

Stratifying End-of-Life Risk for Hospice Services

Tutorial for SETMA's Deployment of Four Risk Calculators for Hospice Care

- (1) *Karnosky & Lansky Performance Scales*,
(2) *Palliative Performance Scale for Cancer Patients*, (3) *Braden Scale Clinically Unavoidable Skin Lesions*, (4) *Functional Assessment Testing Alzheimer's and Related Conditions*

As end-of-life planning becomes increasingly an important part of patient care, it is important to find ways of quantifying patient's qualification for hospice care and where possible, a means of quantifying a reliable estimate of survival time for patients. While there will never be an absolute, four scores are being used to aid in this process. The first, the Karnofsky Scale, was first described in 1949; the second, the Palliative Performance Scale has been used in cancer patients since 1996; the third the Braden Clinically Unavoidable Skin lesions and the fourth Functional Assessment Testing Alzheimer's and Related Conditions (FAST).

SETMA has deployed all four of these scores, along with a fifth which is the Lansky Score. The Lansky is like the Karnofsky Scale but is used with patient under 16. These tools can be found by going to GP Master Template. In the second column you will find these four scales. They are also deployed on the Master Template in the Hospital Care Summary and Post Hospital Plan of Care and Treatment Plan Suite of templates.

These only need to be completed in patients you are considering referral to hospice care or palliative care. **However, both the Karnofsky and the FAST have value in assessing those patients who are at high risk of readmission.**

The screenshot shows a medical software interface with a patient profile for 'Army Zhest', 31 years old, male. The 'Chronic Conditions' list includes:

Chronic Conditions	Re-Order	HCC	Re	Last Evaluated
1 COPD (chronic obstructive pulmonary disease)	Y	Y	J	J
2 COPD (chronic obstructive pulmonary disease)	Y	Y	J	J
3 CHF (congestive heart failure)	Y	Y	J	J
4 Hypertension	Y	Y	J	J
5 Allergic rhinitis with asthma without	Y	Y	J	J
6 Asthma	Y	Y	J	J
7 Psoriasis	Y	Y	J	J
8 Diabetes mellitus associated with no	Y	Y	J	J
9 Rheumatoid arthritis	Y	Y	J	J
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

The 'Chronic Conditions' list is highlighted with a green box, showing the following items:

- Harcosky Lansky (0411001.2)
- Palliative Per Scale (0411001.2)
- Braden Scale (0411001.2)
- FAST Assessment (0411001.2)

A Karnofsky score of 60 or less qualifies a patient for referral to hospice. Below, the SETMA's EMR templates there are more details about both scales.

Karnofsky & Lansky Performance Scales

Last Updated/Reviewed 04/10/2012

Karnofsky Scale Patients 16 Years And Older	Lansky Scale Patients Less Than 16 Years
<p>Able to carry on normal activity; no special care needed</p> <p>Normal, no complaints, no evidence of disease <input type="radio"/> 100</p> <p>Able to carry on normal activity <input type="radio"/> 90</p> <p>Normal activity with effort <input type="radio"/> 80</p> <p>Unable to work, able to live at home, cares for most personal needs, a varying amount of assistance is needed</p> <p>Cares for self, unable to carry on normal activity or to do active work <input type="radio"/> 70</p> <p>Requires occasional assistance but is able to care for most needs <input type="radio"/> 60</p> <p>Requires considerable assistance and frequent medical care <input checked="" type="radio"/> 50</p> <p>Unable to care for self, requires equivalent of institutional or hospital care, disease may be progressing rapidly</p> <p>Disabled, requires special care and assistance <input type="radio"/> 40</p> <p>Severely disabled, hospitalization indicated, although death not imminent <input type="radio"/> 30</p> <p>Very sick, hospitalization necessary <input type="radio"/> 20</p> <p>Moribund, fatal process progressing rapidly <input type="radio"/> 10</p>	<p>Able to carry on normal activity; no special care needed</p> <p>Fully active</p> <p>Minor restriction in physically strenuous play</p> <p>Restricted in strenuous play, tires more easily, otherwise active</p> <p>Mild to moderate restriction</p> <p>Both greater restrictions of, and less time spent in play</p> <p>Ambulatory up to 50% of the time, limited active play with assistance/supervision</p> <p>Considerable assistance required for any active play, fully able to engage in quiet play</p> <p>Moderate to severe restriction</p> <p>Able to initiate quite activities</p> <p>Needs considerable assistance for quiet activity</p> <p>Limited to very passive activity initiated by others (e.g., TV)</p> <p>Completely disabled, not even passive play</p>

The Palliative Performance Scale for Cancer Patients is found on the same template. This score's results are expressed in "survival time from the point of admission to hospice." The evidence-based literature has only measured this scale in the case of patients with cancer. Further information is found below about this scale.

