 (9)
Feel life was meaningful	5.88 (7)	5.63 (6)	5.02 (4)	4.58 (4)
Resolve conflicts	6.23 (8)	6.33 (8)	5.31 (6)	5.38 (6)
Die at home	7.03 (9)	6.89 (9)	6.78 (9)	7.14 (8)

*Attributes are listed in the mean rank order based on patient response. Numbers in parentheses are mean rank order, with lowest rank score (1) indicating most important attribute and highest rank score (9) indicating least important. Friedman tests were significant at $P<.001$, suggesting that rankings by each group were different than would be expected by chance alone.

Steinhauser et al. Factors Considered Important at the End of Life by Patients, Family, Physicians, and Other Care Providers
JAMA 2000

What matters most to patients at end-of-life

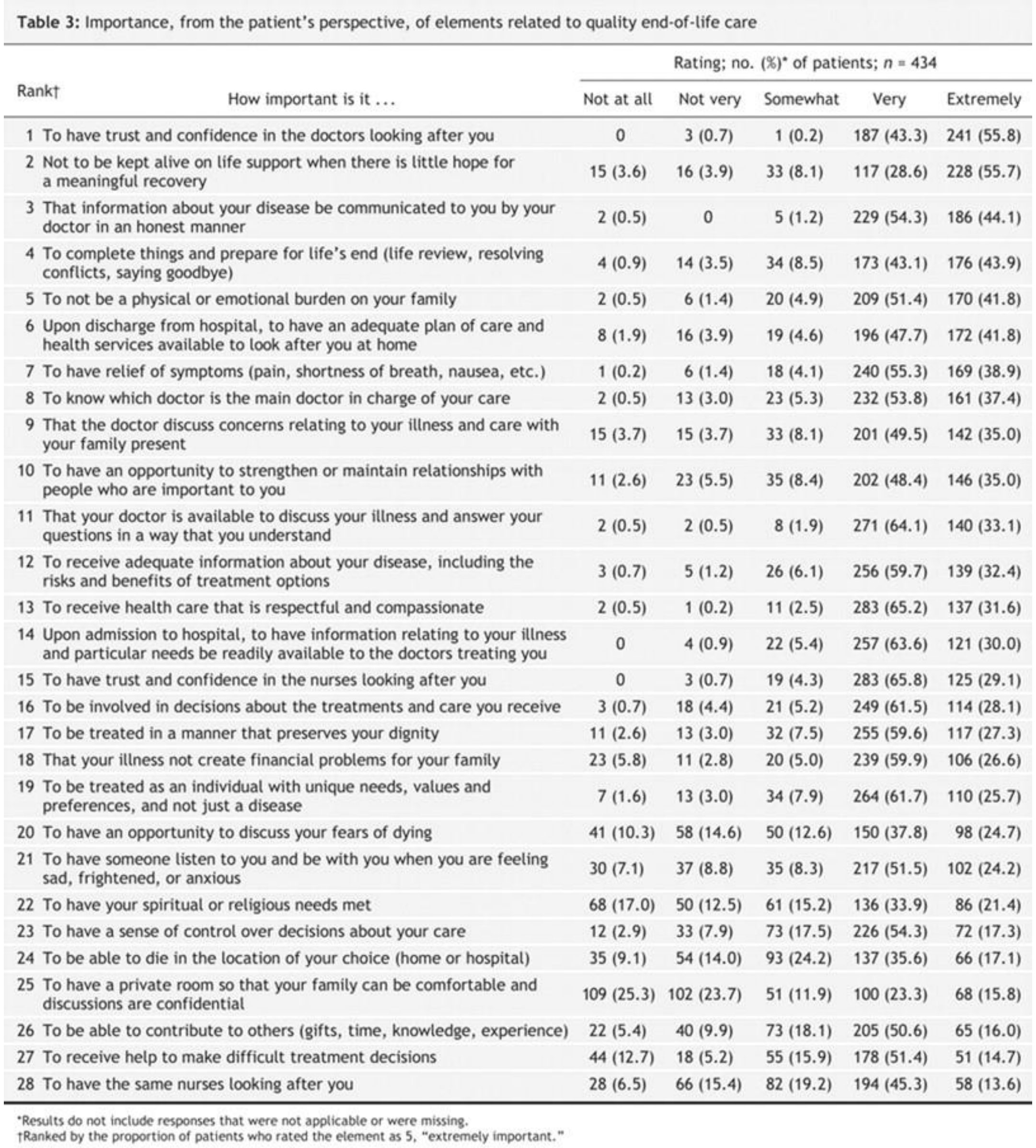


Table 3: Importance, from the patient's perspective, of elements related to quality end-of-life care

		Rating; no. (%)* of patients; *n* = 434				
Rank†	How important is it . . .	Not at all	Not very	Somewhat	Very	Extremely
1	To have trust and confidence in the doctors looking after you	0	3 (0.7)	1 (0.2)	187 (43.3)	241 (55.8)
2	Not to be kept alive on life support when there is little hope for a meaningful recovery	15 (3.6)	16 (3.9)	33 (8.1)	117 (28.6)	228 (55.7)
3	That information about your disease be communicated to you by your doctor in an honest manner	2 (0.5)	0	5 (1.2)	229 (54.3)	186 (44.1)
4	To complete things and prepare for life's end (life review, resolving conflicts, saying goodbye)	4 (0.9)	14 (3.5)	34 (8.5)	173 (43.1)	176 (43.9)
5	To not be a physical or emotional burden on your family	2 (0.5)	6 (1.4)	20 (4.9)	209 (51.4)	170 (41.8)
6	Upon discharge from hospital, to have an adequate plan of care and health services available to look after you at home	8 (1.9)	16 (3.9)	19 (4.6)	196 (47.7)	172 (41.8)
7	To have relief of symptoms (pain, shortness of breath, nausea, etc.)	1 (0.2)	6 (1.4)	18 (4.1)	240 (55.3)	169 (38.9)
8	To know which doctor is the main doctor in charge of your care	2 (0.5)	13 (3.0)	23 (5.3)	232 (53.8)	161 (37.4)
9	That the doctor discuss concerns relating to your illness and care with your family present	15 (3.7)	15 (3.7)	33 (8.1)	201 (49.5)	142 (35.0)
10	To have an opportunity to strengthen or maintain relationships with people who are important to you	11 (2.6)	23 (5.5)	35 (8.4)	202 (48.4)	146 (35.0)
