Palliative and Hospice Care for Individuals with Late to End Stage Neurodegenerative Disease: Strategies for Optimizing Function and Quality of Life

Valerie Carter, PT, DPT, NCS
Karen Mueller, PT, DPT, PhD
Northern Arizona University
Program in Physical Therapy
Flagstaff, AZ 86001

Combined Sections Meeting 2014
Las Vegas, Nevada, February 5, 2014

Objectives

- Describe the role of palliative and hospice care in the context of chronic disease management
- Describe the clinical features of late stage neurodegenerative disease including: Parkinson’s Disease, Multiple Sclerosis and Amyotrophic Lateral Sclerosis that are indications for palliative care
- Describe the clinical features of end stage Parkinson’s Disease, Multiple Sclerosis and Amyotrophic Lateral Sclerosis that are indications for a referral to hospice
- Describe physical therapy interventions for both motor and non motor symptoms of late to end stage neurodegenerative disease
- Describe valid and reliable outcome measures for the assessment of patients with late to end stage Parkinson’s Disease, Multiple Sclerosis and Amyotrophic Lateral Sclerosis

The Scope of Neurodegenerative Disease

- Caused by hereditary, environmental, inflammatory, viral, or traumatic antecedents, either alone or in combination.
- Alzheimers Disease: 5.2 million in US, 500,000 new cases
- Multiple Sclerosis: 400,000 in US, 10,000 new cases each year
- Parkinson’s Disease: Prevalence 1.5 million in US, 50-60,000 new cases each year
- ALS: Prevalence: 30,000 in US, 5,000 new cases each year

What is Palliative Care?

(National Consensus Project for Quality Palliative Care and Centers for Medicare and Medicaid, 2013)

- Patient and family-centered care that optimizes quality of life by anticipating, preventing, and treating suffering. Palliative care throughout the continuum of illness involves addressing physical, intellectual, emotional, social, and spiritual needs and to facilitate patient autonomy, access to information, and choice.
- Care is provided and services are coordinated by an interdisciplinary team;
- Patients, families, palliative and non-palliative health care providers collaborate and communicate about care needs;
- Services are available concurrently with or independent of curative of life-prolonging care;
- Patient and family hopes for peace and dignity are supported throughout the course of illness, during the dying process, and after death.

Three case examples

- Cindy, age 62, Twenty year history of Multiple Sclerosis. Symptoms of secondary progressive disease in recent years.
- Charlotte, age 79, 20 year history of Parkinson’s disease
- Jake, age 72 (deceased 2011) Five year course of ALS

Guiding Concepts Related to Palliative Care in Neurodegenerative Disease

- The course of neurodegenerative disease is generally characterized by an early predominance of motor symptoms which are typically well managed by medication and neurorehabilitative therapies. At this point, patients are best positioned to make decisions regarding late stage and end of life care.
- In the later stages of neurodegenerative disease, multi system-non motor symptoms increase the burden of disability and negatively impact patient quality of life.
- The effectiveness of medications and neurorehabilitative therapies may be compromised by the increasing severity of non motor symptoms.
- The unique needs of patients with later stage neurodegenerative disease require specialized, collaborative management by experts in movement disorders, neurorehabilitation and palliative care.
- While the need for palliative and hospice care for patients with neurodegenerative disease is gaining increasing recognition, numerous barriers limit access to such care, particularly in the early stages.
- Palliative care should be considered at the point of diagnosis and the level of intervention adjusted according to the individual symptom load.
Late Stage Neurodegenerative Disease
A commonality of symptoms “similar to advanced cancer”

- MS
- PD
- AD
- ALS

Fatigue (65-80%)
Neuromuscular impairment
Respiratory dysfunction
Dysphagia (50%)
Neuropathic bowel/bladder
Cognitive changes
Depression

Fatigue (65-80%)
Neuromuscular impairment
Respiratory dysfunction
Pains (60%)
Dysphagia
Constipation (50-80%)
Cognitive changes
Depression

Fatigue (75%)
Neuromuscular impairment
Respiratory (35%)
Pains (52%)
Dysphagia
Cognitive (FTLD)
Depression

Fatigue (83%)
Neuromuscular impairment
Respiratory dysfunction
Pains (83%)
Dysphagia
Cognitive changes
Depression