Palliative Performance Scale (PPS) For Cancer Patients

Last Updated/Reviewed 04/10/2012

1. Enter Ambulation

- Full
- Reduced
- Mainly Sit/Lie
- Mainly In Bed
- Bed Bound

2. Enter Activity Level/Evidence of Disease

- Normal - No Disease
- Normal - Some Disease
- Normal with Effort - Some Disease
- Can't Do Normal Work/Job - Some Disease
- Can't Do Hobbies/Housework - Significant Disease
- Can't Do Any Work - Extensive Disease

>>> Click To Calculate <<<

Estimated Mean Survival In Days

	<input style="width: 30px;" type="text" value="1"/>	to	<input style="width: 30px;" type="text" value="30"/>	days	*Survival post-admission to an inpatient palliative care unit, all diagnoses. (Virik 2002)
	<input style="width: 30px;" type="text" value="1"/>	to	<input style="width: 30px;" type="text" value="11"/>	days	* Days until inpatient death following admission to an acute hospice unit diagnosis not specified (Anderson 1996)
	<input style="width: 30px;" type="text" value="6"/>	to	<input style="width: 30px;" type="text" value="41"/>	days	* Survival post admission to an inpatient palliative unit, cancer patients only. (Morita 1999)

3. Enter Level of Self-Care

- Full
- Occasional Assistance Needed
- Considerable Assistance Needed
- Mainly Assistance Required
- Total Care Required

4. Enter Intake

- Normal
- Normal to Reduced
- Reduced
- Minimal
- Mouth Care Only

5. Enter Level of Consciousness

- Full
- Full or Confusion
- Full or Drowsy or Confusion
- Drowsy or Coma

OK
Cancel

The Braden Score was developed in 1988 and has been used by SETMA in the Nursing Home patients since 2002. The Braden is based on 6 categories of evaluation and gives a score which indicates whether or not the patient is susceptible to clinically unavoidable skin lesions.

Braden Scale Clinically Unavoidable Skin Lesions

Return

Sensory Perception

Completely Limited

Very Limited

Slightly Limited

No Impairment

Mobility

Completely Immobile

Very Limited

Slightly Limited

No Limitation

Skin Moisture

Completely Moist

Very Moist

Occasionally Moist

Rarely Moist

Nutrition

Very Poor

Probably Inadequate

Adequate

Excellent

Activity

Bedfast

Chairfast

Walks Occasionally

Walks Frequently

Friction and Shear Help

Problem

Potential Problem

No Apparent Problem

Score Assessment

Previous Results

Encounter Date:Time	Score	Assessment
12/02/2009 08:29 AM	14	The patient has a high risk for developing clinically unavoidable skin lesions.

A tutorial for this basement can be reviewed at www.setma.com under Electronic Patient Management Tools: Nursing Home

Friction and Shear

Problem
Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction.

Potential Problem
Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slide down.

No Apparent Problem
Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.

The fourth tool is the Functional Assessment Testing (FAST) Alzheimer's and Related Disorders. This tool is also valuable to use for cognitive functioning of patients with dementia but who are either not hospice eligible or not being considered for hospice.

**Functional Assessment Testing (FAST)
Alzheimer's & Related Disorders**

Last Updated/Reviewed

Check off all symptoms that apply.

- No deficits either objectively or subjectively
- Subjective functional deficits (i.e. complains of forgetting location of objects)
- Objective functional deficit interferes with a person's most complex task (i.e. decreased job functioning evident to co-workers, difficulty in travelling to new locations and decreased organizational capacity)
- IADLS become affected such as bill paying, cooking, cleaning, travelling
- Needs help selecting proper attire (i.e. improperly putting on clothing for the day season or occasion. Patient may wear the same clothing repeatedly if not supervised.)
- Needs assistance in putting on clothes (i.e. improperly putting on clothes without assistance or cueing. Patient may put on street clothes on overnight clothes, have difficulty buttoning clothing.)
- Needs assistance bathing (i.e. difficulty adjusting bath water temperature)
- Needs help toileting (i.e. inability to handle mechanics of toileting. Patient forgets to flush, does not wipe or properly dispose of toilet tissue.)
- Urinary incontinence (intermittent or constant)
- Fecal incontinence (intermittent or constant)
- Speaks 5-6 clear words or fewer during the day
- Speaks only word clearly in an average day. Patient may repeat the same word over and over.
- Can no longer walk without personal assistance
- Can no longer sit up without assistance (i.e. the patient will fall over if there are not lateral supports on the chair.)
- Can no longer smile
- Can no longer hold head up independently

Stage	Stage Name
<input type="text" value="6"/>	<input type="text" value="Moderately Severe Dementia"/>

II

Functional Assessment Staging Test

The Functional Assessment Staging Test (FAST) is the most well validated measure of the course of AD in the published, scientific literature.

