From the Director

No one lives forever, but we can hope for a long and healthy life. CHC researchers are working to help all of us achieve that hope by exploring ways to foster healthy aging and erase health disparities among older adults. Our discoveries will not only contribute to individuals living fuller lives, but will also help our society deal with the realities of an aging nation.

The fact is that unless we can address some of the “upstream” causes of disability and disease among the elderly, the aging of the Baby Boom generation will soon place enormous, some say overwhelming, demands on the health care system. Addressing these causes underlines the importance of the CHC’s core theme; in short, that health is more than genetics and biology, as important as those factors are. Aging research demonstrates that such factors as behavior, lifestyle, culture, and community also have a dramatic effect on health and quality of life. Multiple studies have revealed that many of the key factors in healthy aging have socio-economic and psychosocial roots, from transportation and housing challenges to concerns about social isolation, stress, sense of control, and community support.

This issue of Exchange highlights CHC researchers who study the challenges of aging. These researchers identify how stress and depression wear on the body. They demonstrate the ways in which cultural beliefs and the communities in which we live exert a powerful influence on older adults’ mental and physical states. They reveal some of the under-recognized issues around end-of-life care and choices. And they develop successful interventions that help older adults prevent or recover from debilitating mental and physical illness.

Their efforts and insights go a long way toward making the idea of healthy aging a reality for individuals from all walks of life.

Nancy Adler
Stress, Depression, and the Biology of Aging

In older adults, stress and depression are often ignored or dismissed as part of the aging process. As CHC researchers help establish links among these psychological conditions and heart disease, premature aging, and early death, perhaps older adults’ battles with stress and depression will become harder to ignore and easier to treat.

**Depression and the Ailing Heart**

Heart disease is the number one cause of death for older adults, and depression is a potent factor in whether your heart stays healthy. Physician Mary Whooley’s Heart and Soul study is confirming the strong link between the two, and opening some windows on just what that link might be.

One of the largest studies of its kind, Heart and Soul follows 1,024 patients with coronary heart disease – 75 percent of whom are over the age of 65. Researchers determine baseline levels of heart disease and depression, and then follow these patients for seven years, measuring many of the potential factors that could affect both conditions.

Whooley first looked at biological factors that might explain how depression could affect heart disease. But when these didn’t fully account for the association, she began to focus more closely on the role of behavioral factors in depressed patients.

“Patients with depression don’t take medications as frequently prescribed, they don’t exercise as much, they sleep poorly,” she says. These health behaviors can worsen a patient’s heart condition.

“It’s important that older people realize depression is a disease itself,” she says. “It’s not their fault, it’s easily treated, and even without considering its potential effect on heart disease, treating depression improves people’s quality of life.”

**Associating Cognitive Impairment and Depression with Mortality**

Long interested in what makes older adults vulnerable, epidemiologist Kala Mehta has examined data from over 6,000 participants in the U.S. government’s Asset and Health Dynamics Among the Oldest Old (AHEAD) study. She established that “cognitive impairment and depressive symptoms are associated with an increased risk in mortality”.

The work also established a clear link between these two conditions and what is known as functional decline, a worsening in a person’s ability to complete a variety of everyday activities without assistance. Those activities include such things as taking a bath or shower, dressing, and eating.

Then, using data from over 3,000 participants who were between 70 and 80 years old at baseline in the Health, Aging, and Body Composition (HABC) study, Mehta
found that even among those without depression, anxiety symptoms are much more widespread among older adults than previous studies had uncovered. "It's significant because we know that anxiety is in itself debilitating," says Mehta.

More recently, Mehta has begun a series of studies about health disparities among older adults. Her first work in the series explores why African-Americans in the HABC study scored lower than whites on two tests of cognitive function that measured memory, attention span, and how quickly people processed information.

When Mehta adjusted for socioeconomic factors she found the difference between blacks and whites nearly disappeared. "Characteristics not commonly measured in cognitive studies, such as literacy, were important predictors of cognitive scores," she says. "It makes clear why it's important to ask about some of the underlying vulnerabilities that account for health disparities in older adults; I'm passionate about reducing those disparities."

