

**Grant Number:** 7R01CA106370-02

**PI Name:** PRIGERSON, HOLLY G.

**PI Email:** [holly\\_prigerson@dfci.harvard.edu](mailto:holly_prigerson@dfci.harvard.edu)

**PI Title:** DIRECTOR

**Project Title:** Quality of Death: Ethnic and Psychosocial Influences

**Abstract:** DESCRIPTION (provided by applicant): The aims of the proposed study are to determine the extent to which: (a) objective death circumstances (e.g., use of ventilators, feeding tubes), (b) subjective death circumstances (eg, emotional, physical, spiritual distress, pain; concern, respect shown patients), and (c) goal attainment (ie, receipt of care consistent with patient treatment preferences), differ based on the patient's ethnic status (ie, Black, White, Hispanic). We hypothesize that modifiable psychosocial factors (e.g., trust, self-efficacy, communication, preferences, mental health, coping styles) will influence the patient's quality of death and account for ethnic differences in end-of-life (EOL) care. The proposed study is a 4- year longitudinal study of 800 terminally ill cancer patient-caregiver dyads that builds on ongoing research being conducted as part of a multi-site NIMH R01 (MH63892) "Psychiatric Disorders in Dying Patients & Their Survivors" (PI: Prigerson). MH63892 enrolls terminally ill cancer patients and caregivers (eg, spouses) from cancer centers at Yale and the VA CT Healthcare System in CT, and Memorial Sloan-Kettering in NY. Additional Black and Hispanic patients will come from new sites at the University of Texas Southwestern Parkland Hospital Palliative Care Clinic and Simmons Cancer Center. Patients with a life expectancy of < 6 months and their primary caregiver receive a baseline assessment. A postmortem assessment, using information obtained from medical charts and the nurse who last cared for the patient, is conducted 1-week post-loss. Surviving caregivers are interviewed 6 months post-loss. Results will fill large gaps in knowledge about: 1) ethnic differences in the quality of death of cancer patients, and 2) the role of modifiable psychosocial factors likely to account for ethnic differences in the patient's quality of death. This will be the first study to relate subjective quality of death outcomes across ethnically diverse patient samples to objective quality of death indicators (e.g., care received) and, thereby, determine the way the care provided to the patient influences his/her quality of life at the EOL. If Blacks die in more physical and psychological distress relative to Whites, and this proves a function of more aggressive care (e.g., feeding tube, ventilator use), this would highlight the need to modify psychosocial factors mediating the relationship between ethnicity and the receipt of more aggressive care (e.g., poor communication, mistrust). In these ways, results would not only yield useful information that clinicians could then apply toward enhancing their sensitivity to culturally-specific needs and wishes, but also inform interventions to improve the quality of life and care received by dying Black, White, and Hispanic patients. health care quality, health disparity, neoplasm /cancer palliative treatment, quality of life, racial /ethnic difference, social psychology, terminal patient care attitude, cancer pain, caregiver, coping, longitudinal human study, medically underserved population, parenteral feeding, patient care personnel relations, respirator, social support network behavioral /social science research tag, clinical research, health services research tag, human subject, interview

**Institution:** DANA-FARBER CANCER INSTITUTE  
44 BINNEY ST  
BOSTON, MA 02115

**Fiscal Year:** 2005

**Department:**

**Project Start:** 01-APR-2004

**Project End:** 31-MAR-2008

**ICD:** NATIONAL CANCER INSTITUTE

**IRG:** BMIO

## **A. SPECIFIC AIMS**

**Specific Aim #1:** *To determine whether the **ethnic status** (i.e., self-identification as White, Black, or Hispanic) of terminally ill cancer patients is associated with significant differences in the following **quality of death** outcomes:*

- a. **Objective Circumstances of the Death**<sup>a, b</sup> – indicators include: duration of ICU stay; mechanical ventilator/feeding tube use (Y/N) and duration of use in days leading up to death; receipt of cure-directed chemotherapy at death; significant other not present
- b. **Subjective Circumstances of the Death**<sup>a, b</sup> – patient's degree of comfort/distress on core quality of life domains (e.g., severity of pain, physical, psychological, social, spiritual distress), behavioral-psychological symptoms (e.g., functional status, degree of alertness, fatigue, presence of terminal delirium, anxiety, depression, agitation), and concern and respect shown by clinicians
- c. **Goal Attainment**<sup>a, b</sup> – terminal care received is consistent with patient's stated terminal treatment preferences [an index derived by matching care received at death with patient treatment preferences ascertained at baseline – see Aim 2bii(a) below]

**Specific Aim #2:** *To determine whether **ethnic differences** exist among the **psychosocial factors** listed below, and whether these factors account for expected ethnic differences in the patient's **quality of death**.*

- a. **Social Factors**
  - i. **Sociodemographic/Socioeconomic Characteristics**<sup>b, c, d</sup> – age, sex, education, income, health insurance, Hispanic acculturation
  - ii. **Social Support and Strain**<sup>b, d</sup> – social support, concurrent life stressors, family (financial, caregiver) burden imposed by patient's illness, family function
- b. **Attitudes and Expectations**
  - i. **Personal Beliefs and Behaviors**<sup>b, c, d</sup> – spirituality, self-efficacy, ways of coping
  - ii. **Health Care-Related Attitudes and Expectations**–
    - (a) *patient treatment preferences*<sup>a, b, c, d</sup> (e.g., re: pain reduction/survival; ventilator and feeding tube use)
    - (b) *trust*:<sup>b, c, d</sup> beliefs about efficacy of medical treatments, trust and respect from clinicians treating the patient
    - (c) *communication*:<sup>b, c, d</sup> ability to understand patient's diagnosis and treatments, comfort asking questions to clinicians and expressing treatment preferences
    - (d) *accuracy of patient's life-expectancy estimate*<sup>c, d</sup>
- c. **Mental Health and Mental Health Service Use**
  - i. **Psychiatric status**<sup>b, c, d</sup> – *DSM-IV* diagnoses of Major Depressive Disorder, Anxiety disorders, including PTSD; suicidal thoughts and actions
  - ii. **Mental Health Service Use**<sup>b, c, d</sup> – inpatient and outpatient mental health service use

<sup>a</sup> Information obtained from medical charts and/or nurse who last cared for patient prior to death

<sup>b</sup> Information obtained from caregiver at follow-up

<sup>c</sup> Information obtained from patient at baseline

<sup>d</sup> Information obtained from caregiver at baseline

## **B. BACKGROUND & SIGNIFICANCE**

**B.1. Call for Research to Examine Ethnic Influences on Quality of Death.** Serious concerns have been raised about the quality of care received by members of ethnic minority groups, primarily Blacks and Hispanics, at the end-of-life (EOL). The Institute of Medicine (IoM),<sup>1</sup> the Initiative to Improve Palliative Care for African Americans,<sup>2</sup> and the NIH<sup>3</sup> are among the numerous groups concluding that disparities exist in the quality of EOL care received by members of ethnic minorities. In response to these concerns, the IoM<sup>1</sup> report “Improving Palliative Care for Cancer” declared that “Research is needed to better understand the needs and preferences for end-of-life care of minorities, medically underserved and other vulnerable populations... We need to know if demographics (age, social class, and education level) affect the attitudes and practices of these groups at the end of life.” (pp.157-8) Little information exists on the ways in which different socio-cultural beliefs, expectations, and behaviors influence EOL preferences and outcomes, and the absence of such information limits a clinician’s ability to provide culturally sensitive care.<sup>4,5</sup> Unless ethnic-specific preferences and influences on EOL care are known and factored into EOL decision-making, patients may undergo unwanted, distressing, and costly treatments that impair their quality of life and add to their suffering.<sup>4,5</sup>

Within the NIH, the NINR, NIMH, and NCI have released a program announcement (PA-00-127<sup>3</sup>) seeking research that will enhance understanding of “the physical, emotional, social, cultural and spiritual experiences of people who are dying and about the environmental context which influences the quality of the life remaining.” Priority areas identified by PA-00-127 include studies that contribute to a “better understanding of the cultural and ethnic context surrounding the death event to enhance clinical management and sensitivity to patient and family choices.”<sup>3</sup> The aims of the proposed study are to determine the extent to which: (a) **objective death circumstances** (e.g., use of ventilators, feeding tubes), (b) **subjective death circumstances** (e.g., patient-reported emotional, physical, psychological spiritual distress; pain; concern and respect shown to patients), and (c) **goal attainment** (i.e., receipt of care consistent with patient treatment preferences), differ based on the patient’s **ethnic status** (i.e., Black, White, Hispanic identification). We hypothesize that largely modifiable **psychosocial factors** (e.g., trust, self-efficacy, communication, preferences, mental health and coping styles) will significantly influence the patient’s quality of death and are likely to explain a substantial portion of the variance in EOL outcomes accounted for by a patient’s ethnicity.

Before continuing, a clarification of terms is in order. First, we use the term *ethnicity* rather than *race* in recognition of the growing consensus among scholars who study minority populations that race should refer explicitly to biologically- (genetically-) based distinctions. By contrast, the group differences that we propose to examine are based on ethnocultural differences (Ezra Griffith, *personal communication*). It is now accepted by the majority of biologists that overall genetic differences between racial groups are minimal, with more human genetic variation occurring among persons within a racial group than between racial groups.<sup>6-8</sup> In addition, the US Census<sup>9</sup> and NIH<sup>10</sup> do not consider *Hispanic* a separate racial group, but rather an ancestral group, with “Hispanic” referring to the culture of a people who speak the Spanish language. Persons of Hispanic origin may be born anywhere. We acknowledge that the Hispanic population is comprised of groups of individuals with diverse backgrounds and homelands (e.g., Puerto Rico, El Salvador, Mexico). Although we will document and compare results obtained for Hispanic patients by country of origin, to simplify presentation, the word Hispanic will be used to refer to members of minority groups united by their use of Spanish. *Black* will be used rather than *African American* to minimize the implication that emergent group differences would be a function of racial descent from African populations. In summary, we expect that any observed group differences will be primarily determined by ethnocultural factors, rather than racial factors, and use the terms consistent with this expectation.

**B.2. Evidence of Ethnic Disparities in End-of-Life (EOL) Care.** Racial and ethnic minority groups currently constitute 29% of the U.S. population and by 2050 will account for nearly 50% of the population, with Black and Hispanic Americans among the largest and most rapidly increasing segments of the US population.<sup>9</sup> Despite their considerable and growing presence in the US, and their similar, often greater, health care needs, members of ethnic minorities remain medically underserved.<sup>11</sup> As the IOM report “Unequal Treatment:

Confronting Racial and Ethnic Disparities in Health Care”<sup>11</sup> concluded: “Evidence of racial and ethnic disparities in healthcare is, with few exceptions, remarkably consistent across a range of illnesses and healthcare services.”(p.5) The Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment (SUPPORT) found that, in 5 major US medical centers, fewer resources were used in caring for seriously ill Blacks than for other patients with similar illness severity and sociodemographics.<sup>12</sup> A number of studies have found that pain relief received by Black terminally ill cancer patients is inferior to that received by White patients.<sup>13-15</sup> Although limited information on Hispanic terminally ill patients is available, a study of analgesia use in a Los Angeles emergency department found that Hispanic trauma patients were only half as likely to receive pain medication as were non-Hispanic White patients with similar injuries despite the fact that physician assessment of pain severity did not differ between the 2 groups.<sup>16</sup> In a survey of pharmacies in New York City, Morrison et al.<sup>17</sup> found that pharmacies in predominantly non-White neighborhoods do not stock sufficient medications to treat patients with severe pain. Additionally, research has demonstrated that members of ethnic minorities are less likely to receive appropriate cancer diagnostic tests<sup>18</sup> and treatments,<sup>19</sup> controlling for stage of cancer at diagnosis and other clinical factors. With respect to several aspects of cancer treatment it would appear that Black cancer patients, and most likely, Hispanic patients also, receive inferior care relative to White cancer patients.

Not only is cancer care unequally provided to members of certain ethnic minority groups, but health outcomes, and EOL service use, have been shown to differ based on patient ethnicity. For example, cancer mortality rates are significantly higher and survival rates are significantly lower among Blacks relative to Whites.<sup>20</sup> Recent data indicate that the death rate from cancer for Blacks is 222 per 100,000 compared to 167 per 100,000 for Whites.<sup>21</sup> American Cancer Society (ACS) statistics show that from 1989-1996 the 5-year survival rate for Whites was 62% compared with 49% for Blacks.<sup>21</sup> Despite higher death rates and presentation at later stages of disease, minority groups significantly underutilize palliative and hospice services.<sup>1,22,23</sup> Medicare data indicate that only 14% of the US population taking advantage of the Medicare hospice benefit are members of ethnic minorities.<sup>23</sup> In contrast with the general pattern of *underutilization* of healthcare by minorities, in EOL care the situation is frequently reversed, with Blacks using life-sustaining interventions at higher rates than Whites.<sup>24</sup> The more frequent use of aggressive EOL care and underuse of hospice services among Blacks relative to Whites is likely to account for the higher health care costs of Blacks in the last year of life. The average cost of the last year of life for Blacks was found to be \$32,000 compared to \$25,000 for Whites, though the Medicare Payment Advisory Commission<sup>23</sup> did not show higher costs for other minority groups (e.g., Hispanics). Hogan et al.<sup>25</sup> also found Black Medicare beneficiaries had substantially higher EOL costs than non-Black beneficiaries. Life-sustaining technologies (eg, ventilators, feeding tubes) at the EOL are essentially futile in the sense that they do not cure the patient, but rather prolong the death. The futility and potential for added distress associated with aggressive terminal care, coupled with the conclusion reached by the IOM<sup>26</sup> and the American College of Physicians EOL Care Consensus Panel<sup>27</sup> that palliative care is the standard of care for dying patients, may imply that EOL care received by Blacks is inferior to that received by Whites. Although EOL care received by Blacks appears to be different from that received by Whites, the *exact reason for that difference*, whether it is based on differential access, preferences, communication of those preferences, or other ethnocultural influences that we will study, remains unknown, and constitutes the motivation for conducting the proposed research.

To the best of our knowledge, ethnic differences in *subjective* quality of death (e.g., differences in distress associated with care received) have not been examined. Given the greater burden borne by aggressive EOL care the subjective quality of death among Black patients is likely to be significantly worse than that of non-Black patients. Nevertheless, whether more aggressive use of life-sustaining treatments results in more suffering is not known, nor is the degree to which ethnic differences exist in the frequency with which treatment preferences are met. Additionally, little information exists about *any* quality of death outcomes among Hispanic patients. The substandard care received by the growing number of Black and Hispanic patients receive in general<sup>11,28</sup> and their more extensive use of life-sustaining technologies and underutilization of palliative care,<sup>24</sup> suggest a need to identify factors influencing ethnic disparities in the EOL care.

If EOL care is to improve for Black and Hispanic patients, knowledge of the factors influencing the terminal care they receive must be understood. Although unequal access to care in general or a lack of access to palliative care services in particular may be one reason for underutilization,<sup>1,11</sup> we suspect that this explains only a part of the documented ethnic variance in EOL care. In fact, the majority of studies on health services find that ethnic disparities remain even after adjustment for socioeconomic differences and other healthcare access-related factors.<sup>29,30</sup> In the proposed study, we will compare treatments received across a wide variety of clinical settings and patient populations, including within a palliative care unit serving a high proportion of low-income Black and Hispanic cancer patients, within university cancer clinics in Texas and Connecticut, within one of the nation's largest private cancer clinics in NYC and its affiliated non-profit community hospital in Harlem, to determine the extent to which ethnic differences in EOL care remain over and above the effects of socioeconomic status and clinic access. Our primary focus, however, will not be on macro-economic healthcare access issues, but rather on presumably more easily modifiable psychosocial factors that we hypothesize will significantly influence the type of EOL care members of different minority groups receive.

### **B.3. Psychosocial Factors Likely to Influence Minority Differences in End-of-Life Care**

**B.3.i. Social Factors: Socioeconomic Status.** Black and Hispanic persons fall disproportionately within the lowest rungs of the socioeconomic ladder, with greater percentages living in poverty and without health insurance or equal access to health care compared with Whites.<sup>31,32</sup> Blacks are less likely to possess private or employment-based health insurance relative to Whites, and are more likely to be covered by Medicaid or other publicly funded insurance.<sup>32</sup> Hispanic Americans are the US racial/ethnic group with the greatest barriers to health insurance with 35% being uninsured versus 17.5% of the general population.<sup>33</sup> According to the IOM<sup>32</sup> “Insurance status, perhaps more than any other demographic or economic factor, determines the timeliness and quality of healthcare, if it is received at all.”(p. 84) Without health insurance (e.g., private insurance, Medicaid or Medicare), Black and Hispanic terminally ill patients are denied access to multi-disciplinary pain and symptom management once curative options are exhausted. This, in and of itself, may explain part of the difference in EOL care choices. Generally, public hospitals will pay for active treatment of disease, but not for home care or hospice care.

To the extent that Black and Hispanic patients are more likely to have limited finances, their EOL care may be adversely affected in a variety of other ways. As an increasing percentage of treatments for cancer are provided on an ambulatory basis, much of the provision of care has shifted from health care professionals in clinics and hospitals to patients and their families within the home.<sup>34,35</sup> Low-income patients often do not have an available caregiver because adults within the household cannot forego work to provide needed care. It is also true that high proportions of Black and Hispanic terminally ill patients live alone, with no one in the household to provide in-home care.<sup>36</sup> Unlike wealthier patients, patients of limited means cannot afford to hire a paid caregiver to provide these services. Financial status and insurance coverage also affect a patient's access to durable medical equipment (eg, wheelchairs, bedside commodes, hospital beds), a primary care physician required to prescribe narcotics (physicians are permitted a single monthly prescription of narcotics, making access to a doctor necessary for sustained pain management), the quality of housing and food they can afford, transportation to the clinic from which they are receiving care, and the ability to pay utilities and afford telephone service (without which they cannot call for help, a particular concern for those who live alone). In all these ways, the quality of life and care of terminally ill patients is negatively affected by limited finances, regardless of a patient's ethnicity. To the extent that Blacks and Hispanics are more likely to be poor, financial barriers to decent quality of life and care at the EOL would be expected to loom large for members of these ethnic groups.

***Once economic access factors are taken into account, however, studies suggest that ethnic disparities in care remain.***<sup>29,30,37</sup> After demonstrating that ethnic/racial disparities in use of medical services covered by Medicare were not accounted for by economic access among patients with similar health care needs, Dunlop et al.<sup>37</sup> conclude that other cultural and attitudinal factors should be examined to explain ethnic differences in health care.

It has been suggested that the underutilization of hospice services by minorities is a function of ineffectual outreach programs in Black and Hispanic communities, implicating poor communication of information as a significant barrier to palliative care among members of minority groups.<sup>38,39</sup> Whether or not sociocultural differences (e.g., ethnic differences in dissemination of information) compromise the quality of death of Black and Hispanic patients over and above the effects of SES remains an empirically unexamined question.

In the proposed study, we will examine the influence of SES (e.g., income, education, types of health insurance coverage) on the quality of care patients receive at the EOL. All studied patients will have access to basic services through the clinic from which they are identified, and there exists the possibility that our results will provide a conservative estimate of ethnic differences relative to that found if patients without access were included. However, it should be recognized that the vast majority of minority cancer patients *do* have access to medical care (even 65% of Hispanic patients have health insurance<sup>33</sup>), which would make the results found among the study participants generalizable to the vast majority of Black and Hispanic patients. In addition, the proposed study, which is embedded within an ongoing multi-site research project (MH63892) being conducted at Yale, the VA CT Healthcare System and at Memorial Sloan-Kettering, will be able to compare objective and subjective circumstances of the death from patients from a variety of socioeconomic backgrounds. Studying patients who receive care at 1 of 2 university cancer clinics (1 in Dallas, TX; 1 in New Haven, CT) with those who receive care at tax-supported facilities (the VA CT Comprehensive Cancer Clinic; Dallas County-affiliated Parkland Hospital Palliative Care Service), at a private New York City hospital (Memorial Sloan-Kettering Cancer Center) and its affiliated non-profit community hospital in Harlem (North General Hospital), will allow us to evaluate the extent of differences in EOL care received by Black, White, and Hispanic patients in a wide variety of sociocultural contexts. In addition, an investigator on this study, Dr. Dan Culica,<sup>40-42</sup> has expertise in the study of financial barriers to the use of health services among minority, underserved, and frail populations. Dr. Culica was consulted on the design of the assessments and his expertise will contribute to our ability to tease apart the economic and ethnic influences on the EOL care the studied patients receive.