Fatigue (75%)
Neuromuscular impairment
Respiratory (35%)
Pains (52%)
Dysphagia
Cognitive (FTLD)
Depression

Implications for Physical Therapy

- PT should be a resource for accessing and collaborating within palliative care programs.
- Neurological problems lead to contractures, weakness, and difficulty executing skilled movements; restorative efforts will need to be increasingly replaced by compensatory ones.
- Patient and family need information to assist in planning for increasing limitations in function; need for increasing equipment, assistance in securing needed devices.
- Cognitive impairments in executive functions may affect planning, attention, and ability to follow through with treatment recommendations.
- Respiratory dysfunction will limit endurance, cough effectiveness. Sensations of air hunger may result in increased anxiety.
- PTs should help patients identify goals related to optimal wellness.

Palliative Care Disparities in Neurodegenerative Disease

- Severe pain was identified in 42% of patients with PD and 52% of patients with ALS.
- Pain medication was provided to 27% of patients with PD but only 19% of patients with ALS.
- While hospice care was provided to 56% of patients with PD and 64% of patients with ALS, the length of hospice admission was significantly shorter for patients with PD (3 weeks) than for those with ALS (8 weeks).
- While 50% of patients with ALS died at home, only 25% of patients with PD died at home.
- 70% of Americans older than 65 with dementia die in nursing homes compared to 21% of those with cancer and 28% with other chronic diseases.
- In a 2007 nationwide study of 800 hospices, only 11% had dementia as their primary diagnosis; however, in 2004 the CDC reported that Alzheimer’s disease was listed as the underlying cause of death in 38% of 65, 829 death certificates.

Neurodegenerative Disease in Hospice

- Non-Cancer diagnoses comprised 63% of 2012 hospice admissions, although cancer remains a leading diagnosis (36.9%).
- “Debility Unspecified /Adult Failure to Thrive is the second leading hospice diagnosis (14.2%) and may include many patients with end stage neurodegenerative disease.
- Dementia is the 3rd leading hospice diagnosis.

When is Palliative Care Indicated?
(National Institute of Nursing Research)

- Whenever a patient suffers from pain or other symptoms from ANY serious illness.
- Whenever a patient experiences physical or emotional pain that is NOT under control.
- Whenever a patient needs help understanding their condition.
- Whenever a patient needs help coordinating their care.

An Emerging Area of Practice, Education and Research

- In 2000, 309 palliative care projects received NIH funding, up from 53 in 1995.
- Systematic reviews related to palliative care published on PubMed more than doubled between 2002 and 2003 (102 vs 249, respectively). In 2000 there were only 2.
- By 2014, 80% of US hospitals over 50 beds will have a palliative care program.
- 344 fellowships in palliative care as of 2013.
- Electronic records???

Source: Center to Advance Palliative Care, 2013

When is Palliative Care Indicated?
(National Institute of Nursing Research)

- Whenever a patient suffers from pain or other symptoms from ANY serious illness.
- Whenever a patient experiences physical or emotional pain that is NOT under control.
- Whenever a patient needs help understanding their condition.
- Whenever a patient needs help coordinating their care.

Source: Center to Advance Palliative Care, 2013
In an integrated model of palliative care, the team follows the patient through the continuum of care.

**Barriers to Access: Lack of Public Knowledge**

*Center to Advance Palliative Care Public Opinion Research, 2011 n=800 adults age 18+*

- How knowledgeable, if at all, are you about palliative care?
  - 70% Not at all knowledgeable
  - 14% Somewhat knowledgeable
  - 3% Very knowledgeable
  - 5% Don’t know

**Barriers to Palliative Care Access: Ambivalence Among Providers**

*Center to Advance Palliative Care Public Opinion Research, 2011 n=800 adults age 18+*

- "Physicians are a much more difficult audience than consumers"
- Ninety Six percent of 500 board-certified physicians surveyed supported palliative care
- HOWEVER, 42% expressed concern that emphasizing palliative care could interfere with treatments aimed at extending patient lives as long as possible.
- Twenty five percent said they are reluctant to recommend palliative care because their patients may perceive they are not doing everything possible to extend their lives.

