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PROCEEDINGS OF A CONGRESSIONAL FORUM

BY THE

SELECT COMMITTEE ON AGING
HOUSE OF REPRESENTATIVES

AND THE

SPECIAL COMMITTEE ON AGING
UNITED STATES SENATE

NOVEMBER 1987

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LETTER OF TRANSMITTAL

A rapidly aging society is what we live in today and what will increasingly demand the attention of our nation and its policymakers. The demographics and policy implications leave no doubt as to the challenge facing American society as a whole and the U.S. Congress in particular. While some would like to deal with policies only for next year or for the next few years, we do not have that luxury. A failure to act soon will set American society up for failure as we move into the 21st century and toward the largest concentration of older Americans in our history. This joint House and Senate forum, "Legislative Agenda for an Aging Society: 1988 and Beyond," is a first important step toward confronting and resolving the issues of tomorrow.

All of us are aging whether our ages be 1, 40 or 70. We need to acknowledge that the percentage of Americans over age 65 will rise from just under 13 percent in 1990 to over 21 percent by the year 2030. At the same time, we need to keep in mind that the ratio of children and elderly to working age Americans ages 18–64 (the "support ratio") will increase but much less rapidly. These facts carry serious implications for an aging society whether it be in terms of employment and income security, retirement, health and long-term care, housing, crime and victimization, or advances in science and technology. This joint Congressional forum presents us with many of the policy implications and the research needs which Congress must address.

During the course of the forum, as documented in the forum papers which make up this report, the presenters, who are members of the Gerontological Society of America, and the responders, who are Congressional staff members, addressed many of the arguments which Congress will be hearing over the next several decades. Throughout the forum, the discussion focused on what roles the Federal Government should and should not play in assuring that the American society of tomorrow is prepared to address the needs of both its younger and older citizens. Many questions were raised by the participants but many of the answers will depend on the results of research yet to be funded and conducted and on policy discussions yet to be held.

There is little doubt that America needs more research and more discussion. These proceedings are a clear example of the power and policy-relevance of basic, applied and public policy research. Our challenge now is to ensure that we continue to support research already underway and embark on new research efforts that will provide us with a solid foundation of information on which sound policy decisions can be made.

In closing, we want to express our sincere appreciation to the presenters for their thorough analysis of the many issues covered in these proceedings and for their valuable time and effort. We also

wish to extend a special thanks to the Gerontological Society of America, and, in particular, to George Baker, Richard Adelman (current President), John Corman and Linda Harootyan, for the Society's dedicated and ongoing search for better research and policy for the aging American society, and for the valuable assistance this forum brought to the Congress. We also express our appreciation to the minority and majority staff members of the Senate Special Committee on Aging and the staff members of the House Select Committee on Aging and its Subcommittee on Health and Long Term Care for this effort to bring the policy implications of an aging society before Congress.

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OPENING SESSION

Moderator—Manual Miranda, House Select Committee on Aging

Forum Overview

George T. Baker III, Ph.D.,
American Association for Advances in Health Care Research

The Mutual Challenge to Research and Public Policy in Aging

Richard C. Adelman, Ph.D.,
Institute of Gerontology, University of Michigan

Aging and the Aged in America

George T. Baker III, Ph.D.; Charles W. Berson, B.A.;
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American Association for Advances in Health Care Research

Nathan W. Shock, Ph.D.,
National Institutes on Aging

Aging in Racial and Ethnic Minority Populations: Policy and Research Implications

James S. Jackson, Ph.D.,
Institute for Social Research, University of Michigan

FORUM OVERVIEW

George T. Baker III, Ph.D.

The basic concept behind the organization of this joint congressional forum was to bring before Members of the U.S. Congress and congressional staff current scientific and research information from members of the Gerontological Society of America relevant to issues in public policy. Further, to examine from a research perspective some issues and options which address the problems of aging and the aged in our society. Obviously, given the breadth of the field of gerontology only selected areas could be examined in this forum. This in no way is intended to diminish the importance of other areas of scientific inquiry within the field of gerontology which hopefully may be addressed in future such forums.

Aside from the introductory comments by Dr. Richard Adelman, President of the Gerontological Society of America and a general overview on Aging and the Aged in America, we have included a policy and research paper on Aging in Racial and Ethnic Minority Populations followed by papers and discussion in four general topic areas which are: Health and Long Term Care; Retirement, Income Security and Employment; The Aging Environment: Housing and Victimization; and the Impact of Science and Technology as well as a summary presentation on the demographics of aging.

In the first session on issues in health and long term care, we identified two topic areas for inclusion in this forum. One, involves strategies for successful aging and extending the health span, which is intended to address issues more from a clinical medicine prespective particularly, as they relate to the distinction between normative processes of aging and the presence of age-associated diseases. The questions of what quantitative and qualitative changes can be normally ascribed to processes of aging per se, and which are the result of ongoing disease processes are of major importance in formulating appropriate clinical approaches to the problems of aging and the elderly. The second topic area deals with some aspects of the financing of health and long term care. This is a complex area of inquiry in which one strives for a balance in appropriateness and quality of care with the accessibility and cost of care. There are no simple resolutions to these kinds of questions and as the numbers of older individuals increases, the answers will undoubtedly become more difficult. Implicit in addressing these issues of health care and the cost of health care are fundamental questions that concern not just the enormity of the financial costs involved but those of an ethical and moral nature as well. Questions involving the quantity versus the quality of life will become increasingly more frequent and difficult. The questions involved in the allocation of scarce (i.e., organ transplants) or expensive high

technology resources in health care are and will become even more prevalent in the future.

The second session was designed to address issues and options in the area of employment, retirement and income security. Again, the area is so broad that only limited topics can be meaningfully addressed. Here again, there are major societal issues that need to be addressed and resolved. The opportunity for continued work and meaningful employment opportunities in later life must be considered national priorities. Why is it that in a time when life expectancy has dramatically increased, the age of retirement is continually decreasing? Those conditions, attitudinal, regulatory, and otherwise, which encourage early retirements and pose barriers to reemployment in later life must be thoroughly examined and removed. On the other side of the coin, now that mandatory retirement is technically abolished, by what criteria can an individual be dismissed from the workplace and who makes that decision?

Similarly, there are significant issues and options involved in income maintenance and security for older individuals. For example, what will happen to the expected surplus in Social Security? How can pension plans better address the needs of their enrollees? There are many such questions in this area of inquiry that require reliable research data in order to formulate sound public policy.

The third session addresses issues and concerns in housing and the living environment of the elderly. Here again, the issues and options in housing are highly complex involving financial concerns, attitudinal and behavioral characteristics of older individuals, geographical and topographical considerations, and the levels of physical and/or socio-psychological dependence. The conflicts for older individuals often with limited financial resources, declining physiological capabilities and health status, combined with a strong desire to maintain an independent lifestyle in the residency of their choice, are painfully agonizing. The need to explore all avenues of alternative and adaptive housing to enhance the functional independence of the elderly must be a priority.

Furthermore, we must encouage industry to examine their concepts of the total built environment in light of who we are as a society. Not just for housing but for all facets of our built environment from the workplace to the myriad of products and services we all use and are necessary for optimal functional capability in today's society. The physical and physiological capabilities of individuals are altered with advancing age, however, most of their needs in the performance of daily activities do not. We must begin to think in terms of a total built environment designed to meet the human factor criteria for an average 40-year-old individual not a 20-year-old. This will require the examination of long established "standards" in manufactured goods to the building industry. The realization of this objective would have widespread impact on the day-to-day functional capabilities of many more of our more mature citizens and more than likely enhance the ease of productivity and safety for younger individuals as well.

A second topic in this session concerns the victimization of older individuals both in terms of physical and psychological abuse and in violent and white collar crime. Although the incidence of "elder abuse" is most probably over-estimated in most accounts, it is a

problem of more than passing significance. Indeed, if the appropriate research as to what the sociological and psychological variables are that render some older individuals more susceptible and/or vulnerable to abuse and fraudulent crime, we will have little chance to abate what could be a situation of increasing prevalence and concern. Certainly, the very condition of many elderly individuals financially and psycho-physiologically make the effects of even petty larceny often devastating.

The fourth and final session is directed toward exploring issues and options related to advancements and future needs and goals of science and technology in an aging society. The dramatic increase in life expectancy and in the quality of life we have experienced over the last century can be directly attributed to advances in biomedical science and technology. How and in what manner will new advances in science and technology affect our society? What are the new questions raised by these advances? How will these advances impact on the lives of older individuals? What directions should or could science and technology take particularly, as related to the problems of aging and of the aged?

In closing, I would caution, that to look toward this or that stopgap or bandaid approach to solve the problems of aging or the aged in our society will be fraught with disaster and certain to fail. We are in many respects designing a system to fail, because we often fail to recognize that the problems of the older individual are the result of our lack of knowledge of the basic processes of aging. The individuality, productiveness, and most of all the quality of human life must be our goal. To conceptually or programmatically address the problems of aging and the aged without this perspective will result in a significant dilution of time, energy, and national resources. Solutions will be found only in the understanding of the basic biomedical and socio-psychological processes of aging.

In addition, I would like to take this opportunity to acknowledge the work of several individuals who have made this forum possible. The program for this forum was discussed at length with members of a special committee as part of the Local Arrangements Committee for the 40th Annual Scientific Meeting of the Gerontological Society of America. The Committee, chaired by Ms. Kathleen Gardner-Cravedi, U.S. House Subcommittee on Health and Long-Term Care, included Ms. Nancy Smith, U.S. Senate Special Committee on Aging, Ms. Annabelle Richards, Special Committee on Aging, and Mr. Daniel Perry, Alliance for Aging Research. I wish to acknowledge the time and effort made by these talented and dedicated individuals and to personally and on behalf of the Gerontological Society of America thank them for their patient and tolerant assistance. Ms. Gardner and Ms. Smith deserve my special thanks as do Mr. John Cornman and Ms. Linda Krogh Harootyan, Executive Director and Director of Information, respectively, of the Gerontological Society of America. I should also like to thank my colleagues for their contributions and a special thanks to Richard E. Kriner, Ph.D., for his invaluable assistance.

NOTES

Ms. Nancy Smith was with the House Select Committee on Aging during the initial phases of this project. It should also be noted that Mr. Fernando Torres-Gil,

Ph.D., was instrumental in bringing together this forum before he returned to his academic position at the University of Southern California.

The Mutual Challenge to Research and Public Policy in Aging

Richard C. Adelman, Ph.D.

In my capacity as President of The Gerontological Society of America, it is my privilege to express sincere thanks on behalf of the research community to our hosts, who are the House Select Committee on Aging, the House Subcommittee on Health and Long-Term Care, and the Senate Special Committee on Aging. I also am grateful to my colleagues from the gerontological research community whose presentations will follow my introductory remarks. It is my responsibility to set the tone for this forum by stating the mutual challenge to the research and policy communities which are represented here today.

Good public policy is absolutely dependent on the accurate and timely translation of good research. Why is it that so few researchers and so few policy makers are willing to communicate meaningfully with one another? Traditionally, researchers accuse most policy makers of too little scholarly sophistication and of too much preference for the quick fix of society's problems. At the same time, policy makers accuse most researchers of requiring too much time to respond to the pressing needs of people in the real world and of too little inclination to translate their relevant accomplishments into a comprehensible language.

Both groups need to be educated. Only knowledge heals, whether or not the fiscal picture is bright. What is the current knowledge base in gerontology? What are its societal implications? How can we improve the flow of meaningful information between the gerontological research community and those who prepare legislation on behalf of aging people and of an aging society?

THE KNOWLEDGE BASE

I am able to perceive five distinct and diverse components to gerontological research. Each of these components provides more than ample intellectual challenge to the behavioral, biological, clinical and social sciences, and to research in the humanities. Since my own expertise is of a biological nature, I shall cite nontechnical, representative examples of relevant research issues from the biological perspective in order to make my points.

One of these five components of gerontological research addresses fundamental processes of aging. The essential biological questions include how and why is aging expressed at the levels of molecules, cells, organs, and intact organisms of all kinds?

A second of the five components of gerontological research addresses disease and other problems of elderly people. The essential issues include diagnosis, basic understanding, treatment and/or prevention of afflictions of old age. Representative examples of relevant biological research topics include the neurobiology and genet-

ics of Alzheimer's Disease, the endocrinology and metabolism of diabetes mellitus, the increased prevalence of hypertension in older Blacks, and so forth.

A third of the five components of gerontological research addresses the potential for human performance in healthy old age. The essential issues include identification, basic understanding, and training for optimal exploitation of the capability for physical and mental performance. Representative examples of relevant biological research topics include the influence of genetics, health and lifestyle on the biological component of the capability to perform as an athlete, a scholar, an artist, a worker, a sexual partner, and so forth.

A fourth of the five components of gerontological research addresses the societal impact of population aging. The essential issues include the social, behavorial, economic, political, ethical, and biological impact of population growth when the most rapidly growing segment of the population is 85 years of age and older. Representative examples of relevant biological research topics include the impact of an AIDS-like epidemic on the availability of nursing home beds for the elderly, the impact of reduced fertility on the fate of the traditional backbone of old age-support by the family in the People's Republic of China, shifting agricultural and nutritional needs in response to the change in population dynamics, and so forth.

The fifth of the five components of gerontological research addresses the lifespan perspective. To focus only on problems of the frail elderly, or on the potential for performance in healthy old age, or on the societal impact of the elderly, is to study the aged while ignoring the development of aging. The important fundamental issues of gerontology include not only how and why, but also when does aging begin. The development of public policy of importance to the elderly also must account for those who directly or indirectly support the elderly and who one day will be the elderly. Improvements in the delivery of services to the frail elderly also must include the development of preventive practices for those younger individuals who might delay or avoid the onset of frailty in their own old age.

A summary of the most significant knowledge within the context of the biology of aging hardly includes more than the following five observations. (1) Apparent maximal lifespan seems to be species-specific and genetically determined. (2) As environment improves, an increasing proportion of any given population survives to approach its apparent maximal lifespan. (3) Functional capabilities and responsiveness to environmental challenge frequently change during aging, although at least many such changes represent the artifactual manifestation of disease and lifestyle. On the other hand, at least certain functional capabilities and adaptive responses do not change during aging, although different mechanisms may be utilized at different ages in order to maintain the integrity of function and adaptive response. (4) The phenomena of finite lifespan and changing regulation of function, the principal features which seem to characterize most intact organisms as they age, apparently also are expressed in isolated human cells that can be grown and studied outside of the body. (5) Both finite lifespan

and age of onset of functional decline, the quantity and quality of life, are extended when freely-eating rats are subjected to moderate, long-term dietary restriction. From one perspective, the impact of diet restriction seems to represent an exception to the notion of genetically fixed maximal lifespan. However, an alternative interpretation of the data is that lifespan and life expectancy are shortened when rats or people are allowed to eat too much.

THE SOCIETAL IMPACT

Some biologists are beginning to suspect that we may soon know enough to allow most experimental animals, as well as most people, to live long enough to attain old age. In other words, if we prevent disease and enforce rational lifestyle, then an increasing proportion of any given population probably will approach its maximal lifespan in reasonably good health and functional status. In other words, we do not yet have the foggiest notion of what aging is or even why a phenomenon such as apparent maximal lifespan ever occurs.

I am not criticizing the current status of biological research in gerontology. The bulk of its currently published data is descriptive and horrifyingly complicated by the influence of disease and of behavioral and sociological factors about which biologists know alarmingly too little. More to the point, however, I am alerting you today to the early stages of awakening of what could be the next biological revolution. What are the implications if people are able to maintain good health, as well as the integrity of functional capability throughout lifespan simply by controlling their environment? What are the implications if the extent of a healthy and productive, maximal lifespan is realistically susceptible to experimental definition and modification? What will we do with all of those healthy, productive elderly people? What will we do with those of society's institutions which undoubtedly will regard such accomplishment as nothing less than catastrophic? Whether or not our society is prepared, basic biological research in gerontology sooner or later will change the fabric of society as we know it today.

THE NEED FOR CHANGE IN ATTITUDE AND ACTION

In light of such exciting intellectual challenge and societal importance, it truly is unfortunate and sobering that there is so little understanding of and appreciation for the societal impact of basic research among the gerontological research community, among the funding agencies which support the gerontological research community, and among the Congress which appropriates those funds. Let us briefly consider three representative examples of such difficulty, as well as a fourth example which in my opinion attempts to articulate the more appropriate perspective.

(1) Several of our most prominent colleagues from the gerontological community publicly are making analogies between the current status of basic biological knowledge in gerontology and the Manhattan and Apollo Projects. Wondrous promises of medical care on the horizon for the elderly include organ replacement, gene therapy, and so forth. In my opinion, when gerontologists promote new foundation support or lobby Congress for additional appropriations

for research on aging in such a fashion, their statements are damaging to the credibility of gerontology. Our current base of technological sophistication simply is incapable of fulfilling such promises for many years to come. The Manhattan and Apollo Projects were applications of already accomplished basic understanding of relevant phenomenology. We do not yet remotely understand the phenomenology of the biology of aging.

(2) In my opinion, there presently is far too much emphasis on research that targets diseases and other afflictions of the elderly at the expense of investigations of fundamental biological, behavioral and social processes of aging. For example, during the past 5 years the proportion of grant dollars devoted to diseases of the elderly by the National Institute on Aging has increased from 25 percent to nearly 10 percent of the progressively increasing extramural budget. Most of the new money added to this budget during the past 5 years was allocated to research on disease.

My figures admittedly are in conflict with relevant summaries published by the National Institute on Aging. Presumably, this represents a difference in opinion with respect to what constitutes research that targets disease. However, I urge interested readers simply to analyze publicly available printouts of individual grant support, to examine the stated program priorities as they have changed during the past several years, and to decide for themselves.

Research on the nature of disease which afflicts the elderly is of unquestionable importance, whether this takes the form of more sophisticated diagnosis, pursuit of underlying mechanism, therapeutic intervention or prevention, or identification of modifiable biomarkers. I am in no way questioning the importance of fighting disease in the elderly, whether the motivation derives from current intellectual emphasis of the funding agency or of the research community, or whether the motivation is moral, medically chauvinistic, or even practical in terms of lobbying for Congressional appropriation. On the other hand, this blatant shift in priority of the National Institute on Aging during the past 5 years is in clear conflict with my interpretation of both the language and intent with which Congress established the Institute. Furthermore, it is also in conflict with the history of science, which clearly dictates that the most significant of societal advances are the serendipitous consequence of untargeted, mechanistic pursuit of fundamental phenomenology. Since this criticism is offered so publicly, I want to emphasize that it is done so both constructively and in appreciation for continued support by the National Institute on Aging to the basic science community. My challenge primarily is one of differing opinion with respect to relative proportions of support, and generally not with respect to substance.

(3) To the surprise of almost none among the sophisticated biological research community in gerontology, the inclination for clinical drug trials in the elderly has escaped from the starting gate in the absence of an adequate foundation of fundamental knowledge about the biology of aging. Yes, hindsight comes easily in specific unfortunate cases, such as the signs of liver damage in Alzheimer's disease patients treated with THA (tetrahydroaminoacridine). Furthermore, how can anyone be opposed to the possibility of a cure

for any of the diseases or troublesome and devastating symptoms that presently are associated with old age? However, how long does it take to learn the lesson that our current level of sophistication concerning the structure and actions of viruses which cause polio, certain types of cancer, AIDS, and so forth, results from the decision of the National Cancer Institute to emphasize fundamental growth phenomena, rather than the cure-testing of every chemical reagent which possesses anti-carcinogenic behavior?

(4) The strength and beauty of basic science, in my opinion, lie not only in the joy of discovery of new fundamental knowledge, but also in the totally unpredictable manner in which new knowledge will emerge to modify the fabric of society. The beautifully flickering light of the firefly on a summer evening was reduced in the laboratory long ago to a relatively simple, enzyme-catalyzed, cellular chemical reaction. Very recently, it also became possible to transfer the gene which codes for the enzyme that catalyzes the production of light by that insect into a plant cell, and to assess the efficacy of that gene transfer from one species to another by observing the switched-on microscopic light bulb that had never before existed in the target plant cell population prior to the days of genetic engineering. In other words, the eventual efficacy of gene transfer as a means of therapeutic intervention in the elderly actually will come about some day in part because our society and our Congress and our funding agencies were sufficiently enlightened to support such seemingly esoteric basic research not only on the luminescence of an insect, but also in a context that had nothing whatsoever to do with the biology of aging.

AGING AND THE AGED IN AMERICA

George T. Baker III, Ph.D.; Nathan W. Shock, Ph.D.; Charles W. Berson, B.A.; and M. Lisa Watson, M.S.

INTRODUCTION

George T. Baker III

The aging of our population presents what must be considered the single most important challenge to the future of our society. Over the last century, life expectancy in the United States has virtually doubled while birth rates have declined. This has resulted in a dramatic and continuing redistribution of age cohorts within our population. For example, in 1900 life expectancy was less than 50 years of age. At that time only 4 percent of the total population was in the 65 and older aged cohorts. Today life expectancy is approaching 80 years of age with approximately 12 percent of our population now in the older aged cohorts. Conservative estimates indicate that if the current trends in birth rates and mortality continue as expected, over 20 percent of our population will be in these older aged cohorts by the middle of the 21st century.

In the coming decades, the mean age of our population will approach 40 years. Currently we have more individuals over the age of 65 than we do teenagers in our society. It is within these older ages that the greatest percentage increases in the U.S. population growth will occur in the coming decades. The total population is projected to increase by less than 1 percent per year through the year 2020. Concurrently, the 65 and older population will increase by almost 2 percent and those 85 and older by about 3 percent. In the year 2020, twice as many individuals will be celebrating their 65th birthday as did in 1985. At that time some 54 million Americans are projected to be 65 or older. Again, these are conservative estimates of our population growth. Historically, estimates of the growth of older aged cohorts have been under-estimations of what actually has occurred.

Obviously, the challenges—problems and opportunities—presented to our society by the changes in the age structure of our population are enormous. They touch upon virtually every facet of our societal structure and well-being. Our traditional societal use of "only the age" of individuals to characterize their status and role in our society has rapidly become anachronistic. If we as a society wish to enjoy prosperity in the future, we must be adaptive and sensitive to the changes which have and will continue to occur in the age structure of our society. Our challenge will be to continually address and redefine issues such as employment and retirement, length and quality of life, the provision, quality and cost of health care services, questions of education and training throughout the life span and the opportunities for all our citizenry to share in the

rewards of prosperity. In the course of these discussions, we should keep in mind that our most valuable resource as a society and a nation is the human resource. A balanced perspective of the rights and investments in this human resource of all ages must be achieved. The potential for intergenerational conflict is particularly evident in the allocation of public funds to programs which address the needs of special populations including the elderly. There are those who would argue that to debate enhancements to the Medicare system while some 37 million Americans have no health insurance at all makes little sense. There is legitimacy in many such arguments as they relate to social programs in education, employment training, discrimination, etc., from both a societal and fiscal viewpoint. While care must be exercised to make appropriate investments in all current generations within our society, we must also invest for future generations. The quality of life at all ages is in large measures determined by prior experiences. Each generation will be affected by the policies and programs established in prior generations. To focus too narrowly on immediate interests without a view of the entire life span will only confound issues for future generations. We must fully recognize the implications of who we are, namely, a society growing older. We must be vigilant and adjust our policies to capitalize on the demographic changes in our society.

As a society, we perhaps should take some measured solace in newness of the aging phenomenon and of our past achievements. The unprecedented doubling of life expectancy within the last century was brought about primarily by advances in biomedical research. The human species is perhaps just now maturing as a species by becoming more knowledgable and co-adaptive with its environment. We should therefore be encouraged to consider new options, new alternatives and new directions to address the issues concerning the aging of and the problems of the aged in our society. From a somewhat facetious perspective, it might be well to remind ourselves that the present model of Homo sapiens has been around only since about 35,000 B.C., an infinitesimally short period of evolutionary time, and that Social Security was enacted only in 1935—yesterday!

Aging and the Aged: The Dichotomy of Understanding and Approach?

I hope to be able to present to you a balanced perspective of reality between the problems of aging and the problems of the aged! No one can deny the intrinsic value of basic research directed toward the understanding of the underlying mechanisms of aging processes for this is surely the only way true progress can be made. On the other hand, people have and will continue to grow older, many of these individuals already have and will continue to personally experience the often devastating consequences of aging.

The distinction between the term "aged" and "aging" is important because it directly impacts on our understanding and approach to the phenomena under discussion.

—Aging is a virtual universal phenomenon characterized by a series of irreversible biological and behavioral changes that

occur at the molecular, biochemical, physiological and physical levels in all individuals of a given species. These changes render individuals more susceptible to the stresses of everyday living. The rates of aging for any species are governed by two major components. The first, a genetic component imparts an intrinsic capability to the individual to manifest any number of species-specific biological processes. These intrinsic capabilities include, at least in part, life span and resistance to certain diseases.

—The second governing component is the environment. Environmental influences are superimposed on the intrinsic genetic component and can affect the rate(s) of aging either positively or negatively. We are increasingly aware of the negative environmental influences on human health and longevity, i.e., various carcinogenic agents and risk factors for human diseases. We are less knowledgeable about the potential positive influences of environmental factors such as nutrition on the rates of biological aging processes, particularly in humans.

—Aged is "a state of condition" wherein the processes of aging have rendered the individual more vulnerable to multiple environmental stresses. In one sense a "state of agedness" is not necessarily a correlate of chronological age but rather a state of dependence versus of independence. The manifestations of aging processes normally, however, include declines in various physiological functional capabilities and a general loss of adaptive or homeostatic capabilities including an increased susceptibility to a number of disease states. Thus an individual with advancing age is more likely to experience a period(s) of dependent status rather than an independent lifestyle.

An on-going debate on the presumptive compression or morbidity (the incidence or prevalence of disease) and mortality (the causes of death) in our society, which not only has important public policy implications but serves to illustrate some of the more basic problems facing researchers in gerontology today. The debate initiated by Dr. J.F. Fries and responded to by Dr. E.L. Schneider and his colleagues centers on those factors which directly affect the quality and quantity of human life, namely, morbidity and mortality.