11	That your doctor is available to discuss your illness and answer your questions in a way that you understand	2 (0.5)	2 (0.5)	8 (1.9)	271 (64.1)	140 (33.1)
12	To receive adequate information about your disease, including the risks and benefits of treatment options	3 (0.7)	5 (1.2)	26 (6.1)	256 (59.7)	139 (32.4)
13	To receive health care that is respectful and compassionate	2 (0.5)	1 (0.2)	11 (2.5)	283 (65.2)	137 (31.6)
14	Upon admission to hospital, to have information relating to your illness and particular needs be readily available to the doctors treating you	0	4 (0.9)	22 (5.4)	257 (63.6)	121 (30.0)
15	To have trust and confidence in the nurses looking after you	0	3 (0.7)	19 (4.3)	283 (65.8)	125 (29.1)
16	To be involved in decisions about the treatments and care you receive	3 (0.7)	18 (4.4)	21 (5.2)	249 (61.5)	114 (28.1)
17	To be treated in a manner that preserves your dignity	11 (2.6)	13 (3.0)	32 (7.5)	255 (59.6)	117 (27.3)
18	That your illness not create financial problems for your family	23 (5.8)	11 (2.8)	20 (5.0)	239 (59.9)	106 (26.6)
19	To be treated as an individual with unique needs, values and preferences, and not just a disease	7 (1.6)	13 (3.0)	34 (7.9)	264 (61.7)	110 (25.7)
20	To have an opportunity to discuss your fears of dying	41 (10.3)	58 (14.6)	50 (12.6)	150 (37.8)	98 (24.7)
21	To have someone listen to you and be with you when you are feeling sad, frightened, or anxious	30 (7.1)	37 (8.8)	35 (8.3)	217 (51.5)	102 (24.2)
22	To have your spiritual or religious needs met	68 (17.0)	50 (12.5)	61 (15.2)	136 (33.9)	86 (21.4)
23	To have a sense of control over decisions about your care	12 (2.9)	33 (7.9)	73 (17.5)	226 (54.3)	72 (17.3)
24	To be able to die in the location of your choice (home or hospital)	35 (9.1)	54 (14.0)	93 (24.2)	137 (35.6)	66 (17.1)
25	To have a private room so that your family can be comfortable and discussions are confidential	109 (25.3)	102 (23.7)	51 (11.9)	100 (23.3)	68 (15.8)
26	To be able to contribute to others (gifts, time, knowledge, experience)	22 (5.4)	40 (9.9)	73 (18.1)	205 (50.6)	65 (16.0)
27	To receive help to make difficult treatment decisions	44 (12.7)	18 (5.2)	55 (15.9)	178 (51.4)	51 (14.7)
28	To have the same nurses looking after you	28 (6.5)	66 (15.4)	82 (19.2)	194 (45.3)	58 (13.6)