The stages of Alzheimer's disease as defined by FAST are:

Stage	Stage Name	Characteristic	Expected Untreated Duration (months)	Mental Age (years)	MMSE score
	Normal Aging	No deficits whatsoever		Adult	29-30
2	Possible Mild Cognitive Impairment	Subjective functional decline			28-29
3	Mild Cognitive Impairment	Objective functional deficit interferes with a person's most complex tasks	84	12+	24-28
4	Mild Dementia	IADLs become affected, such as bill paying, making, cleaning, traveling	24	8-12	19-20
5	Moderate Dementia	Needs help selecting proper attire	18	5-7	15
6a	Moderately Severe Dementia	Needs help putting on clothes	4.8	5	9
6b	Moderately Severe Dementia	Needs help bathing	4.8	4	8
6c	Moderately Severe Dementia	Needs help toileting	4.8	4	8
6d	Moderately Severe Dementia	Urinary incontinence	3.6	3-4	3
6e	Moderately Severe Dementia	Fecal incontinence	9.6	2-3	1
7a	Severe Dementia	Speaks 5-6 words during day	12	1.25	0
7b	Severe Dementia	Speaks on 1 word clearly	18		0
7c	Severe Dementia	Can no longer walk	12	1	0
7d	Severe Dementia	Can no longer sit up	12	0.5-0.8	0
7e	Severe Dementia	Can no longer smile	18	0.2-0.4	0
7f	Severe Dementia	Can no longer hold up head	12+	0-0.2	0

1. To be eligible for hospice beneficiaries with Alzheimer's disease must have a FAST Scale of greater than or equal to 7. FAST Scale Items:

Stage 1: No difficulty, either subjectively or objectively

Stage 2: Complains of forgetting location of objects; subjective work difficulties

Stage 3: Decreased job functioning evident to coworkers; difficulty in traveling to new locations

Stage 4: Decreased ability to perform complex tasks (e.g., planning dinner for guests, handling finances)

Stage 5: Requires assistance in choosing proper clothing

Stage 6: Decreased ability to dress, bathe, and toilet independently;

Sub-stage 6a: Difficulty putting clothing on properly

Sub-stage 6b: Unable to bathe properly; may develop fear of bathing

Sub-stage 6c: Inability to handle mechanics of toileting (i.e., forgets to flush, does not wipe properly)

Sub-stage 6d: Urinary incontinence

Sub-stage 6e: Fecal incontinence

Stage 7: Loss of speech, locomotion, and consciousness:

Sub-stage 7a: Ability to speak limited (1 to 5 words a day)

Sub-stage 7b: All intelligible vocabulary lost

Sub-stage 7c: Non-ambulatory

Sub-stage 7d: Unable to sit up independently

Sub-stage 7e: Unable to smile

Sub-stage 7f: Unable to hold head up

2. Documentation of specific secondary conditions (i.e. Pressure Ulcers, UTI, Dysphagia, Aspiration Pneumonia) related to Alzheimer's Disease will support eligibility for hospice care.

Details of the Karnofsky Score Performance Status

The Karnofsky Score may be requested under certain diagnoses.

Breast cancer

Progressive disease

- Worsening clinical signs – see below
- Worsening lab values
- Decreasing functional status
- Evidence of metastatic disease

Clinical signs

- Pain, nausea or vomiting
- Thrombosis or DIC
- Bone marrow involvement requiring transfusion
- Superior vena cava syndrome

Disease stage

- Stage IV (any T, any N, M1) at presentation
- Progression of any earlier stage of disease to metastatic with either of the following:
 1. Patient continues to decline in spite of definitive therapy
 2. Patient refuses further treatment

Performance status

- [Karnofsky score](#) 50% or less
- [Karnofsky score](#) 70% or higher, if patient has progressive disease, declines therapy, or does not qualify for therapy