**Palliative Care and the Affordable Care Act**

- In 2008, the National Priorities Partnership, a consortium of US health care organizations working with NQF, identified palliative care as one of six top priorities for improving the U.S. health system
- Palliative care meets the ACA mandates of providing effective and efficient patient centered care. Palliative care settings are required to participate in federal quality initiatives.
- The National Quality Forum (NQF) has endorsed 14 quality measures for palliative and hospice care.
- The Joint Commission (TJC) has developed an Advanced Palliative Care Certification for hospital based palliative services.
- Palliative care programs can be provided in the context of Accountable Care Organizations and Medical Homes. Palliative care programs can readily be incorporated into emerging bundled payment models.

**Healthcare Policy Priorities for Hospice and Palliative Care**

*NHPCO 2012, HPNA 2012, AAHPM 2011*

<table>
<thead>
<tr>
<th>Access</th>
<th>Workforce</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase outpatient and home care services and ongoing education to improve perception of palliative and hospice care's scope and positive outcomes.**</td>
<td>Increase specialists across disciplines, train, credential, and certify providers in hospice and palliative care (across disciplines). Expand the number of training sites for providers (nurses, physicians, social workers, chaplains, and others) to receive standardized training in hospice and palliative care.</td>
<td>Funding for hospice and palliative care research may be the highest priority. **</td>
</tr>
<tr>
<td>- Primary palliative care training for all specialties to increase provider skills and focus specialty-level palliative care services for the most complex needs. **</td>
<td>- Effort to allow for early identification of high-risk patients in need of palliative services across settings. **</td>
<td>- Testing new delivery models and demonstrating hospice and palliative care outcomes. **</td>
</tr>
<tr>
<td>- Regulatory and accreditation requirements to reduce variation in services.**</td>
<td>- Loan forgiveness programs to offset costs of subspecialty training.**</td>
<td>- Evaluating and reporting on quality outcomes based on new measurement standards.**</td>
</tr>
</tbody>
</table>

**Assessing the Need for Palliative Care and Referral to Hospice**

- Palliative Outcome Scale (POS)
  - Subjective measure of severity:
    - 10 symptoms relative to palliative care from best to worst (0=best, 4=worst) over previous 2 weeks
  - Palliative care meets the ACA mandates of providing effective and efficient patient centered care. Palliative care settings are required to participate in federal quality initiatives.
  - The National Quality Forum (NQF) has endorsed 14 quality measures for palliative and hospice care.
  - The Joint Commission (TJC) has developed an Advanced Palliative Care Certification for hospital based palliative services.
  - Palliative care programs can be provided in the context of Accountable Care Organizations and Medical Homes. Palliative care programs can readily be incorporated into emerging bundled payment models.

- Palliative care meets the ACA mandates of providing effective and efficient patient centered care. Palliative care settings are required to participate in federal quality initiatives.
- The National Quality Forum (NQF) has endorsed 14 quality measures for palliative and hospice care.
- The Joint Commission (TJC) has developed an Advanced Palliative Care Certification for hospital based palliative services.
- Palliative care programs can be provided in the context of Accountable Care Organizations and Medical Homes. Palliative care programs can readily be incorporated into emerging bundled payment models.

**Palliative Outcome Scale- Multiple Sclerosis (POS-MS)**

- POS + 17 additional MS specific symptoms relative to palliative care from best to worst (0=best; 4=worst) over previous 2 weeks

**Palliative Outcome Scale-Parkinson’s Disease (POS-PD)**

- POS + 20 additional PD related symptoms relative to palliative care from best to worst (0=best; 4=worst) over previous 2 weeks

- The POS-MS and POS-PD are identical except for the addition of “falls, dribbling of saliva, and hallucinations” as PD symptoms.
Other Palliative Care Assessments

- Edmonton Symptom Assessment Scale (ESAS)
- Memorial Symptom Assessment Scale
- Palliative Care Assessment Tool (PACA)
- Palliative Performance Scale (PPS)

Indicators of Frailty (Fried et al)

- Self-reported exhaustion (3 or more day per week).
- Muscle weakness
- Unintentional weight loss (≥ 10lb in past year).
- Slow Walking Speed (< 0.8 m/sec).
- Low level of activity (Sitting quietly or lying down for vast majority of day).