**Groundbreaking Work Connects Stress to Cellular Aging**

Despite the powerful connections between mind and body that researchers like Whooley and Mehta have established, until recently no one had been able to link psychological conditions to a specific cellular process that drives aging.

Then, in late 2004, UCSF health psychologist Elissa Epel and world renowned UCSF molecular biologist, Elizabeth Blackburn, caused a national stir when they published the results of a study that linked chronic stress to molecules believed to play a key role in cellular aging and disease development.

The study measured stress levels over time in mothers of healthy children and mothers of chronically ill children. It mapped those measures of stress to three biological factors that appear in the immune system cells of these otherwise healthy premenopausal women.

"The results indicate that the chronic stress these women experience has the potential to shorten the life of cells, at least immune cells," says Epel. It was the first time such a connection had been made.

Another groundbreaking area of the study was its finding that women who had spent the longest time caring for their chronically ill children also experienced dramatically more deterioration in their immune cells.

"This established that something outside ourselves – an external measure of life stress – can impact our biology all the way down to the cellular level," says Epel.
The Influence of Race, Ethnicity, and Environment

HC researchers have found that cultural beliefs and mores, as well as community conditions, exert a powerful influence on our levels of stress and depression, our sense of control over our lives, and the choices we make as we age.

How Culture and Community Affect Aging

For the past five years, cultural anthropologist Chris Kiefer has worked to combine research with community action. As part of this effort, he serves as a member of a team that organizes volunteers to address health problems – including those associated with stress and depression, such as hypertension, heart disease, and diabetes – in poor, largely African-American communities in South and West Berkeley.

"Many of these health problems affect older adults," he says, and he is worried that the leadership necessary to create community support for addressing elders' health concerns may be disappearing.

"The traditional leaders are getting old," he says, "and I don't see who's out there who will come in and take over." In part, this is due to gentrification – "people have little sense of the history of the community" – and in part it is due to a younger generation that is so stressed economically that they have little energy to focus on the needs of the elders in their community.

Kiefer is writing a series of reports that document the team's work. Those reports provide useful input to the Berkeley Health and Human Services department, which helped create the group, and which makes decisions that affect the health of this community.

A Sense of Control

Like community, sense of control – a set of beliefs about how much influence you have over what happens in your life – also can have a powerful effect on health and aging, according to developmental psychologist Marilyn Skaff.

In a recent pilot study, Skaff examined whether sense of control has the same meaning across diverse ethnic groups as they age. Working with people over the age of 60, some expected differences did emerge. African-Americans spoke of discrimination as a barrier to their sense of control over their lives. Latinos too spoke about discrimination, often due to their lack of English skills.

"But what emerged most strongly were the similarities," says Skaff. It was especially instructive that as they got older most of the participants felt they got better at focusing on those things they could control and ignoring those they could not.

"Many of the Latino participants used the term 'torear,' which comes from bull fighting and means to step aside or avoid problems," says Skaff. The other two groups – African-Americans and European-Americans – referred to a nearly identical approach for handling unsolvable situations. "Clearly, there's an adaptive process that goes on; these people were not bystanders, they were actors," she says.

Partly because her work has given her faith in individual adaptability, Skaff believes it's most critical to address some of the environmental barriers to sense of control. "Access to health care, access to safe neighborhoods, and educating medical professionals to be sensitive to social class are all concerns that we can help address," she says.

Poor literacy is another barrier to sense of control and better health – a barrier that has now been
linked to higher mortality rates in older adults, according to physician Rebecca Sudore, a Geriatrics Research Fellow at the Division of Geriatrics. Sudore recently analyzed data from the Health, Aging, and Body Composition Study.

"After adjusting for many potentially confounding variables, our study demonstrated that elders with limited literacy had increased rates of chronic disease, poor access to health care, and were almost twice as likely to die over a five-year period compared to those elders with adequate literacy skills," says Sudore.

**Drawing Connections Between Racism and End-of-Life Choices**

Sense of control and limited literacy are not the only things that affect how we approach the later stages of our lives. Racism and socioeconomic status (SES) may also be significant factors, according to geriatrician Sandra Moody-Ayers, MD.

