Imagine an intervention, such as a pill, that could significantly reduce your risk of cancer. Imagine an intervention that could reduce your risk of stroke or dementia or arthritis. Now, imagine an intervention that does all these things, and at the same time reduces your risk of everything else undesirable about growing older: including heart disease, diabetes, Alzheimer’s and Parkinson’s disease, hip fractures, osteoporosis, sensory impairments and sexual dysfunction. Such a pill may sound like fantasy, but aging interventions already do this in animal models. And many scientists believe that such an intervention is a realistically achievable goal for people.

Slow aging should begin immediately — because it will save and expand lives, improve health, and create wealth. The belief that aging is an immutable process, programmed by evolution, is now known to be wrong. Nations may be tempted to continue attacking diseases and disabilities of old age separately, as if they were unrelated to one another. This is the way most medicine is conducted today.

In addition to the obvious health benefits, enormous economic benefits would accrue from the extension of healthy life. By extending the time in the lifespan when higher levels of physical and mental

Robert N. Butler, M.D., is president and CEO of the International Longevity Center. A physician, gerontologist, psychiatrist and public servant, he also is the author of Why Survive, for which he won the Pulitzer Prize, and The Longevity Revolution. In 1975, he became founding director of the National Institute on Aging of the National Institutes of Health, and in 1982 he founded the first department of geriatrics in a U.S. medical school at The Mount Sinai Medical Center.
capacity are expressed, people would remain in the labor force longer, personal income and savings would increase, age-entitlement programs would face less pressure from shifting demographics, and there is reason to believe that national economies would flourish. The science of aging has the potential to produce what I and others refer to as a “Longevity Dividend” in the form of social, economic and health bonuses both for individuals and entire populations — dividend that would begin with generations currently alive and continue for all that follow. We contend that conditions are ripe today for the aggressive pursuit of the Longevity Dividend by seeking the technical means to intervene in the biological processes of aging in our species, and by ensuring that the resulting interventions become widely available.

According to studies undertaken at the International Longevity Center and at universities around the world, the extension of healthy life creates wealth for individuals who accumulate more savings and investments than those beset by illness. They tend to remain productively engaged in society. They spark economic booms in so-called mature markets, including financial services, travel, hospitality and intergenerational transfers to younger generations. Improved health status also leads to less absenteeism from school and work and is associated with better education and higher income.

Genes that slow growth in early life — such as those that produce differences between large, middle-size and miniature dogs — typically postpone all the signs and symptoms of aging in parallel. A similar set of hormonal signals — related in sequence and action to human insulin, insulin-like growth factor (IGF-I) or both — are involved in aging, life span and protection against injury in worms, flies and mice, and extend lifespan in all of those animals. These hormones help individual cells to buffer the toxic effects of free radicals, radiation damage, environmental toxins and protein aggregates that contribute to various late-life malfunctions. An extension of disease-free lifespan of approximately 40 percent has already been achieved repeatedly in experiments with mice and rats.

If we succeed in slowing aging by seven years, the age-specific risk of death, frailty and disability will be reduced by approximately half at every age. People who reach the age of 50 in the future would have the health profile and disease risk of today’s 43-year-olds; those aged 60 would resemble current 53-year-olds, and so on.

The National Institutes of Health is funded at $28 billion in 2009, but less than 0.1 percent of that amount goes to understanding the biology of aging and how it predisposes us to a suite of costly diseases and disorders expressed at later ages. We are calling on Congress to invest $3 billion annually to this effort, or about 1 percent of the 2005 Medicare budget of $309 billion, and to provide the organizational and intellectual infrastructure and other related resources to make this work.

Specifically, we recommend that one-third of this budget ($1 billion) be devoted to the basic biology of aging with a focus on genomics and regenerative medicine as they relate to longevity science. Another third should be devoted to age-related diseases as part of a coordinated trans-NIH effort. One-sixth ($500 million) should be devoted to clinical trials with proportionate representation of older persons (aged 65+) that include head-to-head studies of drugs or interventions including lifestyle comparisons, cost-effectiveness studies and the development of a national system for postmarketing surveillance. The remaining $500 million should go to a national preventive medicine
research initiative that would include studies of safety and health in the home and workplace, and address issues of physical inactivity and obesity as well as genetic and other early-life pathological influences. This last category would include studies of the social and economic means to affect positive changes in health behaviors in the face of current health crises — obesity and diabetes — that can lower life expectancy. Elements of the budget could be phased in over time, and it would be appropriate to use funds within each category for research, training and the development of appropriate infrastructure. We also strongly encourage the development of an international consortium devoted to this task, as all nations would benefit from securing the Longevity Dividend.