*Results do not include responses that were not applicable or were missing.
†Ranked by the proportion of patients who rated the element as 5, "extremely important."

Heyland DK, et al. CMAJ 2006;174:627-633.
What matters most in end-of-life care: perceptions of seriously ill patients and their family members.

CMAJ·JAMC

Patient Reported Outcomes

- Palliative Care / Patient centered outcomes not supported by traditional funding mechanisms
- Progress: nongovernmental organization PCORI (Patient Centered Outcomes research institute) relies on patient perspectives to guide research
- Recent PCORI funding allocated $25 million for symptom research in patients with advanced illness

Incorporating PRO’s routinely into clinical trials

- Meaningful research requires clinician AND patient input
- Should patient perspective always be considered in trials ?
- Of interventional trials 14% used at least one PRO instrument
- Only 41% identified the instrument to be used
- *Doward, HQLO 2010 ;Scoggins Contemp Clin Trials 2009*

Collaboration: Multicenter trials

- Results from landmark trials need to be generalizable
- Facilitates adoption into guidelines & clinical practice
- PC trials : the potential for progression of disease and inability to continue trial participation
- Creation of a platform for multisite trials
- Co-operative consortiums: Palliative Care Research Cooperative (PCRC) National Clinical Trials Network (NCTN) groups such as Alliance

Landmark trial

- Randomized trial combining early Palliative Care with standard oncology care vs standard care alone
- Single center
- Improved patient-reported outcomes, use of health services, and quality of care in patients with advanced non-small cell lung cancer
- At 12 weeks = Improved quality of life, less depression, improved length of life

Temel JS, et al. N Engl J Med. 2010.
Early palliative care for patients with metastatic non-small-cell lung cancer.

