Among the countries of the world. the United States is remarkable for the diversity of its population, including the older population. Population diversity will increase in the years ahead. Within the elderly population itself, there are important differences between the various age segments in terms of their health and socioeconomic characteristics. In the coming decades, the oldest old (85 years and over) will comprise an increasing proportion of the total elderly population. The pace and course of the demographic changes ahead will create compelling social, economic, and ethical choices for individuals, families, and governments. "One can only speculate on the precise number, direction, pace, and synergistic effects of such social and demographic changes for future cohorts in the U.S. population. It is even more difficult to estimate how theses matters will be exacerbated or modified by changes in the technological and legal milieus."1

The coming growth of the elderly population is inevitable, and will occur worldwide. In developed nations, especially, we can expect to see less of the traditional focus on youth. Already we are beginning to confront impending issues and to seek answers to essential questions. Questions have arisen, principally in developed countries, pertaining to ethics and aging, such as: what are the moral and ethical limits of euthanasia and end of life treatments: should health care be provided on an age-based rationing system; and who can judge the level of competence of

a patient with respect to decision-making<sup>2</sup>. Decisions made today and directions chosen in these and other aging-related areas will directly affect the quality and vitality of our lives for many decades.

We face numerous questions raised by the growth and increasing longevity of the older population. Some of the most urgent are: will tomorrow's generation of older people be healthy; will they be independent; will societies provide productive and purposeful roles for them<sup>3</sup>. Questions about the older population of tomorrow, such as whether more people will be subject to extended years of disability or whether the age of the onset of chronic conditions is going to be postponed, remain unanswered.

While "accurate projections of the size, structure, and health of the elderly population are essential to planning public and private programs," data and methodological deficiencies partially limit researchers' ability to answer some mortality, morbidity, and health questions regarding the elderly of the future. For example, the ability to better forecast mortality for specific causes of death "will depend on improving cause of death data in vital statistics reports, taking into account multiple causes." Models of human

morbidity and morbidity-mortality linkages are even less developed than mortality models.<sup>6</sup>

Simply considering growth of the elderly population, especially for those aged 80 and over, suggests that there will be increases in the number of incident cancers diagnosed over the next several decades.7 Other simulation model research has concluded that the interaction of demographic, health, and income trends will result in a tripling of the number of elderly requiring nursing home care between 1990 and 2030, compared to only a 100 to 125 percent increase in the elderly population during this period.8 This study also suggests that recent cohorts' marital patterns and fertility histories will lead to an elderly population in the future that is more likely to be living alone and less likely to have family caregivers.

The future roles of individuals, families, and society with respect to the older population are unknown. What is needed to educate the public about long-term physical and economic effects of lifestyle in younger years? Who will care for the physically and economically dependent aged? Will care programs take into account cultural differences? Will older per-

DC, 1993.

<sup>6</sup> Kenneth G. Manton, Burton H. Singer, and Richard M. Suzman, op. cit.

<sup>&</sup>lt;sup>1</sup> Richard M. Suzman, Kenneth G. Manton, and David P. Willis, "Introducing the Oldest Old," Chapter 1 in *The Oldest Old*, R.M. Suzman, D.P. Willis, and K.G. Manton (eds.), Oxford University Press, New York, 1992.

<sup>&</sup>lt;sup>2</sup> Government of Canada, National Advisory Council on Aging, Ethics and Aging, Ottawa, Ontario, 1993.

<sup>&</sup>lt;sup>3</sup> Daniel Perry, "Aging Research and Public Policy in the United States," Unpublished remarks presented to the European Federation of Pharmaceutical Industries' Association, Salzburg, Austria, May 1993.

<sup>&</sup>lt;sup>4</sup> Kenneth G. Manton, Burton H. Singer, and Richard M. Suzman, "The Scientific and Policy Needs for Improved Health Forecasting Models for Elderly Populations," Chapter 1 in Forecasting the Health of Elderly Populations, Kenneth G. Manton, Burton H. Singer, and Richard M. Suzman (eds.), Springer- Verlag, New York, 1993.

<sup>&</sup>lt;sup>5</sup> Institute of Medicine, Forecasting Survival, Health, and Disability: Workshop Summary, Michael A. Stoto and Jane S. Durch (eds.), National Academy Press, Washington, DC, 1993.