"For years, I would listen to people talk about health disparities and wonder: what is it about race?" says Moody-Ayers. "Then at Yale (as a Robert Wood Johnson Fellow) I began to read Nancy Adler’s work and think about how to tease apart socioeconomic status and race." Recently, she completed a study that found that even in people over the age of 80, childhood SES can have a powerful influence on health outcomes and might explain some health disparities attributed to race.

In a new study, Moody-Ayers explores whether the experience of unfair treatment outside of the health care system affects African-Americans' ability to trust the medical system and, therefore, accounts for their different approach to end-of-life care. Specifically, African-Americans show a greater propensity to want all measures done to keep them alive, regardless of the severity of their illness or injury when they enter a hospital. "It’s as though we worry that if we don’t choose to be full code, we won’t receive enough care," says Moody-Ayers.

She believes that if her hypothesis about external racism playing an important role in trusting the health care system is true (and therefore influences the end-of-life choices that African-Americans make), then physicians must continue to make greater efforts to personalize care. "We will have to push the idea of cultural competence and simply being human," she says. "I think then we might see more progress in health disparities."

**Who Controls the Time of Death?**

Forty years ago, few people struggled with the type of end-of-life choices Moody-Ayers studies. But today more Americans die in hospitals than in any other setting and, says medical anthropologist Sharon Kaufman, "it’s the hospital that often controls the time of death."

In her recently released book *And a Time to Die: How American Hospitals Shape the End of Life*, Kaufman combines interviews with clinicians, patients and their families, with a historical study of how modern hospital care and perceptions about death evolved.

Since 1965, when hospitals decided that emergency CPR was to be administered to any patient in cardiac arrest — even older people with multiple illnesses who were clearly in the process of decline," says Kaufman — the culture around dying in hospitals began to change. Within a decade or so, Elizabeth Kubler-Ross had introduced the idea that a dying patient needs to say what they want around dying; the tragic case of Karen Quinlan — a young woman in a deep comatose state — made headlines and forced court battles similar to more recent battles about Terri Schiavo; and the widespread introduction of intensive care units (ICU’s) in hospitals, with
their mechanical ventilators, meant that it became common practice to stave off death indefinitely — again, even among the frail elderly.

These forces helped create the awkward and agonizing decisions with which clinicians, families, and patients wrestle in hospitals across the country. “Today, dying is a technical endeavor, a negotiated decision and a murky matter biologically,” says Kaufman.

Now she is studying a companion societal concern: the mushrooming use of medical technology to extend older adults’ lives. “Many procedures (such as angioplasty, defibrillation, dialysis, and kidney transplants) have become routine in people in their seventies and eighties,” Kaufman says. “We’re beginning to see it’s very hard for anyone to say no to these procedures. I want to use this study to begin to understand what it means for society to extend the oldest lives,” she says.

**Exposing Problems in Nursing Home Care**

As difficult as end-of-life choices are in acute care hospitals, they are equally vexing in nursing homes. In her most recent study, Jeanie Kayser-Jones followed terminally ill residents in three such facilities in northern California.

Jeanie Kayser-Jones

A professor at the School of Nursing and director of the UCSF Hartford Center of Geriatric Nursing Excellence, Kayser-Jones’ study found that overworked, underpaid, and undereducated staff struggle to merely monitor their terminally ill residents, much less provide high-quality, sensitive care. Pressure ulcers, poor nutrition, dehydration, poorly managed pain, and unsanitary conditions are far more common than one might believe about America in the twenty-first century.

Kayser-Jones hastens to say there were some fine staff members providing care in the nursing homes she studied. “But when the ratio of residents to nurses aids in some places is 10 or 12 to 1 for a day shift — and three times that for a night shift — and an aide can make nearly twice as much working in an acute care setting — it’s difficult to recruit and retain staff to provide quality care,” she says.

Care in these facilities should not be so poor that it forces people to choose dying over life,” Kayser-Jones continues, “but that is sometimes the choice people face.”

**Improving Care**

One thing that has long characterized the work of CHC researchers is a commitment to finding interventions that address the psychosocial causes of health problems and health disparities. That commitment remains strong in the case of aging and aging-related illness.

**Resolving Depression and Disparities**

When clinical psychologist Patricia Arean arrived at UCSF, she found herself working with poverty-stricken elders at San Francisco General Hospital (SGFH). In two separate studies, Arean uncovered a high prevalence of depression that often went unrecognized or untreated. (Depression is no more prevalent among older adults than other age groups — that’s a common misperception — but it may be diagnosed and treated less in older adults.)