Dementia

Must have 2 of the following

- Ability to speak is limited to 6 words or fewer
- Ambulatory ability is lost
- Cannot sit up without assistance
- Loss of ability to smile
- Cannot hold up head

Patient should show all of the following characteristics

- Inability to ambulate independently
- Unable to dress without assistance
- Unable to bathe properly
- Incontinence of urine and stool
- Unable to speak or communicate meaningfully

Failure to thrive/debility

Clinical signs

- Progression of disease documented by symptoms or test results
- Decline in [Karnofsky score](#)
- Weight loss supported by decreasing albumin or cholesterol
- Dependence with 2 or more of the following:
 1. Feeding
 2. Ambulation
 3. Continence
 4. Transfers
 5. Bathing and dressing
 6. Dysphagia leading to inadequate nutritional intake or recurrent aspiration
 7. Increasing emergency visits, hospitalizations, or MD follow-ups related to their primary medical diagnosis
 8. A score of 6 or 7 in the Functional Assessment Staging Test (FAST) for dementia
 9. Progressive stage 3-4 pressure ulcers in spite of care

Heart disease

Clinical signs

- Signs and symptoms of CHF at rest
- Optimal dose of diuretic and vasodilator therapy
- Ejection fraction of 20% or less
- Cardiac symptoms:
 1. Arrhythmias resistant to therapy
 2. History of cardiac arrest
 3. History of syncope
 4. Cardiogenic brain embolism

liver disease

- Cirrhosis/hepatic failure - not a candidate for liver transplant
- Ascites refractory to medical management (Dietary sodium restriction and diuretics)
- Hepatorenal syndrome

1. Oliguria
 2. Urine Na < 10 mEq/L
 3. Elevated BUN/creatinine
- Hepatic encephalopathy refractory to medical management
 - Hepatocellular carcinoma
 - Recurrent variceal bleeding/spontaneous bacterial peritonitis

Lung cancer

Progressive disease

- Worsening clinical signs – see below
- Worsening lab values
- Decreasing functional status
- Evidence of metastatic disease, especially brain

Clinical signs

- Pain, nausea or vomiting
- Dyspnea
- Significant hemoptysis
- Superior vena cava syndrome
- Recurrent pneumonia
- Pericardial effusion/pleural effusion
- Any metastasis

Disease stage

- Stage IV (any T, any N, M1) at initial diagnosis
- Stage III disease with pleural effusion
- A patient with stage III disease who continues to decline in spite of therapy, or refuses therapy
- Performance status [Karnofsky score](#) of 70% or less

Prostate cancer

Progressive disease

- Worsening clinical signs – see below
- Decreasing functional status
- Evidence of metastatic disease

Clinical signs

- Pain, nausea or vomiting

- Thrombosis or DIC
- Bone marrow involvement requiring transfusion

Disease stage

- Stage IV (any T,N,or M1) at initial diagnosis
- Progression of an earlier stage of disease with either of the following:
 1. Patient continues to decline despite definitive therapy
 2. The patient is refractory or refuses further treatment

Performance status

- [Karnofsky score](#) of 50% or less
- [Karnofsky score](#) of 70% or less, if patient has progressive disease on therapy, or declines therapy

Pulmonary disease

Clinical signs

- Progression of disease documented by any of these symptoms:
 1. Dyspnea at rest
 2. Dyspnea on exertion
 3. Homebound/chairbound
 4. Oxygen dependent
 5. Copious/purulent sputum
 6. Cyanosis: fingertips, lips
 7. Barrel chested
 8. Poor response to bronchodilators

Functional status

- Decline in [Karnofsky score](#)
- Increased hospitalizations for pulmonary infections
- Decrease in FEV1 on serial testing of greater than 40 ml/year
- Hypoxemia at rest on supplemental oxygen
- Unintentional weight loss in the past 6 months
- Resting tachycardia (more than 100 per minute)

Renal disease

Clinical signs

- Uremia: clinical signs of renal failure:

- Confusion, obtundation
- Intractable nausea and vomiting
- Generalized pruritus
- Restlessness
- Oliguria: urine output of less than 400 cc/24 hours
- Intractable hyperkalemia: persistent serum potassium more than 7.0 not responsive to medical treatment
- Uremic pericarditis
- Hepatorenal syndrome
- Intractable fluid overload

Laboratory criteria

- Both must be present:
 1. Creatinine clearance of less than 10 cc/minute
 2. Serum creatinine of more than 8.0 mg/dl