**Culture/Acculturation/Education.** Cultural factors and acculturation also play a significant role in EOL care. Culture, the constellation of shared meanings, values, rituals, and modes of interacting with others that determines how people make sense of the world, strongly influences attitudes about death and dying and preferences for EOL care.<sup>43,44</sup> Blackhall et al.<sup>43</sup> found that Hispanics were more likely than Blacks or Whites to believe that only the family, and not the patient, should be told the truth about a diagnosis of metastatic cancer or terminal prognosis and that the family rather than the patient should make decisions about life support. These attitudes were closely associated with culture and acculturation, and these associations remained even after controlling for SES. Cultural differences in preference for family-centered decision-making run counter to the notion of patient autonomy upheld by many US-trained physicians.<sup>45</sup> The authors concluded from this study that physicians need to learn from and to be sensitive to culturally diverse beliefs about the way medical decisions should be made.<sup>43,45</sup>

Nevertheless, even when clinicians attempt to learn patient and family preferences for the way care should be delivered, their ability to do so may be compromised by language barriers. Unfortunately, ethnic patients who may have distinctive (“unconventional”) EOL preferences are often those who are least able to communicate those preferences. In this way, not only does the degree of a family’s acculturation appear to shape their preferences, but the degree of linguistic proficiency of patients and their family members will affect their ability to make their preferences understood by health care providers. Linguistic barriers range from low or no English proficiency to limited proficiency in speaking, reading or comprehending English. More than 25% of Hispanic individuals in the US live in a linguistically isolated household, and over 8 million Hispanic Americans do not speak English “very well” with such persons disproportionately represented in states such as Texas.<sup>46</sup> As the number of Hispanic patients seen in US clinics is increasing, the impact of language barriers to patient care is becoming a growing public health concern. Even among English-speaking patients and providers (e.g., Black vernacular English), the potential for miscommunication of information and preferences exists and may affect how patients understand their disease and treatment options. Lower levels of education have been shown to be

associated with poorer physical health in caregivers of palliative care patients.<sup>47</sup> A patient's level of education may also affect his/her ability to communicate effectively with health care providers. Thus, to the extent that Black and Hispanic patients are less acculturated and educated relative to White patients, they may have more difficulty in understanding information imparted by their clinicians, communicating their wishes and concerns, and participating in decisions about EOL care.<sup>36</sup>

In the proposed study, we will examine how acculturation, fluency in English or Spanish, and education relate to a patient's ability to understand information provided by their clinicians. We will also examine how acculturation<sup>48</sup> and education might influence the patient and family member's comfort with asking questions to and communicating with health care providers, their treatment preferences, and the likelihood that the patient receives care consistent with those treatment preferences (goal attainment). According to Ford et al.<sup>49</sup> research into the impact of ethnicity on healthcare outcomes has been hampered by the absence of standardized measures. We will administer a new acculturation scale that includes important components of the most often cited Latino acculturation scale<sup>48</sup> and that we designed to yield a standardized metric of "Americanization" that can be used across a variety of non-Anglo cultures.

**Social Support and Strain.** The influence of social relationships and support, as well as stress, on mental and physical health and functioning is well established,<sup>50, 51</sup> as decades of research conducted by Dr. Kasl (eg. 52-56) have demonstrated. In a study of women with recurrent breast cancer, social support and family hardiness were found to have a positive influence on both the patient's and the caregiver's quality of life, whereas negative appraisal of caregiving had detrimental effects on both patient and caregiver quality of life.<sup>57</sup> We have found that caregivers of terminally ill spouses who experience substantial burden and changes in role function had higher levels of depressive symptomatology.<sup>58</sup> Given that patients being cared for by depressed caregivers are more likely to be depressed themselves,<sup>59,60</sup> caregiver strain is likely to have adverse effects on the patient's EOL. The negative effects of stress and lack of social support on well-being<sup>50-60</sup> lead us to expect that concurrent stressors and the absence of social support will have a detrimental impact on the terminally ill patient's quality of life, both directly and indirectly via the caregiver's degree of strain and associated depressive symptomatology.

In a recent review of social factors and their relationship to health inequalities, House claimed that "race/ethnicity shape individuals' ... experience of virtually all known psychosocial...risk factors, and these risk factors help to explain the size and persistence of social disparities in health."<sup>50</sup> Research suggests that the effects of social support on health and well-being differ significantly between ethnic groups. In a recent study,<sup>61</sup> we found that social support was a significant risk factor for suicidality in Black, but not in White, psychiatric patients. Other research has shown that ethnic groups differ in the role family members play in medical decision-making<sup>43,44</sup> as well as the care and support patients are provided. Research has also demonstrated that family members play an important role for Blacks, but not for Whites, in postponing nursing home placement, and that SES had little influence on the risk differential.<sup>62</sup> Foley, Tung, & Mutran<sup>63</sup> found in a study of elderly caregivers that Blacks were more likely than Whites to want to be cared for by a family member, and a study by Heckman et al.<sup>64</sup> found that older Black men with HIV/AIDS reported receiving more support from family members than did White men, and Black men are more likely than Whites to rely on informal social networks to control their disease.<sup>65</sup> Shapiro<sup>66</sup> has concluded from her study of bereaved Hispanic persons, that Hispanic culture places a greater emphasis on family and extended family relationships and the need to work on relationships than Anglo-American culture and that this is associated with better bereavement adjustment. To the extent these findings generalize to terminally ill cancer patients, we would expect family relations and social support to exert a relatively greater influence on Black and Hispanic patients, relative to White patients, on the quality of life and care received at the EOL.

It may also be true that Black and Hispanic families of terminally ill patients experience more strain than do White families. Seriously ill Blacks in SUPPORT were more likely than non-Black patients to report a significant loss in savings. Covinsky et al.<sup>67</sup> found that many caregivers reduce the number of hours they work

to care for frail elderly relatives, and that the burden of reduced employment was more likely to be incurred by the families of ethnic minorities. To the best of our knowledge, the proposed study will be the first to examine ethnic differences in the influence of family caregiver strain and burden on the patient's quality of life and treatment preferences, as well as the care received at the EOL.

**B.3.ii. Personal Beliefs & Behaviors: Spirituality/Religiousness.** The results of many studies suggest the benefits of religiousness (e.g., frequency of church attendance and prayer) and the use of religious coping strategies for mental and physical health.<sup>68-71</sup> Among patients with end-stage renal disease, patients who were more spiritual reported less depressive symptomatology, more social support and better quality of life independent of medical aspects of their illness.<sup>71</sup> In our own research, we have found religious coping to be significantly associated with less of an interest in physician assisted suicide in depressed older patients<sup>72</sup> and with less of a decline in functional status, and lower levels of health service use and lower health care costs among recently bereaved older adults.<sup>73</sup> Other research has shown religious affiliation to be associated with EOL preferences, with Catholics being less willing to undergo life-saving procedures relative to other Christians.<sup>74</sup>

Research suggests that Black and Hispanic patients are likely to be more religious than White patients and to benefit more from spirituality than Whites. Moadel et al.<sup>75</sup> found that Hispanic (61%) and Black (41%) versus 25% White cancer patients reported 5 or more spiritual/existential needs and that minority status was the best predictor of patients reporting high spiritual needs. Musick et al.<sup>76</sup> reported that among Blacks, but not Whites, with cancer, religious activity was related to lower levels of depressive symptomatology. In a study of church-based social support, Krause<sup>77</sup> has demonstrated that older Black people are more likely than older White people to reap the health-related benefits of religion. In light of these findings, we expect spirituality to exert a greater influence on the quality of life and EOL treatment preferences of terminally ill Hispanic and Black patients than White patients.

**Self-Efficacy.** Lack of self-efficacy has been shown to predict worse adjustment to cancer, including more posttraumatic stress symptomatology<sup>78</sup> and worse quality of life.<sup>57</sup> It has been hypothesized that disparities in health care relate to patients' beliefs in their capacity for self-determination of treatment.<sup>79</sup> Feelings of self-mastery and control have been shown to play a more important role in how Black men view their mental illness compared with White men,<sup>80</sup> and have been posited to factor more prominently in the healthcare received by members of ethnic minorities and the poor.<sup>79</sup> Oltjenbruns<sup>81</sup> found Mexican Americans reported significantly greater loss of control following bereavement than Anglo Americans. To the extent that Black and Hispanic cancer patients have a lower sense of self-efficacy relative to White patients, this is expected to have a greater negative influence on their quality of life and ability to obtain care in line with their treatment preferences (goal attainment).

**Ways of Coping.** Numerous studies have investigated the ways in which coping with cancer influences adjustment<sup>82,83</sup> and even survival.<sup>84</sup> Some studies have demonstrated that patients who report confronting the situation head-on, seeking information, and having a positive attitude and fighting spirit have less distress<sup>82,83</sup> and better social functioning.<sup>85,86</sup> Results for avoidant coping (denial, wish-fulfilling fantasy) and self-blame are mixed, with some studies showing that the use of avoidance/denial relates to higher levels of distress<sup>83,87</sup> and other studies linking denial to lower levels of distress.<sup>89,90</sup> Although most of this research has relied upon small samples of predominately White clinical or community populations,<sup>91</sup> some recent studies have examined ethnic differences in coping with life-threatening illness. Heckman et al.<sup>64</sup> found that older Black men compared with White men with HIV/AIDS more frequently engaged in adaptive coping strategies, such as positive reappraisal and a stronger belief that their future would be better. Reynolds et al.<sup>91</sup> studied coping in women with breast cancer and found that Blacks were more likely to rely on suppressing emotions, wishful thinking, and positive reappraisal, while Whites were more apt to use higher levels of expressing emotions, problem-solving and escapism. Emotion-focused coping strategies were significantly associated with survival among both Black and White patients. The proposed study will provide new information on the coping strategies (e.g., problem-

focused, emotion-focused) used by Black, Hispanic and White terminally ill cancer patients, and will examine ethnic-specific effects of coping on the patient's quality of death.

**Healthcare Attitudes & Expectations: Patient EOL Treatment Preferences & Trust.** Many studies have documented ethnic differences in preferences for EOL care.<sup>12,24,43,92-94</sup> According to authorities on Black preferences for EOL care, many Blacks do not consider palliative and hospice care as offering better care at the EOL.<sup>36,95</sup> A comfortable death may be seen by Blacks as a misplaced priority, counter to a heritage of struggle in the face of discrimination and injustice.<sup>36,95</sup> Blacks have been shown to prefer aggressive, life-sustaining treatment more than Whites.<sup>12, 24,43,92,93</sup> Caralis et al.<sup>92</sup> found Blacks were less likely than Hispanics or Whites to want "physician-assisted death" under any circumstances or to want life-prolonging treatments withheld or withdrawn. The SUPPORT investigators<sup>12</sup> reported Black hospitalized patients with terminal illness to be significantly more likely to want cardiopulmonary resuscitation (CPR) 2 months after hospitalization than White patients. Terri Fried, MD, an investigator on this study, examined racial differences in treatment preferences provided in the context of treatment burden using the instrument she developed for this purpose, the Willingness to Accept Life-Sustaining Treatment (WALT) instrument. Fried et al.<sup>93</sup> found that non-White patients with life-limiting diseases demonstrated a greater willingness to accept low-burden therapies despite a higher likelihood of functional or cognitive impairment as a result of treatment. These results suggest Black patients place a lower priority on comfort at the EOL relative to White and Hispanic patients. In the proposed study, we will test for ethnic differences in preferences for a variety of specific EOL treatments, determine whether ethnic differences exist in the relationship between stated preferences and the care received, and examine how the type of care received relates to subjective qualities of the death (e.g., severity of distress).

With regard to preference-related behaviors, Murphy et al.<sup>94</sup> reported that White respondents were more likely to have an advance care directive than Hispanic or Black respondents. Caralis et al.<sup>92</sup> has shown that Blacks are more likely to feel that they would be treated differently or cared for less if they completed a living will, which the authors suggest implies a mistrust of living wills, specifically, and healthcare professionals, in general. Ayanian et al.<sup>96</sup> found that among patients with end-stage renal disease, Blacks were less likely than Whites to report trust in their nephrologist's judgment. Results of a national telephone survey on participation in clinical research revealed that, even after controlling for SES, Blacks were less trusting of physicians than Whites.<sup>97</sup> According to Richard Payne, MD, founder of the Initiative to Improve Palliative Care for African Americans, "many African Americans fear their cultural and personal values will not be respected when they are dying. They sometimes worry that their race and socioeconomic status make them more 'disposable' and that treatment decisions will reflect that attitude."<sup>95</sup> In their review of the literature in a 2002 publication, Krakauer et al. state: "Clear data linking culturally based mistrust to specific preferences for EOL care are scant."<sup>(45; p.185)</sup> The IOM report on ethnic disparities in healthcare<sup>11</sup> makes the point that treatment preferences are inextricably bound with a "mistrust of health professions that stems from racial discrimination and the history of segregated and inferior care."<sup>(p.131)</sup> The IOM report warns against examining ethnic differences in treatment preferences without regard for their interaction with mistrust.<sup>(p.131)</sup> In the proposed study, we will examine the way in which treatment preferences interact with patient trust of and respect from clinicians. We will also examine ethnic-specific rates of goal attainment to determine whether it is true that members of ethnic minorities are less likely to get care consistent with their treatment preferences.

**Communication.** As noted above, linguistic barriers, such as lack of fluency in English and limited education, and differences in cultural patterns of communication, may impair a clinician's ability to understand patient and family questions, concerns, and treatment preferences.<sup>11,36</sup> Poor communication will also impair the patient's and family's understanding of the patient's illness and treatment options.<sup>11,36</sup> Studies have found that physicians deliver less information, communicate less support, and give less proficient care to Black and Hispanic patients and patients of lower SES than they do to more advantaged patients, even in the same care settings.<sup>98-100</sup> Hooper et al.<sup>99</sup> reported that physicians demonstrated better questioning and facilitating skills and more empathy skills when with White than with Hispanic patients. The SUPPORT study<sup>12</sup> found that although Blacks more frequently wished to discuss CPR preferences with their physicians, they were less likely to have this type of

discussion. Patients' communication styles, however, do appear able to influence the care they receive, suggesting the potential for improved communication to enhance the patient's EOL care. Krupat et al.<sup>100</sup> showed that assertive Black and low SES patients were more likely to have physicians order full tumor staging for them than White and upper SES patients regardless of their assertiveness. A recent ethnographic study found that lack of attention to cultural needs and inappropriate and inadequate communication between health care providers and nursing home residents and their families were the predominant factors that influenced the experience of dying.<sup>101</sup> The authors of the study,<sup>101</sup> together with the IOM's 2003 report *Unequal Treatment*,<sup>11</sup> conclude that more research needs to be conducted to determine how ethnic variations in communication affect EOL care. The proposed study will examine whether the ability to understand information about the patient's diagnosis and treatment options, and their comfort asking questions of patient's clinicians and expressing treatment preferences differ significantly based on the patient's ethnicity. We will also determine whether the effects of communication on patient's EOL care is significantly influenced by the patient's ethnic status.

**Life-Expectancy Estimates.** Realistic life-expectancy estimates offer patients and their family members information essential for planning how to meet their impending needs. Unfortunately, not much is known about the ways in which life expectancy estimates influence subjective and objective quality of death outcomes. The PI's dissertation research demonstrated that receipt of palliative care was significantly influenced by patient and family member's acknowledgment that the patient has less than 6 months to live.<sup>102,103</sup> Consistent with this finding, we hypothesize that overly optimistic survival estimates will result in a greater likelihood of the receipt of more aggressive care (e.g., ventilators, feeding tubes), while under-estimates will result in a reduced likelihood of aggressive care. In a national sample of Americans aged 18-95, Blacks were shown to expect to live 6 years longer than their actuarial estimate, and their apparent optimism remained after adjusting for SES and health.<sup>104</sup> Although this sample did not consist of terminally ill patients, clinical experience (Dr. Paulk, *personal communication*) suggests that Black dying patients, more than their White counterparts, may believe that they have more time left than they actually have. Perhaps Blacks receive more aggressive care because they are overly optimistic about their length of survival. We have found that patient expectations for survival are significantly influenced by the information their physicians convey to them.<sup>102,103</sup> Other factors that we hypothesize might influence life expectancy estimates would be mood and coping styles, whereby, depressed people might underestimate their life-expectancy and those who are avoidant copers and/or who deny the severity of their illness might overestimate their survival time. As noted above, Heckman et al.<sup>64</sup> found that older Black men with HIV/AIDS more frequently engaged in adaptive coping strategies, such as positive reappraisal and a stronger belief that their future would be better, and this may also contribute to an overestimation of their life expectancy. In the proposed study, we will examine how communication, mental health, and coping styles relate to the accuracy of patient life-expectancy estimates and vary with the patient's ethnicity. Improving the accuracy of the patient's life expectancy estimate (e.g., through clinician communication<sup>102,103</sup>) might improve the EOL care received and, may help to minimize ethnic disparities in quality of death outcomes. In light of the fact that physicians have a bias towards overestimating the length of time the patient has left,<sup>105</sup> results demonstrating how this deficiency adversely affects the type of care the patient receives may generate increased interest among healthcare professionals in remediating this problem.

**Mental Health & Mental Health Service Use.** If there were ever a time when a person might be vulnerable to mental illness, particularly depression and anxiety-related disorders, confronting terminal cancer would appear to be one of those times. Nevertheless, little is known about the frequency with which psychiatric problems are detected and treated, and their influence on the patient's quality of death.<sup>106</sup> The PI and her colleagues are currently funded (MH63892) to conduct a study -- the parent study for the proposed work (described in more detail in the Methods section) -- to determine the prevalence of psychiatric disorders (e.g., Major Depressive Disorder: MDD; Anxiety disorders) in terminally ill patients and their caregivers, to examine patterns of mental health service use in these samples, and to understand the influence of mental health on the quality of death of the patient and the surviving caregiver's bereavement adjustment. In other work, the PI has demonstrated that patients' attitudes toward physician-assisted suicide and euthanasia vary according to whether they are depressed<sup>72</sup> and that these treatment preferences change with the resolution of depressive symptomatology.<sup>107</sup> In

addition, depression and anxiety may interfere with patients' ability to listen to and comprehend prognostic and other information, the understanding of which is critical to the formulation of realistic treatment goals. For all these reasons, mental health may influence EOL treatment preferences, the type of treatment received, and other quality of life domains at the EOL.

If little is known about the prevalence of mental illness and use of mental health services among terminally ill cancer patients, even less is known about how mental health and mental health care varies based on the patient's ethnicity. In "Preliminary Work" results of a study currently under preparation demonstrate significantly lower rates of the detection and treatment of psychiatric illness in non-White compared with White VA cancer patients are described. These are the only data of which we know that compare ethnic groups in rates of the detection of psychiatric disorders at the EOL. In the NIMH's 2001 5-year strategic plan, studies investigating ethnic disparities in mental health care were identified as a research priority.<sup>108</sup> In the section of the strategic plan entitled "Issues Facing Racial and Ethnic Minority Groups" it states: "members of the Nation's racial and ethnic minority groups often fail to receive appropriate care. For example, two national studies found that racial and ethnic minority treatment populations were less likely to receive appropriate care for depression or anxiety than were Caucasians." In another recent national study Hispanics and Blacks were found to receive about half as much outpatient mental health care as Whites.<sup>109</sup> The Surgeon General's supplement to his 1999 Report on Mental Health addressed disparities in mental health across racial and ethnic groups. The Surgeon General noted that minorities include a disproportionately high number of people in groups known to be vulnerable to mental illness – the poor, underserved, homeless, substance abusers, those with low SES, those exposed to high rates of violence – yet they are less likely to receive comparable mental health care in terms of access and quality of care.<sup>110</sup> These groups constitute the profile of patients who receive care at Parkland Hospital, and who are *not* in most university-based studies because they have no insurance. To the best of our knowledge, no published study has compared rates of mental illness and its treatment in Black, White, and Hispanic terminally ill cancer patients, nor examined the ways in which mental health influences the quality of death among patients of different ethnic groups. Given that the proposed research is embedded in a parent study designed to examine mental health at the EOL (MH63892), and that we augment this study by including clinics serving a large number of Black and Hispanic patients, we are uniquely well positioned to study ethnic differences in mental health and mental health outcomes at the EOL.