The debate hinges on at least two fundamental biomedical questions in the field of gerontology: (1), Is the life span of any given organism biologically fixed at some irreversible finite point in time, and (2), what are the inter- and intra-relationships between the processes of aging and those of disease? Dr. Fries argues that the life span of humans is biologically fixed at approximate 85 years of age on the average. Further, he argues that the incidence of disease is not only decreasing but is occurring at older ages thereby compressing the relative period of disability normally associated with advancing age into a shorter time frame within the total life span. Dr. Schneider and his colleagues have argued that such predictions of the compression of mortality and morbidity are precarious at best based on the data available today. While, I do not wish to enter into the debate, the discussion is important as it does underscore the lack of our basic knowledge and/or understanding of more fundamental processes of aging and thereby the potential to create an untenable situation for public policy makers. Indeed,

there are major implications of this debate for policy makers concerned with resource allocations for all facets of gerontological research including the health care and related service needs for older individuals in our society over the coming decades. If Dr. Fries argument is espoused, in terms of public policy, there would be no long range need to greatly enhance research, education and training in gerontology, make provision for expanded health care services, or allocate resources to other programs for the elderly.

Dr. Schneider and colleagues present a more cautious, less optimistic, viewpoint concerning the decline in the prevalence of disease with advancing age and the eventuality of the so-called "rectangularization" of the human survival curve. If this viewpoint is supported the necessary public position would be to increase funding for the previously enumerated activities.

In considering these positions, it is important to keep in mind that, while it is true that there apparently is a strong genetic component which may set some maximal attainable life span for a given species, environmental conditions can and do have significant effects on species life span. To date, there have been very few well designed experiments which have attempted to optimize even one of the myriad of environmental factors which could influence longevity over the course of the entire life span. The one environmental probe which has been rather extensively examined and is effective in increasing not only mean longevity but maximal longevity as well is caloric restriction in laboratory animals. It should also be pointed out that by definition maximal longevity refers to the longest lived individual of that species. From a biogerontological perspective, this data point has little value in terms of the overall dynamics of population aging and may simply reflect a large genetic heterogeneity such as one might expect in human populations or some aberrant genetic and/or environment response. Similarly, recent findings on experiments in lower animal model systems have shown that longer lived animals can be experimentally selected for. Our further understanding of these molecular-genetic mechanisms could eventually have a dramatic impact on our ability to affect one or another process involved in human aging and certainly allude to the plasticity of species-specific longevity. In short given our current state of knowledge concerning the basic molecular-genetic mechanisms of aging processes to ascribe biologically fixed life spans to any species would be, in my opinion, tenuous at best.

With regard to the hypothetical arguments concerning the compression or morbidity, I would suggest that the history of biomedical science has already taught us that such predictions are fraught with many unknowns and must be viewed with extreme caution. Whereas at the turn of the century, infectious diseases (pneumonia, tuberculosis, and intestinal infections) were prevalent and the major causes of death today chronic conditions such as osteoarthritic disease are most prevalent and heart disease, cancer and cerebrovascular disease are the major causes of death in our society.

For example, no one at the turn of the century could have predicted the effect that Alexander Flemming's and John Florey's discovery of penicillin in 1928 would have on the course of human diseases and life expectancy. Nor would anyone in the early 1940's

have predicted the significance of the work of a number of pioneer bacteriologists such as Avery and his associates or Hershey and Chase which eventually led to Jonas Salk's ability to develop an injectable vaccine against poliomyelitis or for that matter the rapid isolation and characterization of the AIDS viruses today. There are a score of such examples of how the health and well-being of human populations have been affected by basic research in many diverse areas of scientific inquiry.

There should be little doubt from these few examples, that innovative scientific research will ultimately have the most dramatic positive effects on the quality and quantity of life for human populations.

In the same context of attempting to predict future morbidity based on the current incidence of diseases a number of highly probable caveats exist. One, as already mentioned above, is that as prevalence of one disease in diminished or erradicated by biomedical advances another inevitably arises. Certainly, Alois Alzheimer could not have imagined today's widespread incidence of the disease he first described back in 1906 for the disease was indeed rare at a time when life expectancy was barely 50 years of age. For that matter, few if any researchers in the 1960's had predicted the magnitude of Alzheimer and related dementia's would impose on today's society today. The lesson of this example is simple. As life expectancy of the population increased, the number of individuals who lived long enough to manifest these disease states grew as well. There will always be the basic biological phenomenon of aging. Aging is not a disease to be cured. Similarly, there will always be another disease—both those that are extrinsic (infectious) to the organism such as the AIDS viruses, as well as those which may be more closely related to the processes of aging such as osteoporosis. In either case, our best approach to the betterment of the health and quality of life is investment in our understanding of the basic biological, psychological, sociological and clinical manifestations of the processes of aging which render individuals more susceptible to environmental perturbations, including disease. In other words, a prospective investment in basic research for our own and more importantly for future generations is the best choice we can make.

Specific Issue and Option Areas

I would now like to briefly elaborate on several selected areas germane to research issues and questions in the field of gerontology. These include: *Networking Health and Related Services for the Elderly* with Mr. Charles W. Berson; *Aspects of Nutrition and Aging* with Ms. M. Lisa Watson; and *Education and Training Needs in Gerontology* with Dr. Nathan W. Shock.

EDUCATION AND TRAINING NEEDS IN GERONTOLOGY

Nathan W. Shock

The recognition of the continued increase in the proportion of older individuals in our society make it clear that aging will continue to be an important question of scientific investigation for the

foreseeable future. In order to resolve the problems of aging and the aged, scientists from all disciplines, ranging from microbiology to psychology and sociology, will need to be trained in the gerontological aspects of each scientific discipline. Traditionally colleges and universities have served as the training grounds to bring young scientists into new fields of endeavor. This is the path we must follow in the field of gerontology. Colleges and universities must be stimulated to develop education and training programs in the field based on solid scientific data.

Training and education in gerontology is unique since candidates for such training must first of all be well versed in the methodology and content of one of the traditional sciences—such as biology, genetics, biochemistry, physiology, psychology, sociology, etc. It must also be recognized that this basic training in gerontology must focus on the mechanisms by which aging (the passage of chronological and biological time) influences the phenomena under study. Gerontology must be studied as a series of events that take place over time. Thus gerontology involves more than the characterization of older individuals. Studies of aging require observations made at least three or more points, preferrable more, over the entire life span on the animal species under study.

In order to resolve the problems that will be generated by the rising tide of older individuals, universities must meet their traditional obligations to provide basic knowledge about the mechanisms involved in the processes of aging and to train future faculty in the field of gerontology. In order to accomplish this task, *"Centers of Excellence"* in gerontology must be established. These centers will concentrate on specific aspects of aging in bringing to bear modern technology to investigate specific problems—but with the added question—how does the passage of time influence these processes.

These centers of excellence must support a well trained staff which is highly motivated to answer questions about the processes of aging. Special library resources focused on the scientific literature of gerontology must be assembled. Modern technology and laboratory resources associated with the area of research that is chosen by the Center must be provided in order to attract outstanding young scientific investigators. In order to meet this challenge, universities must allocate a portion of their resources to the scientific investigation and the teaching of the science of gerontology within established disciplines. Something which American universities to date have, in general, been reluctant to do in any meaningful fashion. To establish a Center which cannot do much more than publish a newsletter and function as a public relations and community service program for the university does not meet the societal nor intellectual responsibilities of a university. More importantly, it ignores the scientific challenges and recognition of the study of gerontology. There are only a few institutions of higher education that have made a meaningful commitment to the science of gerontology. Whether this is only a reflection of the newness of the field or other factors such as few university administrators appear to appreciate the science of gerontology is not clear. In any event, institutions of higher education must be encouraged to invest some of their own resources in the science of gerontology. What is needed

most for the future is a firm and primary commitment to the field of gerontology—the scientific study of aging.

Although the above discussion focused on the need to develop centers of excellence for gerontology in institutions of higher education, it should be recognized that other viable options and appropriate sites for the education and training of basic researchers and faculty in gerontology need to be encouraged and further developed. Research institutes such as the Gerontology Research Center of the National Institute on Aging and the Veterans Administrations Geriatric Research and Education Centers are ideally suited to expand programs focused on research and training in gerontology. The development of both public and private institutes (both industry and community based) must be fostered if we are to meet future challenges in the field of gerontology. Two recent surveys (1986 and 1987) completed on the preception of health status and the health care needs of diverse mature populations found a high degree of familiarity with the types of services normally associated with gerontological health care. More importantly, those surveyed expressed a somewhat surprising sensitivity to having health care and related services provided by individuals appropriately trained in gerontology. Some 80 percent of those respondents in both surveys felt it was important to very important to have individuals trained in the various facets of gerontology staff community based health care facilities. Furthermore, approximately 80 percent both survey populations felt it was important to very important to have on-going research at such facilities and probably most illuminating was the stated willingness of approximately half (50 percent) of all respondents to participate in on-going research(1). In the development of centers of excellence in gerontology whether academically based or in other public/private facilities, we must not overlook the potential resource that older individuals in themselves provide.

Although there is an immediate need for educational programs to train health care and related service providers (physicians, dentists, nurses, social workers, program administrators, etc.) in the techniques to operate and deliver services and programs, it must be recognized that service programs are not apt to solve the basic problems generated by aging. At the present, major emphasis is being placed on training personnel to enter into these service programs. In the long run, however, such an approach becomes self-defeating. The ultimate answer to the problems must lie in basic research that leads to an understanding of the basic mechanisms of aging. Armed with this knowledge many of the problems associated with aging can be resolved.

The previous discussion is in no way intended to diminish the current and projected educational and training needs for health care professionals in gerontology. It must be stressed, however, that without the commitment by universities and other interested parties to promote and facilitate highly trained researchers and educators in gerontology there will be a continuing shortage of qualified faculty even to meet the educational and training needs for health care and related professionals much less the needs of other scientific disciplines.

According to a report by the National Institute on Aging entitled "Personnel for Health Needs of the Elderly through the Year

2020"(2), if all other trends remain constant there will be a more than doubling of health care service needs for the elderly by the year 2020. The most critical constraint identified for the education and training of personnel to meet these projected health care service demands will be the shortage of qualified teaching and research faculty in gerontology and geriatrics. Depending on the discipline, the current number of adequately prepared teaching and research faculty is estimated to be only 5 to 25 percent of those needed to meet the demand.

The need for physicians and other health care professionals to be able to access appropriate education and training in gerontology must be considered a priority second only to the education and training of research and teaching faculty for the field of gerontology.

In 1982, approximately 80 percent of caregiving for the elderly was provided on an informal basis, given by spouses, relatives, neighbors, and friends. The vast majority of all care given for the elderly is done by this informal system. Indeed, according to the 1982 National Long Term Care Survey, 70 percent of older disabled persons living in the community received all of their care informally. The mean age of family caregivers in this survey was almost 57 years of age of which approximately 75 percent lived with the disabled older person. These individuals who are the major providers of assistance for the elderly in our society must be provided with appropriate informational and educational resources as well as other assistive resources in order for them to maintain their cost-efficient and effective caregiving roles.

Last, but by no means of less importance to the well-being of our society are the educational needs of mature adults of all ages. We, as responsible scientific researchers, educators and public policy makers interested in the field of gerontology, must be committed to providing up-to-date quality information to the general public on issues in aging and gerontology. Tomorrow's older individual will be better educated and therefore more capable and receptive to information concerning the processes of aging. In some regards, at least in my opinion, we have not done a very good job of educating the general public on the issues and problems of aging in our society. Indeed, even professionals in the field often cite the accomplishments of a few distinguished older individuals such as a Winston Churchill or a Grandma Moses. These examples belie the truth and potentially further distort the realities of aging and exacerbate attempts to create a realistic positive stereotype for the older individual in our society. A public well informed on the biological, sociological, psychological and medical aspects of aging could greatly alleviate a number of problems facing many older citizens today including elder abuse, employment opportunities, recognition of health problems and access to health care to mention a few.

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ASPECTS OF NUTRITION AND AGING

M. Lisa Watson

There are any number of scientific areas we could have chosen to elaborate on with respect to our needs for basic knowledge related to the field of gerontology from genetics and molecular biology to biochemistry and physiology. We have chosen nutrition sciences for pragmatic as well as illustrative reasons. Pragmatically, because we have some familiarity and information with the field as it relates to the science of gerontology and because most individuals have at least a general knowledge of the importance of nutrition. Illustratively, because it demonstrates our lack of scientific information, particularly on the effect of aging on nutritional requirements and the potential impact such information may have on influencing processes of aging and the processes of disease in human populations. Moreover and critically, nutrition science underscores the importance of knowledge as it relates to the total spectrum of the life span. It is not just a question of what are the nutritional requirements of older individuals but more importantly, what are the nutritional requirements over the entire life span that best insure a quality of life in later years. Nutrition is an area of scientific inquiry which clearly delineates the importance of knowledge as it relates to the understanding the processes of aging versus that of studies on the status of the aged. For example, we know that cardiovascular disease, the major cause of death in adults, is a progressive disease often beginning early in life that can be influenced by nutritional factors. Clearly, nutritional interventions will be most effective when initiated in early life. Similarly, the initiation of a number of types of malignant neoplasms (cancers) occurs decades before the disease manifests itself. The susceptibility to each of these disease states involves established or suspected dietary factors.

The difficulties associated with precise ascertainment of the role of specific nutrients in the maintenance of health and the processes of disease throughout the life span has long been recognized. The following outline of the problem, written over 40 years ago, remains accurate today:

> "Few attempts have been made to determine the optimum diet for the adult after he has attained middle age. Such research is beset with difficulties foreign to similar studies for the first half of life. After the attainment of middle age, the body becomes more and more subject to the diseases resulting from the regime followed during the first half. . . .
>
> Nevertheless, the importance of the diet during the latter half of life must be of nearly the same order as during the first half. Therefore, it must be studied in spite of the handicaps imposed by the aging process and in relation to these very changes and diseases which accompany aging(1)."

Individual cells are dependent upon a constant supply of nutrients to carry out specific functions. Further, as cells make up tissues and tissues make up organ systems, adequate nutrition is a common thread upon which ultimate survival of the individual depends. While the underlying biological mechanisms of aging are less than adequately understood, the basic fact that a number of alterations in cellular and systemic physiological processes occur with the passage of time is universally accepted. Given that these changes do occur, one could logically speculate that alterations in

nutrient needs at the biochemical level either precede or follow these changes.

Unfortunately, hard scientific data elucidating the extent and impact of these putative alterations are sparse at best. Interpretation of research on nutrition and aging has suffered from the complexity of factors inherent in studying both nutrition and aging. Simply designing the appropriate research protocol to address the myriad of experimental variables (genetic, behavioral, physiological, dietary and numerous other environmental factors) over the life span is an immense scientific challenge. However, not one to be dismissed as impossible.

The potential influence of food and nutrient intake on animal life expectancy has been a subject of investigation for years. In the late 1920's and early 1930's, McCay and his associates reported a doubling in the life span of laboratory animals which were restricted in their food intake(2). This group of scientific investigators and others also found a lower incidence of some specific pathological conditions in the restricted animal groups compared to the control groups(2,3,4,). Although the direct extrapolation of these laboratory findings to human populations are inappropriate for a number of reasons(5,6), they do demonstrate the substantial impact that diet and nutrition can have on general developmental and life span processes. In addition, such research has provided the basis for more detailed studies and subsequent greater understanding of the effects of caloric intake and specific diet composition on other processes such as tumorigenesis(7).

Nutrient Needs of the Elderly

As alluded to previously, and despite the widespread acknowledgement of the importance of nutrition on the well being of an individual at all ages, there has been inadequate study of nutritional requirements of the aged, particularly with regard to trace elements. Since 1943 the Food and Nutrition Board of the National Academy of Sciences has published sets of Recommended Dietary Allowances (RDA's) on a periodic basis. The ninth edition of these recommendations was released in 1980(8). These recommendations based on available scientific information estimate the levels of nutrient intake adequate for the maintenance of normal body function for the majority of the health population. The estimates are age and sex specific and are inflated form minimal values to account for individual variability within groups. The lack of solid scientific data for more mature populations is clearly demonstrated by the fact that the *Recommended Dietary Allowances* lump all individuals over the age of 51 years into a single age group. Even here, the recommendations are generally based on assumptions about and interpolations of research on nutrient needs of younger populations. This method of categorization by the Food and Nutrition Board is a clear indication of the paucity of data on the potentially changing nutrient requirements with advancing age. This is not to imply that there generally are major or significant changes in nutrient requirements during the adult life span, only that there is little scientific information on which to make recommendations specific to older individuals.

There is no question, however, that a number of changes occur throughout the life span that would be expected to influence nutritional requirements. For example, reduction in metabolically active tissue (lean body mass), concomitment with increases in body fat normally occur with advancing age. Energy needs decrease, partly as a result of reduced basal metabolic rate which reflects the changing body composition, but more dramatically as a result of reduced physical activity(8). Other factors which can influence nutrient needs in some older individuals are changes in the efficiency of organ systems, alterations in digestive, absorption and utilization of foods as well as the increased prevalence of certain chronic or acute disease states.

Recently Munro and his associates have extensively reviewed existing data on the nutritional requirements of the elderly (9). Generally speaking, they assessed the current recommended dietary allowances of most nutrients to be adequate in meeting the apparent functional needs of the healthy older populations. They noted, however, that the numerous gaps in available information raised important questions that come into play when attempting to evaluate the requirements of such a heterogenous cohort. For example, as mentioned earlier, energy needs are generally reduced in older individuals. It is, therefore, not surprising that various surveys have reported that older cohorts consume significantly fewer calories than younger age groups(10,11,12,13). This decrease in food intake, however, raises logical concern that the intake of specific nutrients could also be reduced thereby placing older individuals at a greater risk of developing nuteient deficiencies. Although limited data might suggest that protein requirements do not differ with age(14), no definite conclusions can be made on the protein requirements for the elderly nor is the extent to which protein intake may affect the age-related loss in lean body mass known(9). Reduced food intake can also influence the amounts of trace minerals available in the diet. For example, zinc intake is known to parallel caloric intake and, indeed, has been shown to be a problem in some elderly individuals(15). While the extent of this phenomenon is not known, zinc deficient status is thought to contribute to immune dysfunction and poor wound healing in some older individuals.

Nutrient Intake of the Elderly

Available nutrition surveys of the elderly have been criticized because of a variety of limitations, including use of unstandardized methods, errors in estimates of consumption, inappropriate sampling methods, inadequate food table analytical values and unconfirmed assumptions about nutrient absorption and bioavailability (16, 17). Nutrition assessment should ideally include estimates of food intake, measures of biochemical and functional indices and clinical examinations. Even interpretation of results of such a complete protocol, however, would be limited in that, as previously noted, few valid standards for intake and biochemical assessment currently exist for older aged cohorts(16). Further, a critical need exists for information collected in a longitudinal manner which would examine individuals over the course of the life span rather then the current focus on end point specific cross sectional differ-

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ences between age groups(17). Such studies, idealy beginning during early life, would greatly facilitate our understanding the role of nutrition on the processes of aging as well as on age-associated diseases. Unfortunately, at the present the data are too limited to make any meaningful generalizations regarding the nutritional status of subsets of the aging and aged populations.

Drug-Nutrient Interactions

It has become well recognized that the actions of many drugs, both prescription and nonprescription, are substantially altered with advancing age. Approximately 85 percent of the noninstitutionalized elderly and 95 percent of those in institution take medications on a regular basis(16). In addition, 90 percent of the prescription drugs taken by those over the age of 65 years are for the treatment of chronic medical conditions(16). The use of some medications, particularly on an extended basis, may have significant impact on the nutritional status of an older individual(18). Adverse effects may be the result of a variety of factors, including drug-nutrient binding in the intestine, drug induced changes in intestinal acidity from that optimal for nutrient absorption and altered nutrient metabolism and utilization. More extenstive research on alterations in nutrient requirements brought about by drug therapy is especially important for older aged cohorts. At particular risk are those individuals whose nutrient status is marginal or deficient. For example, while folate status is generally viewed as adequate for the majority of the elderly population, those with high alcohol consumption or using drugs such as diphenylhydantoin are at greatly increased risk of clinical folate deficiency(19). Other commonly used medications that may predispose individuals to a compromised nutritional status include laxatives, diueretics and anticonvulsants.

A somewhat related area of concern is that of nutrient toxicity resulting from the misuse of dietary supplements. A recent Food and Drug Administration survey found that nearly 40 percent of adult Americans ingest supplements on a daily basis. About 42 percent of those consume doses from three to eight times the recommended daily allowance(20). An even higher prevalence of dietary supplement use has been reported for the elderly(21). Toxic reactions resulting from the use of inappropriately high doses of vitamins are well documented(22). The elderly are probably more susceptible to adverse effects as the threshold of toxic blood concentrations of many drugs is lower among older age groups. While it is generally recognized that older individuals with compromised food intake due to socioeconomic factors, reduced activity or the presence of certain pathological conditions may benefit from the use of moderate supplementation (50 to 150 percent of the RDA), additional research is necessary to clearly define safe dosage ranges for this population in particular(22).

Nutrition in Chronic Disease

Death rates in the United States have declined sharply over the course of this century, a trend that cannot be attributed to, but may have been influenced somewhat by general improvements in

nutrition. Increases in life expectancy have been accompanied by shifts in the major causes of death from infectious diseases (pneumonia and influenza) in the earlier part of the century to diseases of the heart, malignant neoplasms and cerebrovascular disease today. While these diseases account for three out of four deaths among older cohorts, the age at death due to heart and cerebrovascular diseases has increased markedly over the last 30 years. Malignant neoplasms as a cause of death have increased among the elderly in the past few years, primarily due to the incidence of lung cancer in both men and women(16).

Specific nutrients and dietary factors have been implicated both in the etiology and prevention of these and other chronic diseases. Understanding of the role of nutrition in the development and progression of chronic diseases remains variable between individuals and largely unclear. Various facets of diet have been suggested as risk factors in both cardiovascular diseases and specific cancers, however, intervention trials have had a limited impact on mortality. Such results, while discouraging, might have been expected given the wide host of variables that influence the etiology and course of these extremely diverse pathological conditions. Furthermore, if effective nutritional interventions are to be realized for these conditions, a more precise elucidation of the molecular and biochemical effects of nutrients and diet over the entire life span, as well as a more clear understanding of the interplay of genetic and dietary influences, is imperative. At present most of the data available are epidemiological in nature, which by itself cannot demonstrate causation of disease by diet but only directions for future research.

Probably one of the most insightful examples of the complex interplay of the processes of aging, genetics, diet and other environmental factors in the etiology and progression of chronic diseases is that of osteoporosis. Osteoporosis is an insidious age-related disorder in which bone mass is slowly decreased, ultimately resulting in a greatly increased susceptibility to bone fractures, particularly in women. The incidence of osteoporosis related fractures has been estimated at 1.3 million per year in persons over the age of 45. As many as half of all American women over this age and 90 percent of women over the age of 75 are suspected to have this condition to some extent(23). The economic impact associated with osteoporosis is staggering—an estimated $6 billion annually.

The etiology of osteoporosis is multifactorial, however, a major contributing factor to the progression of this condition is a decline in estrogen levels in post-menopausal women. Indeed, the disease is most common among post-menopausal Caucasian women. Calcium deficiency also appears to play an important role on two tiers. First, and likely most importantly, inadequate dietary intake of calcium during early life may lead to a less than optimal accretion of bone mass which eventually will effect the integrity of bone later in life. Further, while adequate calcium intake cannot reverse the age associated loss of bone mass, it may help in slowing the rate of loss. Thus, women who have amassed a less than optimal level of bone calcium stores during development are at an increased risk following the menopause.

As stated earlier, the etiology of osteoporosis is multifactorial with dietary calcium being only one of many factors involved. The production and reabsorption of bone is a complex process which involves a number of hormones and cell types as well as other nutrient factors such as vitamin D, protein, phosphorus and other minerals. The basic mechanisms of many of these processes and their inter-relationships are poorly understood. In addition, and aside from the established influence of estrogen level and dietary calcium, there are a number of other environmental factors which can significantly modulate an individual's susceptibility such as physical activity levels and smoking history.

Unfortunately, treatment of osteoporosis generally involves surgical repair of conditions arising from actual bone loss—hip fractures and replacement being the most common example. As is true for all such conditions, treatment of such endpoints remain a less than satisfactory alternative. Clearly, emphasis for this and other chronic diseases must be directed toward an understanding of the age-dependent basic biological mechanisms underlying the etiology.

SUMMARY

New understanding and progress in the field of nutrition and gerontology will emanate only from basic research that centers on the biological mechanisms underlying the processes of aging. While significant advancements have been made in each of these scientific areas, the present paucity of data, both on the basic mechanisms of aging and on the nutrient needs over its course, are widely recognized. Further research is desperately needed at the laboratory level in order to elucidate more clearly the basic mechanisms, and at the human level, ideally in the form of longitudinally designed, long term studies. It is imperative that future efforts take into account the heterogeneity of human populations and include an emphasis on the continuum of dietary and other environmental influences as well as on the psychological and physiological state of older individuals. Given the prevalence of drug use and the altered pharmacokinetics of many drugs in elderly, additional research emphasis should be placed on both the acute and long term impact of various drug-nutrient interactions. Specific information on nutrient intake should be correlated with biochemical and physiological functional assessments in addition to investigations of the impact of diet on the development and progression of chronic conditions.

More precise information on the nutrient requirements throughout the life span will undoubtedly have a positive impact on the quality of life with advancing age.

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NETWORKING HEALTH AND RELATED SERVICES TO THE ELDERLY: REASONS, CONCEPTS AND RATIONALES

Charles W. Berson

BACKGROUND

The size, growth and impact of America's elderly population on our health care system is a major topic of discussion at all levels of government and among the providers, consumers and the payors of health and related care services. A singular issue of concern, particularly to the payors for care to the elderly (public and private), is how to deliver quality health care to this growing high user population at a reasonable cost. More specifically, the issue to be addressed is one of how to manage the trade-off between providing relatively unlimited access to needed health care services and provision of those services at a cost reasonable to both the consumer and the primary payors. Inherent associated questions are (a) how to maintain high quality in the care delivered without compromising abilities to pay; and (b) how to accomplish the primary trade-offs between access, cost and quality without compromising the providers of the care delivered.

The Use of Health Care by the Elderly

In 1985, the 65-plus population represented 12 percent of the total population in the United States. At the same time, these age groups accounted for 40% of hospital admissions(1). The elderly are admitted to short-stay hospitals 3.1 times more frequently than the under 65 population and consume more than 5 times the number of patient days(2).

The elderly account for over a third of the use of physican services (1). They visit a physician at a 6 to 5 ratio of the general population and most of these visits (75 percent) are office visits. The number of physician visits by the elderly are expected to increase by almost 20 percent over the next 15 years(3). Similarly increased use is projected for dentists, nurses, social workers and other allied health care professionals in order to meet the multiple health care needs of the elderly.

In addition, the elderly account for some 10 percent of dental office visits, 75 percent of home health visits and almost 90 percent of nursing home occupancy (3).