Collaboration :clinical and pre-clinical

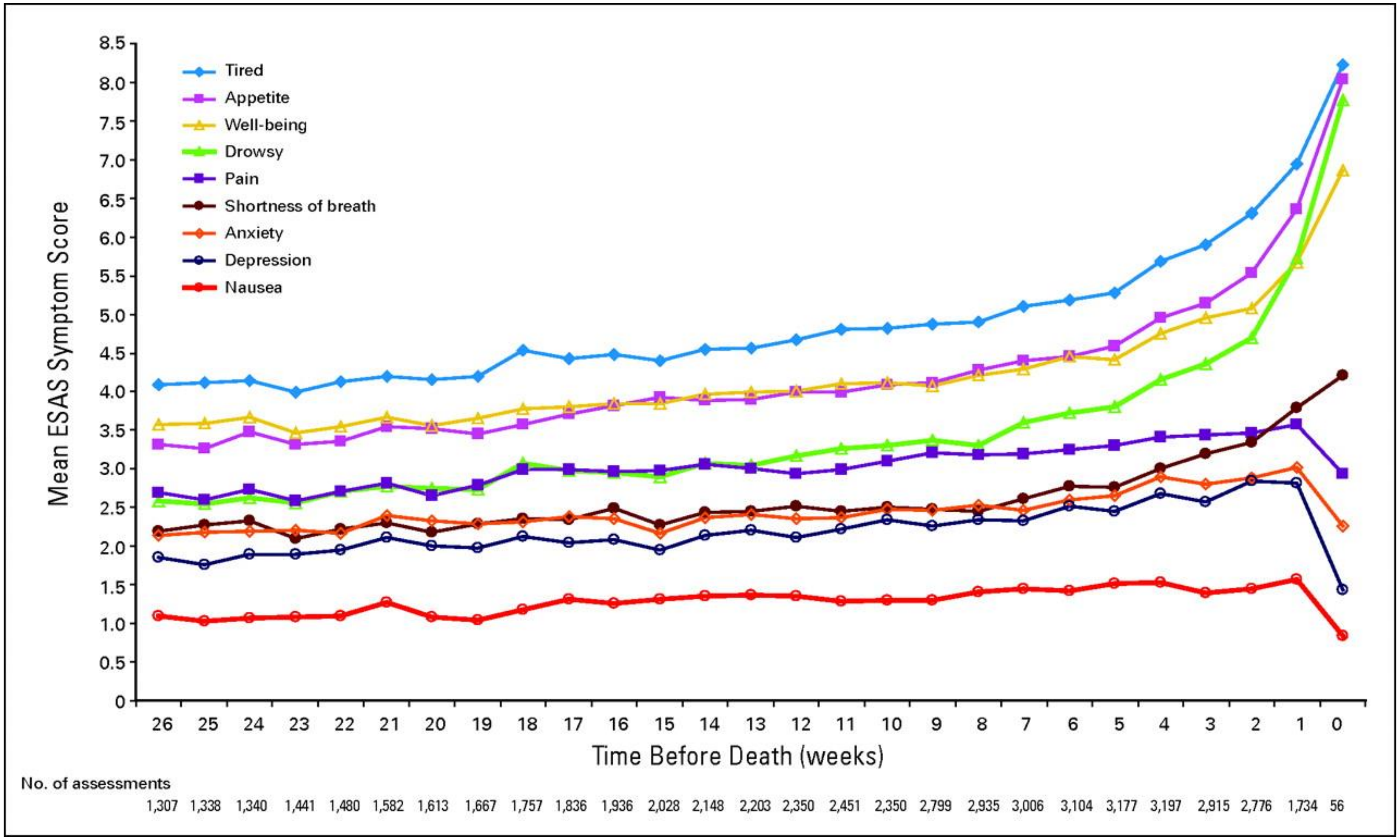
- Collaboration between PC researchers, other clinical disciplines , pre-clinical researchers =an effective approach to address an unmet symptom need ? (fatigue, cachexia, neuropathic pain)
- For example, Cachexia is the focus of a professional organization with yearly symposiums, a scientific journal
- Providing a forum for clinical and pre-clinical scientists to exchange ideas may prove to be beneficial for both groups
- Establish Translational centers in individual institutions

Highlights from the 10th Cachexia Conference.Ebner N, von Haehling S. Cachexia Sarcopenia Muscle. 2018 Feb;9(1):176-182