**Significance:** The results of this study are expected to fill large gaps in knowledge about ethnic differences in the quality of death of cancer patients and the ethnic-specific factors that influence the quality of that event. The proposed study will be the first study to examine ethnic differences in subjective quality of death outcomes and to relate these outcomes to objective quality of death indicators. In this way, we will be able to answer questions such as "Does the receipt of more aggressive treatment by Blacks heighten their physical, emotional, and spiritual distress at the EOL?" In addition, results of the proposed study will indicate whether Blacks and Hispanics are less likely than White patients to receive EOL care that is consistent with their treatment preferences (goal attainment), and will determine the factors that significantly influence both subjective and objective quality of death outcomes within each ethnic group. Healthcare providers, particularly hospice and palliative care nurses and social workers, physicians, counselors and pastors, cancer-related organizations and support groups could use the results of this study to inform the development of interventions to promote the delivery of culturally competent EOL care. For example, we may find that Blacks systematically die with a greater severity of physical and psychological distress relative to Whites. Examined further, we may learn that these differences in outcome are a function of poor communication, mistrust, or overly optimistic life-expectancy estimates that result in the receipt of more aggressive care (e.g., ventilator/feeding tube use). Consequently, interventions to improve communication, trust, and/or realistic life expectancy estimates would be expected to improve the quality of life and care for Black patients. If we find that Hispanic patients are less likely to have their treatment preferences met (i.e., low rates of goal attainment) and that this is a function of an inability to understand their illness and treatment options and to communicate their preferences, as well as lower levels of self-efficacy relative to Whites and Blacks, then interventions to enhance communication (e.g., use of translators) and self-efficacy (e.g., through application of cognitive-behavioral techniques) would be

expected to promote goal attainment among Hispanic patients. Should we discover that no ethnic group disparities exist in the rates of depression, yet Whites are more likely than their non-White counterparts to receive antidepressants and that this significantly influences their subjective quality of death, then clinicians could be alerted to the need to screen for and treat depression among patients, regardless of ethnic status. These are just a few examples of how the results of this study will yield useful information that clinicians could then apply toward enhancing their sensitivity to culturally-specific needs and wishes, but also to improve the quality of life of dying Black, White, and Hispanic patients.

### **C. Preliminary Work**

The investigative team has had extensive clinical and research experience relevant to their ability to accomplish the study aims. As noted in the Background section, the PI has conducted studies on factors influencing EOL care, mental and physical health and health service use among terminally ill patients and their caregivers, and psychosocial influences on bereavement adjustment. Dating back to **Dr. Prigerson's** dissertation, she conducted a study that examined social determinants of death acknowledgement and terminal treatment (e.g., use of hospice/palliative care services) and found that the physician's communication about the patient's prognosis (vague vs matter-of-fact) and attitudes towards quality of life versus quantity of life significantly influenced the patient's life-expectancy estimates which, in turn, affected the patient's likelihood of receiving palliative care.<sup>102,103</sup> The PI has published studies of psychosocial influences (e.g., social support, caregiver burden, stressful caregiving experiences, spirituality<sup>58,73,111-114</sup>) on mental health among the caregivers of terminally ill cancer patients and recently bereaved persons. Dr. Prigerson has conducted research to define<sup>114</sup> and test consensus criteria for complicated grief,<sup>115</sup> developed a widely used instrument to assess complicated grief symptoms that has been translated into over 9 languages,<sup>116</sup> and demonstrated how aspects of the death<sup>117</sup> and quality of the relationship to the deceased<sup>118</sup> affect the likelihood of complicated grief reactions and suicidality<sup>119</sup> among the bereaved survivors. She also has investigated mental and physical health consequences<sup>120</sup> and mental health service use among recently bereaved subjects.<sup>121,122</sup> All these studies reveal a longstanding interest in psychosocial factors that affect the quality of life and care received by terminally ill patients and the family caregivers who survive them.

Dr. Prigerson's recent research focuses on ethnic differences in mental health, health service use, and participation in research. Together with Co-PI, **Elizabeth Paulk, MD**, Dr. Prigerson and colleagues conducted a study that found social support significantly influenced suicidality among Black, but not White, psychiatric patients.<sup>61</sup> Drs. Paulk and Prigerson are currently preparing a report using national VA data on all patients whose medical records indicated that they died of a malignant neoplasm between 1998 and 2000 (N=10,462). These data indicate that Black VA patients were significantly less likely than White patients to be diagnosed with and treated for Major Depressive Disorder (Blacks: 1.8%; Whites: 2.73%; P=0.005) or Anxiety disorders (Blacks: 2.53%; Whites: 4.67%; P=.0001) after their cancer diagnosis. These results suggest undertreatment of psychiatric disorder in Black versus White terminally ill cancer patients. Data from the subjects (N=80) who have entered the recently funded parent study (MH63892) also support hypothesized ethnic differences, with non-White terminally ill cancer patients reporting significantly higher scores on use of religious coping than Whites (White mean: 12.5; non-White mean: 24.3; P=0.043). Pilot data also demonstrated significantly (P<.05) lower levels of trust of and communication with physicians and lower levels of self-efficacy among non-White compared to White study participants. These data not only suggest the feasibility of testing the study hypotheses, but also provide evidence supporting the proposed ethnic differences in mental health detection and treatment, spirituality, personal and healthcare attitudes, and spirituality.

Dr. Prigerson is also currently PI on an NIA-funded project that aims to identify incentives and disincentives to Black and Hispanic participation in research on aging. Drs. Esperanza Diaz and Ezra Griffith, consulting investigators on the current proposal, are also collaborators on the NIA project. Preliminary results suggest that once eligible, non-Whites are no less likely to enroll in aging-related research than are Whites. Drs. Diaz and

Prigerson have collaborated on a study of Hispanic health service utilization<sup>123</sup> that examined health needs, health service use and retention in treatment among Spanish-speaking monolingual patients at La Clinica Hispana and the CT Mental Health Center. This study found that Hispanics reported serious difficulties managing medications due to language barriers and low levels of education. Dr. Diaz' intimate knowledge of factors influencing Hispanic health behaviors and her NIMH K08 research experience studying mental health service use among Hispanic patients, as well as her numerous ties to Hispanic communities in Connecticut, many fostered through her service as Medical Director of La Clinica Hispana, are expected to enhance recruitment and retention of Hispanic subjects in the proposed study. Additionally, Dr. Diaz will assist in the interpretation of the results found with respect to Hispanic EOL care.

Dr. Griffith, Professor of Psychiatry and African American Studies at Yale, is also a collaborator on both the NIA project and the proposed research. Dr. Griffith's research has documented the extent of the Black church's involvement in the delivery of health and human services to New Haven communities and the influential role of the Black clergy in making referrals to health care professionals.<sup>124,125</sup> Dr. Griffith has also published articles on Black perspectives on psychiatric diagnosis and treatment.<sup>126,127</sup> Given his clinical and research experience with Black patients and mental health referrals, Dr. Griffith has specialized knowledge to assist in the identification of ways to enhance enrollment of Black patients. He will provide expert consultation on ways to interpret the results obtained on EOL care and the factors that influence that care among Black patients.

Elizabeth Paulk, MD, will serve as PI of the Texas site. Dr. Paulk, an Assistant Professor in the Geriatrics Section of General Internal Medicine at the University of Texas Southwestern Medical Center, established and now serves as Medical Director of the Palliative Care Program at Parkland Hospital. Her training in EOL care includes a Fellowship at the Harvard Medical School Center for Palliative Care, and experience caring for over 1600 patients from a variety of ethnic backgrounds in the Palliative Care clinic at Parkland, a 1000 bed county hospital. Her clinical work is conducted in the context of a multi-cultural, multi-disciplinary team including a nurse, chaplain, and social worker. Like Dr. Prigerson, Dr. Paulk is a Soros Foundation Project on Death in America Faculty Scholar, and as such is investigating access to Palliative Care for indigent and minority patients. In 2002, Dr. Paulk was selected to serve on the expert panel convened by the Rosalynn Carter Institute to study ethical issues of importance to caregivers of patients with cancer. She has first authored a chapter on minority differences in preferences for EOL care of terminally ill cancer patient caregivers that will be included as a monograph summarizing the topics covered in this consensus conference. Lastly, Dr. Paulk is working with **Dr. Culica** on a study of economic disparities in EOL care received by patients under age 65 at Parkland Hospital, using data obtained from Dr. Paulk's Palliative Care Service. Dr. Culica's research takes a public health perspective and examines issues related to minority access and barriers to health care. Dr. Culica will assist us in the analysis of socioeconomic factors and their influence on health service utilization by ethnic minority patients at the EOL.

## **D. RESEARCH DESIGN & METHODS**

**D.1. Study Overview.** The proposed study is a 4-year longitudinal study of 800 terminally ill cancer patients and 800 of their primary informal caregivers (e.g., spouses, adult offspring). Patients with a life expectancy of  $\leq 6$  months and their primary caregiver will receive a baseline assessment to evaluate goals of care and treatment preferences, hypothesized psychosocial variables, and the medical status of the patient. A post-mortem assessment will occur in the week following the death to obtain information from the nurse who followed the patient until death, the caregiver, and a medical chart review on quality of life and EOL care, treatment preferences, and degree to which treatment preferences were met. A follow-up interview with the caregiver at 6 months after the death will provide additional information on the patient's quality of the death and care received up until the time of death.

**D.2. Integration of the Proposed Study Within the Parent Study.** The proposed research is embedded within an ongoing study (MH63892) designed to examine: 1) the mental health and mental health service use of

terminally ill cancer patients and their caregivers, 2) the ways in which mental health influences the patient's quality of death, and 3) the ways in which the quality of death influences the surviving caregiver's bereavement adjustment. MH63892 is a 4-year multi-site study that proposes to recruit 300 terminally ill cancer patients and 300 of their primary caregivers from the Yale Cancer Center (YCC), the VACT Health Care System Comprehensive Cancer Center (VACTCCC), and Memorial Sloan-Kettering Cancer Center (MSKCC) clinics (see letter of collaboration, Appendix B). MH63892 began recruitment in October of 2002, and to date, 40 patient/caregiver dyads (N=40) have completed the baseline interview. Given the parent study is in an early phase of recruitment, we are well positioned to capitalize on the infrastructure in place by augmenting assessments to address the stated aims of the proposed study. All participating sites will receive a uniform assessment battery.

This application builds upon the parent study in a number of ways. First, it will include a greater number of Black and Hispanic patients through adding the University of Texas Southwestern Medical Center (UTSW) sites at the Harold C. Simmons Comprehensive Cancer Center and the Parkland Hospital Palliative Care Service. The addition of the Texas sites will provide the requisite number of Black and Hispanic patients needed to examine the effects of ethnicity on the patient's quality of death (see Power Calculations). To this end, we have added assessments of acculturation and more extensive SES measures, recommended by Dr. Culica, to assess insurance coverage, financial status, changes in finances, and financial burden to the family imposed by the patient's illness. All assessment packets and consent forms have been translated into Spanish, and backtranslated (see Appendices A & B). To date, 8 dyads have been interviewed at the CTVACCC in Spanish with no apparent difficulties encountered based on a careful review of the responses. In response to Dr. Paulk's hypothesis that spirituality significantly influences the quality of life and care Black and Hispanic patients receive at the EOL, the interview now includes assessments of spirituality and use of religious coping, as well as non-religious coping, in the context of confronting a life-threatening illness. Working with Dr. Fried, we have also added items to examine patient EOL treatment preferences, behaviors, and care, as well as assessments of trust and communication with health care providers.

**D.3. Advantages of Integration Within Ongoing Research.** Embedding the present study within ongoing research has several benefits. One advantage is that a majority of the assessments and procedures have been approved for use by relevant IRBs and an NIH Study Section. In addition, they have been pilot tested and retained based on prior validation work. The methods of recruitment have been established at all sites, including the UTSW sites given recent ACS pilot funding in support of this application, and recruitment yields are meeting expectations. To date, 75% (80/107) of the patients approached have agreed to participate. In addition, our ability to retain subjects in longitudinal studies of bereavement has proven exemplary, with 97% retention of our baseline sample by a 15-month follow-up, and we will employ similar methods (described below) in the proposed research. Databases for the parent study have been created and monthly quality control procedures have been implemented to ensure integrity of the data collection and subject-tracking systems. The research team has experience working together in data collection and analysis, training interviewers from other sites, and coordinating data collection from multiple sites. Lastly, the costs of data collection for the parent study's 300 patients/300 caregivers are covered and other project-related expenses can be covered or shared by MH63892 and the ACS pilot grant, resulting in substantial cost savings to the project for conducting the proposed research. *The offset in costs for expenses would be maximized by having these projects funded concurrently, with delays in funding minimizing the ability to share project expenses that overlap with MH63892.*

**D.2. Samples.** The total sample will include **800** terminally ill **patients** and **800** of their primary informal **caregivers**. Of these patients we expect **300** (37.5%) will be **Black**, **400** (50%) will be **White**, and **100** (12.4%) will be **Hispanic**. For simplicity, we only describe recruitment for the 800 patients, but caregivers will be matched accordingly. We propose to recruit 300 patients as part of MH63892. Recruitment will continue at Yale through the completion of MH63892 (anticipated completion date: 05/01/2006). Based on cancer center annual reports for the YCC, VACTCCC, and MSKCC, and our initial data from MH63892, we expect 13% (N=40) of these patients will be Black, and 9% (N=27) will be Hispanic. These figures will be supplemented by

the Texas sites. Based on the 2002 patient census (N=446) at Parkland Hospital's Palliative Care Service, 42.5% (N=190) of patients are Black, 30.0% (N=134) are White, 23.2% (N=103) are Hispanic, and 4.3% (N=19) are "Other." Of the 250 advanced cancer patients seen annually at Simmons, their annual report reveals that 10% will be Black (N=25) and 5% will be Hispanic (N~12). Thus, 215 (190+25) Black patients and 115 (103+12) Hispanic patients per year will be the available pool of patients from the Texas sites. Of these patients, 85% are expected to have an available adult caregiver required to be eligible for the study, 15% are expected to be excluded due to delirium or extreme frailty, and a *conservative* 60% of the dyads will agree to participate in the study (both patient and caregiver must agree, thus the expected participation rate is modest), leaving 93 (~8/mo) Black patients and 50 (~4/mo) Hispanic patients likely to be recruited from the Texas sites annually. After 33 months of recruitment, we will have 264 Blacks from Texas and 40 Blacks from MH63892, yielding 304 Black patients. After 33 months of recruitment, 132 Hispanics from Texas and 27 from MH63892, yielding 159 Hispanic patients. Given the greater difficulty anticipated in recruiting Hispanic patients, emigration back to the home-land that often occurs when health crises arise, and cultural biases that heighten family protectiveness toward the patient, we can safely propose to recruit at least 100 Hispanic patients and 100 of their caregivers. The power calculations were based on this lower-bound estimate.

**How will moving CA106370 to Dana-Farber/Harvard Cancer Centers (DF/HCC) affect the study?** The main changes to the study will be the augmentation of patient and caregiver samples and involvement of leaders in end-of-life care and psycho-oncology research. We had proposed approximately 15 terminally ill patients/month from both the Yale and Memorial Sloan-Kettering Cancer Centers, with approximately 10 patients/month from the Yale at the Yale Cancer Center and the CTVACCC sites. We expected that overall from Yale and Memorial Sloan-Kettering, 13% (N=40) of the patient sample would be Black and 9% (N=27) would be Hispanic. **Recruitment at these sites, as well as at the Texas sites described above, will continue unchanged.**

The move of CA106370 from Yale to DF/HCC will result in the additional recruitment of gastrointestinal (GI) patients/caregiver dyads and palliative care service patient/caregiver dyads from this new site. Consistent with MH63892, we will recruit GI patients from DF given the high mortality rates associated with these cancers. We will work with Craig Earle, MD of the DF Center for Gastrointestinal Oncology, to recruit advanced GI patients. Dr. Earle leads a research program that focuses on measuring quality of cancer care and assessing quality of life in advanced cancer patients, suggesting the "goodness of fit" between CA106370 and MH63892's study aims and the foci of his research group. Based on 2003 hospital records, there were 53 Black, 45 Hispanic, 28 Asian and 1578 White GI patients seen more than twice at DF/HCC. Although not all of these patients are terminally ill, based on clinician estimates we expect approximately half will have advanced cancer leaving roughly 25 Black patients and 20 Hispanic and 14 Asian patients we would attempt to recruit per year from these sites. Given the need to bolster the Northeast minority sample, we will oversample for Black, Hispanic and Asian patients (the Asian sample is another benefit of adding the DF/HCC sample given the greater number of Asian patients seen at DF/HCC relative to the Yale sites) by attempting to recruit these patients first. Only after attempting to recruit these minority GI cancer patients will we approach the 1578 GI cancer patients/year who are seen at the DF/HCC about recruitment into the study.

In addition to the DF/HCC GI oncology patient recruitment, we are fortunate to have Susan Block, MD, Chief Psychosocial Oncology and Palliative Care, Dana-Farber Cancer Institute and Brigham and Women's Hospital, Co-Director, Harvard Medical School Center for Palliative Care, Associate Professor of Psychiatry (Medicine), Harvard Medical School serve as a new Investigator on this research project. Dr. Block is internationally recognized as a leader in the field of palliative medicine and a psychiatrist who has worked to advance understanding of ways to enhance the quality of life in general, and mental health in particular of cancer patients at the end-of-life. Dr. Block is eager to have this study include patients and caregivers seen by her palliative care service. The DF/HCC Palliative Care Service sees 600 patients/year, there is a new 6-bed inpatient palliative care unit, and the service sees 15 patients/day and 8 outpatients/day. The Mass General Hospital Palliative Care Service registers 750 patients/year. Adding palliative care patients to the sample will add

greatly to the generalizability of our results because we will be able to compare the Parkland Palliative Care Service patients recruited in Texas with patients cared for by this large New England palliative care service. We anticipate recruiting at least 15 patient/caregiver dyads from both the GI and Palliative Care Services per month for the next 30 months.

As of December 2004 we are 8 months into a 4 year-long study that involves a follow-up approximately a year after the patient baseline interview. This means we have 40 months left on CA106370 (minus 12 months factored in to account for the 1 year caregiver followup) leaving about 28 months of recruitment left. 28 months X 15 patient/caregivers/month would mean approximately 420 new patient/caregiver dyads recruited into the study that will add to the size, geographic and ethnic diversity of the samples studied. The added expense of recruiting these additional subjects will be covered by the newly funded Center for Psychosocial Oncology and Palliative Care Research that Dr. Prigerson will direct commencing December 1, 2004. In short, the move of CA106370 from the Yale sites to the Dana-Farber/Harvard Cancer Center sites will result in enhancing the richness and generalizability of the data collected for this study.

**Eligible Patients.** Eligible patients will be cancer patients receiving care at one of the participating clinics whom clinic staff expect to have a life-expectancy of  $\leq 6$  months – generally defined by the presence of distant metastasis, and failure of first and/or second line of cancer therapy. The average length of stay in the Parkland Palliative Care Service is 79 days (2.5 months) and of the 40 patients enrolled in MH63892 the average time until death was similarly 3 months. A 2-month pilot study we conducted at MSKCC also revealed that 9 of the 11 patients the clinicians who participate in this project identified as terminally ill died within the 2-month window (81.8%). These pilot data indicate that clinic staff are able to predict which patients will die well within 6 months with a high degree of accuracy. Furthermore, the study does not require that the patient die within 6 months exactly and is designed so that the 6-month follow-up for the final cohort of patient caregivers will occur well within the final year of the study (see Project Timeline in Appendix C). Based on recruitment for MH63892, we expect that 60% of the patients will be male and 40% will be female.

Given that Parkland's Palliative Care Service will provide the largest number of Black and Hispanic patients, we sought to determine whether ethnic biases existed in referral to the Parkland Palliative Care Service. Among the 29 patients in 2000 who were diagnosed in the UTSW Cancer Registry with pancreatic cancer, a cancer associated with very short survival after diagnosis,<sup>146</sup> 13 (45%) were Black, 9 (31%) were White, and 5 (17%) were Hispanic. Of these patients, 21/29 (72.4%) were referred to the Palliative Care Service, and of these, 9 (43%) were Black, 7 (33%) were White, and 3 (14%) were Hispanic. One of the Black patients not receiving palliative care refused all further medical care and 1 Hispanic patient returned to Mexico. Thus, there appears to be no evidence of systematic ethnic bias in referral into the Palliative Care Service.

**Eligible Caregivers.** Caregiver study participants are those persons whom the patient indicates provides the most of their unpaid, informal care, regardless of whether they reside in the patient's home. Patients will be asked to draw a simple pie-chart to reflect who provides the biggest "slice" of their informal care (i.e., care *not* provided by paid professionals). Although we will evaluate the amount of social support available to the primary caregiver, as well as the contributions of others to the patient's care, only a single caregiver will be interviewed because pilot work indicated that the vast majority of the patient's caregiving is conducted by a single person.<sup>112</sup> Consequently, in light of the added expense and complexity, as well as the negative impact the recruitment of multiple caregivers could have on participation rates, we assess only the patient's primary caregiver. Based on recruitment for MH63892, we expect that 60% of the caregivers will be female and 40% will be male. Recruitment for the parent study and data from Parkland lead us to expect that at least 85% of patients will have an identifiable adult primary caregiver.

**Exclusion Criteria.** Patients without primary caregivers will be excluded from the study, as will patient-caregiver dyads in which either the patient **or** the caregiver has clinically significant cognitive impairment. Patients who appear too weak to complete the interview are also excluded. Children up to age 20 will be excluded because children this age rarely assume primary caregiving responsibilities, terminal cancers are rare among people this age, and the instruments used have not been designed for children whose EOL issues may differ in important ways from those of adults age 20 years and over. There exists the possibility that the number of caregivers under age 20 is

higher than expected among Black and Hispanic patients, and records will be kept of how many caregivers were excluded based on age alone. If it appears that a significant number of dyads are eliminated for this reason, it will be important to find a way to evaluate this group.