The Cost of Providing Health Care to the Elderly

The over-65 age group currently represents about 35 percent of all health care expenditures which now approach one-half trillion dollars. It is estimated that the elderly will consume one-half of an even larger national health care bill by the turn of the century. In 1984, the annual health care per capita expenditure for individuals aged 65 years and older exceeded $4,200. Twenty-five percent ($1,059) of this amount was borne by the consumer as out-of-pocket expenses. The out-of-pocket expenditures by type of health care service in 1984 were hospitals (3.1 percent); physicians (26.1 percent); nursing homes (51.2 percent) and other care services (59.9 percent)(4). It can be expected that the total and per capita expenditure on health care for the elderly will only increase as the current older cohorts age and move into the "frail elderly" group of 85 years and older and as large numbers of younger aged cohorts move into the higher use group of 55 years and older.

The Existing Health Care System

Different approaches have been attempted as a means of providing health care of a reasonable quality and cost to our elderly. The Federal Government, for the hospital component of the Medicare program, changed from a retrospective payment system to a prospective payment system (PPS) in 1983. The Medicare PPS system consists of payment of a fixed dollar amount to a hospital per admission based on the average cost of treating one of the 471 diagnostically related groups (DRG's). Therefore, the dollar amount paid to a hospital is divorced from the number or types of services rendered to a patient. Advocates of the DRG-based system point to the reduction in the rate of increase in the cost of health care since 1983 as a measure of success for PPS. Opponents of the reimbursement-based control claim that the combination of prospective payment or DRG-based reimbursement with other utilization control programs such as Peer Review Organization (PRO's) have resulted

in reduced access to health care services. Others claim that quality of care suffers(5,6). The general quality of care provided to older individuals probably does need improvement. The medical care given in many nursing homes has been reported to be inadequate (7,8) and there is evidence that common geriatric problems are frequently undiagnosed or under-reported (9). Other methods of providing service and controlling costs have been attempted. Medicare maintains a Medicare risk contract program. Under this program a CMP (competitive medical plan) or HMO is paid prospectively by Medicare to provide all agreed upon services. As a result, the HMO or CMP is "at risk" for cost-overruns. Few HMO's have participated in the risk contract program. As of September, 1986, only about 3 percent of the total Medicare population was enrolled in the cost and risk contract programs. The lack of enrollment in these programs has been attributed to enrollee resistance to the "lock-in" provisions of such plans and the provider reluctance to assume the financial risks. Over the past 2 years, 33 HMO's have dropped out of the Medicare share risk programs with 26 not renewing in 1987. It should be noted that the 26 programs, according to the Health Care Financing Administration, represent 17 percent of the 151 Medicare contracts but only 40,000 of the nearly 1 million enrollees in such programs(10).

Analysis of one of the most publicized failures of the risk contract program, that of International Medical Centers (IMC) in Florida, points out a major problem in attempting to provide quality care at a reasonable or controlled cost for older populations. The reasons given for the demise of IMC include inadequate utilization review, the lack of a coordinated referral system of care and other management deficiencies. In summary, IMC was over-utilized by its enrollees, in its attempt to use the existing health care system to provide care without providing the necessary controls or interrelationships to avoid over-utilization. Note: According to Humana officials, since the IMC program was taken over by Humana in June 1987, it is projected that the program will financially turn around in the near future.

Elsewhere, demonstration projects addressing limited portions of the health and support continuum of care for the elderly have reported varying levels of success. the South Carolina Community Long Term Care Project reported a 38 percent reduction in nursing home use between experimental and control groups (all of whom met medical criteria for nursing home admission) by case management and expanded community-based services in addition to regular Medicaid services(11).

Programs such as continuing care residential communities (CCRC's) and life care communities have increased in popularity as the elderly's demand for a continuum of care in a centralized delivery modality has increased. Unfortunately, the risk to the developer of such programs is high and integral portions of the continuum (e.g., nursing home care) are restrictively regulated in many States. As a result, the development of programs addressing the entire continuum of health and related services for the elderly have not been developed to any large extent.

It appears that the major reasons for the continued imbalance of access, quality and cost of care to the elderly are two-fold. First,

the existing health care delivery system to the elderly can be characterized as being fragmented. The continuum of health care alone begins with preventive and health care promotion services and extends through physician and other practitioner services to acute hospital services and nursing home and other long-term care services and finally with hospice care. Further, services to the elderly are not all institutionally-based (e.g., home health care, adult day care, etc.). The very scope of a vertically and horizontally health care continuum, exclusive of residential housing and other nonmedical support services, in such to prohibit the ownership and control necessary to guarantee provision of coordinate services in a cost-effective manner.

Secondly, there are currently few incentives to a provider or providers for the development of "systems" of care. In point of fact, institutional providers are apparently encouraged by reimbursement mechanisms to take a competitive stance for factors of production such as technology and professional staff. As a result, inter-institutional cooperation in the provision of care has been retarded and is usually restricted to multi-institutional systems or between limited portions of the total continuum (e.g., hospitals and nursing home facilities). Key elements in a coordinated system of care (i.e., hospitals, nursing homes, and physicians) have traditionally been viewed as having separate missions with limited overlap and hence a limited need to coordinate care. Factors such as diminished reimbursement, declining utilization, shifts from inpatient to outpatient provision of care, increased liability exposure, nursing shortages and other environmental considerations, have resulted in increased competition between physicians and institutions, and across the various vertical levels of care. The result of this increased competition has been to increase the difficulties involved in the coordination of patient care.

The Continuum of Care and the Elderly

A review of our past experiences clearly indicates that a complete continuum of care for the elderly cannot be limited to the traditional providers of health care services. The totality of a care continuum for the elderly includes at least three primary categories of needs and services:

(a) Clinical care resources inclusive of practitioners, hospitals, nursing homes, rehabilitation facilities, outpatient facilities, hospices, home care providers, etc.;

(b) Nonclinical providers of services inclusive of adult day care centers, information and referral services, meal-on-wheels programs, homemaker/chore services, medical-alert programs, etc.; and

(c) Residential settings inclusive of continuing care residential communities (CCRC's), congregate care housing (group, shelter, and shared) and medically-assisted living facilities.

Several factors must be consider when designing a care continuum for the elderly. These factors include a strong desire by most older individuals to remain physically and financially "independent" as long as possible; the eventuality of the biological processes of aging which tend to increase an individual's dependence on both

health and nonhealth resources; the current lack of integration between existing clinical and nonclinical or social networks of care; and the availability of appropriate financial mechanisms and resources to pay for needed services.

A major concern among the elderly is their ability to remain independent of physical and/or financial support from others. Behaviors such as denial of actual health status and increased social isolationism are often manifestation of the desire to remain independent(12). While desirous of remaining independent, most older individuals will face a myriad of problems associated with the processes of aging. As life expectancy has increased so has the prevalence of chronic conditions among the elderly. Approximately 85 percent of all individuals over the age 65 are reported to have one or more chronic conditions. In addition, in 1984, an estimated one-third of the 9 million elderly residing in the community had some degree of functional deficiences with respect to activities of daily living or instrumental activities of daily living. Some 2 million of those reported having difficulty in three or more activities of daily living(12). The growth in the size of the older aged cohorts and the increased use of health care resources have impacted on the health care industry. The impact has been to shift emphasis in health care from treatment of acute conditions to long-term management of multiple chronic conditions; to consider provision of nontraditional support systems such as medical alert systems; and to foster the realization of the need to integrate psycho-social services with clinical services.

There are many providers of services to the elderly. On the clinical side of the service equation are found the health care practitioner (e.g., physicians, nurses, therapists, etc.), and the institutional and agency health care providers (e.g., hospitals, nursing homes, home health agencies, etc.). The nonclinical service providers (social or community-based) include programs such as adult day care centers and meals-on-wheels. The third major grouping of service providers include the organized residential providers such as continuing care residential communities, congregate care housing and medically assisted living facilities. A simple statement applicable to all these service provider group is that historically there has been little integration or coordination of services on a routine and continuing basis. It is becoming more apparent, however, that it is often the gaps in services/programs/facilities both temporally and physically that are most critical to the maintenance of the health and well-being of many older individuals.

There are a number of factors which apparently influence the clinically-oriented providers to remain in their own segments of the care continuum. For example, the existing alternative payment systems (i.e., Medicare Medicaid, pre-paid insurance plans, etc.), can act to discourage the integration of services across the continuum of care. This behavior results from the capitated or discounted payment mechanisms forcing the providers to limit the level of additional marginal costs for "non-directed patient care" that can be absorbed while remaining fiscally viable. Examples of other such factors which act as disincentives to the integration of care include underpayment and noncoverage of some services, increased costs of obtaining liability insurance, competition for patients among pro-

viders, and competition for physician and other health related professional personnel.

Alternative Delivery of Care: Networked Systems of Care for the Elderly

There are various mechanisms by which effective coordination and integration of health and related care services for the elderly can be accomplished. The most obvious manner is to have control or ownership of a system of care providers within a single organization. However, given the total range of services involved in providing care for the elderly, such control could only be achieved by governmental agencies or the largest of multi-institutional systems. Another mechanism in which the same results could be accomplished is through the development of "networks" of care providers and services.

In order to outline the manner by which a "network" of elder care services might operate, the basic service elements must be identified. Table I presents a number of the basic components of such a network by the previously discussed groupings.

TABLE I.—THE BASIC COMPONENTS OF A CARE NETWORK FOR THE ELDERLY

Residential	Clinical	Nonclinical
Congregate housing	Geriatric health screening	Transportation
Medically assisted housing	Practitioner services	Medical alert
Group and sheltered homes	Geriatric assessment	Phone reassurance
Continuing care retirement	Case management	Respite care
Communities [CCRC's]	Acute hospital services	Friendly visitors
	—Cardiology	Meals-on-Wheels
	—ENT	Information and
	—Oncology	Referral Services
	—Ophthalmology	Health education
	—Psychiatry	Chore services
	—Rheumatology	Homemaker services
	—Orthopedics	Nutrition services
	—Pulmonary	Adult day care
	—Urology	Personal care
	—Gastroenterology	
	—Podiatry	
	Discharge planning	
	Inpatient rehabilitation	
	Outpatient rehabilitation	
	Skilled nursing facility	
	Intermediate nursing facility	
	Home health care	
	Hospice care	
	Geriatric pharmacy services	
	Dental services	
	Adult day care (social-medical)	
	Physician services to homebound	
	Ambulatory medical care	
	Counselling services	
	Substance abuse programs	

This listing of configuration and services is not meant to be all inclusive nor do the terminologies for a specific service category used necessarily reflect the intended range of services within that category.

In as much as the essence of a system of health care networks is the breath of appropriate delivery of services to the elderly, it is essential that mechanisms be designed to foster such cooperation

between service providers. The most critical centerpieces to the functioning of such a network are the physicians and comprehensive health care community based facilities such as acute care hospitals. The physician is vital to the network because: (1) their services must be provided in the myriad of settings within the network; and (2) the practioner is usually in the best position to integrate an older individual's care. In most areas, the community based hospital would be the most appropriate hub of the network system because: (1) hospitals are the primary providers of health care in most communities; (2) hospitals are already involved in many aspects of care for the elderly; and (3) hospitals generally have the resources and lines of communication with other service providers within the continuum of care spectrum. Other health facilities such as nursing homes in certain circumstances also may have the multi-component involvement necessary to act as a center facility in a networked system. Which ever type of community based facility is the hub of the network, the key to the success of the networked system will be the coordination of services in a comprehensive and effacicious manner.

A network system can be achieved through a combination of direct service offerings, contractual agreements for the provision services between providers and transfer arrangements particularly between institutional components of the network. The direct offerings of service to the older individual must involve the primary care physician and the network hub in order to effect the necessary coordination of services. Contractual agreements between providers could be for example, be the provision of physical or other therapy services from a hospital to a nursing home which actually might reduce costs in addition to providing the needed service. An example of a referral agreement in the network could be inter-relationships between an acute care hospital, a nursing home and a rehabilitation facility.

It would appear that an appropriate starting point for the development of such networked systems would be the establishment of geriatric assessment (including health screening) and case management programs. A geriatric assessment program provides the opportunity for the patient and the physician to establish a baseline for the types of service needs. This base-line could then be used to determine the type of support (clinical and nonclinical) services required by the older individual. The geriatric assessment can be either institutional (hospital, nursing home, etc.) or self-standing physican based within the community. The primary practitioner of the older individual must be involved in the assessment process in order to encourage and ensure the continuity and coordination of care services.

The case management is central to the success of a total network of care. Case management is the operating tool to bring about the coordination of resources within the network. As a multi-disciplinary effort, the case management approach can best provide the integration of diverse service components. The case management program should include or have immediately available to it those essential components of the network (medical, rehabilitative, psychological and social services) necessary to effect positive outcomes.

The key aspects to consider in the development of an integrated and coordinated network of services for the elderly are:

(1) The network must include the residential, clinical and nonclinical aspects of services in order to achieve the needed comprehensiveness of the system.

(2) The network should be oriented toward maintaining the older individual in the community a long as feasible.

(3) The network must provide for an integrated and coordinated delivery of services and at the appropriate level for the individual's needs.

(4) The network should be configured to include the practitioner and an appropriate community based institution (e.g., hospital, nursing home facility, etc.) to foster the integration and ensure coordination of services.

(5) The network should be stablished in a manner which encourages cooperation between providers and reduces unproductive competition.

(6) Finally and most importantly, the networks must provide accessible quality services at reasonable cost to the elderly.

SUMMARY

A primary concern of the Federal Government with regard to the issue of health care for the elderly has been how to make needed services available while restraining the cost of those services. In the attempts to curtail the escalation of health care costs, the Government has imposed regulations in the payment structure for the direct providers of care (i.e., hospitals, nursing homes, practitioners, etc.). Furthermore, alternative delivery system models have been implemented, such as the Medicare risk contracts, in order to accomplish a balance between the access, quality and cost of care. It could be, however, that at least one of the more critical factors in the health care equation has not been fully appreciated. In today's systems of health care, it is not the providers of care who control the delivery of care services but rather the third party payors of care. It is the payors for care, who are generally less regulated, that determine access to care services. Moreover, these organizations have not readily accepted the high-user older aged cohorts into insurance programs and if they are made available the premiums are often exorbitant. As a result, the direct providers of care have little ability to implement alternative options to the existing delivery system. Indeed, most options would more than likely be eliminated or hindered by reductions in fiscal resources. A second result is that providers are encouraged to compete for resources rather than being encouraged to cooperate in the provision of services. Incentives are needed to: (1) encourage the payors for care to accept the elderly into alternative delivery programs (HMO's, IPA's, etc.) in order to share the overall burden of care between governments and the private sector; (2) encourage the integration and coordination of services between the disparate providers of care; and (3) encourage the recipients of care to be informed of their options for care.

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AGING IN RACIAL AND ETHNIC MINORITY POPULATIONS: POLICY AND RESEARCH IMPLICATIONS

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INTRODUCTION

The focus on racial and ethnic minority aging populations assumes that there is sufficient variability in the aging process between these populations and whites, as well as within racial ethnic populations, to warrant serious scientific attention(1-3). Some research suggests that racial ethnic minorities may experience a very different process of development and aging(1-6). McLoyd and Randolph (6) in their review of the developmental psychology literature suggested that differences within racial minority groups may be accounted for better by different sets of variables than those that explain between race group differences. In the present paper, racial and ethnic minority categorization is used to refer to the four major groups of minority elderly, black, Hispanic (Mexican, Puerto Rican, Cuban and those of Central and South American and Europe), Asian American (Chinese, Japanese, Korean, Pacific Islander, Vietnamese) and Native Americans (American Indians, Eskimos, and Aleuts). Much more research has been conducted on blacks and Hispanics. Thus much of the review focuses upon these groups. The observations, however, are relevant for all the groups and in some cases, socio-economic and political circumstances may be even more serious than those that exist for blacks and Hispanics (e.g., American Indians).

Levine (5) and Krauss (7) both proposed that variability within race and sex are important sources of information which are often disregarded in aging research(3). Levine (5) suggested that these characteristics need to be considered as essential, substantive aspects of research on aging and human development. Empirical evidence exists suggesting that racial ethnic minorities respond differentially than whites in research situations(6,8). This may be even more true for older cohorts of racial and ethnic minorities born or reared under very different legal, social, and political conditions. For example, this can be clearly seen for older blacks, many who possess distinctive language and cultural patterns in comparison to whites and even more recent birth cohorts of blacks(9).

The failure to attend to the variability among and within racial ethnic minority populations may result in biased and distorted research perspectives on the racial ethnic minority aging experience (3,8). If recognized and systematically understood, the sources of this variability could be empirically investigated(5,7,10).

The Aging of Racial Ethnic Minorities in America

Recent data from the United States Census Bureau indicate that a greater proportion of the population is living longer, and that those persons over the age of 65 actually constitute a larger proportion of the total population than ever before(11). Siegel (12) reported that over the next 20–40 years an even larger proportion of the total population will be constituted by those over the age of 65 than is true at present. While some of this proportionate increase is due to increased longevity, the vast bulk is due to lowered fertility.

The aging of America is also being experienced by ethnic and racial minorities, particularly blacks and Hispanics, at an increasingly faster rate than in the general population(11). Demographic trends over the last four decades and projections for the next few, indicate a significant upward shift to the mean age of minority populations and greater concentrations in all age ranges over 45. For example, in 1980 blacks comprised some 11.5 percent of the total U.S. population. Approximately 8 percent of the black population was 65 years of age and older in 1980. This 8 percent figure is a 40 percent increase over 1970. This contrasts with the 25 percent increase within the aged white population. This growth both in blacks and in the white population over age 65 are substantially greater than the 11.5 percent increase in the total population. Approximately 5 percent of the Hispanic population are 65 years of age or older. From 1970 to 1980 their growth rate of 75 percent exceeded both blacks and whites. Asian/Pacific Islanders are also showing large increases. Those age 65 or older presently constitute 6 percent of the populations; approximately 7 percent are age 85 years or older. The proportion (5 percent) of Native Americans 65 years of age or older has also shown a large jump. Between 1970 and 1980 their proportion of the total Native American population increased by 65 percent.

Most projections are for continuing increases in the proportions and numbers of both racial ethnic minorities and white elderly through the year 2020. These projections show that the white elderly population should increase 23 percent by the year 2000, while the black aged population should increase by 46 percent. The largest proportionate increase of older adults is predicted to occur in the over 75 years of age group, at least through the year 2000, with a gradual tapering off through 2020. This increase will be slightly more accelerated for racial and ethnic minorities than for whites. These latter increases undoubtedly reflect the changes in fertility and the greater material and social advantages of these racial ethnic minorities cohorts in comparison to past birth cohorts.

The projected change in the composition of the population has resulted in much speculation regarding the implications of an aging society(13) and the individual health needs of a population with a larger proportion of longevous individuals(14–17).

Minorities and whites in the oldest-old categories have enjoyed a decided advantage in terms of increasing proportions of their respective populations since 1950. These increases suggest that the oldest-old of all groups will constitute a sizable proportion of the oldest population in the near future and over the next few decades.

Across all demographic categories, however, older minority groups (with the exception of Asians) show relatively poorer status in comparison to their white counterparts: greater poverty, less formal educational attainment, lower proportion of marriage for both males and females, and a more unfavorable sex ratio in all age groups over 65(11).

In summary, the proportions of older racial ethnic minorities and whites within their respective populations have grown over the preceding decades. This growth will show no appreciable abatement over the next several decades. For whites, the median age will also rise, but not quite as steeply as for minority groups, particularly blacks. The greatest proportionate growth over the next several decades is predicted to be in the oldest-old age categories, raising many policy issues regarding the support of large numbers of frail elderly.

Racial Ethnic Minorities: Life-Course Continuities and Discontinuities

There has been little theoretical work regarding life span continuity and discontinuity of ethnic and racial minority groups(1). It is highly probable, however, that life circumstances at younger years have significant influences upon the quality (and quantity) of life for racial and ethnic minorities in the latter stages of the life-course(21). Some have marked this as the multiple jeopardy hypothesis(1,22,23). This hypothesis holds that negative environmental, social, and economic conditions early in the life course of minorities have deleterious affects on later social, psychological, and biological growth. These accumulate over the individual life-span and when combined with the negative concomitants of aging, result in higher levels of morbidity and mortality at earlier years in old age for minorities than for whites.

For example, the shortened life expectancy of blacks compared to whites are suggestive, but not definitive (1), in support of this type of theorizing. At every point of the lifespan blacks have greater rates of mortality, disability and morbidity. In infancy this is marked by the higher incidence of mortality as well as accident and disease rates. Adolescence and young adulthood are characterized by higher homicide and accidental deaths. Middle age and early old age show increased disability, early retirement, and ultimately higher death rates. It is only after the age of 75–80 that blacks tend to show increased longevity in comparison to whites(19,20,24).

It has been suggested that this racial cross-over phenomena in the older ages is an artifact of age mis-reporting in older black cohorts (1). Others have argued strongly that this crossover is consistent with findings in other cultures(1,20,25). It has been hypothesized that genetic and environmental factors act in tandem to produce hardier older blacks(16,19). One implication of this hypothesis is the existence of differential aging processes within the minority and white populations(20). As noted by Jackson (1), however, no research findings yet support such a claim. This issue is being investigated in the recent research on aging and effective functioning in the oldest-old groups(14,16,18).

Concern with the growing numbers of both white and other oldest-old members of the population focuses largely on issues of health frailty and public policy—who is to care for these large numbers of dependent individuals(14,16–18). Research by Gibson and Jackson(16) on a national sample of black elderly, however, suggests that the emergent minority oldest-old is a very heterogeneous group. They report that 65 percent indicate no or only mild functional limitations. Physical limitations were more concentrated in the younger-old groups, those 65–74, rather than increasing with age. The data also suggest that the oldest-old blacks may be psychologically better off than younger-old blacks and to have effective, and helpful informal networks to depend upon. These survey data on the black oldest-old are consistent with Manton's(19–20) conclusions which view black survivors in older ages as perhaps aging differently than their white counterparts. Similarly, among elderly 85 years of age or older, only 10 percent of Hispanics, 12 percent of blacks, 13 percent of Native Americans and 10 percent of Asian Americans (as compared to 23 percent of whites) reside in nursing homes.

Most gerontologists conceive of individual aging in biological, psychological and social terms(26–27). These systems differentially affect the nature and makeup of the population. Biological aging refers to basic processes involved in cell physiology, including factors which influence whole organism physical health status. Psychological aging generally refers to issues of cognitive and mental functioning. Social aging generally refers to changes in role positions and social functioning with increased chronological age.

Some researchers have argued that minorities (particularly blacks) and whites may age differently in this society due to both genetic and environmental influences(1,19). Because chronological age is an imprecise measure of human growth and development, and individual human biological systems do age differentially, it is difficult to assess the meaning of race differences across chronological age in physical functioning(28). Several attempts to develop functional markers of human growth and development have not proven particularly effective nor useful.

The use of chronological age as a definitive independent variable is particularly problematic in scientific and health policy comparisons between ethnic and racial minority groups, and the general population. Events from birth, such as childhood poverty and mortality rates in infancy, reflect the fact that the lifespans of individual ethnic and racial minority group members are divergent from those of the general population. The use of an arbitrary age as a point of entry into the later parts of the life span, thus, can be highly questionable—perhaps more so for minorities than for whites (19). Because of general policy concerns, however, most data regarding the social, economic and health status of the older adult population are presented in relationship to age 60 or 65 years of age and older. Functionally some other age in the life span may provide a more appropriate transition point. For example, it has been suggested(21) that age 55 is a more appropriate marker for old age for black adults because of accumulated deficits, health disabilities, and "early" retirement.

Health of Aging Minorities

The most striking positive health statistic over the last 50 years has been the increased life expectation of minorities (particularly blacks) at birth(11). In 1940 the life expectation for black males was was just 50 years of age. This has increased to approximately 65 years of age in 1985. This is contrasted with white males with a life expectancy of 62 years of age in 1940 and nearly 73 years of age in 1985. The rate of change for black and white males is approximately the same, although the level is different and has been maintained over the 40 year interval. For black females, the rate of increased life expectancy has been somewhat steeper, rising from 55 years of age in 1940 to nearly 73 years of age in 1985. This is contrasted with white females who had a life expectancy of approximately 67 years in 1940 and who now have a life expectancy of 79 years at birth. The average remaining years of life at 65 years of age has also shown an increase for minorities males and females over the years. For exampe, if black males survive to age 65 they also have a slight advantage over white males. There still remains, however, a major discrepancy in life expectancy between white and black males at birth. The remaining years of life of minorities in relationship to whites for 60 and above has not shown the same rapid closing of the gap as life expectancy from birth.

In the over 65 years of age group only a few disease categories account for the majority of deaths(11). Diseases of the heart in 1980 accounted for 44 percent of all deaths. Diseases of the heart, malignant neoplasms, and cerebral vascular diseases, accounted for three-quarters of all deaths. The rates for remaining causes of death were so low that each cause taken separately accounted for less than 5 percent of the total number. Examining these major causes of death for blacks, for example, over the age of 65, Jackson (1) reports that from 1950–76 the rates of deaths among blacks from diseases of the heart were usually much higher than for whites. Although there has been a decrease for both black males and females from 1950 to 1976, this decrease has not been as steep as the one for white males.

Baquet and Ringen(29) reported that between 1978 and 1981 blacks had the highest overall incident rates for cancer, followed by native Hawaiians and then whites. After age 35–39, blacks had higher age specific incidence rates than whites for all cancer sites combined. This difference increases in ages 55–59 and then decreases until ages 70–74 where it begins to increase again. If relative survival rates are examined, blacks have the lowest 5 year relative survival rates for cancer of the cervix, uteri, cervix/uteri, corpus/uteri, and esophagus. The relative survival rates for all cancer sites have remained virtually unchanged form 1973–75 to 1976–81. Whites however have slightly higher survival rates in 76–81 than in 73–75.

Another cause of death of some importance in the elderly, suicide, shows a different, almost opposite pattern. Over the age of 65, black females have the lowest rate; 1.6 per 100,000 while white males have the highest rates, 38.1, black males and white females, 10.9 and 9.3, respectively, form the middle two groups. These numbers are similar for other minority groups as well.