Palliative Care for every setting, every person
Research challenges

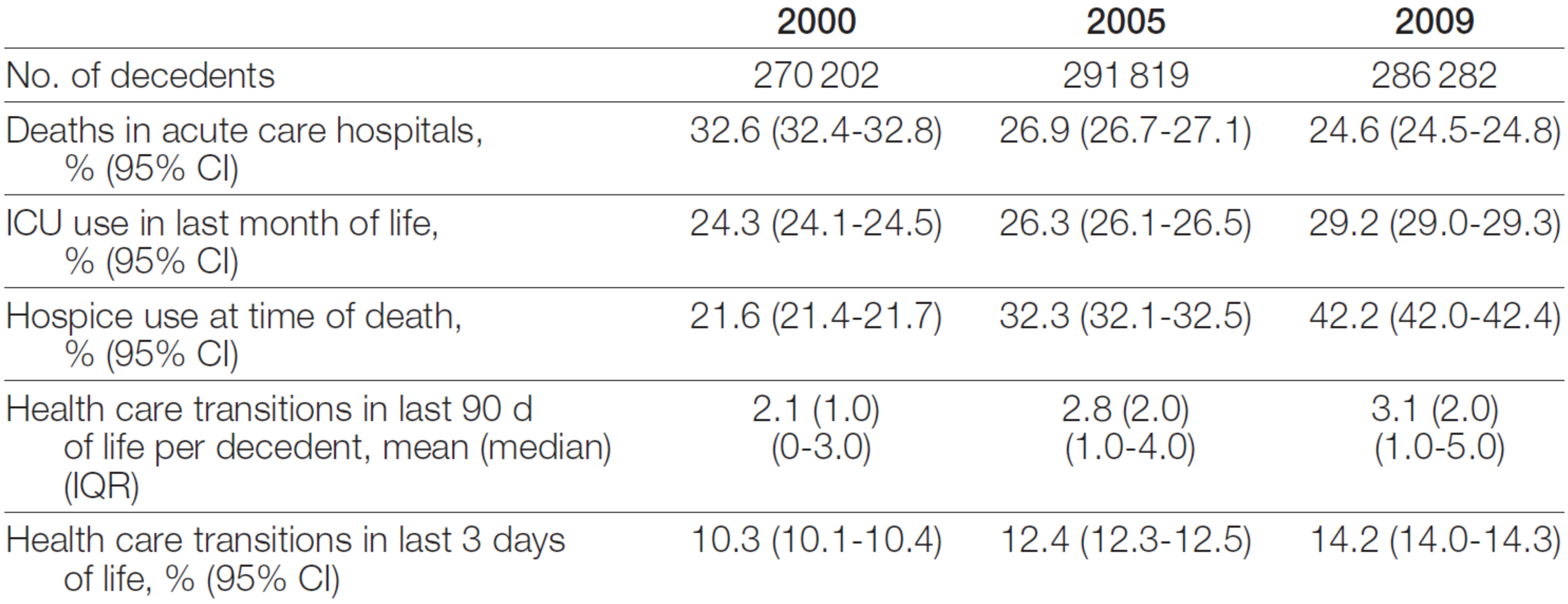
- Data
  - Collection of patient reported outcomes often not routine
  - Access to Administrative data
- The breadth and integration of PC services varies, even among large centers

Mean ESAS symptom scores over time in >10 000 oncology outpatients



Seow H, et al. J Clin Oncol. 2011;29(9):1151-8. doi: 10.1200/JCO.2010.30.7173.
Trajectory of Performance Status and Symptom Scores for Patients With Cancer During the Last Six Months of Life
©2011 by American Society of Clinical Oncology