**Recruitment Procedures.** Cancer patients will be receiving cancer care as either an inpatient or outpatient at one of the participating clinics. Potential study participants will be suggested to research project staff by clinic staff at their scheduled weekly meetings. At DF/HCC the RA will attend the palliative care team and GI oncology rounds 3 times/week and will obtain the names of potentially eligible subjects at these meetings with clinicians. Although actual eligibility will be determined *following* the patient's and caregiver's consent to let us inquire about their ability to meet study inclusion and exclusion criteria, staff suggestions of potentially eligible subjects will inform us of whom we should approach. Patients who appear too ill or weak to talk with us will not be approached. Specific steps taken in recruitment are outlined below.

### **Procedural Steps:**

**Step #1:** In order to avoid a potential breach of confidentiality by having clinic staff identify eligible participants, we will approach cancer outpatients as they are leaving the clinic, and inpatients in their hospital room, about participation in the study. Potential participants will be approached by someone fluent in their primary language. The script will be as follows: "Hello, my name is \_\_\_\_\_, and I am a Research Associate for a project to study the quality of life and treatment preferences of cancer patients and their caregivers. The study involves one 30-45 minute interview for you [the patient] and two 1¼ - 1½ hour interviews for the primary caregiver, 1 now and 1 about a year from now. Would you be willing to let us tell you more about the study?"

- **If yes,** would you please tell us your name and telephone number so that we may contact you to discuss the study aims and procedures if you are found to be eligible for the study?
- **If no,** may we have your name so that we can remove you from the list of people we contact to ensure that you are not approached by us again? Also, if no, would you be willing to answer a brief set of questions (reasons for refusal, amount of emotional and physical distress; age, race and sex)? This information will tell us whether important differences exist between participants and non-participants. (Should they refuse to answer these questions, we will discontinue all further interactions with them).

If you qualify for the study, we would like to contact you within the week to tell you more about the goals of the study and how the study is carried out. If you do not qualify (e.g., you do not have the type or stage of cancer being studied), then we will not contact you again. One of the qualifications for study participation is that you have someone who helps with your care at home. Do you have such a caregiver? If yes, and you qualify and permit us to contact you and your caregiver, we will contact you within the week. If you do not qualify or do not want us to contact you, we will not contact you again about this study."

**Step #2:** For those who agree to let us contact them and who provide their names, we will then determine whether the potential subject meets eligibility criteria; that is, that the patient: a) has an advanced stage cancer with distant metastases, has had at least one course of chemotherapy and radiation, has a probable life expectancy of 6 months or less (according to the patient's attending physician); b) has an informal caregiver; c) that s/he and the caregiver do not have obvious cognitive deficits that would make the information they provide unreliable; d) that s/he is age 20 years or older. Those who qualify for the study will be recontacted within the week.

### **Outpatients and Their Caregivers**

**Step #3:** Interviewers will then call eligible patients who permit us to contact them in the following week to describe the study in more detail, answer any questions they might have, and invite their participation. Interviewers then review the Research Authorization Form with them and obtain their verbal consent to use personal health information for the study. Consenting patients will be asked if they would be willing to draw a circle and divide it based on the amount of caregiving provided by informal, unpaid caregivers, indicating whom to designate as the primary caregiver, and to tell us the name of this person. Patients will be told that participation in the study requires that both patients and caregivers participate so those without such a caregiver will not be eligible for the study. Patients will then be asked if we have their permission to contact the named primary caregiver about participation in the study, if the caregiver is not present at that time. Should the caregiver refuse to participate, the patient will be informed of his/her ineligibility for the study. We do not anticipate that study ineligibility will prove very

disappointing to patients. At this time, should the caregiver consent we will review the Research Authorization Form with them and get their verbal consent to use health information for the study.

## **Inpatients and Their Caregivers**

**Step #3:** Eligible inpatients who permit a follow-up hospital visit will receive a visit in which details of the study will be provided, questions answered, and consent for participation sought. At this time the interviewer will review the Research Authorization Form with them and get their verbal consent to use personal health information for the study and recruitment procedures will proceed as described above.

**Interviewing Procedures.** Outpatients and caregivers who are willing to participate will be scheduled for an interview shortly after they agree and have provided informed consent. Interviews will occur at a scheduled time convenient for participants. They will occur either in a quiet room provided for interviewing by the clinic, or should subjects prefer it, they can be interviewed in their home. Inpatients will be interviewed in their hospital room or a preferable location within the hospital. Caregivers will be interviewed, after providing informed consent, either in a hospital room separate from the patient or in their homes, whichever they prefer. Each interview will be conducted when the interviewer is alone with the subject. For patients or caregivers who are most fluent in Spanish, interviews have been translated into Spanish and will be conducted in Spanish by a trained bilingual interviewer (e.g., Heather Stieglitz, Nancy Cravens).

The patient's interview (see Appendix A) is intended to be focused and brief. After assessing demographics, we determine if the patient has serious cognitive impairment based on the Short Portable Mental Status Questionnaire (SPMS),<sup>147</sup> and excluded if the respondent falls into the "moderate-serious cognitive impairment" range (see Measures). To date, no interviewed subjects have been excluded, though mild impairment has been documented in about 15% (12/80) subjects. The Structured Clinical Interview for the DSM-IV (SCID)<sup>148</sup> screening instrument will ask 2 questions for each psychiatric disorder. Only patients who screen positive will complete the full assessment for a diagnosis of that disorder. Patients are asked a 10-item self-efficacy scale, a brief set of questions about their quality of life designed for critically ill patients,<sup>149</sup> and about the medical treatment they have received and would want. The patient interview takes 30-45 minutes. Should patients feel fatigued by the interview, the interviewer will reschedule the remainder for another time shortly thereafter. To date, no patient interview has required a second session for its completion. The caregiver baseline interview (see Appendix A) is similar to but more comprehensive than the patient interview. First, demographic information is obtained and the SPMS administered to screen for cognitive impairment. Caregivers are asked about their degree of burden and financial strain, social support and about the patient's care and functioning. It takes roughly 1¼ - 1½ hours, depending on whether caregivers screen positive on certain assessments. The interview can be divided into 2 sessions scheduled in close proximity should the caregiver prefer this. Only 2 of 40 caregivers have asked to complete the interview in a second session.

Interviewers will check with clinic staff weekly to determine whether any enrolled patient has died. When a death has occurred, a post-mortem assessment using data found in the patient's medical chart and/or information provided by interviewing the nurse who followed the patient's status until the time of death will occur. For the first 3 months of the study, the post-mortem interviews will be scrutinized by Drs. Prigerson, Paulk, and Stieglitz in consultation with Suzanne McColl, and Nancy Cravens to evaluate the responses and randomly verify the care received in 10 post-mortem interviews by checking responses with the medical records and with responses provided by the caregivers at follow-up. Should inaccurate reporting be detected in the post-mortem interview, discrepant responses will be reviewed with the interviewer and the PIs and additional training required until reliable and valid ratings are obtained. In addition, Dr. Prigerson will review the post-mortem interviews by site and interviewer to determine whether a systematic bias in responses at a particular site or for a particular interviewer exists. Should evidence of such a bias exist, the PI at each site will review methods of reporting the post-mortem information with the identified interviewers and retraining of offending interviewers occur to ensure standardized assessments across interviewers and sites.

Caregivers are required to provide informed consent for human investigation prior to the follow-up interview. Follow-up assessments of the caregiver will be gauged 6 months from the date of death, and are very similar in content and duration to the baseline interview with the addition of questions pertaining to the patient's death (see Appendix A). We have selected 6 months post-loss as the optimal timing for the caregiver follow-up because the parent study focuses on longer-term bereavement adjustment. We have found that 6 months is a critical juncture in the grieving process and that bereaved caregivers who are acutely grief-stricken at that time are likely to remain

functionally impaired for a sustained period thereafter, lasting months or even years.<sup>113-115, 119, 120</sup> We have also found that bereaved people are more receptive to interviews after half a year has elapsed since the death and that waiting 6 months reduces the likelihood that reports of the patient's EOL will be distorted due to acute bereavement distress.

The PI has been successful in retaining subjects in her longitudinal bereavement study (97%). We attribute this high retention rate to a concerted effort to maintain contact and demonstrate concern for enrolled subjects. The interviewer sends cards to subjects to thank them for participation, to wish them happy birthday, and on other important occasions such as their wedding anniversary. Interviewers call caregivers every 2-3 months to find out how they are doing, and often send subjects materials that they believe may be of interest to them based on the baseline interview. Not a single subject has expressed displeasure about these contacts. At baseline caregivers are asked to provide contact information for a person deemed reliable to know their whereabouts should they be difficult to locate after the death (e.g., move). We frequently receive letters from study participants reflecting their satisfaction with study participation and an appreciation for the concern our staff has demonstrated for them in a stressful time, with no reports of any negative experiences following over 700 such interviews conducted to date. Based on our prior experience, we expect caregiver attrition will be under 5%. Given that attrition is expected to be negligible and that we expect recruitment to exceed that required for adequate power, we anticipate no difficulty obtaining the proposed sample sizes and retaining subjects in the proposed study.

Interviewers have been trained by the PI and Suzanne McColl who has conducted 2-day training workshops at Yale, the VACTCCC, MSKCC, and at the 2 UTSW sites. Training consists of learning the instruments, practice sessions, and instruction in administration of the clinical structured interviews. Interviewers meet with Dr. Jacobs for instruction in best practices for interviewing dying patients and their caregivers and are required to have a high rate of concordance ( $K \geq .85$ ) with Ms. McColl on the psychiatric diagnoses before being permitted to interview for the study. Should concordance between ratings be  $\leq .84$ , the interviewer will need to be retrained until a  $K \geq .85$  rate of agreement in diagnostic ratings is attained. To date, our interviewers have high rates of interrater reliability for diagnoses of MDD and complicated grief in our bereavement study, with only 2 of 45 diagnoses failing to be in agreement across the Yale interviewers. For the first 3 months of the study, interrater agreement will be assessed monthly for the interviewers at the UTSW sites, and retraining will occur when necessary. Dr. Prigerson, Ms. McColl and Ms. Rong will have monthly conference calls with Dr. Paulk and her relevant staff to discuss the status of the project and trouble-shoot logistical problems. In addition, the PI, Ms. McColl and Ms. Rong will visit UTSW 3 times each year to meet with project staff at that site and review data collection and aspects of the project that would benefit from joint discussion. Interviewers will visit Yale annually for training and to discuss study progress, to review the data collected, and to maintain enthusiasm for working on the project. Dr. Paulk will visit Yale 3 times a year to discuss the progress of the research at the UTSW sites.

**Recruitment at DF/HCC.** Interviewers hired at the new site will be trained by the PI and Suzanne McColl who will visit from Yale to train and supervise the new members of the research team. The interviewer will be trained in the procedures described for recruitment and in administration and rating of the assessments, as well as how to monitor and complete the follow-up interviews. The interviewer at DF/HCC will sit in on rounds that occur 3 times/week in the palliative care service. Three attendings and one nurse practitioner will be introduced to the new interviewer and the protocol and will assist in the identification of eligible patients and recruitment will proceed as described above.

**D.3. Measures.** (*see Appendix A Assessments*) The following measures will be obtained from face-to-face interviews with the patients, their primary caregiver, and the nurse who last cared for the patient. Additional information about the patient's medical status and health care received at the EOL will be obtained from the patient's medical chart and interviews with the nurse who last cared for the patient.

#### **Quality of Death Outcomes**

- **Objective Circumstances of the Death (see Post-Mortem and Caregiver Follow-up Interviews):** In MH63892 we selected a few concrete, objective measures that experts<sup>106,150,151</sup> in EOL care view as desirable/undesirable ways to die. The proposed indicators include the use of and length of stay in an Intensive Care Unit (ICU), the use and duration of use of a ventilator or feeding tube in the week immediately preceding the death. It is the belief of many EOL experts<sup>106,150,151</sup> that extended ICU stays, ventilator and feeding tube use just prior to death are sub-optimal ways to die. Extended ICU, ventilator and feeding tube use for patients in the final stages of an illness prolongs the dying process and

is assumed to prolong the patient's suffering – in a sense, prolonging their death by protracting their life.<sup>106,150,151</sup> We include as other indicators of the objective quality of death, receipt of an aggressive round of chemotherapy applied primarily to reduce the rate of cancer spread (rather than to alleviate symptoms associated with the disease) in the last week of life because it is expected to diminish the quality of life of the dying patient.<sup>26, 106,150,151</sup> Likewise, antibiotics can be considered inconsistent with the practice of good palliative care because death from an acute infection involves relatively little suffering. We will examine antibiotic use in the last week of life as an instance of potentially suboptimal care. As social beings, we and EOL experts<sup>150, 151</sup> believe that no one wishes to face death alone. Thus, the presence of significant others within the 2 days leading up to the patient's death is proposed as another indicator of a better quality death. The majority of this information can be found in the patient's medical chart, but should it be missing we will obtain absent information from the nurse who cared for the patient until the time of death. Whether the patient had a significant other present within 2 days of his/her death will also be ascertained from the patient's caregiver at follow-up. These objective indicators will be examined both individually and as a composite index summarizing presumably adverse objective circumstances of the death. The frequency/mean number will be compared across patient ethnic groups and examined for their associations with subjective distress. It should be emphasized that part of what we will learn from this study is whether interventions considered unduly burdensome by uniformly White experts in EOL care,<sup>26, 106,150,151</sup> will, in fact, be reflected by a negative subjective experience of the death, and whether differences in subjective burden vary based on the patient's ethnicity.

- **Subjective Circumstances of the Death (see Post-Mortem and Caregiver Follow-up Interviews):** The patient's degree of comfort/distress on core quality of life domains (e.g., severity of pain, physical, psychological, social, spiritual distress) will be evaluated using a comprehensive set of indicators. The nurse who last cared for the patient will be asked in the post-mortem interview to rate on a scale from 0=none to 10=extremely upset, the extent to which the patient experienced psychological distress in the last week of life, or at the last visit if the patient was not seen in his/her final week. They will also be asked to rate the patient's degree of physical distress (0=none to 10=extreme) in his/her final week/when last seen and will be asked to rate the mental functioning of the patient when last seen on a scale where 1=unconscious, 2=asleep but arousable, 3=awake but confused, 4=awake, interactive, but anxious or sad, 5=awake, interactive, and happy or content. These categories will be evaluated with respect to other subjective quality of death indicators to determine the groupings associated with the highest quality of life. Lastly, the nurse will be asked to rate the overall quality of the patient's life/death at the EOL on a scale from 0=worst possible quality of life/death to 5=average to 10=best possible quality of life/death. This information will supplement information obtained from the caregiver at follow-up.

As part of MH63892, caregivers are asked at follow-up whether, in their judgment, the patient's life was prolonged by medical interventions: a.) longer than the caregiver would have wished, b.) when the patient was, to the best of their knowledge, dying, c.) resulting in an increased duration of patient suffering. Answers to these questions will be added to create a "prolongation of death" summary score (ranging from 0 to 3). Caregivers are also asked questions from our Nature of the Death<sup>117</sup> scale which includes 5 items that assess the patient's extent of perceived suffering and whether the death was peaceful or violent. To this we add 4 questions from Emanuel et al.'s Needs Near the End of Life Screening Tool-Modified<sup>152</sup> that assess the degree to which the patient's settledness, closeness, physical and mental needs were met, scaled from 0=unmet to 10=completely met. Lastly, we include several questions from the Brown Toolkit of Instruments to Measure End of Life Care, validated by Joan Tenon.<sup>153</sup> These questions ask the caregiver to rate the quality of care, including items to assess the dignity of the death, the patient's degree of symptom control (depression, anxiety, agitation, terminal delirium, pain, shortness of breath, nausea), care that respected the patient's wishes, provision of emotional support and kindness by clinicians, adequacy of communication with clinicians, the amount and efficacy of the medications administered to the patient in the last week of life/last clinical visit, and whether clinicians attended to the patient's spiritual, informational, and personal care needs. We also add an item to assess the concern and the respect the patient was shown by his or her clinicians in the last week of life/last clinical visit.

- **Goal Attainment:** As part of the subjective quality of death assessment we ask caregivers whether the patient's treatment preferences were met and also ask the nurse who last cared for the patient his/her sense of whether the patient would have preferred: 1) a course of treatment that focused on extending life as much as possible, even if it meant more pain and discomfort, or 2) a plan of care that focused on relieving pain and discomfort as much as possible at the EOL. The post-mortem interviews will be examined with reference to the receipt of life-sustaining treatments described above as objective quality of death indicators. In the post-mortem interview we obtain information on where the patient died

and ask the nurse if they consider this to be where the patient would have wanted to die. We use Dr. Fried's validated Willingness to Accept Life-Sustaining Treatment (WALT) technique for eliciting patient treatment preferences and relating these preferences to goals of care.<sup>93</sup> We simplified the WALT by reducing questions and responses to a set of concrete treatment options. In the patient baseline interview, we ask very specific questions about each of the objective quality of death indicators and determine their preferences for specific levels of intervention for each. For example, we ask patients how long they would want to be kept alive (e.g., Y/N for years, months, weeks, day) on a ventilator or feeding tube, receiving chemotherapy with a risk of side effects (e.g., nausea, eating and bowel problems). We then compare their stated preferences with receipt of each life-sustaining technology to determine rates with which each treatment preference was met (i.e., goal attainment).

### **Psychosocial Factors Influencing the Quality of Death Outcomes**

**Sociodemographic/Socioeconomic:** Information on patient and caregiver age, sex, education, religious affiliation, marital status, household composition, income, insurance, source of payment for patient's treatment, country of birth, and native language will be assessed at baseline.

**Acculturation:** Patient acculturation will be assessed using Cuellar's Acculturation Rating Scale (ARS)<sup>48</sup> 5-item scale that assesses language usage and preferences on a 5-point Likert scale from completely Spanish-identified to Anglo/English-identified. Cuellar et al.<sup>48</sup> conducted analyses confirming acculturation levels were lowest for 1st-generation Mexican Americans and that they increase with each subsequent generation, considerable heterogeneity in ARS scores within the Mexican American population was found, and the scale's reliability and validity were established. The ARS has been validated for use in a variety of clinical and community samples.<sup>154-156</sup> For caregivers, we developed a more refined measure of acculturation that is simpler, shorter and that provides a more direct assessment of "Americanization" than Cuellar's Mexican acculturation scale.<sup>48,157</sup> Cuellar's Acculturation Rating Scale for Mexican Americans II<sup>157</sup> includes 30 items that provide Anglo and Mexican orientation subscales. Our 20-item US Acculturation Scale: A Measure to Assess Americanization (see Appendix A), developed by the PIs in collaboration with Drs. Kupersztoch and Stieglitz, assesses the degree of any non-US acculturation to American ways of life from a scale where 1=English/American only to 5=Non-English/non-American only. Thus the scale is relevant not only to Mexicans, but to any non-US respondent and provides a unidimensional construct of Americanization. Our Americanization scale asks, in addition to the most used language, what language/country of origin is preferred for speaking, listening to music, watching TV and movies, reading newspapers and magazines, and eating food. Frequency of contacts with non-US countries is assessed using concrete time-periods (1=less than twice annually, 5=+-daily) rather than Cuellar's vaguer degree of frequency (e.g., always, never). We have added an item to assess preferred site of burial and include an interviewer's relatively objective assessment of the degree to which the respondent is Americanized in order to have a criterion against which we can evaluate the scale's validity.

**Social Support & Strain:** Caregivers will be assessed on the following measures at baseline and follow-up. We refrain from asking patients about social support to minimize the burden of their interview.