Brody and Brock(30) reported that data on morbidity for the older population is much more sporadic and difficult to obtain than mortality data. From a burden of illness perspective, racial ethnic minority morbidity is of critical importance to the family and community. Manuel and Reed(31) repoted a number of selected morbidity factors for older blacks. In 1977, 27 percent of blacks, in comparison to 23 percent of whites, reported poor subjective health status. In terms of functional health status, 28 percent of blacks in comparison to 23 percent of whites reported 8 or more bed days for the year, and 46 percent of blacks compared to 34 percent of whites reported some limitations in their activities. Gibson(15) reported a large increase from 27.4 percent in 1969 to 41.1 percent in 1981 in the number of restricted activities in adults over the age of 55. This is in comparison to a smaller, though parallel increase in whites from 19.3 percent to 26 percent. Gibson's(15) findings are particularly important for the cohorts younger than 65, since they suggest entry into older ages by individuals who are in relatively poor health. Differential rates and restriction on health and perceptions of health between blacks and whites may indicate fairly accurate appraisals of different environmental conditions. While the national health data are not a available for other ethnic minorities over 65 years of age, the trends as reported for blacks in terms of morbidity would be expected.

This concern with morbidity does not diminish the burden of death on the individual nor the immediate family(32). Increased burden of illness across the lifespan, however, can have important consequences not only for the individual but also for the nature and constitution of the family and others in social and economic support networks. Not only are individual blacks at increased risk for death, but these losses along with added morbidity burdens may require unbearable levels of familial and social network resources for health care, and continued economic and family support. For example, the deaths and disability of racial ethnic minority men early in the life-course have negative consquences for the nature of family structures, family interactions, and child rearing; and, subsequently, important implications for individual and family productivity, schooling, career choices, marital stability and the availability of tangible resources and affective supports.

Conclusion: Future Research Needs in Racial Ethnic Aging Populations

Both the demographic and health status data for older minorities suggest that they are in a disadvantaged position relative to older whites. The data, however, also point to tremendous variability among minorities on these same dimensions. Not all older racial and ethnic minority elderly are in poverty (for example Asians as a group show a poverty rate similar to that of whites), have low education, are female, spouseless, or disabled. A major concern is what this variation among these populations may portend for: (a) theories of minority group aging and human development; (B) health related research on aging minority populations; and (c) the implications for the more practical issues of improved health and effective functioning for individual minority group members across the life

course. While it is important to study aging among ethnic racial minorities, there is a need for new research designs, horizonal integration among academic disciplines and health professionals, and emphasis on the value of a life-course perspective.

For the most part previous research has not treated race or ethnicity as important independent variables but instead as nuisance factors to be ignored or experimentally controlled(33,34). When minority has been included as an independent variable, its use has been most often restricted to fairly simple race group comparisons. This type of comparative race research on poor samples, without adequate controls for such variables as socioeconomic status, and in the absence of reasonable theories of race difference, has resulted in a set of uninterpretable findings. These types of research findings are becoming of less value as research scientists have become more sophisticated in their understanding of the role of race and cultural variables in the study of adult development and aging (35,36). Aside from a few notable exceptions, the research and writings on older minority populations are notable for problems of conceptualization, planning, execution, and interpretation.

Four consistent, overarching themes regarding future directions of research on racial and ethnic minority aging populations can be identified. These themes are in the areas of theory and conceptualization, the quality of research on older black adults, disciplinary integration, and training and research funding. In the remainder of this chapter each of these themes are briefly discussed.

More Refined Theory and Conceptualizations

One of the major hindrances to conducting research on aging racial ethnic minority populations is the need for better conceptualization and definitions of race and ethnicity. Previous research, even biological/medical research, has generally used social definitions of race. This approach is less tenable as research and theory of race differences becomes more refined. Similarly, there is a need for better theories that include conceptual underpinnings of observed race differences. Cultural differences, if they exist, have to be identified, operationalized, and included in research designs.

Another major problem is the lack of good data on normative development over the life course among adult racial and ethnic minority groups. While this is a significant problem for whites as well, the failure to investigate the nature of this normative development has lead to invidious racial comparisons. Appropriate theoretical knowledge of the etiology and course of development could aid in better understanding the intra- and inter-individual continuities and discontinuities among minority group populations.

Greater Quantity and Quality of Research

There is a clear need for large population based longitudinal samples of racial minority groups. There have been a number of recent studies that are important improvements over previous efforts. None of these new studies, however, are planned long term, longitudinal, population based research projects on racial ethnic minority older adults.

There is also a need for more intra-group research on blacks outside of a strictly race comparison framework. The dependence on simplistic racial comparisons has obscured important intra-group variation. This variation may be important both theoretically and in more practical areas, such as health care delivery. The lack of focus on intra-group variation in the design and planning for research may not permit the type of sensitive intra-group analyses needed to detect these differences. The concern is to ensure not only measurement equivalence in racial group comparisons but conceptual and meaning equivalence as well.

More Disciplinary Integration and Cooperation

Perhaps because of the difficulties of the problems that older minority group members face, an appreciation and consensus seems to be emerging regarding the need for disciplinary integration in research and service delivery. The importance of having cross-disciplinary involvement cannot be over stated. For example, bio-medical scientists have come to realize that hypertension and diabetes may have strong social and behavioral components related to etiology, course and treatment; and, social scientists are gaining a greater appreciation of how physiological status (e.g. general health, immune functioning, etc.) may affect social and behavioral interaction. This need for disciplinary integration is clearly seen in the development of practical approaches to effective health care and preventive strategies in racial ethnic minority older adult populations.

More Training and Research Funding

Inherent in the suggestions for more and better research and disciplinary integration is the need for increased funding for research on aging racial ethnic minority populations. While such government agencies as the National Institute on Aging are appropriate sources for this funding, there is a need for more private resources as potential contributors of research funds. The type of research suggested, broader inclusions of larger numbers of racial ethnic minority group members in clinical trials, long term longitudinal laboratory and population based survey samples, and large epidemiological studies of aging racial ethnic minority adults, will be an expensive addition to current funding levels.

Finally, there is a need for greater funds to locate, attract, and train racial ethnic minority researchers interested in aging issues. The numbers of racial ethnic minorities and other minority researchers in the biomedical, social, and public health fields remain woefully inadequate. There is a general consensus that larger numbers of racial ethnic minority researchers may provide more sensitive perspectives on, approaches to, and interpretations of, empirical research. Better intergration of racial ethnic minority students and researchers into ongoing and planned research is considered important both for training as well as for the qualify of immediate and future research products.

In sum, future research on racial ethnic minority aging populations will benefit from greater attention to the development of theoretical perspectives that are sensitive to the nature of racial

ethnic minority life in this society. Better definition and classification of racial and ethnic status as well as better and more sensitive research questions follow naturally from these concerns. While the race comparative research framework is seen as valuable, when conducted properly, there is a need to better understand the large variability that exists in physiological functioning, behavior, and health status between and among racial ethnic minority population groups.

Finally, better theory and better and more empirical research on racial and ethnic minority groups are not merely sought for their own ends, important as they may be. Rather there has to be a genuine appreciation for the fact that current theories and research conceptualizations do not encompass the physiological functioning, behaviors, health status, and service delivery needs observed in racial ethnic populations. Attending to these issues within aging racial ethnic minority populations, may contribute to better theories of health and effective functioning for all older adults.

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PANEL I: HEALTH AND LONG-TERM CARE

Moderator: Nancy Smith, Senate Special Committee on Aging

PRESENTORS

THE PROMOTION OF SUCCESSFUL AGING

Edward L.B. Schneider, M.D.,
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HEALTH AND LONG-TERM CARE FINANCING OPTIONS

Brant E. Fries, Ph.D.,
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CONGRESSIONAL RESPONSE

David Schulke
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Gary Christopherson
House Select Committee on Aging

THE PROMOTION OF SUCCESSFUL AGING

Edward L.B. Schneider, M.D.

The costs of health care for our older population are growing at an exponential rate, faster than the growth of the elderly and faster than the growth of our economy. Can we afford to provide care to our senior citizens, to those who have created our economic wealth, preserved our country's existence on the battlefield and are passing on their heritage to new generations? Today, you will hear presentations on how to raise resources to finance health care for the elderly, how to cut the costs for the provision of health care and even strategies for rationing health care for the elderly. I would like to offer another option, one which I believe has a greater chance for long term success: to promote successful aging, to extend the healthy years of life and to minimize disease, disability and dependency through the prevention of the diseases and disorders of aging.

As America continues to grey, a new aspect is emerging, the aging of the aged themselves. The fastest growing age group are those age 85 and older, a group that currently has the greatest needs for short and long term health care. It is in the seventies and eighties that the diseases and disorders of aging take their toll. The needs for long term health care in this group are not related to the aging process per se. The disability of our oldest citizens is due to diseases whose prevalence is more common at older ages.

Measures designed to reduce health care costs by reducing or rationing services or by cost sharing are unlikely to succeed in the face of the projected growth of our aged population. If we were able to reduce the health care costs of an average 85-year-old by 50 percent, we might consider this a success. However, since the number of individuals over age 85 is projected to increase by 500 to 1,000 percent in the upcoming decades, the end result would be a 250 to 500 percent increase in cost.

I would like to offer another approach, one that should result in real long term savings in the costs of health care. Let's increase successful aging, aging without disease. If one person can reach their eighties and nineties without disease, there is no biological reason that all of us can't do this. We need to eliminate the diseases and disorders which prevent successful aging. These diseases can be conquered. We have conquered the diseases of infancy, childhood and adulthood: diptheria, polio and tuberculosis are no longer major threats. We are making significant inroads into the diseases that kill older Americans—heart attacks and strokes. It is now time to turn our efforts to conquering the diseases that disable older Americans: Alzheimer's disease, osteoarthritis and hip fractures. Basic research on aging is the key to understanding the fundamental nature of these diseases and disorders. Once we under-

stand what causes these crippling diseases, we can formulate strategies to prevent the diseases of aging so that more Americans can age successfully, and enjoy the fruits of their labors.

HEALTH AND LONG-TERM CARE FINANCING OPTIONS

Brant E. Fries, Ph.D.(1) and Don Schneider, Ph.D.

INTRODUCTION

The charge to address the topic at hand—Health and Long-Term Care Financing Options—is intimidating for any individual, whether researcher or policy maker. It is difficult to develop effective and efficient methods of caring for our elderly and chronically ill, for supporting and maintaining wherever possible their ability to function as independently and with as much self-respect as possible, while jointly retaining financial viability for individuals, facilities, government, and society. These problems are exacerbated by demographic trends which project increasing numbers of elderly in need of services as well as escalating care costs. We truly are facing a light at the end of the proverbial tunnel that is a train rushing toward us.

Nevertheless, there are new tools by which we can understand and rationalize the current system and consider alternatives. In the spirit of this Forum on research supporting development of a legislative agenda for an aging society, our comments here concentrate on a single current but potent thrust of investigation. We will address methods of understanding the resource needs of patients in long-term care settings with interlacing goals of equity to facilities and individuals and the assurance of quality of care.

THE AGING SOCIETY

Although little solace is achieved by enumerating the problems involved in financing health and long-term care services for the elderly, one cannot enter a conversation on any aspect of developing options without acknowledging clear demographic trends, for it is within the magnitude of these trends that policy needs to be considered.

First, all demographic projections indicate significant increases in both the number of elderly, from 25 million—11 percent of the population—in 1980 to 55 million—18 percent of the population in 2030(2). The impact of these changes will likely be exacerbated by a shift in the age distribution: current estimates suggest that the most frail elderly, 85 and older, will increase in numbers three to four times as fast as the general population(3). Although the numbers may vary across different studies and time periods, the overall direction and magnitude are not in doubt; there is hardly a person present here who cannot recite from memory several such statistics.

Moving from these projections to estimations of needs for care is significantly more complex. A variety of interacting variables and forces need to be identified, most which would brand as conserva-

tive all direct estimations of care needs. Three seem of special importance. First, although there appears to be a prolongation of the life expectancy of the human race, there is discord about whether this will result in a concomitant increase in morbidity, in chronically disabled years of life(4). Some predict that non-medical interventions and an improved lifestyle will result in improved independence and reduced care needs across the entire spectrum of ages; but again this might rebound in increased chronic morbidity. Second, advances in technology of medical care, broadly defined, will continue to affect expected lifespan and lifetime morbidity. Technology has the opportunity not only to decrease care needs by reducing morbidity, but also to increase needs by making interventions possible and by decreasing "unnecessary" deaths, thereby allowing us to survive chronic disabilities. Finally, sociologic changes in family structure and increasing numbers of working women may change current morbidity and mortality beyond those incorporated in projections, as well as decrease the availability of the unreimbursed and largely unrecognized informal care provided to elderly family members or friends(5).

Demographic changes combined with traditional funding mechanisms, independent of issues of intergenerational equity, will place the burden of support of this burgeoning elderly population on an increasingly smaller earning population. Accurate prediction of these trends, representing a critical area for research, sets the stage for the capacity and financing issues we face in the next few decades.

But we won't address these trends today.

Some Issues in Financing Care in an Aging Society

In light of the demographic trends addressed earlier, we are comforted by the growing concern by both the population and legislature about caring for an aging society. One hypothesis suggested that the current spotlight on catastrophic insurance would divert attention from long-term care. Informal surveys show that this has not, in fact, occurred and may have encouraged a Congressional mandate to examine methods of financing long-term care services. To limit the scope of our comments, we will concentrate our remarks on long-term care services rather than on the larger issue of health or health care services.

Concern about the growth of long-term care services expenses is well placed. Nursing home expenditures now comprise the fastest rising component of personal health care expenditures and have risen over the past several years at a rate which is more than double that of the consumer price index(6). Between 1965 and 1984, the public share of nursing home costs soared from $0.7 to $12.1 billion. At the end of this period, public expenditures represented 48 percent of the national nursing home costs and over 10 percent of public spending on all personal health care. Nursing home care absorbed 68 percent of all Medicaid expenditures for the elderly although a significantly smaller part of the Medicare budget: in 1984, Medicare payments to skilled nursing facilities (SNF's) totalled $539 million, representing 0.9 percent of all Medicare expenditures, and 2.1 percent of nursing home reimbursements(7). These trends

provide imperatives for organizing, rationalizing, and financing long-term care services.

Of the several major issues that need to be addressed, we suggest here three that are of major national importance and amenable to analysis. It should be noted that these issues need to be addressed regardless of decisions which will certainly be forthcoming on the funding source for long-term care: private versus public. We believe that the most likely scenario represents a combination of both private and public funds, as is suggested in an excellent recent report to Congress by the Department of Health and Human Services(8).

The first issue is the methods by which we purchase long-term care services, ranging from simple fee-for-service systems to capitated payments and Social Health Maintenance Organizations. In each system are inherent incentives and disincentives that need to be evaluated. Efficiency in hospitals has improved with episode-based payment of the Prospective Payment System, by placing increased burden for financial prudence on care delivery organizations. Similar gains appear to have accrued in prepaid health care organizations such as Health Maintenance Organizations; whether such benefits can accrue to the elderly population in Social Health Maintenance Organizations is currently being evaluated. Capitation would appear to be the logical extension, with a single payment made for the care of a proscribed population, but it is unclear if the variations in needs—if not demands—for care make such systems infeasible except for extremely large populations. Similar issues also surround the development of long-term insurance products in the private sector. With such systems, unless participation is mandated, adverse selection by those with the highest care needs makes cost containment difficult to identify. We understand neither the lifetime use of services by different populations, age groups, or those with specific chronic conditions, nor how this usage corresponds with the characteristics of individual aged persons. Clearly these are precursors to setting appropriate levels of payment, controlling for adverse selection, or even evaluating the impact of alternative financing methodologies.

Second, we need to understand better the venue in which care should be provided to the elderly and functionally impaired. Nursing homes will likely remain at the hub of the long-term care system, much as hospitals act in the acute care system, although both can expect to see significant changes due to internal and external pressures. The spectrum and availability of alternatives for care in an aging society should be expanded. Although home health care for functionally or medically impaired elderly does not appear to be a cost-effective alternative to nursing home care(9), it does serve a certain segment of the population in a significantly less restrictive and probably more humane setting. For less disabled elderly, Continuing Care Retirement Communities, conjugate living arrangements, Life Care at Home(10), and a variety of other concepts represent new opportunities. The long-term care arena has become increasingly fragmented, with patients moving without objective logic among the two levels of nursing homes (skilled nursing and intermediate care facilities), hospitals, and the variety of other institutional and noninstitutional settings. As we increase the number of options, we multiply the number of boundaries that

need to be rationalized. For example, a recent analysis of facilities has shown that in 24 States, over 90 percent of the Medicaid residents are classified at the lower ICF level whereas in two other States, over 90 percent of these residents are classified at the higher SNF level(11). The infirmed elderly in these two groups of States are not markedly different; rather the criteria used to determine the appropriate level of patients differ(12) and, in many cases, is somewhat arbitrary. Case management activities address some of the problems, but appropriate instruments to assist in this new form of triage and advocacy need to be better developed.

Third, we need to decide how much long-term care is enough and how much it should cost. How many nursing home beds per thousand population are appropriate for current needs, as well as for the demands placed by differing morbidity rates in future years? Should we open up the potential floodgates of funding for home care by making it increasingly available under governmental funding? Should Certificate of Need (CON) restrictions on new nursing home beds, still in force in over half of the States(13), be continued as a method of capping the costs of institutional care? Are nursing homes being underpaid for the care of those in their charge? Will additional funds paid to nursing homes improve the quality of their care?

Taking an economic view, we could phrase all these questions as determining the appropriate tradeoff between cost and quality, although this does not simplify the task. Nevertheless, there is a more accessible issue: are we being efficient and effective in our current use of existing resources and funds?

But we will not address these issues either.

Case Mix Measurement in Long-Term Care

Perhaps it is now appropriate to say what we will address.

As mathematicians by training—specialists in Operations Research—we are interested in the development of tools to understand the long-term care industry, focusing on methods to measure "case mix," that differentiate patients—regardless of setting—who require more or less resources in their care.

The single most obvious application of this work is in the design of payment systems, although other applications may yet prove even more influential. We recognize that the proper match between patient needs and resources can never be absolute. It requires a careful understanding of the factors which influence the relative care needs of a group of patients and the resources available to care for this group, their cost, and the payment or reimbursement available to provide them. Yet a proper payment system will recognize varying care needs of patients and promote the provision of the resources appropriate to these needs(14).

Most public systems for reimbursing long-term care are blind to the variations among patients, and thus can be expected either to over-compensate facilities or programs at public expense, or to pay less than the true cost of providing adequate care for individual patients. In either case, such systems encourage the selection of patients with the least care needs. In nursing homes, this causes problems of access to care for "heavy care" patients in acute hospitals awaiting placement. In addition, there are no incentives for a

facility to return patients to home or to less care-intensive facilities when they are ready. Payment based on historic costs does reimburse for a particular mix of patients, but such systems are sophisticated cost "pass throughs" which do not respond to changes in this mix.

"Case mix" payment systems, which recognize the differences in the costs of caring for distinct patients, currently appear to offer the best compromise between appropriate resources for each patient's needs and administration feasibility, providing appropriate incentives and equitable reimbursement. The payment process can focus attention on the effectiveness and efficiency of providers, how differing cost structures and patterns of care relate to quality of care and outcomes. Such systems do, however, require an accurate, practical, and reproducible measure of case mix, the relative care needs of the patient population. Initially, efforts focused on the most expensive sector of the health care system, the hospital; we will discuss here newer systems we have designed for long-term care, principally nursing homes, and allied work for home health care.

Other applications for case-mix measures include the comparison of long-term care facilities, facility operations management, evaluation of care plans, and assurance of quality care. Without a measure to adjust the cost of performance of a provider for the types of patients it cares for, it appears fruitless to attempt to unravel efficiencies in the production of services, cost, and quality of care.

This overview describes progress in developing case mix measures for long-term care and case mix payment systems, and some promising new frontiers of applications(15).

Resource Utilization Groups: A Patient Classification System for Nursing Home Residents

Our development of a case mix measurement system is based on the concept of identifying the specific "products" of long-term care institutions. The product of a health care facility is the set of services provided to a patient and the resources used as part of the caring process. While each individual patient in an institution is unique, he or she has certain mental, physical, and medical characteristics in common with other patients that determine the volume and costs of services received. If classes of patients with the same characteristics and similar processes of care can be identified, then the framework within which to aggregate patients into case types is established. Such a classification system would provide the structure for the measurement of case mix.

This approach corresponds with that used to develop the Diagnosis Related Groups (DRGs), the basis of the Medicare Prospective Payment Systems for acute care hospitals. Our patient classification system for long-term care, Resource Utilization Groups (RUGs), is not, strictly speaking, a DRG system for long-term care. The differences are important. Since length of stay in nursing homes is extremely variable, with patients staying an average of over 1 year and with similar patients remaining a single day or 20 years, a system which considers episodes of care cannot be sufficiently predictive for reimbursement purposes. RUG's therefore

predict per diem resource use: for both good and bad this system does not provide the cost efficient incentives of an episode-based system such as the DRG's. In addition, long-term care resource use is less affected by a patient's conditions on admission, especially for long stays where these often have no association with those frailties that keep an elderly person institutionalized. Contrary to DRGs, the option is available with RUGs to assess patients more than once during their stay and the responsiveness of the payment system to changes in patients' conditions becomes a major design factor. Finally, in acute care settings, diagnoses are known to strongly influence resource use, whereas in long-term care settings, functional characteristics, for example as measured by capabilities to perform Activities of Daily Living (ADL)(16), can be expected to be those most important. We questioned whether diagnoses or DRG's would play any role in long-term care.

Our research in long-term care has demonstrated that there are significant identifiable differences in resource use within an inpatient day. This finding and the methodologies used to develop it may provide new directions for research into "severity" in the acute care sector.

The most recent version of our system for nursing home patients, the Resource Utilization Groups, Version II (RUG–II) system was developed based on data collected in a stratified sample of 3,500 patients in 52 nursing homes in New York States(17). We collected a broad range of patient characteristics as well as performed the more complex measurement of resource consumption—the actual daily amount of nursing, aide, and therapy time spent in patient care. The analysis divided the patients in the sample into a limited number of relatively homogeneous groups, defined by patient characteristics, to meet statistical, clinical, and administrative criteria. The statistical criteria included measures of the cost homogeneity of the groups as well as how well the system explained resource use. The RUG–II system, with 16 groups, explains over 52 percent of the differences between individual patients in daily resource cost. For comparison purposes, the DRG system, when applied to all patients in acute care hopsitals, has a variance reduction of about 30 percent, although we caution against the direct comparison of these numbers. Clinical rationale assured that the groups made sense to practitioners—that they could "see" their patients. Finally, we were careful to use patient characteristics that could reliably be assessed or audited, which would prevent the possibility of "gaming" patients into more expensive categories with little change in the actual cost of resources used, and which provided incentives for appropriate care.

The RUG–II system uses both clinical (medical and mental) characteristics and an Activities of Daily Living Scale, as shown in Exhibit 1. Patients are identified as one of five major types using the clinical characteristics. The ADL scale succinctly summarizes the effects of patient functionality, the descriptors most closely associated with resource use, although it is based on only three of potentially eight ADL measurements. This ADL index is used to subdivide the five major types of patients into a total of 16 groups. The range in mean resource use across these groups is large, with the highest group costing over three times as much on the average as

the lowest group. It should be noted that under most current nursing home reimbursement systems these same patients are considered equivalent.

It is important to recognize that the RUG–II system employs only a limited number of characteristics to classify patients. While clinical description of a patient would require a fuller appraisal, with the correlations inherent between characteristics, the presence of a single atttribute of a patient is an *indicator* of a spectrum of others. For example, a patient independent in a few of the ADL's is unlikely to be other than independent or minimally assisted in the remaining ones. Thus a parsimonious set of descriptors can be sufficient to understand resource use by nursing home residents.

The RUG–II system is currently in use as the basis of the New York State Case Mix Reimbursement System, discussed next, as well as for the Veterans Administration Resource Allocation Methodology. In a modified version it will almost surely be used by the States of Texas, Colorado, and Pennsylvania and is under consideration in at least three others. HCFA is currently planning a multi-State demonstration of case-mix payment systems which will also almost surely be based on the RUG–II system or a modification thereof.

We have since spawned a small family of systems related to RUG–II. In a five State study, we found that a modification of the RUG–II system well described resource use by post-acute patients in Skilled Nursing Facilities under sponsorship of the Medicare program(18). The modifications enlarge the sections of the system describing rehabilitation patients using the number of therapies (physical, occupational and speech) provided intensively. The resulting RUG–T18 (for RUG–Title XVIII) system, with 20 patient groups, is part of a HCFA demonstration of Medicare payment currently being finalized in Texas. The RUG–T18 project provided strong proof that the DRG's, the basis of payment for PPS, perform poorly for nursing homes; unfortunately there is no easy way to combine payment of the acute and post-acute sectors. A second RUG–II modification, RUG–HHC, has been developed to describe home health care clients(19).

Design of Case Mix Payment Systems for Long-Term Care: The New York Experience

An effective case-mix payment system must be constructed from a carefully defined case-mix system such as RUG–II which accurately predicts resource use and a well articulated payment methodology which addresses identified goals and desired incentives. Although the development of a case mix system is more scientific in nature, in contrast with the more political process of deriving a payment or reimbursement system, it nevertheless requires full cognizance of the role the system will play in determining payment. Thus, certain variables and constructs that might be employed for the simpler task of understanding resource consumption are not appropriate for payment(20). Our research on case mix payment has identified a variety of goals and system attributes that can be considered in designing an operational system.

As of January 1, 1986, New York State began using a new payment system we developed based on the RUG–II classifications to pay the approximately $2.5 billion in its Medicaid system that goes to nursing homes. The system had five goals:

—Equity of payment to facilities, to recognize the differences in their patient populations,

—Heavy and direct involvement of case mix adjustment of payment,

—Reduction of backlog of heavy care patients in hospitals,

—Development of clear incentives to facilities, for example, to be efficient in the production of services and to accept heavy care patients, and

—Administrative feasibility for both the state and facilities, for example, balancing increased data collection of case mix data with reduction or replacement of forms.

The system represents a variety of new concepts in paying for long-term care. More traditional retrospective cost-based reimbursement is replaced by a prospective modified pricing system, which combines the incentives for cost efficiency inherent in pricing systems with the recognition that there are differences in care patterns that need to be recognized for facilities that are relatively normative in their cost behavior. Patients are assessed for the determination of case mix by facility staff who best know the patient, with focused audit by the state to assure fair and accurate data. Long-stay patients are assessed relatively infrequently (twice a year) to discourage purposeful withholding of care by facilities, to increase patient dependency and thereby augment revenues. New admits are assessed more frequently (each quarter) to assure that the costs of caring for potentially heavy care patients are rapidly acknowledged in a facility's reimbursement.

Since implementation just under 2 years ago, the new payment system has been generally well accepted, although we must realize that any major reimbursement change will create vocal losers and quieter winners. Heavy care patients have virtually disappeared from hospital backlogs; light care patients should experience less difficulties in finding placements at home given the relatively well developed home health care system in New York State. In order to raise revenues, many facilities have increased their admission of heavy care patients resulting in a statewide increased case mix of 3–4 percent, automatically linked to a concomitant increased statewide Medicaid expenditure of over $30 million. This increase is offset by a decrease in hospital costs, although it is harder to quantify directly these savings. Perhaps the most favorable changes have been within facilities, where documentation and care planning has improved, along with facility management.