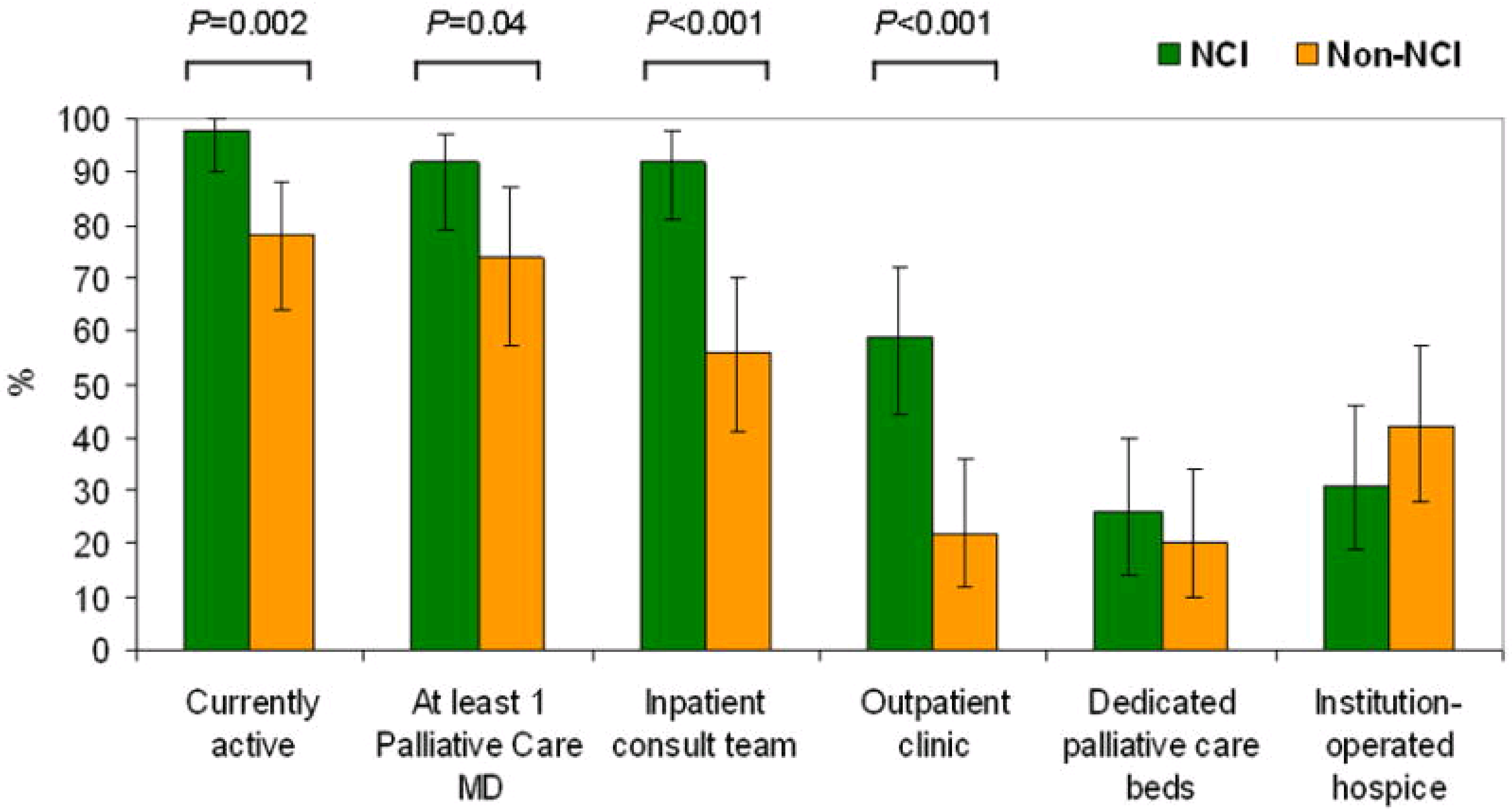
Setting at end of life: hospice, hospital, ICU



	2000	2005	2009
No. of decedents	270 202	291 819	286 282
Deaths in acute care hospitals, % (95% CI)	32.6 (32.4-32.8)	26.9 (26.7-27.1)	24.6 (24.5-24.8)
ICU use in last month of life, % (95% CI)	24.3 (24.1-24.5)	26.3 (26.1-26.5)	29.2 (29.0-29.3)
Hospice use at time of death, % (95% CI)	21.6 (21.4-21.7)	32.3 (32.1-32.5)	42.2 (42.0-42.4)
Health care transitions in last 90 d of life per decedent, mean (median) (IQR)	2.1 (1.0) (0-3.0)	2.8 (2.0) (1.0-4.0)	3.1 (2.0) (1.0-5.0)
Health care transitions in last 3 days of life, % (95% CI)	10.3 (10.1-10.4)	12.4 (12.3-12.5)	14.2 (14.0-14.3)

Teno JAMA 2013

Palliative Care at Cancer Centers in USA



Hui JAMA 2010

NCI and non-NCI executives agreed that a stronger integration of PC services into oncology practice will benefit patients and that more funding should be directed toward PC research

Acute Palliative Care Unit

Purpose of a PCU

- Manage severe physical and/or psychosocial distress
- Family meetings most important intervention
- Consistent interdisciplinary message regarding goals of care

Elsayem JCO 2004 ,Casarett 2011 Arch Intern Med

How to prove benefit when health systems have no PCU ?