- **Social Support.** The Interpersonal Support Evaluation List<sup>158</sup> consists of 16 statements about the perceived availability of potential social resources in 4 areas: material aid (tangible); someone to talk to about one's problems (appraisal); comparisons of self with others (self-esteem); people with whom to share activities (belonging). Cohen<sup>158</sup> reported the scale to have adequate test-retest reliability ( $r = .87$ ) and internal consistency ( $r = .90$ ). We found the ISEL to have a Cronbach's alpha's of 0.89 and to relate to depressive symptom levels in recently bereaved older adults.<sup>159</sup> A Social Support sum score will be created with a possible range from 0 to 16, with higher scores indicating greater social support.
- **Life Strains & Stressors.** Dohrenwend's Structured Event Probe and Narrative Interview<sup>160</sup> (SEPRATE) assesses **stressful life events**. The SEPRATE asks about the undesirability and severity or disruptiveness of each reported event and elicits information about the context in which events occurred. We currently use the SEPRATE in an ongoing suicide study and have found it to work well (e.g., life events are significantly predictive of greater suicidality:  $P < .01$ ). In addition to discrete events, we will assess sources of chronic strain. The Covinsky **Family Impact Survey**,<sup>161</sup> used in the SUPPORT study, is used to assess the financial strains experienced by the caregiving family (e.g., hours spent caregiving, of work lost due to the illness, family financial disruption). The **Family Relationships Index (FRI)**,<sup>162,163</sup> another scale with proven validity<sup>163-165</sup> in family caregivers and survivors of terminally ill cancer patients, is a 12-item scale that provides a global measure of family interaction and dysfunction as well as measures of family cohesiveness, expressiveness and conflict subscales. **Caregiver burden** will be measured using a 7-item version of the Caregiving Burden Scale.<sup>166</sup> Assistance provided with eating, bathing, dressing, toileting, getting in and out of bed; getting around inside, meal preparation, housecleaning, laundry, shopping and/or transportation, handling the patient's finances, and administration of medications will be assessed. Separate scales are used for time spent in caregiving (demand) and amount of difficulty associated with each of the 7 frequently reported caregiving tasks, rating on a 4-point scale ranging from "little or no"=1 to "a great deal" of time/difficulty=4. A burden score for each item is obtained by multiplying the

demand by the difficulty scores. The reliability for the scales was high among a sample of cancer patient caregivers, with Coefficient  $\alpha$ s of .83 for demand and .89 for difficulty subscales.<sup>166</sup> Caregivers are also asked the number of months spent in the caregiving role. Perceived competence (1 = “Not well” and 4 = “Extremely well”) and positive appraisal of caregiving experience (1 = “Strongly Disagree and 4 = “Strongly Agree”) will also be assessed. Lastly, the Stressful Caregiver Response to Experiences of Dying (SCARED) scale, developed by the PI, was used with success in Dr. Bradley’s hospice caregiver study (SCARED scores were significantly associated with timing of enrollment into hospice and with impaired quality of life). This measure is the first to assess distressing experiences encountered by caregivers of dying patients.<sup>112</sup>

**Attitudes & Expectations:** Patients and caregivers will be asked the following questions at each interview.

- **Spirituality/Religiousness.** Three items from the Religious Coping Index (RCI)<sup>167</sup> ask about the extent to which the respondent uses religion to cope with the patient’s illness/bereavement. The RCI has demonstrated high interrater reliability in medically ill patients ( $r = 0.81$ ).<sup>168</sup> Respondents are asked how the importance of religion has changed for them since the patient’s diagnosis. They are asked how often they attend religious services and spend time in private religious activities, such as prayer, meditation, or Bible study on another 6 point scale from 0 = “never” to 6 = “more than once a day.” They are asked how important is religion to them on a 3-point scale from 1 = “not important” to 3 = “very important.” Respondents are asked the extent to which their spiritual needs are met by their religious community and by the medical system, and whether the patient has received pastoral care services within the clinic and how much comfort (1=made me very uncomfortable to 5=provided me a lot of comfort) was provided by pastoral visits received. Using items from the NIA/Fetzer Multidimensional Measure of Religiousness/Spirituality for Use in Health Research<sup>169</sup> measure, we incorporate items to assess daily spiritual experiences, forgiveness, and an overall self-ranking of religiousness.
- **Self-efficacy.** Personal beliefs about the ability to control one’s environment and life circumstances generally, that is, one’s global self-efficacy, will be assessed at each patient and caregiver interview using Schwarzer and Jerusalem’s 10-item Generalized Self-Efficacy scale.<sup>170,171</sup> Each item is rated on a scale from 1=not at all true to 4=exactly true. Extensive validation work has been conducted for this scale.<sup>170,171</sup> In addition, we have found these items to be significant mediators of the effects of stress on depression.<sup>172</sup>
- **Ways of Coping.** Carver et al.’s Brief COPE<sup>173,174</sup> consisting of 24 items that assess aspects of problem-focused coping, emotion-focused coping, and “arguably are less useful (focus on and venting of emotions, behavioral disengagement, mental disengagement)”<sup>(p.267,174)</sup> coping strategies. Caregivers will indicate how often they engage in each form of coping on a 4-point scale from 0 = “not at all” to 3 = “a lot.” The Brief COPE was used in a sample of Black, White, and Hispanic cancer patients and was shown to relate to depressive symptom levels and coping was found to vary by patient ethnicity.<sup>175</sup>
- **Patient Treatment Preferences.** Patients are asked if and how long they would want to be kept alive by a “breathing machine,” chemotherapy and risk its side effects and more hospital time. They are asked how long they would want to take antibiotics to keep them alive if an infection would let them die painlessly, their views about dying in an ICU vs. elsewhere, if they would want their doctors to do everything possible to keep them alive, and their preferences for life prolongation vs. comfort. In addition, patients are asked if they have completed a Do Not Resuscitate order and Living Will.
- **Trust of Clinicians.** Patients are asked a series of Yes/No questions about: whether they trust their doctor, and if they think their doctor would offer them treatment that would not help them just to please them, or to gain information to help others. They are asked if they believe in taking the medicines the doctor gives them. They are asked if they respect their doctors and if their doctors treat them with respect and see them as a whole person. They are asked if their doctors do a good job of making them comfortable. As noted above, caregivers are asked in the follow-up an extensive battery of questions about whether the doctors treated the patient kindness, respect and dignity and demonstrated concern for the patient.
- **Communication with Clinicians.** Patients are asked if they understand most of what their doctor explains to them and if they are comfortable asking questions of their doctor. They are asked if there are questions about their health or treatments that they do not understand and to describe what those questions are. Patients are asked if they would want their doctor to tell them how long they had left to live if their doctors knew this information, and if they have discussed particular wishes about care they would want if they were dying. Caregivers at follow-up are asked an extensive set of questions about both their and the patient’s communication with the doctor, such as if a clinician provided adequate information for decision-making, their availability, and talking with them about their emotional and spiritual needs (see Appendix A).
- **Accuracy of Patient Life-Expectancy Estimates.** Patients are asked how they would describe their current health status: 1=relatively healthy; 2=seriously ill but not terminally ill; 3=seriously and terminally ill. Only those patients who respond with “3” will be coded as having a realistic expectation of their survival and a dummy variable will code as “1=Yes” those patients who respond in this manner and “2=No” those patients responding with a 1 or 2. In addition, patients and caregivers will be asked at baseline, if they had to guess, how many months or years they think the patient has left to live. The date of the patient’s death will be recorded and duration of their survival from baseline will be

calculated. Estimates will be compared with actual survival and estimates within  $\pm 1$  month will be coded “1=Yes/Accurate”; “2=No/Inaccurate”. Ethnic groups will be compared on degree of accuracy and rates of over/under estimates.

### **Mental Health & Mental Health Service Use**

- Depression, Anxiety, Adjustment and Substance Abuse Disorders.** The Structured Clinical Interview for the DSM-IV (SCID) Axis I Modules<sup>148</sup> is a widely used rater-administered instrument for establishing psychiatric diagnosis with proven reliability and validity. For example, Williams et al.<sup>176</sup> found  $K = .56$  for generalized anxiety and  $.58$  for panic disorder. We have used the SCID on caregivers and widowed subjects and have been satisfied with the ease of administration and concordance with other assessments (eg,  $K = .92$  for Hamilton Rating Scale for Depression score of  $>17$  and SCID-diagnosed MDD).<sup>117</sup> We have found SCID criteria for MDD and PTSD to have moderate agreement with our criteria for CG ( $\Phi = .34$ , and  $.48$ , respectively).<sup>177</sup> Subjects will only complete the full SCID modules for disorders for which they screen positive. Caregivers and patients will be screened for MDD, Anxiety, Adjustment, and Substance Abuse disorders, current and lifetime. Caregivers will receive a SCID assessment at follow-up. The diagnosis of MDD in advanced cancer patients has been debated among psychiatrists and epidemiologists.<sup>179-181</sup> Although it is acknowledged that terminally ill cancer patients will experience some disengagement from former interests, studies have found that “when loss of interest or pleasure occurs in almost all activities, including the social comforts of interaction, then most authors consider it to be a valid criterion for depression.”<sup>179</sup> (p.27) Further, “an expert panel on the neuropsychiatric aspects of advanced cancer has recommended the utilization of existing validated tools in prevalence and intervention research.” (p.29). By contrast, Endicott<sup>180</sup> has recommended that DSM MDD criteria be modified such that weight loss be substituted with depressed appearance, insomnia with social withdrawal or decreased talkativeness, loss of energy with brooding, self-pity or pessimism, poor concentration with lack of reactivity/cannot be cheered up. We will assess symptoms for both criteria sets and create 2 diagnoses for MDD – 1 using the DSM-IV criteria explicitly, and another using the Endicott<sup>180</sup> substitutions.
- Suicidality.** The Yale Evaluation of Suicidality (YES) scale is a rater-administered interview that was designed in response to a failure we noted in established scales to detect suicidal thoughts and gestures in samples at high risk for suicide (e.g., elderly widowers). It incorporates the widely used Beck Scale for Suicide Ideation items, which have been shown to correlate  $.83$  ( $p < .001$ ) with self-destructive ruminations.<sup>182</sup> The YES assesses: 1) Current Suicidal Attitudes; 2) Current Indirect Suicidal Gestures within the past month; and 3) Current Direct Suicidal Ideation, Plans, Threats, and Attempts with reference to the most distressing circumstance over the past year. To Linehan’s<sup>183</sup> “Reasons for Living” Scale, we have added our “Reasons for Dying” (RFD) scale (eg, “I believe killing myself would solve my problems,” “I am suffering a great deal and wish my life to end,” “My physical condition makes it difficult to find pleasure in life,” “I feel that I’m a burden on my family”). In the 309 widowed subjects on whom it has been tested, Cronbach’s  $\alpha = .96$ , and the YES total score was associated with MDD ( $r = .39$ ,  $p = .0001$ ) and Complicated Grief ( $r = .43$ ,  $p = .0001$ ), suggesting convergent validity. We have used the YES in samples of Black, White and Hispanic dually diagnosed patients and it demonstrated good face validity given that subjects could easily understand and respond to the questions, they were associated with severity of depressive illness and revealed ethnic-specific risk factors (e.g., lack of social support was a suicide risk for Blacks, but not Whites).<sup>61</sup>
- Cognitive Impairment.** The Short Portable Mental Status Questionnaire<sup>147</sup> is used to provide a brief, reliable and valid assessment of the respondent’s degree of cognitive impairment. Its advantages include brevity, simplicity in scoring, and adjustments for educational level and absence of a telephone (reducing ethnic bias in scoring degree of cognitive impairment). It includes 10 questions, and a replacement item for those without a telephone that are summed. 0-2 errors = intact mental function; 3-4 errors=mild intellectual impairment; 5-7 errors=moderate impairment; 8-10=severe intellectual impairment. Respondents with a grade school education are permitted 1 additional error, those with schooling beyond high school are allowed 1 fewer errors in the determination of the score. Respondents with scores above 5 are excluded from the study.
- Mental Health Service Use:** The interviewer will administer to patients and caregivers a structured questionnaire, with skip-out patterns, pertaining to their mental health discussions with clinicians and treatments received (see Appendix A). Patients and caregivers will be asked whether or not they have discussed the patient’s mental health with at least one of their clinicians. We focus on clinical conversations, rather than discussions with family members, friends or non-clinicians, because from a policy/health services perspective these individuals could be identified as people to target in the development of future clinical interventions. Those who have not discussed their mental health concerns with a clinician will be asked why they would not discuss their emotional or cognitive distress with a health care professional. If respondents indicate that they have discussed mental health concerns with a clinician, we will ask them to identify this person (eg, nurse, physician, social worker, hospital chaplain), and whether they (patient and/or caregiver) or the clinician initiated the discussion. If they have discussed their mental health with a clinician, we will ask what exactly was discussed and whether or not a referral was made or some form of treatment was offered or provided. If some form of treatment was offered we ask whether or not they complied with this recommendation, and probe into why not for those

who fail to comply. Any formal (eg, antidepressant, anxiolytic, psychotherapy) or informal (eg, support group, visits to clergy, use of over-the-counter herbal antidepressants) interventions used since the patient's cancer diagnosis will be documented and specifics about the intervention (dose, dates involved, duration) noted. At follow-up, caregivers will be asked about their use and the patient's subsequent use of any mental health intervention since the last interview. For those who have sought help, we will inquire into the type and duration of any interventions utilized and what they perceive to be the positive and negative consequences of the treatment received.

**Relevant Additional Assessments:** Patients and caregivers will be assessed on a variety of additional measures (all can be found in Appendix A) expected to influence the quality of death, as well as the caregiver's bereavement adjustment. Space limitations prevent a detailed description, but these additional measures include: the date of the patient's initial cancer diagnosis, the primary cancer site (eg, pancreas, lung) and its stage at diagnosis and just prior to the baseline interview, primary tumor size, nodal involvement and metastasis, whether they are inpatients or outpatients, where they reside (eg, home, hospice), the type, amount and duration of cancer treatments received up to baseline and the primary intent of each treatment received at baseline (palliative, curative, both, neither). Interviewers will document the patient's clinic, the relationship of the caregiver to the patient (eg spouse, child). The McGill Quality of Life<sup>149</sup> questionnaire for critically ill patients will be administered to patients and to caregivers about the patient to obtain an estimate of caregiver accuracy of the patient's quality of life. Interviewers will consult with the patient's clinicians to obtain Karnofsky<sup>184</sup> performance and Charlson Comorbidity Index<sup>185</sup> (CCI) ratings. The Karnofsky score is used to provide clinicians with a tool for describing how well a terminally ill patient can perform daily activities, where a score of 100 = 'normal, no complaints or evidence of disease'; to 10 = 'moribund, fatal processes rapidly progressing'; 0 = dead.' The CCI<sup>185</sup> evaluates the patient's number of medical conditions (eg, diabetes, renal disease), sum and weight them according to the seriousness of the illness. A simple equation is used which factors in the patient's age. The CCI has been shown to be a valid predictor of a patient's life expectancy.<sup>185</sup>

**D.4. Primary Analyses.** Statistical tests of hypotheses associated with each of our specific aims will be conducted within the context of Baron and Kenny's<sup>186, 187</sup> approach for testing mediational hypotheses. Baron and Kenny recommend the following series of regression models as the optimal way to test for a mediation effect: **1<sup>st</sup>** the dependent variable (quality of death indicators) is regressed on the independent variable (patient ethnicity) (Aim #1). **2<sup>nd</sup>** the mediator variable (psychosocial factor) is regressed on the independent variable (ethnicity) (Aim #2a). **3<sup>rd</sup>** the dependent variable (quality of death) is regressed on both the independent variable (ethnicity) and the mediator variable (psychosocial factor) (Specific Aim 2b). To establish mediation, ethnicity must affect quality of death in model #1, ethnicity must affect the psychosocial variable in model #2, and the psychosocial variable must affect the quality of death in model #3. Perfect mediation holds if ethnicity has no effect when the psychosocial variable is controlled; partial mediation holds if the effect of the psychosocial factor remains significant when ethnicity is included in the model. The reason we wish to test a mediational hypothesis, rather than a moderator hypothesis, is because the results of the former would indicate psychosocial factors that, if changed (e.g., through an intervention), would be expected to significantly affect the likelihood of the quality of death outcome (i.e., would be useful targets for intervention).

**Specific Aim #1:** To determine whether the ethnic status (i.e., self-identification as White, Black, or Hispanic) of terminally ill cancer patients is associated with significant differences in objective circumstances of the death, subjective circumstances of the death, and the likelihood of goal attainment. For dichotomous quality of the death outcomes (e.g., ventilator use; feeding tube use, significant other present within 2 days of the death – Yes/No), the logistic regression procedure will be used to regress each outcome on the patient's ethnic status (i.e., White, Black, or Hispanic) (see Step #1 above). One set of dummy variables will indicate the odds of the outcome for each ethnic status versus the other 2 ethnic status groups (e.g., Black vs. White and Hispanic); another set will compare Blacks/Hispanics to Whites.

Dummy variables will also be created to determine whether the patient's treatment preference was consistent with the care received or not. For cases in which the patient's preference matches the care received, the goal attainment score for that indicator would be coded "1=Yes" when the patient's treatment preference is not consistent with the care received; "2=No" when this is not the case. For example, we will determine if the patient indicated s/he would not want to be on a "breathing machine" for any time longer than a month, and determine if they were on a ventilator for longer than a month. We will then regress goal attainment scores on the patient's ethnic status. We will also classify each objective circumstance of the death indicator based on its goal of prolonging life vs. not, and match this outcome to the rating of

the patient's ultimate treatment preferences as wanting life-prolongation vs. comfort, creating another goal attainment dummy variable. A logistic regression model will estimate the likelihood of this form of goal attainment given the patient's ethnic status grouping.

Linear regression analyses will model the effect of patient ethnicity on the continuous quality of death outcomes. For example, we will regress the nurse's rating of the patient's physical distress (0=none to 10=extreme) in the last week of life/at their last visit, on the patient's ethnicity. We will also regress the patient scores on the composite index summarizing presumably adverse objective circumstances of the death on patient ethnicity to determine the effects of ethnicity on the aggressiveness of EOL care received. Given the number of statistical tests performed, we will employ a Bonferroni correction to require a more stringent level of statistical significance (less than  $P < 0.05$ ), thereby, reducing the likelihood of Type I error (i.e., falsely claiming significant ethnic differences exist).

**Specific Aim #2:** To determine whether there are significant ethnic differences in psychosocial factors expected to significantly influence the patient's quality of death (Specific Aim 2a), and to determine whether these psychosocial factors account for expected differences in the patient's quality of death (Specific Aim 2b). The first set of analyses for Aim2 will determine whether social factors (eg, SES, social support), personal beliefs and behaviors (e.g., spirituality, ways of coping), healthcare attitudes (eg, treatment preferences, trust), and mental health and mental health service use differ according to the patient's ethnic status. Logistic regression models will then determine whether there are significant ethnic differences in the likelihood of categorical psychosocial variables (e.g., accurate life-expectancy estimates, rates of MDD). Linear regression will regress continuous psychosocial measures (e.g., spirituality, self-efficacy) on the patient's ethnicity.

For Step #3, regression analyses will model the main effects of patient ethnicity and each psychosocial factor on the quality of death outcome, again using logistic regression analyses for dichotomous outcomes and linear regression analyses for continuous outcomes. These models will indicate whether a significant effect of ethnicity on quality of death diminishes or disappears once the psychosocial factor is taken into account (thereby, explaining the effects of ethnicity on quality of death). Should the psychosocial variable have a significant effect on quality of death when controlling for ethnicity (assuming ethnicity is significantly associated with the psychosocial factor), this would imply that it is a mediator of the relationship between ethnicity and quality of death and would be a promising target for a future intervention. Because we expect SES to be a significant confound of the association between ethnicity and quality of death outcomes, it and all other confounding factors will be entered as control variables in the multivariable regression models. Given the number of comparisons performed, a Bonferroni correction will be made to require a more stringent level of statistical significance.

**D.5. Secondary Analyses.** Given the richness of the data gathered for this study, numerous additional, yet interesting and important, analyses can be performed. As noted above (see "Patient EOL Treatment Preferences & Trust), the IOM report on ethnic disparities in healthcare<sup>11</sup> indicated the need to examine how ethnic differences in treatment preferences interact with patient mistrust. We can examine this using logistic regression models that estimate the main effects of ethnicity and mistrust and an interaction term of ethnicity-by-mistrust on the patient's treatment preferences or EOL care-related behaviors. Results of these analyses could reveal whether mistrust is more likely to influence the Black patient EOL treatment preferences than it does White patient treatment preferences. In addition, multiple psychosocial factors could be estimated simultaneously to determine the effects of each on quality of death outcomes over and above the influence of other explanatory factors. We could also determine the most parsimonious models that best account for differences in quality of death outcomes stratified by the patient's ethnic status. In this way, the best set of ethnic-specific psychosocial factors for the prediction of quality of life outcomes could be determined. These are just a few examples of the information these data could provide to what is known about ethnic differences on quality of life of patients at the EOL.