Diagnostic Performance Measures

- Walking speed:
  - Time (in seconds) to walk 10 meters
- Endurance:
  - Distance walked in 6 minutes
- Leg strength:
  - Number of sit to stand in 30 sec.
  - Time needed to walk up 10 steps
- Balance:
  - Timed Up and Go
  - Getting off floor to standing

<table>
<thead>
<tr>
<th>PERFORMANCE MEASURE OUTCOMES AND PHYSICAL MARKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Gait Speed</td>
</tr>
<tr>
<td>Six Min Walk</td>
</tr>
<tr>
<td>Chair rise 30 sec (no hands)</td>
</tr>
<tr>
<td>Climb 10 stairs</td>
</tr>
<tr>
<td>Floor-stand</td>
</tr>
</tbody>
</table>

AD

- Application to AD
Features of End Stage Dementia

- Neurocognitive: progressive worsening of memory, loss of orientation, and profound confusion. Behavioral disturbances such as combativeness, inability to initiate, psychotic reactions. Coma
- Loss of communication: Progressive worsening of speech, inability to communicate; patient eventually becomes incoherent, mute; then unresponsive.
- Functional: Loss of independent mobility and capacity for self care. Patient becomes totally dependent and bed bound
- Nutritional: progressive loss of appetite and ability to swallow or eat independently. Increasing risk for aspiration

Stages of Parkinson’s Disease

- The average patient with PD lives 15 years after diagnosis
- Early Stage (diagnosis-up to 10 years)
  - Hoehn and Yahr stage 1-2
  - Periods of complete relief of motor symptoms from pharmacologic intervention
  - High level of responsiveness to skilled physical therapy interventions
- Advanced Stage (10 years and beyond)
  - Disease becomes increasingly systemic
  - Hoehn and Yahr stage 3-5
  - Non motor symptoms become more evident and can become the significant contributing factors to disability, caregiver burden and decreasing QOL
  - Non motor symptoms are present in up to 50% of patients, especially in the off state, and sometimes worsened by anti PD medications
Non Motor Complications of Advanced PD (Lokk and Delbari, 2012)

- Dysphagia (up to 95%)
- Autonomic Dysfunction (80%)
  - Bowel and Bladder Abnormalities
  - Orthostatic Hypotension
  - Sexual Dysfunction
- Pain (50%-83%)
  - Musculoskeletal, Visceral and Central
  - Dyskinesia/Dystonia
  - Camptocormia (stooped posture with flexion of thoracolumbar spine)
- Cognitive Disturbance (80%)
- Sleep Disturbance (60%)
  - REM sleep disorder
- Depression and Anxiety (up to 40%)
- Psychosis (up to 40%)
  - Due to underlying dementia and ant PD medication

Non-Motor and Motor Complications of Advanced PD (locally and Delbari, 2012)

- Dysphagia (up to 95%)
- Autonomic Dysfunction (80%)
  - Bowel and Bladder Abnormalities
  - Orthostatic Hypotension
  - Sexual Dysfunction
- Pain (50%-83%)
  - Musculoskeletal, Visceral and Central
  - Dyskinesia/Dystonia
  - Camptocormia (stooped posture with flexion of thoracolumbar spine)
- Cognitive Disturbance (80%)
- Sleep Disturbance (60%)
  - REM sleep disorder
- Depression and Anxiety (up to 40%)
- Psychosis (up to 40%)
  - Due to underlying dementia and ant PD medication

Non-Motor and Motor Complications of Advanced PD (locally and Delbari, 2012)

- Dysphagia (up to 95%)
- Autonomic Dysfunction (80%)
  - Bowel and Bladder Abnormalities
  - Orthostatic Hypotension
  - Sexual Dysfunction
- Pain (50%-83%)
  - Musculoskeletal, Visceral and Central
  - Dyskinesia/Dystonia
  - Camptocormia (stooped posture with flexion of thoracolumbar spine)
- Cognitive Disturbance (80%)
- Sleep Disturbance (60%)
  - REM sleep disorder
- Depression and Anxiety (up to 40%)
- Psychosis (up to 40%)
  - Due to underlying dementia and ant PD medication

Table 1. Top 10 symptoms ‘dominating the day’ (n = 123).