Effect of PC Consults vs PC Units vs Usual care

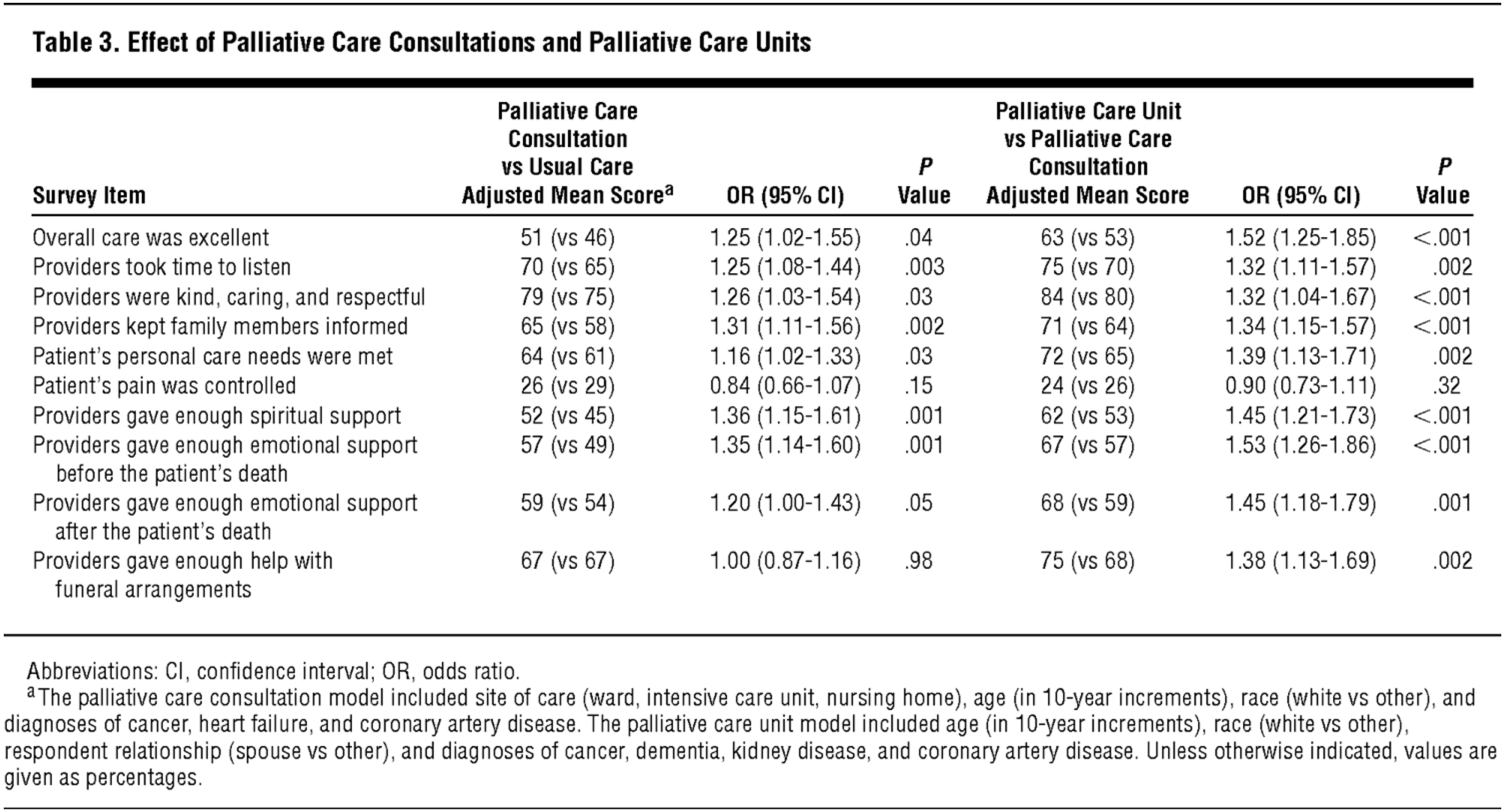


Table 3. Effect of Palliative Care Consultations and Palliative Care Units

Survey Item	Palliative Care Consultation vs Usual Care Adjusted Mean Score[a]	OR (95% CI)	*P* Value	Palliative Care Unit vs Palliative Care Consultation Adjusted Mean Score	OR (95% CI)	*P* Value
Overall care was excellent	51 (vs 46)	1.25 (1.02-1.55)	.04	63 (vs 53)	1.52 (1.25-1.85)	<.001
Providers took time to listen	70 (vs 65)	1.25 (1.08-1.44)	.003	75 (vs 70)	1.32 (1.11-1.57)	.002
Providers were kind, caring, and respectful	79 (vs 75)	1.26 (1.03-1.54)	.03	84 (vs 80)	1.32 (1.04-1.67)	<.001
Providers kept family members informed	65 (vs 58)	1.31 (1.11-1.56)	.002	71 (vs 64)	1.34 (1.15-1.57)	<.001
Patient's personal care needs were met	64 (vs 61)	1.16 (1.02-1.33)	.03	72 (vs 65)	1.39 (1.13-1.71)	.002
Patient's pain was controlled	26 (vs 29)	0.84 (0.66-1.07)	.15	24 (vs 26)	0.90 (0.73-1.11)	.32
Providers gave enough spiritual support	52 (vs 45)	1.36 (1.15-1.61)	.001	62 (vs 53)	1.45 (1.21-1.73)	<.001
Providers gave enough emotional support before the patient's death	57 (vs 49)	1.35 (1.14-1.60)	.001	67 (vs 57)	1.53 (1.26-1.86)	<.001
Providers gave enough emotional support after the patient's death	59 (vs 54)	1.20 (1.00-1.43)	.05	68 (vs 59)	1.45 (1.18-1.79)	.001
Providers gave enough help with funeral arrangements	67 (vs 67)	1.00 (0.87-1.16)	.98	75 (vs 68)	1.38 (1.13-1.69)	.002

Abbreviations: CI, confidence interval; OR, odds ratio.

[a] The palliative care consultation model included site of care (ward, intensive care unit, nursing home), age (in 10-year increments), race (white vs other), and diagnoses of cancer, heart failure, and coronary artery disease. The palliative care unit model included age (in 10-year increments), race (white vs other), respondent relationship (spouse vs other), and diagnoses of cancer, dementia, kidney disease, and coronary artery disease. Unless otherwise indicated, values are given as percentages.