<sup>&</sup>lt;sup>7</sup> Anthony P. Polednak, "Projected Numbers of Cancers Diagnosed in the U.S. Elderly Population, 1990 through 2030," *American Journal of Public Health*, Vol. 84, No. 8, 1994, pp. 1313-1316.

<sup>8</sup> Sheila Rafferty Zedlewski and Timothy D. McBride, "The Changing Profile of the Elderly: Effects on Future Long-Term Care Needs and Financing," *The Milbank Quarterly*, Vol. 70, No. 2, 1992, pp. 247-275.

sons be able to pay a larger proportion of the costs of their old age? What is the proper funding balance between research to prevent non-fatal chronic illness and research to prevent and treat killer diseases? For example, one recent simulation study determined that reductions in arthritis would result in much greater savings in future disability than similar reductions in stroke, diabetes, heart disease, or cancer.<sup>9</sup>

This report generally describes the older population of the 1990's. Some historical trends and future projections of the older population also are discussed. Today's older population looks very different from the older population of the past. The older population of tomorrow will not look the same as today's elderly. Current lifestyle choices of vounger persons will affect their life prospects at older ages. Looking at the characteristics of younger cohorts can help to predict change. Educational attainment is much higher for the Baby-Boom generation, for example, and we know that the elderly of tomorrow will have higher educational attainment levels than present-day elderly. Many predictions have been made for the Baby-Boom generation as they age, 10 and in a few decades their characteristics will, of course, become those of the elderly. Still, health and economic status characteristics of the elderly of

tomorrow are particularly problematic to predict. For example, we cannot simply use the characteristics and attitudes of the current generation of the elderly to predict future labor prospects for the older population. The Baby-Boom generation is quite different. Their health is generally better, their educational attainment higher, and most women work. Their attitude towards retirement may differ and their pension plans are increasingly dependent on individual contributions. The age for receiving full benefits for retirement may move upward. Each of these factors complicates the drawing of an accurate portrait of the older population's labor force characteristics.

While we can be confident that the United States will experience a "boom" in the absolute size and growth rate of the elderly population, as well as increased diversity and an increased proportion oldest old of the total elderly population, some characteristics of the elderly of tomorrow are less predictable. What will happen if large numbers of people have Alzheimer's disease, for example? Is it inevitable? Preventable? The continued study of the genetic, biochemical, and physiologic aspects of aging is certain to alter the future world of the elderly. Ongoing scientific research advances are beginning to identify "the basic biological mechanisms that control aging" and to clarify "the differences between normal aging processes and disease states." In the future, one outlook is that "older Americans can expect to stay healthy for more of their later years."11 "It is

likely that several factors will work to reduce disability among the elderly, including improved health, new forms of service delivery, and improved technology."<sup>12</sup> Perhaps the human life span will be extended. It has been suggested that such research will "very certainly contribute to better health, less disability, and more independence in the second fifty years of life."<sup>13</sup>

On balance, our knowledge of the elderly population in the United States has increased phenomenally over the past two decades. Regarding the future elderly, their growth explosion, increased diversity, and increasing proportion of oldest old will influence the society of tomorrow. Our ability to understand and describe the future elderly varies considerably, depending on their demographic, social, health, or economic characteristics. Data, methodology, and research on the older population continue to improve and evolve, leading us toward a clearer view of the profile of tomorrow's elderly. As individuals, families, and a nation, our current and expected gains in understanding will provide us with informed opportunities to make appropriate adjustments to effectively meet the challenges and needs associated with our aging society.

<sup>&</sup>lt;sup>9</sup> C. Boult, M. Altmann, D. Gilbertson, C. Yu, and R.L. Kane, "Disability in the 21st Century: Future Effects of Controlling Fatal and Nonfatal Disease," *American Journal of Public Health*, under review.

<sup>&</sup>lt;sup>10</sup> Cheryl Russell, 100 Predictions for the Baby Boom: The Next 50 Years, Plenum Press, New York, 1987.

<sup>&</sup>lt;sup>11</sup> National Institutes of Health, National Institute on Aging, "Older Americans Can Expect to Live Longer and Healthier Lives," Special Report on Aging 1993, Washington, DC 1993

Charles F. Longino, Jr., "Myths of An Aging America," *American Demographics*,
 August 1994, pp. 36-42.
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National Institutes of Health, National Institute on Aging, In Search of the Secrets of Aging, Bethesda, MD, 1993.