Appendix E: Clinical Indicators of Decline

Diseases such as chronic obstructive pulmonary disease or congestive heart failure run a more fluctuating course and result in death in a less predictable timeframe than diseases such as renal disease or dementia. Each exacerbation can lead to remission (and future exacerbation) or death; knowing which will occur on any given admission is extremely challenging.

General indicators of poorer prognosis (life expectancy of only weeks to many weeks) include poor performance status, impaired nutritional status and a low albumin level.

Disease	Specific indicators
Chronic obstructive pulmonary disease[1,2]	Less than 6 months of life expected: • Disabling dyspnea at rest, unresponsive to bronchodilators, resulting in decreased functional activity, bed to chair existence, often exacerbated by other debilitating symptoms such as fatigue and cough. • FEV1 after bronchodilators <30%. • Increased visits to emergency department/hospital for pulmonary infections and/or respiratory failure. • Pulmonary hypertension with cor pulmonale/right heart failure. • 24-hour home oxygen with pO2 <50 mmHg and/or pCO2 > 50mmHg and documented evidence of cor pulmonale. • Oxygen saturation <88% with supplementary oxygen. • Unintentional weight loss >10% over preceding 6 months. • Resting tachycardia >100/min.
Congestive heart failure[3]	< 6 month of life expected: • Chest pain, dyspnea at rest or minimal exertion and already optimally treated with diuretics and vasodilators. • Congestive heart failure >2 hospitalizations in the year. • 50% increase in dose of oral medication or adding new class of drug. • Left ventricular ejection fraction <20%. • Creatinine >350 µmol/L.
	Only a few weeks remaining: • History of cardiac arrest and resuscitation. • History of unexplained syncope. • Resistant dysrhythmias. • Hypertension. • Insulin-dependent diabetes. • Nicotine use. • Prior coronary artery bypass.

[1]Minnesota Hospice Organization. National hospice organization medical guidelines for determining prognosis in selected non-cancer diseases: a physician's guideline. St. Paul: Hospice Minnetsota; 1996.

[2]Pfeifer, M. End of life decision making: special considerations in the COPD patient. Medscape G Med. 1999; 1(3). Available from: www.medscape.com/viewarticle/408735

[3]Derfler, M., Jacob, M., Wolf, RE., Bleyer, F. & Hauetman, PJ. Mode of death from congestive heart failure: implications for clinical management. Am J Geriatr Cardiol. 2004; 13(6): 299-304.

Disease	Specific indicators
Dementia[2,4,5]	Month to several months of life expected (all predictors should be present): • Mini-Mental State Examination <12. • Unable to ambulate without assistance. • Unable to dress without assistance. • Unable to bathe without assistance. • Urinary and fecal incontinence. • Unable to speak or communicate meaningfully. • Unable to swallow. • Increasing frequency of medical complications (e.g. aspiration pneumonia, urinary tract infections, decubitus ulcers).
Renal disease	Weeks to several month of life expected: • Creatinine clearance < 10cc/min (<15cc/min for diabetics. • Serum creatinine > 700 µmol/L (>530 µmol/L for diabetics) • Confusion and/or obtundation (less than full mental capacity) • Intractable nausea and vomiting • Generalized pruritus • Restlessness • Oliguria (urine output <40cc/24 hr) • Intractable hyperkalemia (>7 mmol/L) • Intractable fluid overload

Stroke[2]	Days to weeks of life expected:
	• During the acute phase any of the following:
	  ▪ Coma beyond three days duration and dense paralysis
	  ▪ Comatose patients with any four of the following on day 3:
	    • Abnormal brain stem response
	    • Absent verbal response
	    • Absent withdrawal response to pain
	    • Serum creatinine >130 µmol/L
	    • Age >70
	    • Imaging findings such as:
	      • Large hemorrhage, with ventricular extension
	      • Midline shift >1.5 cm or bihemisphere infarcts, cortical and subcortical infarcts
	      • Basilar artery occlusion

Source: Pereira, J. L., Associates. *Pallium palliative pocketbook: A peer-reviewed, referenced resource*. 1st Cdn, Canada: The Pallium Project; 2008. Reprinted by permission of The Pallium Project

[4]Sachs, GA, Shega, JW, Cox-Hayley, D. Barriers to excellent end-of-life care for patients with dementia. J Gen Intern Med. 2004; 19: 1057-63.

[5]Allen, RS., Kwak, J., Lokken, KL., Haley, W. End of life issues in the context of Alzheimer's Disease. Alz Care Quart. 2003; 4(4): 312-30.