From this research we have derived several generalizations. First, every case mix system needs to be uniquely designed to meet the needs and goals of the target state. The large number of potential choices in design, including pricing options, involvement of case mix, responsiveness and incentives, provide important parameters that significantly affect operations and success. Second, the long-term care system reacts dramatically to small changes in payment designs—it is truly a "game of inches." Contrary to the results of some other researchers, we find that small changes in in-

centives appear to have strongly influenced practice—an encouraging sign for policy makers.

Perhaps the most interesting implications of this research lie in the discovered linkages between reimbursement and the monitoring of quality of care. Originally appearing antithetic, these two now are seen synergistically. Prior to the implementation of the new Long Term Care (PaCS) Survey(21) system, the Quality of Care survey system in New York was an outcome-based system denoted Sentinel Health Events(22) (SHE's). Facilities where specific negative outcomes occurred significantly more frequently were identified for a more detailed process audit. These same outcome measures, for example decubiti, are part of the RUG–II system. Thus the collection, processing and auditing of data can be performed once, then used for two purposes. More importantly, this dual use puts the facilities at risk if they either under- or over-report prevalence: over-reporting of decubiti, for example, would lead to a quality of care audit while under-reporting would reduce reimbursement. We can now envision new outcome measures, employing the rich longitudinal view of patients across time in the RUG–II payment system data. For example normative values for the frequency of patient transitions may soon augment the current cross-sectional SHE's. Current research ongoing in New York State is considering such developments and their incorporation into the new PaCS survey, again to focus review activities(23). Considerable investigation is required to understand fully the feasibility of developing normative expectations of outcomes for nursing home patients.

Frontier Opportunities for Case Mix

We began this discussion of financing issues with an overview of major questions about long-term care delivery that need to be addressed. Case mix measurement can play a significant role in a variety of policy applications:

Monitor implications of policy initiatives.—Changes in admission practices, regulations and reimbursement alter the types of patients seen in long-term care settings. Case mix can quantify such results, for example, to understand if the PPS system is encouraging discharge of acute care patients "quicker and sicker." The parsimony of data in the RUG–II system provides a superior method of determining minimum requirements for data about long-term care recipients.

Level of care determination.—Most current methods of determining where patients should be placed are unreliable and certainly not uniform across the nation. As an measure of resource use, a case mix system can suggest objectively and efficiently those in need of heavy care. For some of the same reasons as the Institute of Medicine(24) we suggest the dismantling the SNF/ICF distinction, allowing facilities to determine their own market niche and choosing those patients for whom they can care most efficient and effectively.

Staffing standards.—Any legislation addressing minimum staffing requirements must acknowledge case mix if it is to be effective. Without linking staffing to case mix, one is only able to specify minimum requirements for those facilities with the

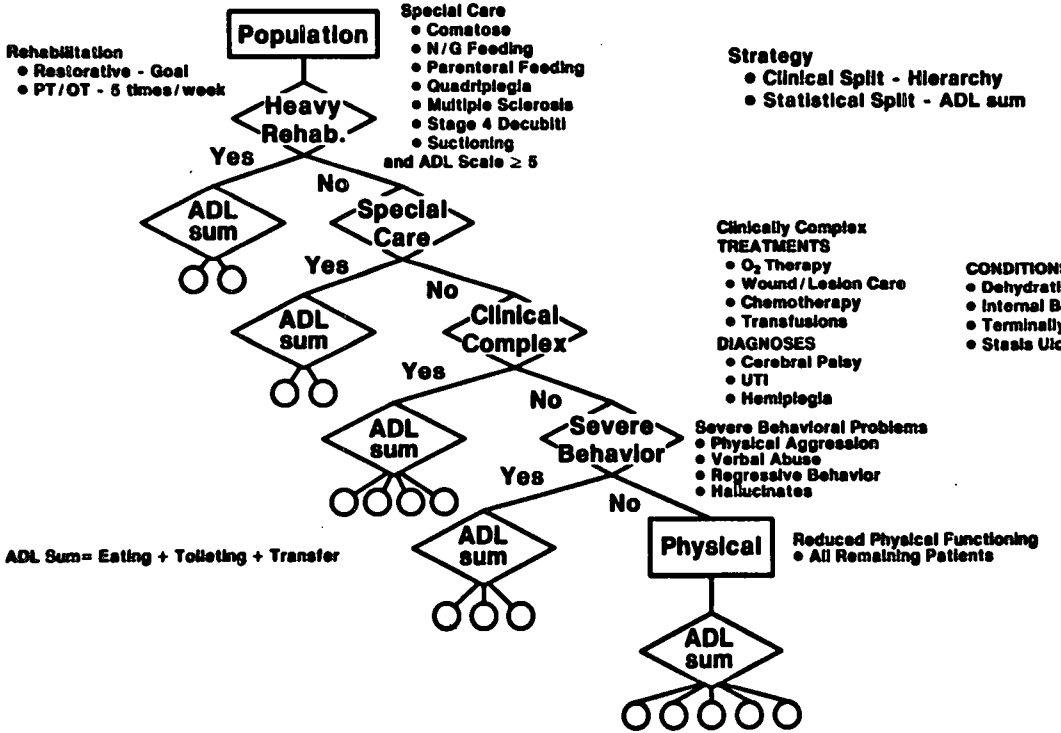
lowest case mix and, such as minimums become standards, encourage these levels in all others.

Internal management of facilities.—A case mix measurement system is a critical element in understanding the efficiency and effectiveness with which a facility produced care. DRG's have irreversibly changed management practice in the hospital; with less management sophistication in long-term care delivery organizations, even more gains can be expected from improved planning, budget control, interfacility comparisons, evaluation of practice patterns, staffing, focus on particular types of patients, etc.

Alternate financing options.—We speculate that it is feasible to develop alternative "careers" of elderly individuals, tracking their health and functional changes over time, and relating these to their institutional and noninstitutional care needs. If such development is possible, then these careers could form the basis for capitated payment for care or insurance policies, and for age- and functionality-adjusted actuarial computations.

Thank you for your attention.

THE RUG-II MODEL (Version 2)



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CONGRESSIONAL RESPONSE

David G. Schulke, Senate Special Committee on Aging

In some ways, I regret that my role in the program has to be to react to the fine policy proposals made by Ed Schneider and Brant Fries, who clearly know what they are talking about. It is very difficult for one to sound like they know what they are talking about when discussing what people in this town call "political reality". My remarks are focused on the legislative process, with the intention of stimulating thoughts of how to translate the knowledge and information presented here today into public policy in the field of health and long term care.

One often overlooked barrier to the smooth execution of this process is the simple fact that reforms in a public long term care program, will have to be considered either directly in connection with the annual budget reconciliation bill, or must overcome tremendous institutional inertia to be considered as a separate bill.

On the Senate side of Capitol Hill, there may be only one or two pieces of legislation moving through the legislative process in each 2-year Congress. One can generally count on only the Budget Reconciliation Bill as a vehicle for health policy reforms that will move through the Senate. Many, especially Members and staff on the House side of the Hill, feel this has been a key factor limiting the number and scope of health policy reform proposals emerging from Congress as an institution. The very limited consideration given to free-standing health policy reform bills forces Members to seek to add their bills as amendments to the reconciliation bill, at least in the Senate.

The need to incorporate health policy bills into reconciliation has an important impact, if for no other reason than budget bills for many years have been used to enact net reductions in Federal health spending. If such a program is to be considered as part of the budget reconciliation bill, it must pass muster as "deficit neutral."

In addition, the politics of the budget process operate at a very high level, and on a very large scale. Take for example a policy question such as whether a public program should include reimbursement reform for institutional care—perhaps a shift to the kind of case-mix adjusted system advocated by Dr. Fries. If a proposed answer to this question is embedded in the reconciliation bill, it will be evaluated in the context of its import to the overall budget, which is to say it will be treated as a relatively insignificant issue in the House/Senate conference.

How does this happen? One key mechanism is pressure on Members to facilitate, rather than complicate, final passage of the budget. A Member must bear in mind that if he or she should initiate an indepth debate over such an issue during the budget delib-

erations, he or she risks holding up not just enactment of a new long term care program, but the entire budget of the U.S. Government. Members must have the support of their colleagues if they feel a substantive issue is worth sidetracking or derailing the process of getting the budget finished.

Because of these substantial barriers, it is safe to say that a public long term care financing program will be enacted only when it is both technically understood and politically necessary to do so. The handling of Medicare's Catastrophic Loss Prevention Act, now awaiting a House/Senate conference committee's action, provides clues as to the specific problems that must be anticipated in turning good policy into good law.

For instance, it appears that most of the people in this room believe that timely preventive health screening, such as mammography, colonoscopy and other diagnostic procedures, would facilitate timely intervention and save money as well as lives. Recently, the idea of Medicare recognizing the cost of preventive health testing was presented in the Senate. This proposal was presented in just about the most advantageous possible way. Instead of a full-blown proposal for Medicare to reimburse the cost of these diagnostic tests, a conservative proposal was put forth to have Medicare merely count the cost of these tests toward the Catastrophic costs ceiling. The idea was presented during a meeting on the Catastrophic health bill, attended by Members with an intense interest in health policy. A respected Member of the majority party introduced to this select group one of their colleagues to directly advocate the idea. The Member advocating this proposal was backed-up by a well-prepared staffer, who happened to be an M.D. The idea, however, was rejected by the Members present because the key contention of cost savings was contradicted by staff from the Congressional Budget Office.

Thus, while academic experts may believe the evidence of a net savings effect is well documented, until it is recognized by the key people on Capitol Hill, including the staff who must estimate the budgetary impact of various proposals, these savings cannot be counted. At present, it is safe to assume that any suggestion that offsetting savings will result from expanded community based long term care will be met with the same fate.

But while it is necessary, it is not sufficient to have good data and to get it into the right hands on Capitol Hill. Political support is needed to ensure that Members and staff, beyond those already converted, take the proposal seriously enough to focus on the information you may provide to them. In addition, to enact a proposal with significant opposition (as there is opposing a public long term care financing program), there must be very strong political support for passage. By way of comparison, political support for enactment of a comprehensive long term care program will have to greatly exceed that which produced the current Catastrophic health bills, because taxes will have to be raised to support such a program. That's a tall order. Catastrophic health protection enjoyed not only the organized support of the major national organizations representing older Americans, but that of the White House and leadership of both Houses of Congress.

But this may be the wrong time and place to be discussing political organizing. Thank you for your attention, and thanks to Ed and Brant for their stimulating thoughts.

Gary A. Christopherson, House Select Committee on Aging

Today in this room, we have the true believers. True believers, when it comes to health and long term care, believe that if we just spent enough on research, many of the health related problems facing America's elderly would be resolved. True believers believe that we can afford full health and long term care if we just set our highest societal priorities as the sustaining of human life, health and independence. Unfortunately, the Congress as a whole is generally not counted among the true believers but more among the true skeptics. Fortunately, many in Congress can be counted among the true believers though they may be somewhat skeptical of what health and long term care services and research can deliver and at what cost.

But that is where research fits in. In the competition for relatively scarce resources, research can help Congress decide how best to use those resources. Congress may not always be ready to deal with major research findings at the time they become available, but, more and more, these research findings are making their way into the public policy debate. Research can help set the stage for better public policy. Researchers need to be prepared to respond when Congress is ready to make public policy and to respond in a way that Congress finds useful and understandable.

With that as background, let us consider what our two speakers stated with regard to health and long term care policy. The comments of our two speakers, Dr. Edward Schneider and Dr. Brant Fries, provide us with two different but complementary views of health and long term care policy. Dr. Fries focuses his remarks on the financing and delivery of those health and long term care services which help enable people to live their later years in good health and with a great degree of independence. On the other hand, Dr. Schneider takes the position that research is the route to "successful aging" and that we should target our resources at those diseases which prevent successful aging and cost society billions of dollars each year.

Dr. Schneider's comments challenge the Federal Government's commitment to research. He challenges not only its total dollar commitment to research but also its distribution of research dollars. The total dollar commitment to research is always very political and is mired in the battles over the Federal budget deficits and over other social priorities. While many in this room would agree that we should shift spending away from the military or we should ask more of higher income taxpayers in order to make more funds available for addressing social needs, this has been very difficult to accomplish. In recent years, we have more often seen a shift from domestic programs such as housing toward other domestic programs such as health research. This may change in the not so distant future.

The distribution of research dollars within health and long term care research is also political but need not be as political. Here is where the research community can be helpful. The research com-

munity can help Congress determine what should be the relative priorities between basic research, research on particular diseases, research on health services delivery and finance and other health and long term care research needs. Here is where Congress has relatively little expertise and here is where the research community has a lot of expertise. For example, help Congress decide if it makes good policy to spend only $75 million on Alzheimer's research while spending closer to $1 billion each on heart disease, cancer, and AIDS research.

Going back to Dr. Fries' comments, we face tough questions with respect to long term care. Though almost everyone wants to do something about long term care, do we really know how to do long term care in a way that not only helps the person and their families but is affordable to society? Now Dr. Fries gives us some insights into some of the aspects of how a long term care system might work. In his discussion of RUGS II (resource utilization groups), we can see a better method for assessing patient needs, for determining appropriate placement and for making rational reimbursement policy. As is the case in the acute area, case mix adjustments are critical to the success of any reimbursement program. The lack of such adjustments have resulted in major problems for the Medicare hospital prospective payment system and its DRG's (diagnostic related groupings).

While Dr. Fries' comments give us insights into nursing home care, an equally challenging task is to figure out how to reimburse home care. There should be no doubt that Congress is very serious about dealing with home care as well as nursing home care. Before the end of the 100th Congress, there will likely be the first vote by either House of Congress ever taken on financing a large piece of long term care. That vote on the Pepper/Roybal long term home care bill will be a significant indicator of how close we are to finally addressing long term care protection.

Beyond financial access and service reimbursement, there is the question of health and long term care quality. This year will see major improvements in assuring the quality of nursing home and home health services. While the nursing home quality legislation will likely go much of the way toward dealing with nursing home quality, the home care quality legislation must be viewed more as a first step—but a good first step. Here is an area which we must quickly revisit. Here is an area upon which we must expand. Here we need help from the research community. The time has come when quality assurance for health and long term care needs to move away from being site specific toward being patient specific regardless of which setting or combination of settings are used to provide the care. We need to develop the methodology and the quality assurance systems that will assure quality throughout a patient's lifetime of encounters with the health care system.

In summing up, Congress is in great need of more assistance from the research community and Congress seems more willing to learn from the research community. The challenge for the research community is to better understand how public policy is made and to find ways to make the research more useful and understandable for public policymakers. Without our having fully addressed the "mechanics" of how to do health and long term care adequately

and affordably, no amount of political will will move us forward on completing a system of full health and long term care protection for all Americans, regardless of age, income or illness. With the "mechanics" in place—with the help of the research community, we have a chance to generate the political will necessary to find more of the causes and cures of major diseases, to protect the 37 million Americans who are uninsured for both health and long term care and to protect the 200 million Americans who are underinsured for long term care.

PANEL II: EMPLOYMENT, RETIREMENT AND INCOME SECURITY

Moderator: Lowell Arye, House Select Committee on Aging, Subcommittee on Social Security and Retirement Income

PRESENTORS

AGE, PRODUCTIVITY AND WORK

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ISSUES IN AGED INCOME MAINTENANCE: POPULATION AGING AND THE EARLY RETIREMENT "TIMEBOMB"

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CONGRESSIONAL RESPONSE

Lloyd Duxbury, Senate Special Committee on Aging
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AGE, PRODUCTIVITY, AND WORK

James E. Birren, Ph.D. and Marion A. Perlmutter, Ph.D.

The Twentieth Century Paradox

One of the great paradoxes of the twentieth century is the dramatic increase in life expectancy and the decrease in the length of the work life. People are living longer and working shorter. These facts by themselves do not describe an unfavorable balance in our society. If, however, these facts are added to the context of the post-industrial society with the need for a longer education of its youth, then tensions arise. It takes more and longer education for youth to prepare for successful roles in the information society of today and tomorrow. Especially given this fact, an important question is whether America can continue to neglect the full utilization of the skills and experience of mature adults.

BACKGROUND

The facts of the demographic shift in this century are widely known and quoted. Therefore, this paper will only review more central points for emphasis. Life expectancy has increased from 47 years in 1900 to about 74 years today. This increase in average life expectancy has been coupled with a declining birth rate. Therefore, the population of those aged 65 and over rose from about 3 million in 1900 to about 26 million in 1980, and it is destined to double by the year 2020 to over 51 million. Thus, the proportion of the population over age 65 has gone from 4 percent at the turn of the century to more than 11 percent in 1980; and it will go to 17 percent in 2020. This means that the baby boomers will be living in a society that has an older population that is about twice the size of today's.

A recent summary of statistics about aging Americans has been prepared by Schick (1986)(9) indicates that we are living longer and working shorter. "At the turn of the century, the average man basically worked until he died; he spent only 3 percent of his life time in retirement. Today, he is spending one-fifth of his life in retirement. In 1984, the 65 plus population made up only 3 percent of the total labor force" (p. 136).

The wide ranging impact of an aging society on our institutions has been examined in a project of the Carnegie Corporation and reported in a book by Pifer and Bronte (1986)(7). The book presents a useful summary of the impact and the need to consider, "The effects population aging is having, and increasingly will have, on the years ahead—the effects on children, on women and minorities, on the family, on relationships of the generations, on the labor force, on the health system, on the nature and meaning of stages of the life course, on the political system, on the nation's ethical stand-

ards, and on many other institutions and facilities of our national life" (Pifer and Bronte, 1986, p. 13)(7).

Serious questions are now being raised about the consequences of our retirement system and whether it can and should remain in its present pattern during the next century. Morrison (1986)(6) points out that public policy will probably have to change in relation to Federal expenditures. "At present, U.S. Government expenditures for older persons (age 65 and over), who represent just 12 percent of the population, are nearly 30 percent of the annual Federal budget. If present expenditure levels are maintained, by the year 2030 (when 20 percent or more of the U.S. population will be age 65 or over) these expenditures will represent about 60 percent of the annual budget. It is difficult to foresee a social policy that would allocate three-fifths of the annual budget for the support of the older population" (p. 342).

Many writers expect that we will be seeing a trend away from policies that encourage early retirement. This is not to say that we will return to a period of uninsured old age, but we will bring into a more realistic balance the length of the work life, life expectancy, and the needs of society. Clearly, we are in a period where we must consider long range policies rather than ones that are tied to 4-year presidential campaigns. The living-longer, working-shorter pattern combined with the aging of the baby boom population demands serious consideration of the productivity and work roles of older persons in our society.

Unraveling the Issues: Jobs, Work, Productivity, and the Potentials of an Older Population

There is little doubt that the trend toward earlier retirement has neglected the potential contributions of older workers to society and those latent and untapped abilities of older people that may in fact be badly needed. Given the greater life expectancy, the higher education, and the improved health of the older population, there does not seem to be any connection between the potentials of older persons and our retirement policies. Pifer and Bronte, as a result of the deliberations of the Carnegie Corporation's Aging of Society Project, have begun to speak of the third quarter of ife, the period between age 50 and 75. For most persons, this period of life is without major restrictions in physical activity and is a gift of the twentieth century for investment or reinvestment in productive and contented lives. Evidence suggests that the average worker could have a work life to age 80 if he or she prefers and if part or full time employment opportunities were encouraged. Behind this is the thought that the trends toward greater life expectancy in many industrial societies such as Sweden and Japan, where the average life expectancy at birth for females is 80, will result in new expectations.

By the end of the century, we will accept the fact that a person dying before the age of 80 is a premature death. This statement anchors our expectations about long lives.

Measuring Productivity in Economic Terms

There is a fallacy in defining the productivity of workers solely in economic terms. Unfortunately, this definition is often used as the primary indicator of contribution by a population. In this view, if activities of older persons do not have an monetary value placed upon them, they are regarded as being unproductive. In contrast, a worker employed in a cigarette factory is regarded as productive, even though the product, cigarettes, potentially has very negative consequences for the mortality and health of the population. However, the voluntary role of a mature person as a crossing guard for school childern may have indirect positive economic advantages for society and certainly for the wellbeing of the children. Clearly, the definition of productive contributions to society should embrace both monetized and nonmonetized contributions.

One of the first steps toward necessary policy changes is to encourage a view of aging that incorporates potentials of the third quarter of life rather than the concept of older people as an economic and social burden. Morrison summarizes the issues as follows, "If older persons are to be encouraged to remain productive, the entrenched beliefs that assume decline, redundancy, and dependency on their part will have to change to reflect their actual capacities. The economic and social policies that define retirement will also need to be altered to reflect the new social conception of productive roles for older persons" (Morrison, 1986, p. 344)(6). Here we have the emergence of an important point, the balance of the productive capacities of our older population, and society's encouragement of their use. Schulz in a paper prepared for the AARP, concludes a discussion of the likelihood of spontaneous policy change as follows, "I repeat and stress: Unless there are dramatic changes in our ability to moderate business cycles and keep unemployment low over the long run, *we can expect continued strong support from employers, unions, workers, and politicians for mechanisms that encourage older workers to leave the labor force at increasingly early ages,"* (Schulz, 1987, p. 20)(10).

The policies, therefore, with regard to retirement and pensioning of older workers seem out of touch with reality on two aspects. One is the demographic and the other is the unused potential of older workers and whether or not a nation can afford to neglect this talent in the same sense that it cannot afford to neglect the talent of its young.

Pension Pitfalls

In a 1987 legal action of the Equal Employment Opportunity Commission against a State government, the senior author became aware of the fact that pension plans may cap the age at which further benefits are earned. Specifically in the system under question, after 25 years of service, individuals no longer received any increment in the pension benefits that they would receive at retirement. They were, however, still required to contribute to the system. That is, he or she is required to contribute to a system from which no further increase in benefits was derived. Obviously, workers in this system plan to retire in 25 years to take advantage of the system. One surmises that the growth of such a prejudicial policy

arose out of the desire to have State workers retire early so that the elected State officials could make appointments that would be of political advantage.

There are other provisions of pension systems that can make them undesirable with regard to long term policies in an aging society. For one thing, the encouragement of early retirement in an unfunded pension system paid for by tax appropriations or by a marginally funded system increases the public indebtedness. The costs of long pensions when people are living longer and working shorter must be paid. Employers may have historical reasons like to hire young employees and in their competition with other industries hire at initial high entrance wages, promote quickly and give frequent substantial increases. This result in a contrived shape to the life span income curve that contributes to economic liability of the older worker to the employer. It is most unlikely that public policy will intrude or should intrude into the arena of age-wage setting policies by employers, but they should be examined for their long term consequences. Pension benefits, on the other hand, are closer to the public domain and should be scrutinized.

Schulz in his comments on critics of Social Security pensions with regard to disincentive effects says, "Most of these critics fail to realize that it is employer-sponsored pensions (not Social Security) that are the big driving force today in the early retirement phenomena and the non-hiring of older workers in many large corporations" (Schulz, 1987, p. 39)(10). In a forecast of participation in the labor force, the data presented by Clark (1987)(4) indicates that there has been a steady decline in the participation of older persons in the labor force and that this trend without altering current policies will continue to the year 2000. By 1960 the labor force participation rate for men over the age of 65 was 33.1 percent. By 1980 it was only 16 percent and by 2000 it is projected to be still lower at 9.9 percent. The age at which 50 percent of people retire from the labor force is now about 62.5 years for men and about 57.5 for women. If such trends continue, we will soon reach a point where the average worker spends more time in retirement than in the labor force itself.

A Counter-Trend Case History

The senior author's continuing full-time employment at age 69 is counter trend and provokes some important considerations. The first point is that I enjoy my work and, as an academic, I continue to participate in a flow of information that is constantly updated through research. I participate in a career, one of the features of which is constant exposure to new information. Another point is that my pension is funded and vested in me.

In the early part of this century, the Carnegie Corporation created the Teachers' Insurance and Annuity Association for the purpose of providing a pension fund for college teachers. Over 3,000 institutions now have their pension plans under the rubric of the TIAA. Unlike the capped pension plans mentioned earlier, my deposits and those of my employer can continue to be made to the fund. Thus, my benefits are still rising. Since I have voluntarily raised the amount I contribute each month, my benefits have risen

to the point where they are potentially greater than my salary income. This circumstance illustrates the fact that some individuals will put off retirement even if they could retire at a greater income because they enjoy their activities. Other workers will elect to go out on early retirement despite a significant reduction in their income. Obviously, the trade off has to do with how odious or pleasant are the circumstances of employment.

Perhaps the largest factor impinging upon pension plans and age policy has to do with the supervision and management of the funds. In France, public works employees contribute to a pension plan that is managed by a triumvirate of representatives from industry, from government, and from the employees themselves. This pattern is not commonly found in America, but it would seem to be a desirable policy to encourage.

Exclusive control of pension funds by either industry or employees can lead to excesses which are unfavorable to the worker. There have been instances in recent history where the trade unions have controlled the investment of the pension funds in projects of interest to union officials. In a similar manner, pension funds have been managed by employers with the purpose of taking advantage of capital manipulation rather than with long term pension benefits to the individual. Policies regarding the control of pension funds should be directed to protecting the pension benefits to individuals who have served well and have earned the right to have their pension funds not susceptible to mismanagement by purpose or ineptitude.

Pension policy would seem to be ready for another step in maturity toward a tripartite control of interest: the employees, the employers, and the public good.

Representation of both the public's and the employees' interests in pension planning would tend to expand the options for the older worker in deciding when to retire. Attractiveness of retirement to the individual has to be weighed against the attractiveness of work and continuing benefits that may be accrued. If the pension ceiling is uncapped, then the longer one works, the larger the benefits.

Presumably, individuals can maintain their lifestyles in retirement at about 65 percent of the pre-retirement wage. This means that if an individual retires at 100 percent of preretirement income, his or her standard of living increases upon retirement. If one wishes to adopt 75 as the age at which biological, psychological, and social issues converge to make retirement reasonable, then one could set age 75 as the age in which an employee could retire at 100 percent of previous employment income. If 2 percent of pension benefit is accrued per year, then a 100 percent of income is replaced by pension benefits after 50 years of work. If the clock for these 50 years began at age 25, this would enable the individual to retire at age 75 with 100 percent of pre-retirement income.