**D.6. Statistical power and sample size considerations.** The sample size of 800 patients/caregiver dyads was selected to ensure approximately 90% power to detect odds ratios (ORs) of approximately 2 to 3 for expressing the association between ethnic status and both quality of death outcomes [Aim #1] and psychosocial factors that might explain ethnic differences in quality of death [Aim #2b] at a significance level of  $\alpha = 0.05$ . This same sample size was also selected to ensure approximately 80% power at  $\alpha = 0.05$  to detect comparable ORs between ethnic status and

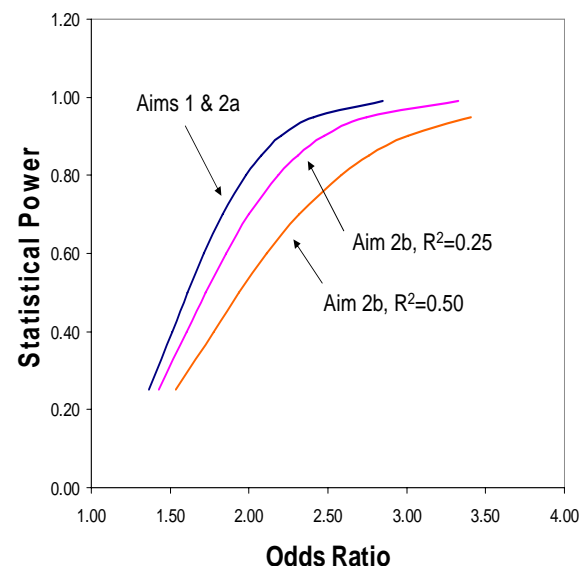
quality of death outcomes within the context of multiple logistic regression analyses that include as covariates psychosocial factors that are moderately ( $R^2=0.25$ ) to highly ( $R^2=0.50$ ) associated with ethnic status [Aim #2b]. Statistical power and sample size calculations for multiple logistic regression models are based on the work of Hsieh, Bloch and Larsen.<sup>188</sup>

We anticipate that the overall sample will be approximately 50% ( $N=400$ ) White, 37.5% ( $N=300$ ) Black, and 12.5% ( $N=100$ ) Hispanic. Given that we are primarily interested in comparisons between each of minority status group and the White group, and given that we expect to have fewer participants in the Hispanic group than in the Black group, conservative estimates of statistical power were based on anticipated comparisons between Hispanics and Whites. That is, statistical power associated with comparisons between Blacks and Whites will be greater than that associated with comparisons between Hispanics and Whites.

The adjacent figure summarizes our anticipated power to detect ORs of approximately 2 to 3 between ethnic status (Hispanic vs. White) and a dichotomous outcome measure of quality of death (e.g., mechanical ventilator use –Yes/No) with an overall prevalence of 25% in a sample of  $N=800$  (including 100 Hispanics and 400 Whites) at a significance level of  $\alpha=0.05$ . Statistical power to detect comparable ORs between ethnic status (Hispanic vs. White) and an outcome measure with an overall prevalence closer to 50% would be greater than that indicated in the figure. Tests for the effects of ethnicity on continuous outcomes estimated using linear regression would be expected to have greater power than those described here for the dichotomous outcomes estimated using logistic regression.

The figure can be interpreted to represent statistical power to detect associations between ethnic status and both outcome measures of quality of death [Aim #1] and psychosocial factors (e.g., self-efficacy, spirituality, trust, communication) that might explain ethnic differences in quality of death [Aim #2b], as well as associations between ethnic status and outcome measures of quality of death within the context of multiple logistic regression analyses that include as covariates psychosocial factors that are moderately ( $R^2=0.25$ ) to highly ( $R^2=0.50$ ) associated with ethnic status [Aim #2b]. The higher the  $R^2$  the greater the association between ethnicity and the psychosocial factors, and the lower the power to detect significant ethnic differences in quality of death within the context of multiple logistic regression.  $R^2$  used in this context, does not represent the effect sizes between ethnicity and quality of death outcomes, but rather represents the inflation factor used by Hsieh<sup>188</sup> to adjust power estimates to correct for confounding between independent variables in multiple regression models.

**D.7. Data Management.** All data will be delivered (express mailed or by hand) to Ms. Rong at Yale, where it will be processed using rigorous quality-control methods. The questionnaires have been designed for accurate and consistent coding (see Appendix A), with unambiguous branching logic, and have been optimized for efficient batch data entry. Data from the paper instruments will be double-entered by Ms. Chen and subjected to thorough error-checking programs created by Dr. Maciejewski. Each week, temporary SAS files will be constructed from newly entered and verified data and subsequently added to the SAS master data sets. Detailed documentation for all data sets and data elements, including algorithms for composite scale construction, will be included in a specialized data base system (SASDDS). Participants will be tracked throughout the study, from the point of first contact, by *GenTrack*, a general-purpose tracking and data retrieval system made available through the Data and Informatics Core of the Program on Aging. Each week, a list of the pending (and overdue) monthly interviews will be generated. To monitor the conduct and progress of the study, several administrative reports will be generated and subsequently reviewed during weekly research team meetings directed by Ms. McColl. Ms. Rong will review the data quarterly (monthly for the first 6 months), conduct diagnostic tests to determine sources of bias (eg, uniformity in assessments across sites), and recommend strategies (eg, employing the Heckman selection correction) to adjust for/minimize sources of bias. These data management practices have been implemented in the PI's other studies and, although they appear labor and time intensive, they are efficient in the sense that mistakes, missing data, and data



management problems are identified early and corrective actions taken to ensure a high quality dataset is produced at the completion of the study.

## E. Protection of Human Subjects.

### 1. Risks to the Subjects.

#### 1.a. Human Subjects Involvement and Characteristics:

**Study Overview.** The proposed study is a 4-year longitudinal study of 800 terminally ill cancer patients and 800 of their primary informal caregivers (e.g., spouses, adult offspring). Patients with a life expectancy of  $\leq 6$  months and their primary caregiver will receive a baseline assessment to evaluate goals of care and treatment preferences, hypothesized psychosocial variables, and the medical status of the patient. A post-mortem assessment will occur in the week following the death to obtain information from the nurse who followed the patient until death and a medical chart review on quality of life and EOL care, treatment preferences, and degree to which treatment preferences were met. A follow-up interview with the caregiver at 6 months after the death will provide additional information on the patient's quality of the death and care received up until the time of death.

**Eligible Patients.** Eligible patients will be cancer patients receiving care at one of the participating clinics whom clinic staff expect to have a life-expectancy of  $\leq 6$  months – generally defined by the presence of distant metastasis, and failure of first and/or second line of cancer therapy. The average length of stay in the Parkland Palliative Care Service is 79 days (2.5 months) and of the 40 patients enrolled in MH63892 the average time until death was similarly 3 months. A 2-month pilot study we conducted at MSKCC also revealed that 9 of the 11 patients the clinicians who participate in this project identified as terminally ill died within the 2-month window (81.8%). These pilot data indicate that clinic staff are able to predict which patients will die well within 6 months with a high degree of accuracy. Furthermore, the study does not require that the patient die within 6 months exactly and is designed so that the 6-month follow-up for the final cohort of patient caregivers will occur well within the final year of the study (see Project Timeline in Appendix C). Based on recruitment for MH63892, we expect that 60% of the patients will be male and 40% will be female.

**Eligible Caregivers.** Caregiver study participants are those persons whom the patient indicates provides the most of their unpaid, informal care, regardless of whether they reside in the patient's home. Patients will be asked to draw a simple pie-chart to reflect who provides the biggest "slice" of their informal care (i.e., care *not* provided by paid professionals). Although we will evaluate the amount of social support available to the primary caregiver, as well as the contributions of others to the patient's care, only a single caregiver will be interviewed because pilot work indicated that the vast majority of the patient's caregiving is conducted by a single person.<sup>112</sup> Consequently, in light of the added expense and complexity, as well as the negative impact the recruitment of multiple caregivers could have on participation rates, we assess only the patient's primary caregiver. Based on recruitment for MH63892, we expect that 60% of the caregivers will be female and 40% will be male. Recruitment for the parent study and data from Parkland lead us to expect that at least 85% of patients will have an identifiable adult primary caregiver.

**Exclusion Criteria.** Patients without primary caregivers will be excluded from the study, as will patient-caregiver dyads in which either the patient **or** the caregiver has clinically significant cognitive impairment. Patients who appear too weak to complete the interview are also excluded. Children up to age 20 will be excluded because children this age rarely assume primary caregiving responsibilities, terminal cancers are rare among people this age, and the instruments used have not been designed for children whose EOL issues may differ in important ways from those of adults age 20 years and over. There exists the possibility that the number of caregivers under age 20 is higher than expected among Black and Hispanic patients, and records will be kept of how many caregivers were excluded based on age alone. If it appears that a significant number of dyads are eliminated for this reason, it will be important to find a way to evaluate this group.

**Recruitment Yields.** We anticipate recruitment of 800 terminally ill cancer patients and 800 of their primary caregivers over the course of a 4-year study. From MH63892, we propose to recruit 300 terminally ill cancer patients and caregivers from the Yale Cancer Center Yale Cancer Center (YCC), the VA Connecticut Healthcare System, Comprehensive Cancer Clinics (VACHSCC), the Memorial Sloan-Kettering Cancer Center (MSKCC). An additional 500 patients and 500 primary caregivers are anticipated to enroll in the study from the University of Texas Southwestern Medical Center Simmons Comprehensive Cancer Center and the Parkland Hospital Palliative Care Service. Overall we anticipate that 400 (50%) of the patient sample will be White, 300 (37.5%) will be Black, and 100 (12.5%) will be Hispanic. We expect that 60% of the patient sample will be male (N=480) and 40% will be female (N=320); 60% of the caregivers are expected to be female (N=480) and 40% will be male (N=320). The mean age is expected to be 60 years of age (SD=18) and no persons under age 20 will be included in the study for the reasons provided in the Exclusion Criteria section.

**1.b. Sources of Research Material.** All the data gathered for this study will be obtained from face-to-face interviews with patients and their caregivers, and discussions with clinic staff (eg, Karnofsky, Charlson Comorbidity Index, date and location and care received at patient's death). These data will be obtained specifically for the purposes outlined in this proposal.

**1.c. Potential Risks.** The risks involved in this study are minimal. There are no risks of physical injury. The interview includes an evaluation of the subject's psychiatric status and asks potentially sensitive questions related to the patient's and caregiver's emotional distress, their use of mental health services, treatment preferences, and the quality of life for terminally ill patient and caregiver. The nurse who monitors the patient's status until the time of death will be asked a very brief set of questions about the final care and treatment preferences and quality of life of the patient at the time of death. The follow-up interview for the caregivers will ask about how the patient died, about their regrets about the care the dying patient received, and about their mental and physical health. We anticipate that there may be questions that some subjects find upsetting. Heightened awareness may lead to a resolution of existing problems by informing the subject that a problem exists. Also, for subjects who are found to be clinically depressed, anxious or suicidal, a follow-up psychiatric evaluation will occur by either Drs. Jacobs or Jenkins and referrals made should subjects want a referral.

## **2. Adequacy of Protection Against Risks**

### **2.a. Recruitment and Informed Consent:**

Subjects identified for recruitment will be cancer patients who receive clinical care as either an inpatient or outpatient at one of the participating clinics. Potential subjects will be excluded if they appear too weak to complete the interview, if they are younger than 20, or if either they meet criteria for dementia or delirium. For patients or caregivers who are most fluent in Spanish, interviews and consent forms have been translated into Spanish and will be conducted in Spanish by a highly trained bilingual interviewer.

**Recruitment Procedures.** Cancer patients will be receiving cancer care as either an inpatient or outpatient at one of the participating clinics. Potential study participants will be suggested to research project staff by clinic staff at their scheduled weekly meetings. Although actual eligibility will be determined *following* the patient's and caregiver's consent to let us inquire about their ability to meet study inclusion and exclusion criteria, staff suggestions of potentially eligible subjects will inform us of whom we should approach. Patients who appear too ill or weak to talk with us will not be approached. Specific steps taken in recruitment are outlined below.

### **Procedural Steps:**

**Step #1:** In order to avoid a potential breach of confidentiality by having clinic staff identify eligible participants, we will approach cancer outpatients as they are leaving the clinic, and inpatients in their hospital room, about participation in the study. Potential participants will be approached by someone fluent in their primary language. The script will be as follows: "Hello, my name is \_\_\_\_\_, and I am a Research Associate for a project to study the quality of life and treatment preferences of cancer patients and their caregivers. The study involves one 30-45 minute interview for you [the patient] and two 1¼ - 1½ hour interviews for the primary caregiver, 1 now and 1 about a year from now. Would you be willing to let us tell you more about the study?"

- If yes, would you please tell us your name and telephone number so that we may contact you to discuss the study aims and procedures if you are found to be eligible for the study?
- If no, may we have your name so that we can remove you from the list of people we contact to ensure that you are not approached by us again? Also, if no, would you be willing to answer a brief set of questions (reasons for refusal, amount of emotional and physical distress; age, race and sex)? This information will tell us whether important differences exist between participants and non-participants. (Should they refuse to answer these questions, we will discontinue all further interactions with them).

If you qualify for the study, we would like to contact you within the week to tell you more about the goals of the study and how the study is carried out. If you do not qualify (e.g., you do not have the type or stage of cancer being studied), then we will not contact you again. One of the qualifications for study participation is that you have someone who helps with your care at home. Do you have such a caregiver? If yes, and you qualify and permit us to contact you and your caregiver, we will contact you within the week. If you do not qualify or do not want us to contact you, we will not contact you again about this study.”

**Step #2:** For those who agree to let us contact them and who provide their names, we will then determine whether the potential subject meets eligibility criteria; that is, that the patient: a) has an advanced stage cancer with distant metastases, has had at least one course of chemotherapy and radiation, has a probable life expectancy of 6 months or less (according to the patient’s attending physician); b) has an informal caregiver; c) that s/he and the caregiver do not have obvious cognitive deficits that would make the information they provide unreliable; d) that s/he is age 20 years or older. Those who qualify for the study will be recontacted within the week.

### **Outpatients and Their Caregivers**

**Step #3:** Interviewers will then call eligible patients who permit us to contact them in the following week to describe the study in more detail, answer any questions they might have, and invite their participation. Interviewers then review the Research Authorization Form with them and obtain their verbal consent to use personal health information for the study. Consenting patients will be asked if they would be willing to draw a circle and divide it based on the amount of caregiving provided by informal, unpaid caregivers, indicating whom to designate as the primary caregiver, and to tell us the name of this person. Patients will be told that participation in the study requires that both patients and caregivers participate so those without such a caregiver will not be eligible for the study. Patients will then be asked if we have their permission to contact the named primary caregiver about participation in the study, if the caregiver is not present at that time. Should the caregiver refuse to participate, the patient will be informed of his/her ineligibility for the study. We do not anticipate that study ineligibility will prove very disappointing to patients. At this time, should the caregiver consent we will review the Research Authorization Form with them and get their verbal consent to use health information for the study.

### **Inpatients and Their Caregivers**

**Step #3:** Eligible inpatients who permit a follow-up hospital visit will receive a visit in which details of the study will be provided, questions answered, and consent for participation sought. At this time the interviewer will review the Research Authorization Form with them and get their verbal consent to use personal health information for the study and recruitment procedures will proceed as described above.

**2.b. Protection Against Risk:** The first measures taken to protect patients is the exclusion of patients who would be too weak to participate in the interview and the design of the interviews. The patient interview was designed to be brief and focused and of minimal burden to the patient, and to be as sensitive to the concerns of the caregivers as possible.

Thorough training of project interviewers is also designed to ensure the adequate protection of human subjects. Project interviewers will be required to participate in a training program designed to assure that they administer the interview and evaluate subject responses in a standard and sensitive way. Interviewers will be instructed to begin

each interview with a series of statements that: remind subjects of their right to refuse to answer a question, to stop the interview at any time, to continue at a later date, and to confidentiality (with the exception of the need to alert health care professionals of their status should they be suicidal). Interviewer training will also include a 2-hour session with Selby Jacobs, MD, a leading authority on ways to address the mental health needs of terminally ill patients and their families. Dr. Jacobs will attempt to heighten the interviewers' awareness of the emotional and physical challenges facing both the terminally ill patient and the caregiver, and focus on their need to be sensitive to subject needs during the course of the interview. Dr. Jacobs will role-play a variety of likely scenarios and review with interviewers "best practice" approaches to dealing with each of these situations.

Standard interviewing procedures will be discussed regarding the need to speak clearly and audibly and to let the respondent determine the pace of the interview. A willingness to let the respondent take the time necessary to wipe away tears and, if necessary, to regroup should they become upset, will be encouraged. Should subjects become exceedingly upset, disoriented or fatigued or need to attend to matters of personal care during the interview, interviewers will be instructed to ask the subject if they would like to take a break or reschedule the interview for another time. Subjects who express a desire following the interview to talk at greater length about issues raised during the interview, will be encouraged to call the interviewer at the telephone number provided, and should they want a referral for psychological counseling, the interviewer will provide them with a referral to a mental health professional at a location convenient for them. Project interviewers will be instructed that should a subject ask about the aims and procedures of the study, they are to describe the project as a study to learn more about the mental health and challenges facing cancer patients and their family caregivers, and to gain information about how people and their loved ones adjust to serious illness over time. Interviewers will be made aware, in no uncertain terms, that they are to refrain from conveying *any* expectation that the patient will die during the course of the study.

All subjects who are found to meet DSM-IV criteria for Major Depressive Disorder or an Anxiety Disorder will have their case reviewed by Dr. Selby Jacobs at Yale or Dr. Celia Jenkins at University of Texas Southwestern Medical Center (UTSW). Dr. Jacobs, Professor of Psychiatry, Director of the Connecticut Mental Health Center, is a leading authority in the treatment of psychiatric disorders resulting from an impending or recent loss and Dr. Jenkins is a highly trained and experienced psychiatrist in psycho-oncology. Thus, both Drs. Jacobs and Jenkins are well qualified to evaluate the psychiatric disturbance and make appropriate referrals. They will ensure that referrals to an appropriate clinic or clinician will be made in a timely manner, and one that takes into account the subject's needs and wishes. The cancer patient's physician will not be informed by project staff of the psychiatric status of the patient, so no breach of confidentiality will occur in this regard. The only exception to this would be if the patient or caregiver were found to be at serious risk of self-harm, as indicated by responses to the suicidality questionnaire. In such cases, Dr. Jacobs at Yale, and Dr. Jenkins at UTSW, would be asked to meet with the suicidal subject. For patients, their oncologist would be notified immediately and a treatment plan responsive to the situation would be formulated (e.g., hospitalization requiring continuous monitoring). For caregivers, if they were found to present an immediate risk of suicide, they would be escorted by the interviewer to the YNH or UTSW emergency room for a psychiatric evaluation, and hospitalization, if necessary.

Subjects will be assured that all responses will be kept confidential; that is, neither family members, friends, nor health care professionals will have access to the information they provide. Confidentiality will be assured by the substitution of subject names with identification numbers. In addition, only the PI, the interviewers/RAs, project and data managers and data entry personnel will have access to our records which will be kept in locked filing cabinets. Computer files will only be available to those granted permission to use the approved access code. All necessary precautions will be taken to ensure that there is no breach of confidentiality.

**3. Potential Benefits of the Proposed Research to the Subjects and Others.** While subjects may be somewhat inconvenienced and fatigued by the interviews, the benefits in terms of the subjects' awareness of their mental health and treatment preferences are expected to exceed the burdens. Subjects who meet criteria for a psychiatric disorder will be informed of this, and offered a referral should they want one. Experience conducting similar interviews in the past has demonstrated that while terminally ill patients and their caregivers are often upset, they are also eager to talk about their concerns with an impartial listener who is interviewing them. The vast majority of patients and their family members are eager to talk about their emotional distress and treatment preferences and care received by their

clinicians. Based on interview evaluations by subjects enrolled in similar studies, including the pilot study, participants should find neither the interviews nor the time requirements of the interview to be burdensome. In fact, a large proportion of subjects who have participated in similar studies have commented that they feel that they have benefited from having an impartial person with whom to speak about their health, quality of life and care received. Additionally, subjects will be compensated \$25 per interview for their participation in the study; thus, patients will receive \$25 for their baseline interview and caregivers will receive \$50 for the completion of the baseline and follow-up interviews.

**4. Importance of the Knowledge to Be Gained.** As noted in PA-00-127 little is known about ethnic differences in the quality of life at the end-of-life and ethnic-specific factors that influence patient's quality of death. The proposed study will determine how subjective and objective quality of the death and treatment goal attainment differs based on the patient's ethnic status (i.e., Black, White, or Hispanic identification). Further, modifiable psychosocial factors expected to influence different quality of death outcomes will be examined. The results of this study will provide information necessary for the provision of culturally competent end-of-life care and indicate how psychosocial influences on that care, such as self-efficacy, ways of coping, mistrust and inaccurate life expectancy estimates, influence the type of care patients receive. Consequently, the results will provide information on how to enhance the delivery and receipt of optimal end-of-life care for members of ethnic minorities, as well as ethnic majority, patient populations. The minor risks involved may also be considered to be counterbalanced by the information gained to improve the patient's and caregiver's quality of life at the patient's end-of-life.