In previous work Arean had found that many depressed patients — especially underserved populations and minorities — prefer to be treated, with counseling, in a primary care setting, as opposed to being treated with drugs or being referred to specialized mental health services. In response to her cumulative findings, Arean then embarked on research that would test interventions for
low-income elders in primary care settings.

One study compared case management, problem-solving therapy (PST), and a combination of both. (Case management is a way to help patients negotiate the health care system to get the care they need. PST helps depressed patients identify changes they want to make, find solutions, and act on them.)

“One of the remarkable things we found is that case management alone was almost as effective as the two together for treating depression—and that at least with this population psychotherapy alone was not as effective,” she says.

In another study, known as IMPACT, a collaborative, primary care team administered a simplified form of PST to 1,800 elderly adults with depression. “We found that when you offer counseling in primary care, patients are three times more likely to attend the therapy and have their depression resolved, regardless of their race or ethnicity,” says Arean. This is striking, because the approach seems to virtually eliminate the types of disparities that often emerge in studies around mental and physical health.

Bringing Preventive Care to Underserved Communities

In the early 1990’s, Anita Stewart—who directs the Center for Healthy and Active Aging, and is co-Principal Investigator at the Center for Aging in Diverse Communities—helped design and test the effectiveness of an intervention (CHAMPS) to increase physical activity in under-active older adults. Having demonstrated the program’s efficacy in a community with resources and infrastructure, she then brought the project to three ethnically diverse, low-income communities.

“We had our successes there,” Stewart says, “but we also learned that sustaining these programs in low-income communities would require more community infrastructure.”

After a subsequent study explored how to better deliver this program in underserved communities, Stewart helped initiate a process that has brought the Berkeley and San Mateo County health departments together to implement and sustain exercise programs specifically for their minority and underserved populations.

Helping People Make Informed End-of-Life Choices

Even if we exercise, eat right, and avert stress and depression, all of us eventually must face the ends of our lives. Increasing numbers of people have come to believe there is a need to write down our end-of-life treatment preferences, in case we reach a point where we can’t speak for ourselves. (This is a particularly acute concern for the aged and infirm.)

The document many people use to express their treatment preferences is called an Advance Directive.

While she was completing her residency at SFGH, Rebecca Sudore found that many critically ill patients had no such document. “We began to suspect that it had something to do with the complexity of the standard form,” says Sudore. In California, that form is written at a twelfth grade reading level, despite the fact that tens of millions of American adults read at a fifth grade level or below.

Sudore took on the task of creating a new advance directive form that would meet California legal requirements and yet be more appropriate for adults with limited literacy skills. After two years of work with
various medical and legal groups and extensive pilot testing, Sudore recently unveiled a new form, written at a fifth grade reading level with culturally-sensitive illustrations that explain the text.

The preliminary, unpublished results of a randomized trial that compared the easier form to a standard form indicate that comprehension of advance directives topics improved with the easier form, as did people’s confidence in making treatment decisions. An overwhelming majority (80 percent) preferred the easier form. As a result SFGH has adopted the form as its official Advance Directive. Sudore is also working with organizations across the country to create advance directive forms that meet other state requirements.

**Identifying Exemplary Palliative Care**

Finally, though most studies have shown people prefer to die at home, as noted earlier, many still die in hospitals or nursing homes. That’s why in her recent study of terminally ill patients in nursing homes, Jeanie Kayser-Jones identified factors that contribute to exemplary palliative care.

Kayser-Jones notes, for example, that nurse aides at Laguna Honda are well-paid compared with their peers. There is a hospice-certified physician and nurse on duty every day, and on the day shift, the resident to nurse aide ratio is typically 6:1. Symptoms such as pain and difficulty breathing are carefully monitored and treated, and the residents who are willing and able are up and walking every day. She believes all of these factors contribute to a high quality of care for terminally ill residents.

“One woman, who would probably never make it out of her room in many other facilities, was in the garden every morning, listening to wind chimes, and finding peace in her final days,” says Kayser-Jones. “That’s the type of care we could have if as a society we valued our older people as much as we should.”