If an individual worked to age 80 he or she could retire at 110 percent of preretirement income. There is no particular reason why one's standard of living in retirement could not be higher than previously and the opportunity to be in that position would seem to be a contribution to both older workers and the needs of society. Analysis of retired persons expenditures might show them to be particularly desirable consumers such that their increased purchas-

ing power might be reinvested in gains for the entire population. If so, these would be increased incentive to encourage post retirement income.

Non-Monetized Productive Roles of the Aged

As noted earlier, many of the contributions of older adults to a society are not monetized. As such, they fall outside of the usual areas of measurement and consequently old people are looked upon primarily as dependents. However, the grandparental role in particular is one that has distinct benefits to society, if not monetized. In a period of family instability marked by divorce, often a grandparent is the stabilizing force which provides a model for growing children. The contribution of older adults can be seen as an asset to mental health of families in which employed mothers and fathers, often have insufficient time and too much role conflict to allow adequate interpersonal contact with growing children. Not only contacts within families, but foster grandparent roles also provide a significant gain in the community.

Unfortunately, an American myth is that the quality of decisions is linked with the energy and decisiveness of youth and not with the reflectiveness and experience possessed by older persons. The fostering of productive non-monetized roles that utilizes the strengths of the mature person should be encouraged by public policy, among such opportunities is the creation of senior advisory councils. The encouragement of senior advisory councils at all levels of government and community activities seems a worthy venture. Regardless of political party affiliation, the creation and use of senior councils, consisting for example of past secretaries of departments of government, would bring to bear experience and generate alternative solutions to current problems. The Association of Past Members of Congress represents some of the elements of this thought. The uses of senior councils in businesses, community ventures, and churches could do much to expand the range of alternative ideas and utilization of experience.

The foregoing assumes that older adults, having lived through periods of economic depression, inflation, growth or retrenchment, war, and other instances of major social change, have gathered experience that can be mobilized to advantage. In addition to the greater experience with age and the development of a broader range of strategies, older persons are thought to have greater emotional stability. They are more content with their lives than the young adult (Butt and Beiser, 1987)(3). They are less involved in the immediate decision processes of daily life and, being detached from them, they can be less emotional in their responses. One of the traits attributed to older persons is that of wisdom which reflects the advantages of greater experience, less impulsivity, and greater emotional poise (Clayton and Birren, 1980)(5). Certainly one instance of the employment of such traits would be in the use of seniors on advisory councils as previously described.

Unused Productivity of Older Adults

In addressing issues related to age, productivity, and work, we need to consider carefully what is meant by productivity, and then

to determine if and how the skills and capabilities of older adults can be used productively. This issue is of obvious importance, both for a society that would profit from a productive older citizenry or be burdened by an unproductive one, and for older individuals who could be challenged, interested, and valued or uninvolved and unappreciated. In the previous section, issues related to productivity were discussed. Some implications of traditional economic interpretations of productivity were presented, and some new ways to consider productivity were suggested.

In this section, issues related to the cognitive capabilities and skills of older adults are discussed. First, we summarize briefly current knowledge about age trajectories of cognitive abilities. Then, we consider the under utilization of older adults' skills that may presently exist. Next, we consider the plausibility of intervention to remediate and/or enhance older adults' skills. Finally, we speculate on the potential for unique contributions by older adults.

Age Trajectories of Cognitive Abilities

Until recently, thinking about cognition and cognitive development has been at least loosely tied to knowledge about the biological system that is assumed to support cognition. Therefore, it generally had been assumed that cognition was a universal aplastic system that has a biologically programmed trajectory of age change. When investigating age related change in children's cognition, researchers searched for cognitive growth that was assumed to parallel physical growth, and when investigating age related change in adults' cognition, they searched for cognitive decline assumed to correspond to physical decline in later adulthood. These age patterns were thought to be universal and inevitable.

Several lines of evidence call this view into question. First, a great deal of the intellectual difference that had been documented between younger and older adults appears now to be related to cohort differences rather than to age changes. That is, each American generation, at least until present, seems to have developed intellectual abilities that surpassed those of their parental generation (e.g., Schaie, in press)(8). Second, while there probably is some age related decline in some basic information processing skills, this decline is neither as severe nor as universal as had been previously assumed (e.g., Baltes, et al, 1984)(2). Many individuals, particularly if they are healthy, show no or only modest cognitive decline until very old age. Moreover, unless aging is accompanied by pathology, documented declines rarely place an individual far below his or her youthful relative performance level.

Underutilization of Established Capacities of the Old

Given the new appreciation of a largely maintained set of intellectual and cognitive abilities in older adults, it is important to recognize the wasteful underutilization of talent that is likely occurring because of routine removal of older adults from productive roles. An examination of recent research on creative potential throughout life points to the likely loss of magnificent achievements that is associated with misguided role assignments. Similar

loss of less spectacular contributions are likely to exist throughout society.

Creativity Potential Throughout Life

Simonton (1984)(11) provides an extensive review of knowledge about creativity. He suggests that while an age decrement in creativity in the later years is quite real, the amount of decrement is seldom so substantial as to convert a creative individual to noncreative by the close of his or her career. Rather, most creative individuals die well before they have the opportunity to exhaust their potential for generating novel and effective ideas. Moreover, if individual products, instead of age period outputs, are considered, age becomes essentially useless as a predictor of creativity. Items for item, the probability of an individual producing a creative achievement appears to be constant across age. This actuality exists because the proportion of successful creative hits to attempts is a characteristic of each individual that is unaffected by age. Thus, the level of creativity to be expected in the final years depends upon the individual's initial level of creative potential. The creative output of individuals in the last decades of life can easily surpass the creative output of those in the supposed optimum of life, if the former began with a higher creative potential from the start.

It also should be noted that much of the decline in the exercise (as opposed to the hit probability) of creativity that is observed appears to be related to extrinsic factors that can be ameliorated. For example, increased medical knowledge and improved medical care can lessen the detrimental impact of physical illness. In addition, the experienced creator often can compensate for slowing down in creative ideation by making routine some of the more mundane or technical facets of creative work, such as for example, polishing the final product, finding a publisher, performer, or dealer. Likewise, the older creator can overcome some loss of vigor by acquiring a full complement of assistants to aid in his or her projects.

Intervention for Improved Function by the Old

Much recent research has indicated that intervention could be effective in other domains as well. Such intervention should be considered for two purposes. First, to remediate declines that may be associated with aging, and second, to enhance performance across all of adulthood.

Remediation

Willis(12) summarizes many studies that show positive effects of behavioral intervention and training in the old. This research indicates that there is great plasticity in cognitive performance even in old age. For example, in research that has focused on cognitive domains that tend to show age related decline (e.g., memory, problem solving, fluid intelligence), remediation appears possible with only relatively minor intervention (e.g., feedback, modeling, or instruction on relevant strategies).

Within domains that tend to show age related decline, Willis suggests that we should distinguish between decline that is remediable and decline that is irreversible. Certain pathologies increasingly prevalent in the old may produce irreversible decrements. However, even in these instances, external compensation (e.g., prosthetic environments) may be possible. Moreover, plasticity, rather than irreversibility, should be assumed for most of the behavioral declines observed in the old.

Behavioral intervention generally has been found to be effective in reversing or partially reversing many age related declines in cognitive performance. This intervention appears to occur in one of two ways, as remediation in kind, or remediation with compensation. Remediation in kind occurs when intervention results in behavior that is qualitatively the same as behavior prior to decline. This type of remediation appears most likely for simple cognitive skills and processes. Remediation with compensation occurs when intervention results in behavior that is qualitatively different from behavior prior to decline. In this more complex type of remediation loss in one aspect of an outcome behavior is compensated for by increases in another aspect. These two types of remediation may be useful for ameliorating different kinds of problems associated with aging. However, much more needs to be learned about the types of behaviors that are susceptible to intervention as well as the types of interventions that are effective with the old.

Enhancement

Moreover, much should be learned about possible enhancement in cognitive domains that exhibit relatively little late life normative decline (e.g., crystallized intelligence), or possible improvement (e.g., dialectic reasoning). There is every indication that adults are trainable in new and diverse domains throughout life. Thus, implementation of life long learning programs could result in remediations that addressed an individual's strengths, rather than weaknesses. Likewise, it could contribute to the development of skills possibly unique to old age.

Potential for Unique Contributions by the Old

Although research on unique capacities of the old has been rare, there is good reason to assume that such capacities exist. Older individuals have accumulated a lifetime of knowledge and experience that almost surely puts them at an advantage in some situations. Moreover, the perspective and distance that can be achieved only with time makes the older adult uniquely suited to evaluate, judge, and advise widely. These special capacities of late life are highlighted by the different styles that are evident during each stage of life.

Late Life Style

During early life children appear to perceive and understand their world only in terms of broad generalities. There is little differentiation between the self and other, or between self and world. During early adulthood the individual becomes a more active and

observant subject that distinguishes itself from the objective world of people and things. In early and middle adulthood most people show a great interest in the facts of outer reality, and continually scrutinize the environment in order to interact with it.

During late adulthood interest in the world no longer appears to be motivated primarily by a desire to interact with it. Rather, there appears to be a detached contemplation and worldview that transcends outer appearance to search for underlying essentials. Products of this stage of life appear to have a structural uniformity that is reminiscent of early life. However, unlike in early life, when discrimination between things and between self and world was weak, during late life discriminations seem no longer to be relevant.

Arnheim (1986)(1) describes the style of late life artists as one in which there is a tendency to homogenize the structure of a work as a whole. In late life painting (e.g., Monet, Titian, and Rembrandt), he argues that the various objects and parts lose their distinctive textures. Similarly, in late life music (e.g., Beethoven), Arnheim suggests that the timbres of the various instruments blend into the rich sounds of a kind of superinstruments, and the antagonism of phrase and counterphrase gives way to a flow. Even in late life literature (e.g., Goethe), Arnheim believes there is evidence of assimilation and fusion of elements, and of a diffuse looking kind of order that creates an illusion of the various components floating in a medium of high entropy. However, he suggests that only in late life can the greatest possible range of artistic accomplishment be reached. In this stage, content can reach from the concreteness of individual things in nature to the uniformity of the artist's all encompassing view. Perhaps such late life contribution is possible in all domains. We need now to create the social structure to nurture and support it throughout life.

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ISSUES IN AGED INCOME MAINTENANCE: POPULATION AGING AND THE EARLY RETIREMENT "TIMEBOMB"

James H. Schulz, Ph.D.

A number of years ago the noted economist John Kenneth Galbraith wrote a book entitled *Economics and the Art of Controversy.* In that book Galbraith wrote that the loudest economic arguments were about issues for which there was, in fact, very little controversy. Some individuals find their views outside the existing broad consensus on various issues. Their reactions, argues Galbraith, are "reduced almost entirely to guerrilla warfare. They cannot advance the principles in which they believe; they can only harass the massive forces they oppose"(1).

Today, we find ourselves in a somewhat analogous situation with regard to economic policies and programs for the elderly in this country. Starting in the 1930's, we instituted a variety of new institutions and policies. They have been extraordinarily effective in dealing with the insecurities of old age. Yet many continue to voice concern about many of the old problems—problems that for the most part have been solved. And some would even have us view our current programs as a threat to American society itself by fostering inequity and disharmony between generations.

At the same time as many call into question our efforts of the past, we continue to ignore a more serious problem. Rapidly pushing down the age of retirement—not the aging of our population—is an issue we can no longer ignore. We continue to worry about poverty, inflation, medical costs, and abandonment among our elderly population. And many people now voice increasing concern over the future equity and costs of private pension plans and social security. Yet we continue to ignore another real and growing threat: the economic costs and waste of experienced manpower associated with the growing phenomenon of early retirement. Using an amazingly effective "carrot and stick" strategy, employers have been moving millions of older workers out of their regular jobs at increasingly early ages. Any older worker who wishes to continue working is then confronted with a harsh reality. Current national attitudes and policies do little to encourage and help the unemployed older worker find another job commensurate with his or her talents and job interests.

Before I address this major issue, let me briefly review and comment on those concerns getting most of the attention. I want to say right at the beginning, however, that the generalizations I am about to make are not meant to deny the fact that there are still some older persons being seriously hurt by circumstances beyond their control. Nor do I wish to ignore the fact that with regard to the elderly population, we must confront new and evolving situations in future years.

The purpose of my remarks today is not to deny these individual problem cases. Nor do I want to downgrade the need to plan for the future or to discourage us from taking action where improvements are needed. Instead, I will focus on a problem that most policymakers continue to ignore.

But first, let me to make a few brief comments on our past fears and accomplishments.

Fears and Accomplishments

1. Poverty.—For over half a century, dating back at least to the 1930's, there has been concern about pervasive poverty among the elderly. One of the negative by-products of the industrial revolution in this (and other) countries was a breakdown of self-support mechanisms for providing economic support in old age. Writing on the situation *before* the Great Depression, Abraham Epstein (who went on to become a key figure in the push for Social Security legislation) estimated that even in the relatively prosperous years of the 1920's, about 30 percent of the aged were dependent on others for support, with the majority being assisted by relatives(2). The depression of the 1930's caused three things to happen. The proportion of dependent aged rose dramatically—probably exceeding 50 percent by 1935. In addition, rising unemployment (that exceeded 12 million people in the depths of the depression) seriously affected the ability of families to support aged relatives in need. And third, existing private charities and private pension plans found themselves overwhelmed by events, with many pension plans collapsing and unable to pay promised benefits.

Reacting to the horrors of the depression, the United States sought to build new private and public institutions to protect its people from the worst insecurities of fluctuating markets. As part of those reforms, we have worked hard over the years to develop income maintenance programs that would be more responsive to the economic needs of older people and consistent with their values and preferences. We can be proud of the results.

Economic destitution among our older citizens has been virtually eliminated.(3) The poverty that remains is concentrated among unmarried older persons, most of whom are widows(4). The solution to this remaining poverty lies mainly in modifying our public and private pension programs to better deal with the matter of survivors' benefits. But it also depends on our encouraging rather than discouraging personal saving and facilitating the use of accumulated wealth when people get old(5).

2. Inflation.—Historically the elderly have been one of the groups in society most vulnerable to the ravages of inflation. In contrast, today they are one of the groups best protected—primarily as a result of indexed Social Security, SSI, and government employee benefits. Some have argued that the Consumer Price Index used to adjust these benefits does not adequately reflect the expenditure patterns of the elderly; the research evidence to date is overwhelming that it does(6). Others have argued that this indexing commitment is a major reason for our past and projected federal budget deficits. Nothing could be farther from the truth(7).

3. Social Security Deficits.[1]—The economic chaos of the OPEC period created widespread fears about the financing of OASDI. During this period, high inflation and high unemployment battered Social Security finances, as it did most other parts of the American economy. The result was rapidly declining reserves in the Social Security trust funds and fears that Social Security might run short of the funds needed to pay benefits. The negative legacy of that period remains with us today: severely diminished public confidence in the financial viability of Social Security.

Presumably we have learned an important lesson from that experience. Social Security reserves need to be adequate to meet unexpected economic bad times. Congress should never again allow the Trust Funds to fall as low as resulted from our Social Security policies in the 1960's. And we should continue, as we have in the past, to track and project into the future—using rigorous economic and actuarial analysis—the changing financial flows in and out of the system.

4. Skyrocketing Medical Care Costs.—If the financing of OASDI seems to be under control, we must have a less secure feeling about Medicare financing. Despite a major restructuring of the Medicare payment system, costs of medical care continue to rise at a very rapid rate. Many see medical care costs as being out of control, and the program's actuaries project a deficit in the Hospital Insurance Trust Fund some time in the 1990's. While the situation is serious, it is important to emphasize that the problem is not being ignored. Quite the contrary, issues surrounding the financing of medical care are the focus of attention from an unprecedentedly large coalition of researchers and policymakers. People from academia, the business community, advocacy organizations, and the government are all seeking answers. Additional cost containment action is likely in the near future.

5. Private Pension Problems.—Employer-sponsored pensions play an increasingly important role as an income supplement to Social Security. No one lives "high on the hog" from Social Security benefits at today's levels. Over the least three decades, we have witnessed the spread and liberalization of private and public employee pension plans. But with the growth of these plans has come an increased recognition of their limitations and problems. For over 30 years, starting with the Welfare and Pension Plan Disclosure Act of 1959, the Congress has been struggling with regulatory issues related to employer-sponsored plans. Many of the problems and fears that triggered ERISA in 1974 have been addressed in a very direct way. We have witnessed relatively successful action by both the private and public sectors over the past years to reduce many of the problems.

Many important issues remain, however. I have tried to call attention, for example, to the serious issue (especially for women) of vested pension benefits that do not adjust for inflation(8). Also, at the Brandeis Policy Center on Aging, we have recently completed a

[1] Another issue is the matter of huge Social Security surpluses projected over the next couple of decades. The congressional staff has expressed interest in this issue. While I do not comment directly on this matter in my prepared presentation for the forum, I have enclosed in an appended supplement some comments on the issue. These comments are taken from the new edition of my book, The Economics of Aging, scheduled to be published next year.

study on the potentially serious problems arising from plan termination and asset reversion(9).

6. Abandonment.—Finally there has been the fear that in an increasingly urban, industrialized, and youth-oriented society—the elderly would become isolated and in the worst cases would be, in effect, abandoned by those younger. The reality has been very different. Family relationships, ties, and supports have remained strong in America(10). Communities have reached out with innovative housing and social programs. And a growing network of supportive services have been put into place.

The New Fear: "An Aging Population"

In recent years a new fear has been voiced. This concern arises from the dramatic demographic shifts occurring in the United States. The 1940's baby boom and a low fertility rate have combined to produce what we have heretofore never experienced—an "aging society." Stereotypical notions still abound about old people: that they are poverty-stricken, in ill health, have rigid personalities, are often senile, perform at low rates of productivity (the list could go on and on). Given these mostly *negative* stereotypical views, the notion of America as an aging nation immediately calls forth anxiety and concern. Without even thinking, people's intuition tells them that this demographic change bodes ill for American society.

And, as a realization of their worst fears, articulate commentators have been quick to warn people of rising dependency ratios, burgeoning Social Security costs due to the elderly, and unsustainable benefit levels in current public programs. We are told that we are confronted with the need to choose between public expenditures for the young versus the old and the consequent spector of intergenerational conflict(11).

Elsewhere I have labeled this contemporary school of thinking "voodoo demographics," adapting a term first used some years ago by then Presidential candidate George Bush, reacting to candidate Reagan's promises associated with "supply-side economics"(12). Voodoo demographics has all the intuitive appeals of supply-side economics and is built on the same vacuous base—lacking both scientific and empirical credibility.

By presenting selected data, practitioners of voodoo demography purport to demonstrate a growing crisis. They conclude that there will not be enough workers to support the obligations of America's Social Security programs when the huge baby boom generation retires in the next century. That conclusion, in turn, is used to justify proposals to radically restrict Social Security and Medicare for future retirees.

The "voodoo demographers" begin by citing population trends with which no one disagrees: (1) an elderly population that is growing, (2) a even more rapidly growing "very old population" (aged 85 and over) with extensive long-term care needs, and (3) a "working population" 18 to 64 that is becoming smaller in relation to the elderly population.

Their analysis falters, however, when they reach the incorrect conclusion that these trends are signs of impending financial disas-

ter. Their pessimism is based on crude demographic statistics and no economic analysis. They focus primarily on something called the "aged dependency ratio," a measure that compares the number of persons age 65 and over to the number of persons age 18 to 64 (i.e., of prime working age).

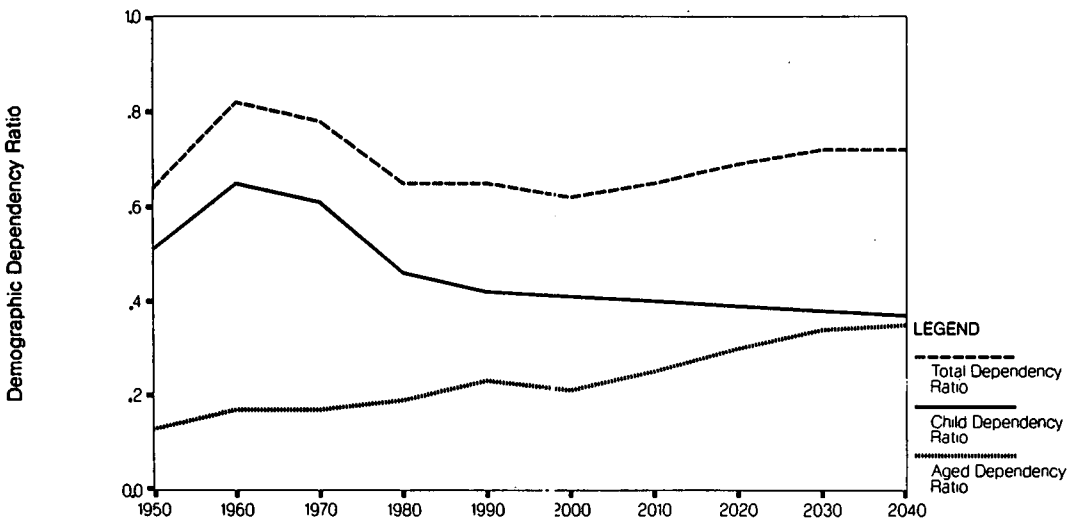
For example, former Secretary of Commerce, Peter G. Peterson writes in this October's *The Atlantic* magazine about "the most stunning demographic transformation—from workers to dependents—in American history." Citing the rise of the elderly population relative to the working population, Peterson warns us that "we can only imagine how unaffordable . . . [expenditures for the elderly] will be 30 years from now . . ."

While useful for describing certain changes in an aging society, the aged dependency ratio is flawed as a basis for determining public policy. First, the aged dependency ratio shows only part of the so-called "dependency" burden. An *overall* dependency burden is a more accurate measure, for it includes both children (persons under 18) and the elderly in the "dependent" part of the ratio.

Appropriately, younger dependents also make large demands on both public and private income: for the necessities of living, health care, juvenile social welfare expenses, and especially for education. Currently, for example, the United States spends about $220 billion a year to educate its youth.

The aged ratio is projected to increase from its current level of 19 elderly persons (per 100 persons age 18 to 64) to 37 in the year 2030. But simultaneously, the proportion of the population under 18 will decline over the next several decades. The net result is that the overall dependency ratio will not match the peak reached in the mid-1960's (83 per 100) at any point in the next 85 years! Even in 2030, the height of the "baby boom's" retirement, the projected overall ratio of about 75 will be less than the ratio for the 1960's (see Figure A).

Figure A . Trends in the Total, Child, and Aged Dependency Ratios 1950-2040



Authors' calculations

We do not have to wait until the next century to see the changes and the reallocation of resources taking place. The closing of schools in various communities (some in the city where I live, Newton, have been converted to special housing for the elderly) is evidence of the declining school-age population around the country. With fewer children than in previous decades to provide for, families in years to come will typically have more income available to spend on other needs, including providing retirement income.

The second major problem with dependency ratios is the fact that dependency ratios ignore the effect economic growth will have on the Nation's future ability to support Social Security and other programs. Nor do dependency ratios take account of the role individual savings (through individual and private pension accounts) plays in promoting this growth and in financing retirement.

Economist William Crown, a colleague of mine at Brandeis University, has calculated that if the real rate of growth in the American economy averages 2 percent a year, the real costs (in the next century) of supporting each "dependent" person—after accounting for inflation—can be five to six times greater than in 1960 without increasing the economic burden on society(13). Similarly, the most commonly accepted assumptions used as a basis for estimating the future revenues and expenditures of Social Security indicate that, after adjusting for inflation, the Nation's total output (i.e., its gross national product) per American will double by the year 2030 and triple by 2060. Even if the real rate of growth averages only 1 percent a year, public and private sector resources would be significantly larger.

Of course, important political and economic issues involving distribution of these increasing resources will remain. And no one can say for sure exactly what our future economic situation will be. But barring unforseen disasters, the economy of the 21st century should be able to support all age groups at a standard of living that, on average, *will be better* than today's standard.

And third, both the "aged" and the "overall" dependency ratios typically cited assume that *all* persons 18 to 64 are workers and that all persons over 64 do not contribute to the economy. That is simply not the case. In July 1987, 16.4 pecent of men and a little under 8 percent of women between 65 and 69 participated in the labor force. In fact, overall, there are more than 3 million age 65-plus workers actively participating in the labor force.[2] And, given changing Social Security provisions that will encourage work in the later years, the proportion of the elderly who work after 65 may even increase in the future.

We need to move beyond the crude statistical indicators of the dependency ratios. If, for example, it costs more (in terms of expenditures using real economic resources) to support the average older person than the average child, then projected trends in dependency ratios are not necessarily indicative of the actual support burden implied by population aging.

In a recent study supported by the AARP Public Policy Institute, William H. Crown and I have investigated this question(14). The re-

[2] A serious problem, as I discuss in the next section, is the fact that the number of older workers continues to drop in reaction to private and public retirement policies.

sults of that study indicate that, even when we take account of the allocation of private expenditures among age groups, the aging of the population should not lead to a higher "burden" than that which our nation has already sustained in the recent past. That is, the fact that we are shifting to a society with fewer dependent children and more retired older persons does not, by itself, imply a serious financial support burden for workers in the years to come.

The "Early Retirement Timebomb"

Which brings us to the issue almost nobody is talking about. All the dependency ratio discussions to date have focused on the numbers of older persons age 65 or greater. But as Members of the Congress well know, we have been witnessing in the United States a dramatic lengthening of the period people spend in retirement. While increasing life expectancy is part of the explanation for this phenomenon, the major reason why this is happening is the fact that more and more workers are leaving their jobs at increasingly early ages.

At the turn of the century the majority of workers stayed employed into their seventies. In the 1960's the majority of workers left by the age of 65. Today most leave by 62 (see Table 1). And if present trends continue, it will not be long before a majority leave by age 60.[3]

TABLE 1.—THE PROPORTION OF SOCIAL SECURITY WORKER BENEFICIARIES [1] TAKING REDUCED, EARLY RETIREMENT BENEFITS

Year	Men		Women	
	Number (thousands)	Early retirement (percent)	Number (thousands)	Early retirement (percent)
Prior to 1970	[2] 274	[2] 05	[3] 115	[3] 08
1970	2,758	36	3,308	59
1975	4,465	49	4,904	66
1980	5,889	56	6,307	69
1985	7,166	61	7,553	71
1986	7,465	62	7,817	72

[1] OASDI benefits in current payment status.
[2] 1961.
[3] 1956.

Source: U.S. Social Security Administration, Social Security Bulletin (September 1987), Table Q2.

This flow of older workers out of the labor force threatens to put serious pressures on our economy as private pension costs mount. These pressures and strains will result less from demographic shifts than from "the use and acceptance of pension systems as a mechanism to narrow the gap between the supply and the demand for labour, a function for which they had never been planned or intended"(15).