**Collaborating Site(s).** Approval of the proposed research involving humans subjects has been granted by Yale University School of Medicine and collaborating sites at the Veterans Affairs Connecticut Healthcare System, Comprehensive Cancer Clinic (VACHSCCC) and at the Memorial Sloan-Kettering Cancer Clinics (MSKCC). The VACHSCCC Multiple Projects Assurance Number is 02-03-1119. MSKCC Assurance of Compliance number is: 1210. University of Texas Southwestern Medical Center Human Subjects Assurance Number is: M1304-01. Dr. Paulk has received approval from the IRB at UTSW to conduct the proposed study at the Parkland Palliative Care Service and at Simmons Comprehensive Cancer Clinic. Dr. Prigerson has obtained in writing, and kept on file, an assurance from each site that the four previous points have been addressed adequately. All project investigators and collaborators have completed approved training courses in the conduct of research involving human subjects, HIPAA training and completed conflict of interest forms.

**Inclusion of Women.** As noted in the Research Plan, we expect that 60% of the patients will be male and that 60% of the caregivers will be female, thereby, enabling sub-analyses in which we stratify by gender. Thus, of the 800 patients we expect 480 will be male, and 320 will be female; of the 800 primary caregivers we expect 480 will be female and 320 will be male. The dates of enrollment for MH63892, which includes the Yale Cancer Center, the VA CT Healthcare System Comprehensive Cancer Centers, and Memorial Sloan-Kettering Cancer Clinics commenced 09/01/02 and will continue through 08/31/06. The proposed recruitment of subjects from the University of Texas Southwestern Medical Center sites will commence 04/01/04 and last through 03/31/08.

**Inclusion of Minorities.** The total sample will include **800** terminally ill **patients** and **800** of their primary informal **caregivers**. Of these patients we expect **300** (37.5%) will be **Black**, **400** (50%) will be **White**, and **100** (12.4%) will be **Hispanic**. For simplicity, we will breakdown recruitment for the 800 patients only, with caregiver estimates assumed to be matched accordingly. We propose to recruit 300 patients as part of MH63892. Based on cancer center annual reports for the YCC, VACTCCC, and MSKCC, and our initial data from MH63892, we expect 13% (N=40) of these patients will be Black, and 9% (N=27) will be Hispanic. These figures will be supplemented by the Texas sites. Based on the 2002 patient census (N=446) at Parkland Hospital's Palliative Care Service, 42.5% (N=190) of patients are Black, 30.0% (N=134) are White, 23.2% (N=103) are Hispanic, and 4.3% (N=19) are "Other." Of the 250 advanced cancer patients seen annually at Simmons, their annual report reveals that 10% will be Black (N=25) and 5% will be Hispanic (N=12). Thus, 215 (190+25) Black patients and 115 (103+12) Hispanic patients per year will be the available pool of patients from the Texas sites. Of these patients, 85% are expected to have an available adult caregiver required to be eligible for the study, 15% are expected to be excluded due to delirium or extreme frailty, and a conservative 60% of the dyads will agree to participate in the study (both patient and caregiver must agree, thus the expected participation

rate is modest), leaving 93 (~8/mo) Black patients and 50 (~4/mo) Hispanic patients likely to be recruited from the Texas sites annually. After 33 months of recruitment, we will have 264 Blacks from Texas and 40 Blacks from MH63892, yielding 304 Black patients. After 33 months of recruitment, 132 Hispanics from Texas and 27 from MH63892, yielding 159 Hispanic patients. Given the greater difficulty anticipated in recruiting Hispanic patients, emigration back to the homeland that often occurs when health crises occur, and cultural biases that heighten family protectiveness toward the patient, and reluctance to have patients questioned about their illness and treatment preferences, we conservatively propose to be able to recruit 100 Hispanic patients and 100 of their caregivers. The power calculations were based on this lower-bound estimate.

**Inclusion of Children.** Children up to age 20 will be excluded because individuals under age 20 rarely assume primary caregiving responsibilities, advanced cancer is relatively rare among people this age, and the instruments used have not been designed for children whose end-of-life and caregiving issues may differ in important ways from those of adults age 20 years and over.

**F. Vertebrate Animals. None**

**G. Literature Cited.**

- (1) Payne R. Palliative care for African-Americans and other vulnerable populations: access and quality issues. In: Foley K M, Gleband H, eds. *Improving Palliative Care for Cancer*. Washington, D.C.: National Academies Press; 2001: 153-60.
- (2) <http://www.iipca.org/> . 2003.
- (3) <http://grants1.nih.gov/grants/guide/pa-files/PA-00-127.html> . 2003.
- (4) Ersek M, Kagawa-Singer M, Barnes D, Blackhall L., Koenig BA. Multicultural considerations in the use of advance directives. *Oncology Nurs Forum*. 1998;25:1683-90.
- (5) <http://www.apa.org/pi/eol/factsheet1.pdf> . 2003.
- (6) Littlefield A, Lieberman L, Reynolds L. Redefining race: the potential demise of a concept in physical anthropology. *Current Anthropology*. 1982;23:641-55.
- (7) La Veist TA. Why we should continue to study race...but do a better job: an essay on race, racism, and health. *Ethn Disease*. 1996;6:21-29.
- (8) Anand SS. Using ethnicity as a classification variable in health research: perpetuating the myth of biological determinism, serving socio-political agendas, or making valuable contribution to medical sciences? *Ethn Health*. 1999;4:241-44.
- (9) <http://www.census.gov/population/www/projections/popproj.html> . 2003.
- (10) <http://grants1.nih.gov/grants/guide/pa-files/PA-00-127.html> . 2003.
- (11) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, Board on Health Sciences Policy, and Institute of Medicine. *Unequal treatment: confronting racial and ethnic disparities in health care*. Smedly BD, Stith AY, and Nelson AR. 2003. Washington DC, The National Academies Press.
- (12) Borum ML, Lynn J, Zhong Z. The effects of patient race on outcomes in seriously ill patients in SUPPORT: an overview of economic impact, medical intervention, and end-of-life decisions. *Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments*. *J Am Geriatr Soc*. 2000;48:S194-S198.
- (13) Bernabei R, Gambassi G, Lapane K, Landi F, Gatsonis C, Dunlop R et al. Management of pain in elderly patients with cancer. SAGE Study Group. *Systematic Assessment of Geriatric Drug Use via Epidemiology*. *JAMA*. 1998;279:1877-82.
- (14) Cleeland CS, Gonin R, Baez L, Loehrer P, Pandya KJ. Pain and treatment of pain in minority patients with cancer. The Eastern Cooperative Oncology Group Minority Outpatient Pain Study. *Ann Intern Med*. 1997;127:813-16.
- (15) Engle VF, Fox-Hill E, Graney MJ. The experience of living-dying in a nursing home: self-reports of black and white older adults. *J Am Geriatr Soc*. 1998;46:1091-96.
- (16) Todd KH, Samaroo N, Hoffman JR. Ethnicity as a risk factor for inadequate emergency department analgesia. *JAMA*. 1993;269:1537-39.

- (17) Morrison RS, Wallenstein S, Natale DK, Senzel RS, Huang LL. "We don't carry that"--failure of pharmacies in predominantly nonwhite neighborhoods to stock opioid analgesics. *N Engl J Med*. 2000;342:1023-26.
- (18) McMahon LF, Jr., Wolfe RA, Huang S, Tedeschi P, Manning W, Jr., Edlund MJ. Racial and gender variation in use of diagnostic colonic procedures in the Michigan Medicare population. *Med Care*. 1999;37:712-17.
- (19) Imperato PJ, Nenner RP, Will TO. Radical prostatectomy: lower rates among African-American men. *J Natl Med Assoc*. 1996;88:589-94.
- (20) In: Foley K.M., Gleband H., eds. *Improving Palliative Care for Cancer*. Washington, D.C.: National Academy Press; 2001: 26.
- (21) Greenlee RT, Hill-Harmon MB, Murray T, Thun M. Cancer statistics, 2001. *CA Cancer J Clin*. 2001;51:15-36.
- (22) Christakis NA, Escarce JJ. Survival of Medicare patients after enrollment in hospice programs. *N Engl J Med*. 1996;335:172-78.
- (23) Medicare Payment Advisory Commission. Medicare beneficiaries costs and use of care in the last year of life, final report. 5-1-2000.
- (24) Gessert CE, Curry NM, Robinson A. Ethnicity and end-of-life care: the use of feeding tubes. *Ethn Dis*. 2001;11:97-106.
- (25) Hogan C, Lunney J, Gabel J, Lynn J. Medicare beneficiaries' costs of care in the last year of life. *Health Aff (Millwood)*. 2001;20:188-95.
- (26) Cassel, C. K. and Foley K.M. Principles of care of patients at the end-of-life: an emerging consensus among the specialties of medicine. 1999. Millbank Memorial Fund.
- (27) Lo B, Quill T, Tulsky J. Discussing palliative care with patients. ACP-ASIM End-of-Life Care Consensus Panel. American College of Physicians-American Society of Internal Medicine. *Ann Intern Med*. 1999;130:744-49.
- (28) Crawley LM, Marshall PA, Lo B, Koenig BA. Strategies for culturally effective end-of-life care. *Ann Intern Med*. 2002;136:673-79.
- (29) Kressin NR, Petersen LA. Racial differences in the use of invasive cardiovascular procedures: review of the literature and prescription for future research. *Ann Intern Med*. 2001;135:352-66.
- (30) Geiger H.J. Racial and ethnic disparities in diagnosis and treatment: a review of the evidence and a consideration of causes. In: Smedly B.D., Stith A.Y., Nelson A.R., eds. *Unequal treatment: confronting racial and ethnic disparities in health care*. Washington, D.C.: The National Academies Press; 2003: 417-54.
- (31) Loury G. *The anatomy of racial inequality*. Cambridge, MA: Harvard University Press; 2002.
- (32) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, Board on Health Sciences Policy, Institute of Medicine. *The healthcare environment and its relation to disparities*. In: Smedly B.D., Stith A.Y., Nelson A.R., eds. *Unequal treatment: confronting racial and ethnic disparities in health care*. Washington, D.C.: The National Academies Press; 2003: 80.

- (33) Hoffman C, Pohl M. Health insurance coverage in America: 1999 data updated. The Kaiser Commission on Medicaid and the Uninsured. Washington, D.C.: 2000.
- (34) Schachter S. Quality of life for families in the management of home care patients with advanced cancer. *J Palliat Care*. 1992;8:61-66.
- (35) Nijboer C, Tempelaar R, Sanderman R, Triemstra M, Spruijt RJ, van den Bos GA. Cancer and caregiving: the impact on the caregiver's health. *Psychooncology*. 1998;7:3-13.
- (36) Crawley L, Payne R, Bolden J, Payne T, Washington P, Williams S. Palliative and end-of-life care in the African American community. *JAMA*. 2000;284:2518-21.
- (37) Dunlop DD, Manheim LM, Song J, Chang RW. Gender and ethnic/racial disparities in health care utilization among older adults. *J Gerontol B Psychol Sci Soc Sci*. 2002;57:S221-S233.
- (38) Burrs FA. The African American experience: breaking the barriers to hospices. *Hosp J*. 1995;10:15-18.
- (39) Gordon AK. Hospice and minorities: a national study of organizational access and practice. *Hosp J*. 1996;11:49-70.
- (40) Culica D, Rohrer J, Ward M, Hilsenrath P, Pomrehn P. Medical checkups: who does not get them? *Am J Public Health*. 2002;92:88-91.
- (41) Rohland BM, Rohrer JE, Culica D. Substitution of psychiatric care by primary care physicians: impact of the Iowa Medicaid managed mental health care plan. *Adm Policy Ment Health*. 1999;26:369-71.
- (42) Rohrer JE, Culica DV. Identifying high-users of medical care in a farming-dependent county. *Health Care Manage Rev*. 1999;24:28-34.
- (43) Blackhall LJ, Frank G, Murphy ST, Michel V, Palmer JM, Azen SP. Ethnicity and attitudes towards life sustaining technology. *Soc Sci Med*. 1999;48:1779-89.
- (44) Kagawa-Singer M. Diverse cultural beliefs and practices about death and dying in the elderly. In: Wieland D., ed. *Cultural diversity and geriatric care*. New York: Hayworth Press; 1994: 110-116.
- (45) Krakauer EL, Crenner C, Fox K. Barriers to optimum end-of-life care for minority patients. *J Am Geriatr Soc*. 2002;50:182-90.
- (46) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, Board on Health Sciences Policy, Institute of Medicine. *The healthcare environment and its relation to disparities*. In: Smedly B.D., Stith A.Y., Nelson A.R., eds. *Unequal treatment: confronting racial and ethnic disparities in health care*. Washington, D.C.: The National Academies Press; 2003: 88.
- (47) Weitzner MA, McMillan SC, Jacobsen PB. Family caregiver quality of life: differences between curative and palliative cancer treatment settings. *J Pain Symptom Manage*. 1999;17(6):418-28.
- (48) Cuellar I, Harris LC, Jasso R. Acculturation rating scale for Mexican American normal and clinical populations. *Hispanic Journal of Behavioral Sciences*. 1980;2:199-217.
- (49) Ford ME, Hill DD, Nerenz D, et al. Categorizing race and ethnicity in the HMO Cancer Research Network. *Ethn Dis*. 2002;2(1):35-40.
- (50) House JS. Understanding social factors and inequalities in health: 20th century progress and 21st century prospects. *J Health Soc Behav*. 2002;43:125-42.

- (51) Lepore SJ, Allen KA, Evans GW. Social support lowers cardiovascular reactivity to an acute stressor. *Psychosom Med.* 1993;55(6):518-24.
- (52) Kasl SV. Stress and health. *Annu Rev Public Health.* 1984;5:319-41.
- (53) Kasl SV. Social and psychologic factors in the etiology of coronary heart disease in black populations: an exploration of research needs. *Am Heart J.* 1984;108:660-669.
- (54) Oxman TE, Berkman LF, Kasl S, Freeman DH, Jr., Barrett J. Social support and depressive symptoms in the elderly. *Am J Epidemiol.* 1992;135:356-68.
- (55) Krumholz HM, Butler J, Miller J, Vaccarino V, Williams CS, Mendes de Leon CF et al. Prognostic importance of emotional support for elderly patients hospitalized with heart failure. *Circulation.* 1998;97:958-64.
- (56) Wilcox VL, Kasl SV, Berkman LF. Social support and physical disability in older people after hospitalization: a prospective study. *Health Psychol.* 1994;13:170-179.
- (57) Northouse LL, Mood D, Kershaw T, Schafenacker A, Mellon S, Walker J et al. Quality of life of women with recurrent breast cancer and their family members. *J Clin Oncol.* 2002;20:4050-4064.
- (58) Beery LC, Prigerson HG, Bierhals AJ, Santucci L.M., Newson JT, Maciejewski P.K. et al. Traumatic grief, depression and caregiving in elderly spouses of the terminally ill. *Omega:J Death Dying.* 1997;35:261-79.
- (59) Tower RB, Kasl SV. Depressive symptoms across older spouses and the moderating effect of marital closeness. *Psychol Aging.* 1995;10:625-38.
- (60) Tower RB, Kasl SV. Gender, marital closeness, and depressive symptoms in elderly couples. *J Gerontol B Psychol Sci Soc Sci.* 1996;51:115-29.
- (61) Chen J, Paulk E, Prigerson H. Black and White differences in risk for suicidality. *Am J Psychiatry.* [In review].
- (62) Cagney KA, Agree EM. Racial differences in skilled nursing care and home health use: the mediating effects of family structure and social class. *J Gerontol B Psychol Sci Soc Sci.* 1999;54:S223-S236.
- (63) Foley KL, Tung HJ, Mutran EJ. Self-gain and self-loss among African American and white caregivers. *J Gerontol B Psychol Sci Soc Sci.* 2002;57:S14-S22.
- (64) Heckman TG, Kochman A, Sikkema KJ, Kalichman SC, Masten J, Goodkin K. Late middle-aged and older men living with HIV/AIDS: race differences in coping, social support, and psychological distress. *J Natl Med Assoc.* 2000;92:436-44.
- (65) Ford ME, Tilley BC, McDonald PE. Social support among African-American adults with diabetes, Part 2: A review. *J Natl Med Assoc.* 1998;90(7):425-32.
- (66) Shapiro ER. Grief in family and cultural context: learning from Latino families. *Cult Divers Ment Health.* 1995;1:159-76.
- (67) Covinsky KE, Eng C, Lui LY, Sands LP, Sehgal AR, Walter LC et al. Reduced employment in caregivers of frail elders: impact of ethnicity, patient clinical characteristics, and caregiver characteristics. *J Gerontol A Biol Sci Med Sci.* 2001;56:M707-M713.
- (68) McCullough ME, Hoyt WT, Larson DB, Koenig HG, Thoresen C. Religious involvement and mortality: a meta-analytic review. *Health Psychol.* 2000;19:211-22.

- (69) Pargament KI. The psychology of religion and coping. New York: Guilford Press; 1997.
- (70) Wright S.D., Pratt C.C., Schmall VL. Spiritual support for caregivers of dementia patients. *J Religion Health*. 1984;24:31-37.
- (71) Patel SS, Shah VS, Peterson RA, Kimmel PL. Psychosocial variables, quality of life, and religious beliefs in ESRD patients treated with hemodialysis. *Am J Kidney Dis*. 2002;40:1013-22.
- (72) Blank K, Robison J, Doherty E, Prigerson H, Duffy J, Schwartz HI. Life-sustaining treatment and assisted death choices in depressed older patients. *J Am Geriatr Soc*. 2001;49:153-61.
- (73) Pearce MJ, Chen J, Silverman GK, Kasl SV, Rosenheck R, Prigerson H. Religious coping, health, and health service use among bereaved adults. *Int J Psychiatry Medicine*. 2002;32:179-99.
- (74) Heeren O, Menon AS, Raskin A, Ruskin P. Religion and end of life treatment preferences among geriatric patients. *Int J Geriatr Psychiatry*. 2001;16:203-8.
- (75) Moadel A, Morgan C, Fatone A, Grennan J, Carter J, Laruffa G et al. Seeking meaning and hope: self-reported spiritual and existential needs among an ethnically-diverse cancer patient population. *Psychooncology*. 1999;8:378-85.
- (76) Musick MA, Koenig HG, Hays JC, Cohen HJ. Religious activity and depression among community-dwelling elderly persons with cancer: the moderating effect of race. *J Gerontol B Psychol Sci Soc Sci*. 1998;53:S218-S227.
- (77) Krause N. Church-based social support and health in old age: exploring variations by race. *J Gerontol B Psychol Sci Soc Sci*. 2002;57:S332-S347.
- (78) Koopman C, Butler LD, Classen C, Giese-Davis J, Morrow GR, Westendorf J et al. Traumatic stress symptoms among women with recently diagnosed primary breast cancer. *J Trauma Stress*. 2002;15:277-87.
- (79) Blacksher E. On being poor and feeling poor: low socioeconomic status and the moral self. *Journal of Theoretical Medicine and Bioethics*. 2002;23:455-70.
- (80) Maher EJ, Kroska A. Social status determinants of control in individuals' accounts of their mental illness. *Soc Sci Med*. 2002;55:949-61.
- (81) Oltjenbruns KA. Ethnicity and the grief response: Mexican American versus Anglo American college students. *Death Stud*. 1998;22:141-55.
- (82) Nelson DV, Friedman LC, Baer PE, Lane M, Smith FE. Attitudes of cancer: psychometric properties of fighting spirit and denial. *J Behav Med*. 1989;12:341-55.
- (83) Felton BJ, Revenson TA. Coping with chronic illness: a study of illness controllability and the influence of coping strategies on psychological adjustment. *J Consult Clin Psychol*. 1984;52:343-53.
- (84) Derogatis LR, Abeloff MD, Melisaratos N. Psychological coping mechanisms and survival time in metastatic breast cancer. *JAMA*. 1979;242:1504-8.
- (85) Watson M, Greer S, Rowden L, Gorman C, Robertson B, Bliss JM et al. Relationships between emotional control, adjustment to cancer and depression and anxiety in breast cancer patients. *Psychol Med*. 1991;21:51-57.
- (86) Bloom JR, Spiegel D. The relationship of two dimensions of social support to the psychological well-being and social functioning of women with advanced breast cancer. *Soc Sci Med*. 1984;19:831-37.