Casarett D, et al. Arch Intern Med. 2011;171(7):649-55
doi: 10.1001/archinternmed.2011.87.
The Optimal Delivery of Palliative Care: A National Comparison of the Outcomes of Consultation Teams vs Inpatient Units

Scope of research

- Most research has been conducted in patients with cancer
- Systematic review :124 randomized controlled trials *Singer JPM 2016*
- PC also improves selected outcomes in Heart Failure, Chronic Obstructive Pulmonary Disease and Dementia
- Improvements reported in communication and planning, psychosocial health, experience of patients and caregivers

Increasing the scope of research

- First steps: Incorporation of PC into guidelines of professional organizations such as American Heart Association, and the American College of Surgeons
- The fundamentals of PC and the outcomes are likely to apply to all diseases however……. may not be optimal
- Next steps: Support of PC research by individual specialties (e.g. by the American Cancer Society)

Research and clinical workforce shortage

- 6000 to 18,000 additional clinical physicians needed
  Lupu JPSM 2010
- Rural disparities ,Southern States in U.S.
- The needs of a rapidly growing racially and ethnically diverse population of older adults
- Decreased access and poorer clinical outcomes, requires additional research into racial and ethnic disparities in PC
  Johnson KS. J Palliat Med 2013

Summary

- National /Regional strategy for research is needed
- Funding gaps remain
- PC Research is aligned with future health care needs
- Improve Data availability and routine PRO collection
- Scope of research expansion for better evidence base
- Interdisciplinary Co-operation

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