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immobility</td>
<td>28.5</td>
</tr>
<tr>
<td>Pain</td>
<td>20.3</td>
</tr>
<tr>
<td>Sleeplessness</td>
<td>17.1</td>
</tr>
<tr>
<td>Insomnia</td>
<td>15.4</td>
</tr>
<tr>
<td>Fatigue</td>
<td>8.9</td>
</tr>
<tr>
<td>Urine urgency</td>
<td>8.9</td>
</tr>
<tr>
<td>Urine incontinence</td>
<td>8.9</td>
</tr>
<tr>
<td>Anxiety</td>
<td>8.9</td>
</tr>
<tr>
<td>Urinary frequency</td>
<td>8.1</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Source: Adapted from the study by Lee et al. (2012)
PD: Parkinson's disease; PACA: Palliative Care Assessment.
This is not an exhaustive list of symptom burden in PD

Figure 1. Self-reported prevalence and severity of symptoms on the POS-PD (%) for 82 patients. POS-PD: Palliative Outcome Scale–Parkinson's disease.

Table 2. Symptoms reported in >50% of patients.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Frequency in 50% of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems limiting independence</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting mobility</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting ADL</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting IADL</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting communication</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting sexual activity</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting occupation</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting leisure activity</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting social activity</td>
<td>44.0</td>
</tr>
<tr>
<td>Problems limiting spiritual activity</td>
<td>44.0</td>
</tr>
</tbody>
</table>

Source: Adapted from the study by Höppner et al. (2012)
PD: Parkinson’s disease; POS-PD: Palliative Outcome Scale–Parkinson’s disease.
This is not an exhaustive list of symptom burden in PD.

Table 3. Number of patients with different levels of functional disability, as indicated by the H&Y stage scale (N = 82).

<table>
<thead>
<tr>
<th>H&amp;Y stage</th>
<th>Number of patients (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24 (29%)</td>
</tr>
<tr>
<td>2</td>
<td>24 (29%)</td>
</tr>
<tr>
<td>3</td>
<td>38 (46%)</td>
</tr>
<tr>
<td>4</td>
<td>38 (46%)</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
</tr>
</tbody>
</table>


ALS Case Study
Table 4. Self-reported severity of symptoms using POS-PD.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>16</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Swallowing problems</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>14</td>
<td>11</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Fatigue</td>
<td>16</td>
<td>14</td>
<td>13</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Depression</td>
<td>17</td>
<td>15</td>
<td>14</td>
<td>13</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Nausea</td>
<td>15</td>
<td>13</td>
<td>12</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Seizures</td>
<td>15</td>
<td>13</td>
<td>12</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Constipation</td>
<td>14</td>
<td>12</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>13</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>13</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Anemia</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Incontinence</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Cough</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Dizziness</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fever</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Indications for End of Life Care

- **GENERAL**
  - Swallowing problems
  - Recurrent infections
  - Marked decline in physical function
  - First aspiration pneumonia
  - Cognitive difficulties
  - Weight loss
  - Significant complex symptoms

- **PD SPECIFIC**
  - Visual Hallucinations
  - Regular Falls
  - Dementia
  - Admission to residential care

End Stage Neurodegenerative Disease: A convergence of complications leading to death

- MS
- AD
- PD
- ALS

  - Respiratory Failure
  - Aspiration Pneumonia
  - Sepsis
  - Inanition (adult failure to thrive)

Final Considerations

- Our role in “transforming society” …to improve the human experience includes end of life
- As 80 million baby boomers enter their elderly years, we must work to integrate our professional vision into the emerging arena of palliative care by utilizing our skills and knowledge to improve:
  - Quality
  - Collaboration
  - Value
  - Access/equity
  - Advocacy
  - Consumer-Centricity
  - Innovation

Transforming Society Through Palliative Care

- Triple aim: Improving the healthcare experience of individuals and populations
- Continued development of outcome measures will insure value

Selected References

Goche, R. The conceptual framework of palliative care applied to advanced Parkinson’s disease. Parkinsonism and Related Disorders. 2012;18 S2-55