Considerable attention has been given, especially by academic researchers, to how Social Security provisions such as the retirement test might be discouraging continued employment. They have attempted to measure how larger (real) Social Security benefits affect the retirement decision. *What we have failed to give sufficient at-*

[3] In many countries of Western Europe, this is already a reality.

tention to is the mushrooming phenomenon of early retirement being engineered in the private sector by America's large corporations.

Employer-sponsored pension plans going back to the early part of this century have been much more than a way to provide income in retirement to workers. Right from the beginning private pensions have been a mechanism used by employers in obtaining and keeping their most desirable employees and as a way of adjusting their work force to meet the dictates of shifting demand and technological innovation in a competitive, market-oriented economy.(16) As observed by former Secretary of Commerce Juanita M. Kreps, retirement policies have become a "device for balancing the number of job seekers with the demand for workers at going rates of pay"(17).

The early development of private pension plans was disrupted by the Great Depression but resumed during the 1940's. A large number of factors contributed to the spectacular growth of private pensions during the immediate post-war period(18). As in the early years, both management and unions saw one major advantage of these plans to be the orderly and humane movement of older workers out of the labor force. It was during the post-war years that mandatory retirement rules also became widespread in American industry. What is often not realized is that these new compulsory retirement rules were directly linked to the employer-sponsored pension plans instituted or expanded during this period(19).

As the economy slackened and unemployment levels rose in the 1970's, many private pension plans were further liberalized by employers to encourage the retirement of older workers. Benefits were improved to make the plans more adequate and more appealing to workers thinking about retirement. Perhaps even more importantly was the fact that during this period *early* retirement options were introduced or liberalized in many plans.

In the 1960's and early 1970's, the common practice in America was to actuarially reduce the benefits paid to workers retiring before the "normal" retirement age to take account of the increased costs related to the longer payout period. In recent years, however, it has become much more common for employers to encourage early retirement by absorbing all or some of the costs of paying pensions over a longer period of time, that is, by giving an actuarial bonus to workers who retire early. Economists Kotlikoff and Wise, studying the characteristics of American private pension plans in 1979, found that many contained substantial incentives designed to encourage retirement at certain early retirement ages. If a worker delayed retirement beyond these earlier ages, it was "not unusual for the reduction in pension benefit accrual after these retirement ages to equal the equivalent of a 30 percent reduction in wage earnings"(20).

A severe American recession occurring in the early 1980's encouraged the development and widespread use of still another device for encouraging retirement, the "early retirement incentive program" (ERIP). These programs had their origin in the severance pay programs that had been offered by a few companies in earlier years. It is the availability of Social Security and regular private pensions at earlier ages that makes this new mechanism an especially effective way of encouraging even earlier retirement. Work-

ers eligible for the early retirement benefits in private and public pension plans can be offered additional (or enhanced pension) benefits to make early retirement more attractive (and more feasible). For many, the additional benefits became an effective financial bridge between the years of retirement *before* age 62 and the start of Social Security at that age.

Unlike liberalization of regular pension plans, employer costs can be contained by utilizing ERIP's that are offered only for a limited period of time, thereby effectively restricting the offer to a portion of the firm's labor force. For most companies the "window of eligibility" period runs from 60 to 90 days, though for some it may be as short as a month or as long as a year.

A survey of medium and large size firms in the United States found that more than a third had offered ERIP's between 1970 and 1983(21). The acceptance rate has varied greatly among companies, but generally the response of workers to these plans has been greater than expected. In a recent study of ERIP's it was found that the acceptance ratio in a quarter of the offering companies was over 75 percent (with an average rate of 36 percent)(22).

Thus, we see American industry spearheading a massive push toward early retirement through:

1. Layoffs of older workers under the guise of reorganizations(23);
2. Liberalization of pension coverage and plan benefit levels;
3. Incentive and disincentive provisions in these plans; and
4. The introduction of "special early retirement incentive programs."

What could better illustrate the dynamics of the approach that American industry has taken in dealing with the problem of labor supply disequilibrium than the contrasting reports of two executives (from the United States and Japan) at the recent 21st annual International Iron and Steel Institute Convention. At one of the convention sessions, Executive Vice President J. Bruce Johnston of the American USX Corporation reported that USX has had to reduce their work force by 87,000 workers over the past 7 years to deal with the problems resulting from declining markets for products. He reported that a major mechanism used to achieve that result was the early retirement of older workers—swelling the ranks of USX pensioners from 43,000 to 124,000 during this adjustment period.

In contrast, Kiyoshi Kobayashi, Managing Director for Personnel at Nippon Steel Corporation, reported at the same session that his company is currently faced with the task of reducing jobs in steel production by 41 percent (about 19,000 jobs). He said to the iron and steel conference, "Nippon Steel does not intend to offer voluntary retirement or dismiss surplus personnel." Instead, the company plans to reemploy workers elsewhere in the company or train them for new jobs in other companies affiliated with the corporation.

The differences in the approaches of the companies illustrate a fundamental difference between the two countries in policies and attitudes toward dealing with economic problems. The Japanese have promoted the continued employment of workers at all ages

throughout the post-war period.[4] And even today when faced with rising economic problems brought on by international competition and a declining American dollar, they continue to emphasize solutions that promote employment, not retirement(24).

"Don't Call Us; We'll Call You"

At the same time that we are "gently pushing" workers out of their jobs, we are making it increasingly difficult for those who would like to continue working to find new jobs. Currently we give displaced older workers two major options: retirement or "dead end jobs" at low pay. If we really want more people to work longer in the years to come, we must begin now to break down all the institutional barriers we have erected to employment for older workers. For a long time we have given lip-service to the idea that education should not stop when we are young; in a world of rapid, perhaps increasing, technological change, workers need an opportunity to learn new knowledge and skills *throughout* their work life. We must develop specialized employment agencies and clearinghouses for older workers.[5] We need to introduce more flexibility into the scheduling of work (where the nature of the production process permits) and be less rigid in personnel practices—especially with regard the infamous "job ladder" syndrome.[6]

But without doubt, the most serious barrier to the employment of older workers is the attitudes of the workers themselves and their potential employers with regard to older worker productivity and their potential to be trained for new jobs. Stereotypical notions of workers die hard. Employers, and many older workers, truly believe that productivity declines with age and that "old dogs cannot learn new tricks." Yet the research to date on this question indicates that older workers, like younger workers, are a very diverse group with regard to their work capacities. To rephrase a popular gerontological quote, "once you know one older worker, you only know one older worker." Overall, it is found that the productivity of a great many older workers is as high or higher than many younger workers(25).

While much can be said about the need to replace myth with reality, little is likely to happen until we make a more concerted effort to produce more scientific evidence on the productivity and trainability issues. We need to bring meaningful information to the discussions on this issue and use this information to confront the prejudices of employers and the fears of workers.

CONCLUSIONS

We in the United States must wake up to the fact that it is *not* the aging of our population that we need to fear half so much as

[4] It is true that historically Japanese workers in large companies were expected to step down from their regular jobs around age 55. But both employers and government established programs and policies to facilitate the transition from these old jobs to new jobs, given that pension policy did not make retirement possible at this early age. The "normal age" of retirement in Japan is currently being raised to age 60, and the government has already announced its intention to push the normal age to 65 in the near future.

[5] These services could, in theory, be a part of existing services for workers of all ages, if the special needs of older workers were recognized with special resources and staff.

[6] Hire young, train, weed out, and reward those that stay.

the fact that we are rapidly pushing down the age at which people leave the labor force. This trend toward earlier retirement has been complemented by employer decisions not to reduce the retirement income going to many of the people who leave early. We want to strongly emphasize that there are long term cost implications associated with such actions. The economic costs of a regular pension for a worker who retires at age 60, for example, costs almost twice as much as pension costs for someone who retires at age 65. One of many questions we must ask, therefore, is who will pay for these additional pension benefits? And what are we willing to give up to provide them?

SUPPLEMENT TO FORUM PRESENTATION [7]

The Growing Surplus

The Social Security amendments of 1983 and the demographic shifts (discussed in chapter 1) have combined to create a very different financing issue. The Social Security deficits of the 1975 to 1982 period have given way to surpluses. But unlike the past, legislated payroll tax levels and demographics are projected to send surpluses in the OASDI trust funds skyrocketing. Current estimates indicate reserves will grow by the year 2022 to about $2.5 trillion (yes, trillion!) in "current dollars"(26). The reserves are projected to then decline very rapidly as the "baby boom generation" retires and further increases in payroll taxes will be needed to meet these future obligations (unless, of course, benefit levels were cut between now and then).

The situation has triggered a growing debate. Some argue the surpluses will *cause* problems and should not be allowed to accumulate. Others think the surpluses will *solve* problems and don't want to change current policy. Still others think we need to change the way we record these surpluses in the national accounts. And still others advocate a change in the way the surpluses would be invested.

The main argument for lowering future surpluses is a political one. Many people (especially conservatives) fear that as the funds pile up in the form of Government Treasury bonds, Congress will be tempted to liberalize Social Security or increase other types of Federal spending. Another fear is that if the Government begins to invest the surpluses in the private sector (rather than buying Government bonds), this might introduce undesirable interference in the control and operation of private businesses—resulting, in some cases, in Government ownership of companies.

The alternative view is that these surpluses, if not offset by dissaving elsewhere, could increase the Nation's savings rate. The United States, never a big saver by international standards, has seen national saving plummet to record lows in recent years. Thus, larger surpluses are viewed by some economists and policymakers as an opportunity to conteract the Nation's habit (both public and private) of deficit spending. The result, they argue, could be a

[7] This supplement is excerpted from James H. Schulz, *The Economics of Aging*, 4th edition (Dover, MA: Auburn House Publishing Co, forthcoming).

higher level of output and consumption during the next century than would otherwise occur.

Another view of the surpluses relates to the future demographic situation. The surpluses are consistent with the need for the huge baby boom group to pay into Social Security while working to help pay for the huge expenditures that will be necessary when they reach retirement ages. The alternative is to finance Social Security, as in the past, on a mostly pay-as-you-go basis. But this approach, it is argued, will mean a shift of the baby boom financing burden from the "baby boomers themselves to their children, who, because they are a smaller generation, would find the burden heavier".(27) As we discuss in the next section, the distributional equity of Social Security financing is a very complicated and controversial question. The "future surpluses" issue will complicate this issue even further. For example, the accumulation of surpluses through Social Security, argues economist Alicia H. Munnell, results in "shifting consumption away from a relatively poorer to a relatively more affluent generation"(28). Others see payroll taxes that weigh heavily on lower and middle-income workers as a poor way to raise national savings rates—given the many alternatives.

Perhaps the one clear action to be taken with regard to the surplus question relates to the matter of diminished public confidence in Social Security's ability to pay promised benefits. The economic chaos of the post-OPEC period (and the Social Security deficits associated with those bad economic times) left the Nation with widespread fears regarding the future. Many people lost confidence in Social Security's ability to deliver on its future obligations.

Presumably we have learned an important lesson from that experience. Social Security reserves accumulated to meet unexpected economic bad times should never again be allowed to fall as low as those resulting from our Social Security policies in the sixties and early seventies. Former Social Security Commissioner Robert Ball argues that we need to allow reserves to accumulate, at least in the short-run:

> In its 50-year history, Social Security has had two financial crises, one in the mid-1970's and one in the early 1980's. In both cases, the short-term crises were caused principally by inadequate reserves and reliance on economic assumptions that turned out to be too optimistic. We cannot afford to take a chance on a third mistake of this kind(29).

The debate on this issue is just beginning. As Milton Gwirtzman observes:

> If Congress faces Social Security's coming "prosperity" with the knowledge that it is only temporary, not a newly discovered pot of gold, it can make the kind of decisions that will guide the system through the next few decades in shape to confront the far more difficult [financial] times that will come thereafter(30).

But how Congress will behave is probably the heart of the issue. To many, "the question is whether the presence of Social Security surpluses changes policymakers' behavior by lulling them into doing less to balance the budget than they would have done otherwise"(31). And that is a question to which no one has a definitive answer.

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24. At the Policy Center on Aging at Brandeis, I am currently directing a research study, funded by the U.S. Dept. of Health and Human Services, that is looking at the many Japanese programs seeking to encourage the employment of older workers.

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26. Jonathan Rauch, "Uncle Sam Inc.," *National Journal* (September 5, 1987): 2242.

27. Jonathan Rauch, "False Security," *National Journal* (February 14, 1987): 362–365.

28. Timothy B. Clark, "Too Much, Too Soon?" *National Journal* (September 21, 1985): 2172.

29. Robert M. Ball, "Don't Drain the Social Security Fund," *The Washington Post* (August 30, 1987): C7.

30. Milton Gwirtzman, "Social Security Into Terra Incognita," *The Journal of the Institute for Socioeconomic Studies* vol 10 (Autumn 1985), 11.

31. Rauch, op. cit., "Uncle Sam, Inc."

CONGRESSIONAL RESPONSE

Lloyd Duxbury, Senate Special Committee on Aging

I approach this subject cognizant of the admonition that: "All is suspicious to the suspecting spy; all looks yellow to the jaundiced eye." (Let me admit, up front, that that quote is not original with me and that I can't remember, right now, who said it.) I make this admission, with the full realization that my inability, at this time, to remember who said it, might well be pointed to as concrete evidence of "cognitive decline" which is said to accompany "physical decline in later adulthood." (See, page 16 of Dr. Birren's paper).

I guess I'm what Dr. Schulz would refer to as an "ERIP"er, having left the employment of a large corporation under an "early retirement incentive program", the first of several such programs launched by that company. Another possible source of jaundice is my return to full-time employment at 65, following too many months on the unemployed, job search treadmill and two part-time jobs, and having out-lived the upfront "exit incentive" in that early retirement program, and having been asked too many times: "Why do you want to go back to work at your age?" The decision whether, in those circumstances, suspicion and jaundice have been, and are, controlling, or at least influential, factors, must be left to your good judgment.

There are two kinds of early retirement: one is voluntary early retirement; the other might be described as involuntary acceptance of voluntary early retirement, what amounts to forced early retirement, but which has all the appearances of voluntary early retirement. There is no need to curb voluntary early retirement; all that is necessary is protection against involuntary acceptance of voluntary early retirement.

I doubt that there has been or is even one early retirement plan, whether including an additional incentive or not, which employees forced the employer to adopt, or which the employer adopted only because employees wanted it. Such plans are initiated by the employer to serve the interests of the employer, not just to do something nice for employees.

And there's nothing wrong with that, provided that the acceptance by the employee is strictly voluntary and with full knowledge of all pertinent facts, and with the employee knowing that refusal to accept for any reason can be without fear of retaliation. In this way, early retirement can become a bargaining process between employee and employer, on equal terms. If the determined employer wants to get rid of a reluctant employee bad enough, the employer can sweeten the offer until the employee can't afford to turn it down.

It must be recognized that situations can arise which make it advisable for an employer to amicably terminate the services of certain long-term employees, not just because of their age, and not

just to be able to replace them with younger employees at a lower cost, but because of changes or reversals in important, long-standing policies and positions of the employer, policy or position changes or reversals which the long-term employees, through no fault of their own, could not attempt to implement without resulting embarrassment to the employer and/or its management. Early retirement may be the only solution. It can be a fair and reasonable solution, provided it is strictly voluntary on the part of the employee and with full knowledge of all pertinent facts.

But such situations are the exception, not the rule. The rule is that "ERIP's" are used to improve the bottom line by reducing the number of employees or by replacing older, more costly employees with younger, less costly employees. Even so, one is hard-pressed to find justification for curtailing the process, provided the voluntary and full knowledge features are guaranteed for the affected employees.

I know of one industry-wide "ERIP" fully negotiated and bargained by labor and management. The benefit of hindsight clearly indicates that that "ERIP" well-served management's interests, but there may be some doubt or dispute about whether it served labor's interests in the long run. The numbers opting for the "ERIP" greatly exceeded expectations. Hindsight says that's not surprising—the maximum early retirement at 60 could exceed the benefit at 65 with the same years of service. Some of those early retirements may not have been, and probably weren't, strictly voluntary, although, on the surface, they may appear so.

Dr. Schulz refers to employers' early retirement strategy as a "carrot and stick" strategy. If he means by that a carrot on a stick held out in front of the employee, it is difficult to criticize that kind of early retirement program, or to recommend its curtailment, if it's strictly voluntary and with full knowledge of all the facts. If he means a carrot held in front of the employee and a stick behind, does existing law allow that? There are ample statutory words on the books to effectively spell out the long-standing policy of this country against age discrimination in employment, in both the hiring of employees and getting rid of employees; and the law leaves no doubt as to who's responsible for administering and enforcing those laws—the Equal Employment Opportunity Commission (EEOC). Under Chairman John Melcher's leadership, the Senate Special Committee on Aging has undertaken an in-depth oversight investigation of the EEOC's administration and enforcement of those laws.

A clear indication of that Commission's attitude toward age discrimination is its recent attempt, by Commission rule, to deny workers the protection of a specific provision of the law requiring Commission supervision of a worker's waiver of rights under the Age Discrimination in Employment Act (ADEA). Senator Melcher thwarted that attempt of the Commission by a Senate floor amendment postponing the implementation of that rule to give the Congress additional time to decide how to deal with the issue. Also, there is the EEOC's record of languishing, unresolved, and neglected formal age discrimination charges.

I agree with Dr. Schulz that, over the years, a national attitude has developed, if not against, at least not sympathetic to, employ-

ment of older people, those 50 and older, and especially those 60 and older, in the public sector, as well as the private sector. I am personally convinced that age discrimination against older Americans seeking employment is rampant, and even more rampant against older women than older men. I am also convinced that available statistics as to the numbers of older men and women in the workforce (working and looking for work) are woefully incomplete as to those unsuccessfully looking for work. I don't make those statements in criticism of the system. I am satisfied that older men and women, seeking employment, are very reluctant to make or pursue age discrimination complaints and don't seek employment in ways which make them part of published statistics. Don't think older Americans aren't fully and painfully aware of the national attitude to which Dr. Schulz refers. That alone may well discourage many of them from even seeking employment.

It is also asserted that the Social Security earnings limitations discourage the elderly from seeking employment, that benefit deductions under those limitations, plus the income taxes and FICA taxes on the earned income, can amount to taxes at 50 to 75 percent rates. Legislation is pending to remove those limitations, to encourage the elderly to go to work and contribute to the economy and the system. In spite of those obstacles, the present workforce includes over 3 million 65 and older—16.4 percent of the men and only 8 percent of the women, 65 to 69.

The perceived problem of the working population becoming smaller in relation to the elderly population can be ameliorated by public and private national attitudes and policies favoring, encouraging and promoting: (1) employment of the elderly who want to work, no matter what their age; (2) more women in the workforce at compensation levels commensurate with their contribution; and (3) more minorities in the workforce (and fewer on the unemployment rolls) at compensation levels commensurate with their contribution.

Larry Atkins, Senate Special Committee on Aging

Dr. Schulz and Dr. Birren have focused on a particularly significant phenomenon of the last few decades—the lengthening of the retirement period as a result of increasing longevity and earlier retirement ages. Longer retirements are becoming a social policy concern for three reasons: (1) not all people want to retire early or stay in retirement for very long periods—many are "forced" or "lured" into retirement by early retirement incentives; (2) not all people can afford to retire early—often the reductions in pension and Social Security benefits leave them with low monthly incomes, and reduced survivors' benefits, while they may also be uninsured for health care expenses; and (3) the economy as a whole and individual companies are finding early retirement an increasingly expensive and inefficient approach to managing the labor supply, especially in industries that are downsizing and spreading these fixed costs over fewer units of production. Society is better served by retaining people who want to and are able to work in the labor force for as long as possible.

There is no question that retirements are lengthening. The issue is whether this trend is likely to continue, and what role Federal

policy should play in reversing it. Often it is tempting to simply project a trend this pronounced, unchanged, into the future. In this case, that approach may be misleading—a number of the underlying forces affecting the length of retirement may be changing in ways that might slow or reverse this trend.

First, there is Federal policy, which has made a deliberate shift in the last 5 years toward encouraging later retirement. The 1983 Social Security Amendments will raise the Social Security retirement age eventually from 65 to 67, increase the credit for delaying retirement past age 65, and reduce the Social Security penalty on earnings after retirement. In addition, in 1986, Congress eliminated mandatory retirement at any age and forced employers to continue accruing pension benefits for people who work after age 65. As these policy changes begin to take effect, how much of an influence will they have on retirement decisions?

Fundamental economic and demographic changes will probably have a more significant effect on retirement trends. The emergence of early retirement incentive programs was in part a response to the great increases in labor supply as the "baby boom" entered the labor force in the 1970's and 1980's, coupled with the flat economic growth and recession of the same time. Early retirement incentives were seen as a way to lure older workers out of the labor force. With a slowdown in new labor force entrants in coming years, and the potential for renewed economic growth, will employers find themselves pressed enough for qualified labor to bid older workers and retirees back into the workforce?

Finally, what about worker attitudes about early retirement? Today's retiring workers have often preferred to retire early if they have had the resources. However, the next generation of retirees may be developing a different attitude. Some may respond to the message from recent Federal retirement changes that expect them to work to older ages than their parents. Some may already be prepared to work longer—having entered the labor force later accumulating more years of education than previous generations. Some will have to continue to work to earn better retirement benefits or supplement these benefits with earnings after they have retired. Whatever the reason, it is quite possible that cultural expectations of early retirement may, of necessity, change in the future.

If the trend toward longer retirements should continue anyway, what role should Federal policy play in reversing the trend? In the past, Social Security and other elements of Federal policy have set broad retirement goals, while employers have structured private pension and health benefit plans to fit their own labor supply to their production needs, implementing early retirement incentive programs to humanely reduce their workforce during periods of slack demand. Unfortunately, the result is inefficient use of our human resources. The use of pensions to downsize a workforce takes people out of the labor force entirely when industries contract (at ages as early as 42 in the steel industry) rather than providing for an effective transition for dislocated workers to new industries. The use of early retirement poses a danger for the retired worker as well, leaving them dependent upon unindexed, and in some cases, unfunded and nonguaranteed benefits for 20 to 40 years. Ironically, the fate of these retirees' health, and in some

cases, pension benefits remains tied to the economic vitality of the industry.

The real problem is the lack of an effective alternative to retirement for the workers who are losing their jobs. When the jobs are still there, Federal policy should encourage continued employment of older workers whose health permits. When the health of the worker or the demands of the job prevent continued employment, Federal policy needs to promote special employment opportunities and job restructuring to meet the needs of older workers. Finally, when the jobs themselves are disappearing, Federal policy should provide sufficient job transition services, including retraining, job search, and re-location assistance, to help older workers start new careers.

As the average age of the population increases, employers may be forced to re-design pension benefits and retirement policies to attract and retain older workers. Presumably, leaving employers the flexibility to modify their benefit packages will make these adjustments easier and more responsive to changes in the economy and the labor supply. The Federal Government's role should be to set the standard for the productive use of older workers and to create the means for workers who must leave jobs prematurely to remain in the labor force and avoid unwanted and unnecessary early retirements.

PANEL III: HOUSING AND VICTIMIZATION

Moderator: Melanie Modlin, House Select Committee on Aging, Subcommittee on Health and Long Term Care

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MALTREATMENT OF THE ELDERLY AT HOME AND IN INSTITUTIONS: EXTENT, RISK FACTORS, AND POLICY RECOMMENDATIONS

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CONGRESSIONAL RESPONSE

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HOUSING ALTERNATIVES FOR AN AGING SOCIETY

Sylvia Sherwood, Ph.D.; Claire E. Gutkin, Ph.D.; Terence G. Lewis, Sr., M.B.A.; and Clarence C. Sherwood, Ph.D.

I. IMPACT OF DEMOGRAPHIC AND SOCIAL TRENDS ON ELDERLY HOUSING NEEDS

Advances in medicine and health care together with changes in immigration and fertility patterns have resulted in spiralling numbers of elderly persons in American society. In 1940, just over 9 million Americans were 65 or older; by 1980, the number of persons 65 and older was more than 25.5 million(1). Although good health and vigor in the absence of illness can and does persist for many persons 65 and older, the prevalence of disease and disability increases sharply with age, especially for the older segments of the elderly population. Humanistic and cost considerations, and the elderly themselves, tend to favor noninstitutional alternatives to address these problems. Although institutionalization accounts for the major share of long-term care expenditures, an estimated 75 percent of the elderly requiring supportive long-term care services, including the very vulnerable, reside in community living arrangements(2).

Estimates from various sources indicate that between 18 percent to 20 percent of community elderly have functional impairments requiring long-term care services(3-5). According to 1982 National Long-Term Care Survey estimates, the proportion of elderly in the community with disabilities ranges from about 14 percent of those between 65 and 74 years old to about 51 percent of the elderly 85 and older(5). Specifically, these elderly have problems in one or more *personal activities of daily living* (e.g., bladder and/or bowel continence, ability to bathe, to dress, and to feed oneself), *mobility* (transfer from bed to chair, and ambulation), or *instrumental activities of daily living* (e.g., cooking, shopping, working around the house, laundry, taking care of the garbage and transportation).

The rapid growth of the 75-plus segment of the elderly population (the old-old) exacerbates the problem. Persons in this group are most likely to need long-term care services and to be at highest risk of institutional placement: they are about three times more likely to be in nursing homes than persons between 65 and 74 years of age(6). Moreover, the over-85 age group is growing with particular rapidity(7). Projections indicate that this group will increase from a 1980 level of 2.2 million to nearly 5 million by the turn of the century(1). The sharp increase in the elderly population, particularly those over 75, has implications for increased demand for satisfactory and appropriate housing—i.e., living arrangements that can enable elderly persons to remain in the community rather than enter institutions.

Although increased illness can be expected with age, the 1985 analyses of 1980 census data by Serow and Sly point to several demographic trends that suggest the existence of counteractive forces with implications for current as well as future health and living arrangement needs. According to these investigators, those 60–64 in 1980 represent the "cutting edge" that differentiates yesterday's and tomorrow's elderly. For the first time in census history, an emerging elderly cohort has attained a median educational level of 12.1 years—more than a high school education. Of further significance, this age group (67–71 in 1987) reached an educational level roughly similar to that of all younger adult age groups and considerably higher than that of the elderly population 75 and older in 1980, which had a median educational level of 8.4(1).

This cohort of "new" elderly has also achieved higher income levels than their counterparts in prior eras—a fact that has been affected, in part, by the influx of women from this population segment into the workforce. Thus, elderly married couples are more solvent (e.g., each spouse receives Social Security and/or pension), and more widows are better able to manage their monetary needs as a result of their ongoing experience with financial decisions.