- (87) Carver CS, Pozo C, Harris SD, Noriega V, Scheier MF, Robinson DS et al. How coping mediates the effect of optimism on distress: a study of women with early stage breast cancer. *J Pers Soc Psychol.* 1993;65:375-90.
- (88) Jacobsen PB, Sadler IJ, Booth-Jones M, Soety E, Weitzner MA, Fields KK. Predictors of posttraumatic stress disorder symptomatology following bone marrow transplantation for cancer. *J Consult Clin Psychol.* 2002;70(1):235-40.
- (89) Watson M, Greer S, Blake S, Shrapnell K. Reaction to a diagnosis of breast cancer. Relationship between denial, delay and rates of psychological morbidity. *Cancer.* 1984;53:2008-12.
- (90) Meyerowitz BE. Postmastectomy coping strategies and quality of life. *Health Psychol.* 1983;2:117-32.
- (91) Reynolds P, Hurley S, Torres M, Jackson J, Boyd P, Chen VW. Use of coping strategies and breast cancer survival: results from the Black/White Cancer Survival Study. *Am J Epidemiol.* 2000;152:940-949.
- (92) Caralis PV, Davis B, Wright K, Marcial E. The influence of ethnicity and race on attitudes toward advance directives, life-prolonging treatments, and euthanasia. *J Clin Ethics.* 1993;4:155-65.
- (93) Fried TR, Bradley EH, Towle VR. Assessment of patient preferences: integrating treatments and outcomes. *J Gerontol B Psychol Sci Soc Sci.* 2002;57:S348-S354.
- (94) Murphy ST, Palmer JM, Azen S, Frank G, Michel V, Blackhall LJ. Ethnicity and advance care directives. *J Law Med Ethics.* 1996;24:108-17.
- (95) <http://www.mskcc.org/mskcc/print/6229.cfm> . 2003.
- (96) Ayanian JZ, Cleary PD, Weissman JS, Epstein AM. The effect of patients' preferences on racial differences in access to renal transplantation. *N Engl J Med.* 1999;341:1661-69.
- (97) Corbie-Smith G, Thomas SB, St George DM. Distrust, race, and research. *Archives of Internal Medicine.* 2002;162:2458-63.
- (98) Ross CE, Mirowsky J, Duff RS. Physician status characteristics and client satisfaction in two types of medical practice. *J Health Soc Behav.* 1982;23:317-29.
- (99) Hooper EM, Comstock LM, Goodwin JM, Goodwin JS. Patient characteristics that influence physician behavior. *Med Care.* 1982;20:630-638.
- (100) Krupat E, Irish JT, Kasten LE, Freund KM, Burns RB, Moskowitz MA et al. Patient assertiveness and physician decision-making among older breast cancer patients. *Soc Sci Med.* 1999;49:449-57.
- (101) Kayser-Jones J. The experience of dying: an ethnographic nursing home study. *Gerontologist.* 2002;42 Spec No 3:11-19.
- (102) Prigerson HG. Socialization to dying: social determinants of death acknowledgement and treatment among terminally ill geriatric patients. *J Health Soc Behav.* 1992;33:378-95.
- (103) Prigerson HG. Determinants of hospice utilization among terminally ill geriatric patients. *Home Health Care Serv Q.* 1991;12:81-112.
- (104) Mirowsky J. Subjective life expectancy in the US: correspondence to actuarial estimates by age, sex and race. *Soc Sci Med.* 1999;49:967-79.

- (105) Christakis NA, Lamont EB. Extent and determinants of error in doctors' prognoses in terminally ill patients: prospective cohort study. *Br Med J*. 2000;320:469-72.
- (106) Committee on Care at the End of Life, Division of Health Care Services Institute of Medicine. *Approaching death: improving care at the end of life*. Field, M. J. and Cassel, C. K. 1997. Washington, D.C., National Academy Press.
- (107) Blank K, Robison J, Prigerson H, Schwartz HI. Instability of attitudes about euthanasia and physician assisted suicide in depressed older hospitalized patients. *Gen Hosp Psychiatry*. 2001;23:326-32.
- (108) <http://www.himh.nih.gov/strategic/mooddisorders.pdf> . 2003.
- (109) Lasser KE, Himmelstein DU, Woolhandler SJ, McCormick D, Bor DH. Do minorities in the United States receive fewer mental health services than whites? *Int J Health Serv*. 2002;32:567-78.
- (110) <http://www.mentalhealth.org/cre/execsummary.asp>
- (111) Prigerson HG, Reynolds CF, III, Frank E, Kupfer DJ, George CJ, Houck PR. Stressful life events, social rhythms, and depressive symptoms among the elderly: an examination of hypothesized causal linkages. *Psychiatry Res*. 1994;51:33-49.
- (112) Prigerson HG, Cherlin E, Chen J.H. KSV, Hurzeler R, Bradley E.H. Stressful Caregiving Adult Reactions to Experiences of Dying (SCARED) scale. *American Journal of Geriatric Psychiatry*. 2003; 11: 309-319.
- (113) Prigerson HG, Jacobs SC. Perspectives on care at the close of life. *Caring for bereaved patients: "all the doctors just suddenly go"*. *JAMA*. 2001;286:1369-76.
- (114) Prigerson HG, Frank E, Kasl SV, Reynolds CF, III, Anderson B, Zubenko GS et al. Complicated grief and bereavement-related depression as distinct disorders: preliminary empirical validation in elderly bereaved spouses. *Am J Psychiatry*. 1995;152:22-30.
- (115) Prigerson HG, Shear MK, Jacobs SC, Reynolds CF, III, Maciejewski PK, Davidson JR et al. Consensus criteria for traumatic grief. A preliminary empirical test. *Br J Psychiatry*. 1999;174:67-73.
- (116) Prigerson HG, Maciejewski PK, Reynolds CF, III, Bierhals AJ, Newsom JT, Fasiczka A et al. Inventory of Complicated Grief: a scale to measure maladaptive symptoms of loss. *Psychiatry Res*. 1995;59:65-79.
- (117) Barry LC, Kasl SV, Prigerson HG. Psychiatric disorders among bereaved persons: the role of perceived circumstances of death and preparedness for death. *Am J Geriatr Psychiatry*. 2002;10:447-57.
- (118) Prigerson HG, Maciejewski PK, Rosenheck RA. Preliminary explorations of the harmful interactive effects of widowhood and marital harmony on health, health service use, and health care costs. *Gerontologist*. 2000;40:349-57.
- (119) Prigerson HG, Bridge J, Maciejewski PK, Beery LC, Rosenheck RA, Jacobs SC et al. Influence of traumatic grief on suicidal ideation among young adults. *Am J Psychiatry*. 1999;156:1994-95.
- (120) Prigerson HG, Bierhals AJ, Kasl SV, Reynolds CF, III, Shear MK, Day N et al. Traumatic grief as a risk factor for mental and physical morbidity. *Am J Psychiatry*. 1997;154:616-23.
- (121) Prigerson HG, Silverman GK, Jacobs SC, Maciejewski P.K., Kasl SV, Rosenheck RA. Disability, traumatic grief, and the underutilization of health services. *Primary Psychiatry*. 2001;8:61-69.
- (122) Prigerson HG, Maciejewski PK, Rosenheck RA. The effects of marital dissolution and marital quality on health and health service use among women. *Med Care*. 1999;37:858-73.

- (123) Diaz E, Prigerson H, Desai R, Rosenheck R. Perceived needs and service use of Spanish speaking monolingual patients followed at a Hispanic clinic. *Community Ment Health J.* 2001;37:335-46.
- (124) Young JL, Griffith EE, Williams DR. The integral role of pastoral counseling by african-american clergy in community mental health. *Psychiatr Serv.* 2003;54:688-92.
- (125) Williams DR, Griffith EEH, Young JL, Collins C, Dodson J. Structure and provision of services in Black churches in New Haven, Connecticut. *Cultural Diversity & Ethnic Minority Psychology.* 1999;5:118-33.
- (126) Griffith EEH. Black perspectives. In: Mezzich JE, Kleinman A, eds. *Culture and psychiatric diagnosis: a DSM-IV perspective.* Washington, D.C.: American Psychiatric Press, Inc.; 1996: 27-29.
- (127) Griffith EEH, Gonzalez CA. Essentials of cultural psychiatry. In: Hales RE, Yudofsky SC, eds. *The American Psychiatric Press synopsis of psychiatry.* Washington, D.C.: American Psychiatric Press, Inc.; 1996: 1283-306.
- (128) Fried TR, Bradley EH, Towle VR, Allore H. Understanding the treatment preferences of seriously ill patients. *N Engl J Med.* 2002;346:1061-66.
- (129) Hays JC, Kasl SV, Jacobs SC. The course of psychological distress following threatened and actual conjugal bereavement. *Psychol Med.* 1994;24:917-27.
- (130) Mendes de Leon CF, Kasl SV, Jacobs S. A prospective study of widowhood and changes in symptoms of depression in a community sample of the elderly. *Psychol Med.* 1994;24:613-24.
- (131) Jacobs S, Kasl S, Schaefer C, Ostfeld A. Conscious and unconscious coping with loss. *Psychosom Med.* 1994;56:557-63.
- (132) Kennedy BS, Kasl SV, Brass LM, Vaccarino V. Trends in hospitalized stroke for blacks and whites in the United States, 1980-1999. *Neuroepidemiology.* 2002;21:131-41.
- (133) Vaccarino V, Gahbauer E, Kasl SV, Charpentier PA, Acampora D, Krumholz HM. Differences between African Americans and whites in the outcome of heart failure: Evidence for a greater functional decline in African Americans. *Am Heart J.* 2002;143:1058-67.
- (134) Jones BA, Culler CS, Kasl SV, Calvocoressi L. Is variation in quality of mammographic services race linked? *J Health Care Poor Underserved.* 2001;12:113-26.
- (135) Jones BA, Kasl SV, Curnen MG, Owens PH, Dubrow R. Can mammography screening explain the race difference in stage at diagnosis of breast cancer? *Cancer.* 1995;75:2103-13.
- (136) Bradley EH, Fried TR, Kasl SV, Cicchetti DV, Johnson-Hurzeler R, Horowitz SM. Referral of terminally ill patients for hospice: frequency and correlates. *J Palliat Care.* 2000;16:20-26.
- (137) Bradley EH, Cramer LD, Bogardus ST, Jr., Kasl SV, Johnson-Hurzeler R, Horwitz SM. Physicians' ratings of their knowledge, attitudes, and end-of-life-care practices. *Acad Med.* 2002;77:305-11.
- (138) Bradley EH, Hallemeier AG, Fried TR, Johnson-Hurzeler R, Cherlin EJ, Kasl SV et al. Documentation of discussions about prognosis with terminally ill patients. *Am J Med.* 2001;111:218-23.
- (139) Bradley EH, Cherlin E, McCorkle R, Fried TR, Kasl SV, Cicchetti DV et al. Nurses' use of palliative care practices in the acute care setting. *J Prof Nurs.* 2001;17:14-22.
- (140) Jacobs SC, Kasl SV, Ostfeld AM, Berkman L, Kosten TR, Charpentier P. The measurement of grief: bereaved versus non-bereaved. *Hosp J.* 1986;2:21-36.

- (141) Jacobs S, Kasl S, Ostfeld A, Berkman L, Charpentier P. The measurement of grief: age and sex variation. *Br J Med Psychol.* 1986;59 (Pt 4):305-10.
- (142) Jacobs s, Prigerson H. Psychotherapy of traumatic grief: A review of evidence for psychotherapeutic treatments. *Death Studies.* 2000;24: 479-495.
- (143) Prigerson HG, Bridge J, Maciejewski PK, Beery LC, Rosenheck RA, Jacobs SC, Bierhals AJ, Kupfer DJ, Brent DA. Influence of Traumatic Grief on suicidal ideation among young adults. *Am J of Psychiatry* 1999;156:1994-1995.
- (144) Silverman GK, Jacobs SC, Kasl SV, Shear MK, Maciejewski PK, Noaghiul FS, Prigerson HG. Quality of life impairments associated with diagnostic criteria for traumatic grief. *Psychological Medicine.* 2000;30: 857-862.
- (145) Chen JH, Bierhals AJ, Prigerson HG, Kasl SV, Mazure CM, Jacobs S. Gender differences in the effects of bereavement-related psychological distress in health outcomes. *Psychol Med.* 1999;29:367-80.
- (146) Ries LAG, Kosary CL, Hankey BF, Miller BA, Hurray A, Edwards BK (eds). *SEER Cancer Statistics Review, 1973-1994*, National Cancer Institute. NIH Pub. No. 97-2789. Bethesda, MD, 1997.
- (147) Pfeiffer E. A Short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. *J Am Ger Soc.* 1975;10:433-440.
- (148) First M, Spitzer RL, Gibbon M, Williams JBW. *Structured Clinical Interview for the DSM-IV Axis I Disorders – Patient Edition (SCID-I/P, Version 2.0)*. Biometrics Research Department, New York State Psychiatric Institute, 1995.
- (149) Cohen SR, Mount BM, Provost M, Rowe J, Tong K. Validity of the McGill Quality of Life Questionnaire in the palliative care setting: a multi-center Canadian study demonstrating the importance of the existential domain. *Palliative Medicine.* 1997;11:3-20.
- (150) Steinhauer KE, Clipp E, McNeilly M, Christakis NA, McIntyre L, Tulsy JA. In search of a good death: observations of patients, families and providers. *Ann of Int Medicine.* 2000;132: 825-832.
- (151) Smith R. A good death. An important aim for health services and for us all. *Br Med J.* 2000;320:129-30.
- (152) Emanuel LL, Alpert HR, Emanuel EE. Concise screening questions for clinical assessments of terminal care: the needs near the end-of-life care screening tool. *J Palliat Med.* 2001;4:465-74.
- (153) Teno JM, Claridge B, Casey V, Edgman-Levitan S, Fowler J.: Validation of Toolkit After-Death Bereaved Family Member Interview. *J Pain Symptom Manage* 2001;22:752-8.  
<http://www.chcr.brown.edu/pcoc/NEWVALIDATEDINSTRUM.HTM>
- (154) Malgady RG, Rogler LH., Costantino G. Hero/heroine modeling for Puerto Rican adolescents: A preventive mental health intervention. *J Consult Clin Psychology.* 1990: 58: 469-474.
- (155) Negy C, Woods DJ. Mexican-Americans' performance on the Psychological Screening Inventory as a function of acculturation level. *J Clin Psychology,* 1992; 48: 315-319.
- (156) Zambrana RE, Scrimshaw SCM, Collins N, Dunkel-Schetter C. Prenatal health behaviors and psychosocial risk factors in pregnant women of Mexican origin: The role of acculturation. *Am Public Health.* 1997; 87:1022-1026.
- (157) Cuellar I, Arnold B, Maldonado R. Acculturation Rating Scale for Mexican Americans-II: A revision of the original ARSMA Scale. *Hispanic Journal of Behavioral Sciences.* 1995;17:275-304.

- (158) Cohen S, Mermelstein R, Kamark T, Hoberman HM. Measuring the functional components of social support. In IG Sarason & B. Sarason (eds.), *Social Support: Theory, research and applications*. (pp. 73-94). 1985, The Hague, Netherlands: Martinus Nijhoff.
- (159) Prigerson HG, Frank E, Reynolds CF, George C, Kupfer DJ. Protective psychosocial factors in depression among spousally bereaved elders. *Am J Geriatric Psychiatry*. 1993;1:296-309.
- (160) Dohrenwend BP, Raphael KG, Schwartz S, Stueve A, Skodol A: The structured event probe and narrative rating method for measuring stressful life events, in *Handbook of Stress: Theoretical and Clinical Aspects*, 2nd ed. Edited by Goldberg L, Breznitz S. New York, Free Press, 1993:174–199.
- (161) Covinsky KI, Goldman L, Cook EF, Oye R, Desbiens N, Reding D, Fulkerson W, Connors AF, Lynn J, Phillips RS. The impact of serious illness on patients' families. SUPPORT Investigators. Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment. *JAMA*. 1994;271:1839-44.
- (162) Moos RH, Moos BS. *Family Environment Scale Manual*. Consulting Psychologists Press, California.
- (163) Moos RH. Conceptual and empirical approaches to developing family-based assessment procedures: resolving the case for the Family Environment Scale. *Fam Process* 1990;29:199-208.
- (164) Holahan CJ, Moos RH. Family Relationships Index. In Grotevant HD, and Carlson CI. (Eds.). *Family assessment: A guide to methods and measures*. New York: Guilford Press, 1989.
- (165) Kissane DW, Bloch S, McKenzie M, McDowall AC, Nitzan R. Family grief therapy: a preliminary account of a new model to promote healthy family functioning during palliative care and bereavement. *Psycho-Oncology*. 1998;7:14-25.
- (166) Carey PJ, Oberst MT, McCubbin MA, Hughes SH. Appraisal and caregiving burden in family members caring for patients receiving chemotherapy. *Oncology Nursing Forum*. 1991;18:1341-1348.
- (167) Koenig H, Meador KG, Parkerson G. Religion index for psychiatric research. *American J Psychiatry*. 1997; 154:885-886.
- (168) Koenig HG, Pargament KI, Nielsen J. Religious coping and health status in medically ill hospitalized older adults. *J Nerv Ment Dis*. 1998;186:513-521.
- (169) NIA/Fetzer Multidimensional Measure of Religiousness/Spirituality for Use in Health Research: A Report of the Fetzer/National Institute on Aging Working Group, 1999  
[http://www.fetzer.org/Resources/TITLE\\_TOC.pdf](http://www.fetzer.org/Resources/TITLE_TOC.pdf)
- (170) Schwarzer R, Jerusalem M. Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON, 1995.
- (171) Scholz U, Gutiérrez-Doña B, Sud S, Schwarzer R. Is general self-efficacy a universal construct? Psychometric findings from 25 countries. *European Journal of Psychological Assessment*. 2002;8:242-251.
- (172) Maciejewski PK, Prigerson HG, Mazure CM. Self-efficacy as a mediator between stressful life events and depressive symptoms. Differences based on history of prior depression. *Br J Psychiatry*. 2000 ;176:373-8.
- (173) Carver CS. You want to measure coping but your protocol's too long: consider the brief COPE. *Int J Behavioral Medicine*. 1997; 4: 92-100.
- (174) Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. *J Pers Soc Psychology* 1989;56:267-283.

- (175) Culver JL, Arena PL, Antoni MH, Carver CS. Coping and distress among women under treatment for early stage breast cancer: comparing african americans, hispanics and non-hispanic whites. *Psychooncology*. 2002;11:495-504.
- (176) Williams JBW, Gibbon M, First MB, Spitzer RL, Davies M, Borus J, Howes MJ, Kane J, Popo HG, Rounsaville B, Wittchen HU. The structured clinical interview for DSM-III-R (SCID): II. Multitest-retest reliability. *Archives of General Psychiatry*. 1992;49:630-636.
- (177) Prigerson HG, Bridge J, Maciejewski PK, Beery LC, Rosenheck RA, Jacobs SC, Bierhals AJ, Kupfer DJ, Brent DA. Influence of Traumatic Grief on suicidal ideation among young adults. *Am J of Psychiatry* 1999;156:1994-1995.
- (178) Silverman GK, Jacobs SC, Kasl SV, Shear MK, Maciejewski PK, Noaghiul FS, Prigerson HG. Quality of life impairments associated with diagnostic criteria for traumatic grief. *Psychological Medicine*. 2000;30: 857-862.
- (179) Wilson KG, Chochinov HM, deFaye BJ, Breitbart W. Diagnosis and Management of Depression in Palliative Care. In Chochinov HM, Breitbart W, *Handbook of Psychiatry in Palliative Medicine*. (Pp. 25-49) NY: Oxford University Press, 2000.
- (180) Endicott J. Measurement of depression in patients with cancer. *Cancer*. 1984;53:2243-9.
- (181) Breitbart W, Bruera E, Chochinov H, Lynch M. Neuropsychiatric syndromes and psychological symptoms in patients with advanced cancer. *J of Pain and Symptom Management*. 1995;10:131-141.
- (182) Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: the Scale for Suicide Ideation. *J Consult Clin Psychology*. 1979;47:343-352.
- (183) Linehan MM. Reasons for staying alive when you are thinking about killing yourself: The reasons for living inventory. *J Consult Clin Psychol*. 1983;51:276-286.
- (184) Karnofsky DA. Determining the extent of the cancer and clinical planning for cure. *Cancer*. 1968;22:730-4.
- (185) Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chron Disease*. 1987;40: 373-383.
- (186) Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J Pers Soc Psych*. 1986; 51:1173-1182.
- (187) Maciejewski PK, Mazure CM. A Negative Cognitive Style Mediates the Association Between Childhood Emotional Abuse and Major Depression in Adulthood. (*revised for*, *J Abnormal Psych*)
- (188) Hsieh FY, Bloch DA, Larsen MD. A simple method of sample size calculation for linear and logistic regression. *Stat Med*. 1998;17:1623-34.

- H. Consortium/Contractual Arrangement.** University of Texas Southwestern Medical Center (UTS) has been contracted as a second site for the study. The PI at the UTS site, Elizabeth Paulk, MD, is a nationally recognized expert on palliative medicine and EOL care for indigent Texans. Additionally, the majority of Black and Hispanic patients will be recruited from the UTS site and this site will complement the psychosocial epidemiologic expertise in EOL and bereavement research based at the Yale site. Please see attached consortium letter (Appendix B), budget, and budget justification.
- I. Consultants.** Dr. Jacobo Kupersztoch will be consulted as a cultural liaison, translator, and advisor facilitating the recruitment of Hispanic patients and interpretation of information obtained from the Hispanic sample.