Stroke and coma

Clinical/functional status

- A continuous decline in clinical or functional status means the patient's prognosis is poor acute phase patients
- Comatose state lasting more than 3 days
- Comatose patients with any 4 of the following on day 3 of a stroke have 97% mortality by 2 months:
 1. Abnormal brain stem response
 2. Absent verbal response
 3. No response to pain
 4. Serum creatinine of more 1.5 mg/dl
 5. Age 70 or more
 6. Dysphagia severe enough to prevent them from receiving food or fluids

All other conditions

- The patient has a life-limiting condition
- The patient and family have been informed that the condition is life-limiting
- There is documentation of clinical progression of the disease
 1. serial physician assessment
 2. laboratory studies
 3. radiologic or other studies
 4. multiple ER visits
 5. inpatient hospitalizations

6. home health nursing assessment if patient is homebound
- There's a recent decline in functional status, such as:
 - requires considerable assistance and frequent medical care
 - is disabled, requires special care and assistance, is unable to care for self, disease may be progressing rapidly
 - Severely disabled, although death is not imminent
 - Very sick, active supportive treatment is necessary
 - Moribund, fatal processes progressing rapidly and/or
 - Patient is dependent in at least 3 of these activities: bathing, dressing, feeding, transfers, continence of urine and stool, ambulation to bathroom and/or
 - recent impaired nutritional status, as evidenced by unintentional, progressive weight loss of 10% over past six months, or serum albumin less than 2.5 g/dl (may be helpful prognostic indicator but should not be used by itself)

The Palliative Performance Scale for Cancer Patients

“Accurate prognostication of the trajectory of an illness provides multiple benefits in end-of-life care. Prognostic information facilitates more realistic decision making regarding ongoing treatment, fosters risk-benefit considerations of specific interventions, and contributes to appropriate utilization of health care services. The Palliative Performance Scale (PPS) has been used as a tool for measurement of functional status in palliative care. This study explores the application of the PPS as a tool for projecting length of stay until death or discharge in a home-based hospice program.

PPS scores were associated with length of survival. Negative-change scores were predictive of patient decline toward death, while stable PPS ratings over time resulted in discharge consideration. The tool as used by this hospice was not highly discriminating between the 30% to 40% scores or the 50% to 70% scores.

CONCLUSION: The PPS scores are associated with patient length of survival in a hospice program and can be used in evaluating hospice appropriateness.

Journal of Palliative Medicine (2005) Volume: 8, Issue: 3, Pages: 492-502

“Current literature suggests clinicians are not accurate in prognostication when estimating survival times of palliative care patients. There are reported studies in which the Palliative Performance Scale (PPS) is used as a prognostic tool to predict survival of these patients. Yet, their findings are different in terms of the presence of distinct PPS survival profiles and significant covariates.

This study investigates the use of PPS as a prognostication tool for estimating survival times of patients with life-limiting illness in a palliative care unit. These findings are compared to those from earlier studies in terms of PPS survival profiles and covariates.

RESULTS: Study findings revealed that admission PPS score was a strong predictor of survival in patients already identified as palliative, along with gender and age, but diagnosis was not significantly related to survival. We also found that scores of PPS 10% through PPS 50% led to distinct survival curves, and male patients had consistently lower survival rates than females regardless of PPS score.

CONCLUSION: Our findings differ somewhat from earlier studies that suggested the presence of three distinct PPS survival profiles or bands, with diagnosis and non-cancer as significant covariates. Such differences are likely attributed to the size and characteristics of the patient populations involved and further analysis with larger patient samples may help clarify PPS use in prognosis.”

“The Palliative Performance Scale (PPS) was first introduced in 1996 as a new tool for measurement of performance status in palliative care. PPS has been used in many countries and has been translated into other languages.

Results: The intra-class correlation coefficients for absolute agreement were 0.959 and 0.964 for Group 1, at Time-1 and Time-2; 0.951 and 0.931 for Group 2, at Time-1 and Time-2 respectively. Results showed that the participants were consistent in their scoring over the two times, with a mean Cohen's kappa of 0.67 for Group 1 and 0.71 for Group 2. In the validity study, all experts agreed that PPS is a valuable clinical assessment tool in palliative care. Many of them have already incorporated PPS as part of their practice standard.

Conclusion: The results of the reliability study demonstrated that PPS is a reliable tool. The validity study found that most experts did not feel a need to further modify PPS and, only two experts requested that some performance status measures be defined more clearly. Areas of PPS use include prognostication, disease monitoring, care planning, hospital resource allocation, clinical teaching and research. PPS is also a good communication tool between palliative care workers.”