Associated with higher education and income levels of those currently entering the ranks of the elderly are higher proportions of persons in good health: functional loss is being slowed. These new aged also have more experience and financial capability in caring for their health and housing/service needs than did their counterparts in previous eras. These trends lead to the conclusion that current and successive cohorts of new aged (the young-old) are different than the elderly in prior generations, as well as those currently 75 and older. They are characterized by higher quality of life expectations than their predecessors and insistence on an independent lifestyle—being master of one's destiny—that will continue when they become the old-old of the future.

As suggested by Serow and Sly, these data indicate "two counterbalancing tendencies." On the one hand, increased income, especially among the new aged, is associated with less chronic, activity-limiting conditions, self-assessed poor health, and per capita hospital days(1). As the new-aged advance in years, proportionally fewer compared with the current generation of the old-old, are likely to be disabled. On the other hand, they are not exempt from the ravages of aging and will progressively experience higher levels of chronic conditions and increased use of health care facilities and providers as they advance in age(1).

Other demographic trends also have implications for housing needs of the elderly that center importantly around the availability of informal resources. Comparisons of census data from 1940 to 1980 reveal a steady rise in the percent of married couples among the elderly, even among those of advanced age(1). This portends more support from this informal source than existed in prior generations, particularly for males, who remarry more frequently.

However, less future direct informal help can be expected from a present-day major source of informal help. Current trends indicate that fewer surviving children will be available to elders for financial and caregiving support. Diminished informal support can be expected from children due to the falling fertility rate and the in-

creased numbers of female children of the aged in the workplace. In addition, as longevity increases, the children of the oldest old will themselves become members of the young (and even intermediate) old. They, too, may begin to require specific kinds of assistance.

The combination of reduced fertility rates and increased numbers of female children of the aged in the workplace has implications for intergenerational relations and provision of needed services by informal resources. In the future, increased public concern may be expected due to fewer available familial resources. Reductions in the level of informal services heightens the potential for increased institutionalization unless increased community services and planned interventions are available. Sheltered housing alternatives are options that can help meet this need.

In summary, although the distinctions noted between the young-old and old-old are likely to be less pronounced in the future, we currently have two types of elderly. The first is more representative of the young-elderly (those under 75), who will be the old-old of tomorrow—a group that is likely to remain economically solvent and independent planners of their own destinies. The second is more representative of the old-old (those over 75) who are currently at higher risk of institutionalization, and, as a group, are not characterized by the higher income of the emergent elderly.

It should be stressed, however, that segments of those entering the ranks of the elderly exhibit high levels of vulnerability and have heavy needs for community services and/or special living arrangements in order to remain in the community. Conversely, segments among the old-old elderly resemble the young-old in that they make their own plans, are economically solvent, and retain control over their lives. Thus, in terms of housing and service needs, the current elderly population is more accurately described by their degree of impairment, socio-economic status, and institutional risk rather than age, although those in poverty and with the highest degree of impairment and institutional risk are highly concentrated among those over 75.

Where Do the Elderly Live?

About 75 percent of the community elderly live in urban areas (both metropolitan and nonmetropolitan), a proportion similar to that of the Nation's total population in urban areas(1). In general, the proportion of urbanized elderly is similar to and has followed the same pattern as that of the population as a whole—rising from 64 percent in 1950 to 75 percent in 1980(1). Most of this increase occurred in the 1950's and 1960's. In fact, between 1970 and 1977 the rural elderly population increased, with in-migration three times that of out-migration(8). Further, almost 17 percent (approximately 23 percent of the urbanized elderly) live in small towns(9).

A proportion of black elderly persons roughly equal to that of elderly in the general population reside in urban areas. Of the total number of urban elderly households, 30 percent are located in central cities. However, compared with this proportion, as many as 80 percent of black households in metropolitan areas are concentrated

in central cities(10). This difference is projected to persist in the future, and will shape the elderly demand for housing(11).

The residential mobility of the elderly as a group is low(12). When they do move, they are likely to remain in the same geographic area(13). Homeowners have particular residential stability; in 1976, for example, the median number of years of occupancy was a little over 22 years; 85 percent of homeowners and 46 percent of renters had lived in the same dwelling for 6 or more years(12). For the small proportion of elderly who migrate to other States, the direction is from the northern to southern states (Florida, Arizona, and California, in particular, with Florida as the lead State for in-migration)(14). Some proportion of elderly who have moved to the warmer climates can be expected to return north (or wherever their children live) when they become disabled and more dependent upon their children for needed services. Nevertheless, net out-migration from northern to southern States is projected to continue, with the greatest net out-migration projected for New York state. Different types of housing stresses, therefore, can be projected for southern and Sunbelt States—potential oversupply in some areas, and more demands for suitable housing and supportive services in others(10). Together with medical and supportive health services, governmental housing priorities for these areas may require change in order to respond to different types of developing needs(11).

In What Types of Housing Do the Elderly Live?

As of 1980, there were 16.3 million dwellings nationally in which an elderly person was household head; 9.4 million of these were private homes owned by an elder. The large majority of these homes (8 million or 85 percent) were mortgage-free(15). According to data from the 1980 Census and data collected in the late 1970's, 75 percent of the elderly population in the community reside in their own homes, either alone or with others(16–18)—an increase of 5 percent from reports of home ownership in 1976(19). In fact, although proportions of homeowers in the total population, as well as the elderly segment, are increasing, the level of home ownership among the elderly over the past 40 years has been consistently higher than that for the total population(10). Home ownership among the elderly is highest in rural areas, and higher proportions of rural homeowners (91 percent) are without mortgages on their homes than are elderly homeowners in urban areas (83 percent)(20).

In 1980, the community elderly resided in about 11 million owner-occupied and about 5 million renter-occupied housing units. As many as 440,000 of this number lived in federally financed public housing and an additional 40,000 lived in federally supported Section 202 housing for low- and moderate-income elderly (i.e., Federal support in the form of direct loans to nonprofit housing sponsors)(6). Although relatively little Federal housing assistance has been directed to homeowners, over 1.2 million of the 5 million elderly-headed renter households in the Nation were receiving governmental housing assistance in one form or another(6). In 1980, Federal rental assistance under Section 8 of the Housing Act (the

Housing Assistance Payments Program) was reported to have been provided to 600,000 elderly households(21,22). Many of these assistance grants were for elderly in federally financed housing, public and nonprofit.

In an analysis of 1979 elderly households not reported as living in Federal or State-assisted dwellings, 24 percent were identified as renters, 68 percent as owners of mortgage-free homes, and 8 percent as owners with a mortgage. The prevalence of poverty among elderly renters was 28 percent, and among elderly homeowners, 17 percent for those without and 12 percent for those with mortgaged dwellings. Thus, despite home ownership, a sizable number of elderly homeowners were among the poor, although the number is greater for renters. The percentage ranked as poverty-stricken among the renters is very likely to be an underestimate, since over a million elderly renters in assisted dwellings were not included in this analysis.

With Whom Do the Community Elderly Live?

In 1976, 29.3 percent of the community elderly lived alone; 36.8 percent lived in their own households; 32.1 percent lived with relatives; another 1.8 percent lived with nonrelatives(12). Given the demographic changes in society, it is reasonable to speculate that these rates will change in the future. To the extent that mortality and debilitating chronic illness is held in check, a larger proportion may be living in husband-wife households and/or living alone. Although the greater participation of women in the workforce may make intergenerational living arrangements less viable, it is likely that the prevailing climate of thought and individual preferences will increase the demand for expanding current community living arrangements and creating new ones as alternatives to nursing home placement. Many such alternatives may involve residential arrangements of elderly persons and nonrelatives. Nevertheless, intergenerational living arrangements will likely remain a community option for sizable numbers of the elderly when they become functionally impaired, and can no longer maintain a functional level acceptable for community residence without help in everyday activities of daily living.

As revealed by data from the 1982 Long-Term Care Survey, this is certainly the situation for large numbers of the present-day population of impaired elderly(5). In this survey, elderly persons (65 or older) were considered impaired under the following conditions: they needed help with everyday activities (personal activities of daily living, mobility, or instrumental activities of daily living) that involved either special equipment or another person, and the functional impairment that required assistance had endured or was expected to endure for a period of at least 3 months. Only 10.7 percent of the impaired elderly lived alone—an unsurprising fact, considering their impaired status. Almost 40 percent lived with their spouse only; 35.7 percent lived with their children, with or without their spouse (51.3 percent of the elderly impaired were married); of the remaining 14 percent in other living arrangements, most lived with nonrelatives(23). About 33 percent of these impaired elderly were among the poor or near poor.

Housing Problems Among the Elderly

Housing problems have been measured in a number of ways—for example, in terms of affordability; overcrowding; architectural barriers; structural building features; plumbing, kitchen, sewage, heat, electrical, and other minimum building standards; maintenance (home repair); and site location i.e., neighborhood qualities as well as access to shopping, transportation, and needed services.

Data from the Annual Housing Survey, available since 1973, have pointed to differences in the quality of housing among different segments of the elderly population. These data have consistently indicated, for example, that not only are the rural elderly likely to live in qualitatively poorer housing than the younger rural population, but that housing of the rural elderly is substantially worse than that of the urban elderly(12,20,24–27). As many as 24 percent live in problem housing, with inadequate heating and plumbing facilities among the most serious problems; housing expenditures were considered excessive for 20 percent of elderly homeowners and about 33 percent of the renters(12). However, the neighborhood quality of the rural elderly (e.g., lack of crime, victimization, pollution, and noise level), however, tends to be higher than that of the urban elderly. Housing costs of rural elderly are also lower than those of the urban elderly(28). At the same time, incomes of the rural elderly are lower, which limits the financial advantages gained from lower costs in other areas in their lives.

In examining annual housing data on elderly in nongovernmentally assisted housing in 1976, Struyk and Soldo(12) found that a smaller proportion of homeowners than renters experienced housing deficiencies. Over 5 percent of the renters experienced housing deficiencies in the areas of plumbing (6.4 percent), kitchen (5.2 percent), and maintenance (6.3 percent). Although the largest percentages of household deficiencies for homeowners were also found in these areas, the percentage with deficiencies was almost half or less than that found for renters (3.3 percent of the homeowners with plumbing, 1.6 percent with kitchen, and 2 percent with maintenance problems). In general, elderly in the South fared the worst, while those living in the West fared the best. Elderly blacks were among those with the highest rates of deficiencies, among both homeowners and renters, with homeowners, in some cases, faring worse than the renters (e.g., 16.5 percent of the single black home owners had plumbing deficiencies, compared with 13.6 percent of single renters). Elderly below the poverty line, whether homeowners or renters, also experienced high rates of housing deficiencies.

Recognizing the importance of assessing housing adequacy from a broad perspective, Struyk and his colleagues have classified housing deficits more recently in terms of "dwelling-specific" and "dwelling-use" problems(26,29–31). Dwelling-use problems refer to inadequacies of housing associated with physical functioning limitations of the elderly resident; inadequacies of this type are to a large extent, specific to general categories or clusters of residents with specific types of functional disabilities. Dwelling-specific problems refer to dwelling inadequacies, excessive expenditures, and overcrowding.

These investigators recognized the importance of neighborhood and environmental features, but did not attempt to classify or measure these attributes in their scheme. Access to shopping, transportation, and needed services, as well as freedom to negotiate the environment (which, for example, might be curtailed in high crime areas) is relevant for necessary activities of daily living, as well as for recreational purposes. For the impaired (and, for that matter, also for the well-elderly), it seems reasonable to include this concept under dwelling-use—that is, environmental features impinging upon the physical functioning of the elderly.

Dwelling-specific inadequacies.—Overcrowding does not seem to be a particular problem for the aged; many elderly homeowners remain alone in the large homes they bought when they were raising their families. Excessive costs as well as dwelling inadequacies, however, have been found to be problems for major segments of the elderly population.

For clarification purposes, dwelling inadequacies were further subclassified by Struyk and Turner(26) as structural deficits and maintenance deficits, based on the most recent definition of dwelling inadequacy adopted by HUD(32) for purposes of consistency. Structural deficits were based on four indicators:

(1) Plumbing.—Dwelling lacks or shares plumbing facilities, including indoor flush toilet and shower or tub and hot and cold piped kitchen, and/or lacks adequate provision for sewage disposal;

(2) Kitchen.—Dwelling lacks a separate sink, range, and a mechanical refrigerator;

(3) Heating.—Dwelling has unvented room heaters burning gas or oil; and

(4) Electricity.—Dwelling lacks electricity or has all three of the following signs of electrical inadequacy; no wall outlet in one or more rooms; exposed wiring; and fuses blown (or circuit breakers tripped) three or more times during past 90 days.

Two rather permissive HUD indicators defined maintenance inadequacies:

(5) Physical structure.—Dwelling has at least three of the following five problems: "Leaking roof, open cracks or holes in interior walls or ceiling; holes in the interior floors; either peeling paint or broken plaster over 1 square foot of an interior wall; evidence of mice or rats in the last 90 days(32).

(6) Common areas.—Dwelling has at least three of the following four problems; no working light fixtures (including no light fixtures) in common hallway; loose or broken or missing stairs; broken or missing stair railings; and, for buildings four or more stories high, no elevator for dwelling units two or more floors above the main entrance.

Again, for the sake of consistency, HUD's separate definitions for owners and renters were considered the basis for assesssing excessive expenditures. For homeowners, out-of-pocket housing expenses, other than for maintenance and improvement expenses, are considered excessive burden if they are more than 40 percent of gross household income. Excessive expenditures for renters are based on rent-plus utility costs. Adjusting for tax and equity advance of

home ownership, renter expenditures are considered excessive if they are more than 30 percent of household income.

Applying these definitions to data from the National Housing Survey on the elderly population for the roughly 14 million unassisted households needed by elder in 1979, Struyk and Turner(26) estimated about 28 percent of elderly households, or 3.8 million to have had a dwelling-specific problem (1.61 million with physical deficiencies and 2.58 million with excessive expenditures, with an overlap of only 340,000). In all, physical deficiencies were experienced by 12 percent of the elderly (10 percent with structural and 2 percent with maintenance problems), and 18 percent experienced excessive expenditures for their housing(33).

Renters fared worse than homeowners. As many as 55 percent of renters, compared with 25 percent of homeowners with mortgages and less than 5 percent of mortgage-free owners, experienced excessive expenditures. Although the proportions with housing deficiencies were lower across the board, as many as 17 percent or renters experienced housing deficiencies (14 percent with structural and 5 percent with maintenance problems), compared with only 6 percent of homeowners with mortgages (6 percent with structural and 1 percent with maintenance problems) and 10 percent of mortgage-free homeowners (10 percent with structural and 1 percent with maintenance problems).

As might be expected, the elderly poor fared worse than those not in poverty. With respect to housing deficiencies experienced by the poor, as many as 31 percent of renters, an even larger proportion (33 percent) of owner households with mortgages, but a smaller percentage (27 percent) of mortgage-free households experienced housing deficiencies. In comparison, housing deficiencies experienced among total elderly households was: 17 percent for renters, less than 7 percent for owners with mortgages, and 20 percent for mortgage-free households. A similar pattern was observed with respect to excessive expenditures. Among the poor, 75 percent of renters, 75 percent of households with mortgages, and 18 percent of mortgage-free households had excessive housing-expenditure burdens. In the total elderly population, 55 percent of renters, 25 percent of households with mortgages, and less than 5 percent of the mortgate-free households experienced excessive expenditures.

For all subgroups examined, the percentages with structural deficiencies were far greater than those with maintenance difficulties; black renters (10 percent) and rural renters (10 percent) experienced the most maintenance problems. Relatively little overlap of excessive expenditures and housing deficiencies was observed (about 8 percent for renters, 3 percent for homeowners with mortgages, and less than half a percent for homeowners without mortgages). Most overlap was observed among the poor (about 18 percent for renters, 21 percent for homeowners without mortgages, and 2 percent for homeowners without mortgages).

Excessive physical deficiencies for rental housing, homeowner dwellings with mortgages, and mortgage-free homeowners increased by the extent to which they were in a rural location; the pattern varied, however, with respect to excessive expenditures. Most housing deficiencies were observed for rural renters (40 percent), compared with nonmetropolitan urban (22 percent) and met-

ropolitan urban (12 percent) renters. However, rural renters had less excessive housing expenditures (37 percent) than did their nonmetropolitan (55 percent) or metropolitan (59 percent) counterparts. Considerably fewer rural owner-households with mortgages experienced housing deficiencies (14 percent), but even fewer nonmetropolitan (8 percent) or metropolitan (4 percent) urban experienced such deficiencies. Somewhat out-of-pattern differences were observed among groups with regard to excessive expenditures: 30 percent for rural, 19 percent nonmetropolitan urban, and 26 percent for metropolitan urban elderly with mortgages.

Fitting the usual pattern, black elderly households in all three groups had substantially more dwelling-specific problems than other elderly, both in terms of physical deficiencies and excessive expenditures. Although the difference in excessive expenditures between blacks (58 percent) and others (55 percent) was relatively slight for renters, 44 percent of blacks with mortgages, compared with 22 percent of the nonblacks with mortgages, had excessive housing expenditures. Relatively few owners had excessive expenditures, but, here again, the percentage of blacks (7 percent) in that class remained higher than that of others (4 percent). The difference between blacks and nonblacks with respect to housing deficiencies was stark for all three groups. Such problems were experienced as follows: 46 percent of black renters, compared with only 13 percent of nonblack renters; 25 percent of black households with mortgages, compared with only 4 percent of nonblack households in this category; and almost 37 percent of black mortgage-free householders, compared with 8 percent of nonblack mortgage-free households.

Dwelling-use inadequacies.—Dwelling-use problems are more difficult to measure since aspects other than bricks and mortar can affect the need for dwelling modification or change in living arrangements. The actual functioning of an elderly person can be viewed as a vector of individual capacities and environmental demands—both of the physical environment and the behaviors and expectations of others with whom the elderly person interacts. For example, supportive services provided by others in the household, nearby informal helpers, an outside agency, or, as in congregate housing, services provided under the auspices of the housing management, will affect the stress imposed upon the individual in carrying out instrumental activities of daily living—travel to medical services, shopping, cleaning, putting away packages, taking out the garbage, and the like. Relief in one or more areas may help the elderly person conserve energy and marshal strength to deal with other necessary activities of daily living as well as to continue with social and recreational activities. Help received from others can thus obviate housing changes that might otherwise be necessary for the impaired elderly person to remain successfully in a particular setting.

The architectural features of building and site also affect the physical negotiability of the dwelling and neighborhood for elderly persons. This has been referred to by Lawton and Nahemow as the "environmental press"(34)—the stress that is felt by the elderly person and the support that the environment offers in response. Creating more barrier-free living spaces and providing architectur-

al props can reduce the "environmental press"—e.g., eliminating door sills; ensuring that doors are not difficult to open, and that dish shelves are not too high to reach; providing wide doorways for wheel chairs, ramps, and elevators, as well as grab bars in the bathroom; providing a humidity-controlled environment(34). Site location features can also add to or reduce environmental press: hilly terrain may require too much energy and make access to community amenities more difficult; lack of nearby suitable public transportation may negatively affect the elderly person's access to medical resources, shopping, and recreational opportunities, factors such as poor snow removal in inclement weather and industrial pollution can also negatively affect functional status.

Housing in crime-ridden neighborhoods also has a deleterious effect on social integration and the ability of the elderly person to function outside the dwelling(35)—for the physically impaired *and* the well-elderly. Unfortunately, public housing in general, including housing projects for the elderly, are often located in high-crime neighborhoods(36). Elderly persons in public housing located in high-crime areas may be particularly vulnerable; they are easy prey since they often receive income (Social Security and SSI checks) at generally known times(35). In general, however, data indicate that elderly persons may be less likely than other age groups to be victimized. At the same time, the aged have been found to be most fearful of crimes(37–39). Small modifications of the outside environment, such as adding floodlights and removing shrubbery, which can prevent visibility or can be used as hiding places, as well as modifications within housing units to make them more crimeproof, are examples of feasible, concrete steps that can enhance feelings of confidence and safety for elderly persons in existing housing(37).

Dwelling-use needs, including need for access to supportive services, are important now and will continue to be so in the future for elderly homeowners who live alone. Currently, over 50 percent of old-old homeowners (75 years of age and older) live alone. This is the segment of the population experiencing increased debilitation and risk of institutionalization. Proportionally more old-old homeowners are also among the poor. The emerging elderly, who are entering the ranks of the elderly with a more advantageous economic and educational status than the old-old elderly, may not need as much targeting and governmental assistance for dwelling-specific and dwelling-use problems, even when they are in advanced old age. Nevertheless, the needs of current generation of old-old homemakers argue for targeting increased assistance to this group(10).

Despite growing awareness of the importance of adaptive environmental features, data on the prevalence of dwelling-use inadequacies, particularly for the impaired elderly, are relatively scarce. Struyk(26) has attempted to provide outside high and low estimates of the number of elderly households with dwelling-use problems. Using 1979 National Health Interview Survey data, his *high estimate* is based on applying the proportions of elderly found to have a disability or health-based functional impairment to the number of elderly-headed households. By this method, he estimates that about *2 million* households have *dwelling-use problems.* As a *low estimate,* he uses the proportions of those with functional limi-

tations who are currently receiving supportive services from a community agency. Applying the national rate of 25 percent of elderly with reported functional limitations who are receiving services to the 2 million estimated above, his *low estimate* is about *500,000* for households with dwelling-use problems.

A more realistic estimate, perhaps, may be derived from the 1982 Long Term Care Survey(5). Estimates by Soldo and Longino(40) from this survey indicate that, some 4,649,000 community persons 65 and older with impairments regarding personal activities in daily living (PADL), mobility, or instrumental activities of daily living (IADL), *almost 8 percent, or 362,622, had unmet functional dependencies.* The highest proportion with such unmet needs were found among the elderly who lived by themselves (13.2 percent), or 189,288 persons; the group with the lowest proportion were those who lived with their spouse, with or without other relatives (4.5 percent), or 86,310 elderly Americans.

As many as 1,482,000, or 32 percent, of impaired elderly persons reported that architectural modifications would make their lives easier. These aids included ramps, stair lift, elevator, grab bars, handrails, raised toilet, push bars on doors, and widening of doors or hallways.

Recognizing the broader contest of environmental stress, Soldo and Longino constructed an index of quality of life deficiencies in which five deficits were identified. Three of these deficits referred to characteristics of the elderly person—income level, unmet service needs, and social contact. An individual was considered to have a quality of life deficit if:

(1) Personal income level is below the 25th percentile of the impaired population.

(2) Assistance is currently needed with at least one area of PADL, mobility, or IADL (N.B: the Long Term Care Survey combines PADL and mobility deficits and refers to them as ADL deficits).

(3) There is lack of contact, by phone or in person, with family or friends; or lack of desire for more contact.

The remaining two criteria of quality of life involved aspects of the physical environment—housing and neighborhood:

(4) Perceived unmet need for housing modifications (e.g., ramps, grab bars, hand rails);

(5) General dissatisfaction with neighborhood, perception of crime problem, or inconvenient location of food or drug stores.

Based on these criteria, for the four deficit areas not fixed by definition—(2) through (5)—7.8 percent of impaired elderly in 1982 had unmet needs for services in at least one or more PADL, mobility, or IADL areas. Almost half (49.2 percent) had not maintained contact with family or friends or had less contact than they desired. Representing more concrete dwelling-use deficits, almost one-third (32.9 percent) perceived a need for additional housing modifications to enhance functioning. Well over half (58.0 percent were dissatisfied with their neighborhood in general or perceived special problems, including local crime or poor access to food or drug stores. Almost 90 percent of the impaired elderly had deprivations in at least one of the five quality of life areas examined.

Soldo and Longino(40) found that these deficits tended to cluster. Over 20 percent of the impaired elderly had quality of life deficits in three or more areas. Almost two-thirds had such deficits in two or more areas. The most frequent clustering involved neighborhood deficits in combination with housing and/or social contact problems. Although these investigators recognize that their analyses of the 1982 Long Term Care Survey data cannot be used to trace development over time, they believe that these findings are "consistent with the interpretation that environmental deficiencies predate frailty," and that efforts to enhance the environment of the aged may postpone deterioration of the well-elderly(33). Although dwelling use may be particularly important for the impaired, it is reasonable to hypothesize that the reduction of environmental press will add to prolonged functional independence of those who are currently unimpaired as well.

Little, of course, is known about the overlap between dwelling-use and dwelling-specific problems. Struyk(29) has estimated that there may be as many as 340,000 households with both dwelling deficiencies and dwelling-use problems, and 540,000 households with a combination of excessive expenditures and dwelling-use problems. More research is needed on this subject, not only to ascertain the size of the problem, but to explore ways in which we can feasibly and economically reduce environmental stress to enhance the functioning of the elderly in community settings.

II. ALTERNATIVE LIVING ARRANGEMENTS

Increasing recognition of the potential role of housing options in reducing environmental stress has led to the proliferation of alternative living arrangements. Obviously, intergenerational living arrangements is an option, but such arrangements have been decreasing over the past 35 years(41). Current housing interventions and others that are being developed are clearly targeted for the aged.

Housing for the aged, designed to be barrier-free, with emergency alarm buttons and architectural features that can enhance functioning, has been in operation since the 1960's. Based on HUD materials, we have estimated that, as of September 1980, about 750 Section 202 projects and 2,380 public housing projects for the elderly were in operation(41).

Since the 1970's, congregate housing projects have developed, particularly in public housing and in nonprofit-sponsored houses financed under Section 202 of the National Housing Act. With barrier-free apartments and common social areas, this type of housing provides its residents with the opportunity to receive, either on-site or in very close proximity, one or more supportive services designed to help maintain independent functioning in a community setting. The level of supportive services varies among such houses, both in type (such as meal, transportation, homemaker, nursing) and intensity of on-site services(41).

Board and care facilities have been in existence for many years, existing under many names: adult homes, community homes, residential facilities, personal care homes, domiciliary care, and foster care homes, to name a few. These facilities provide housing, food,

and some supervision of frail and dependent elderly. They often receive their financing from SSI and/or State supplemental payments(41, 42). In October 1985, HUD final regulations became effective for implementing a flexible mortgage insurance program for board and care homes defined as including "any facility in which continuous protective oversight" is provided to "relatively independent" elderly residents(43). Such insurance was made available for board and care homes with as few as five 1-bedroom units or efficiencies. Homes must have a central dining facility to be eligible but kitchens in individual rooms were not prohibited.

Shared housing is another option in vogue, i.e., living units occupied by at least two unrelated people who share some common living space(44), often used by elderly homeowners to supplement, income(45). Homesharing has been permitted in public housing since 1978, and nonfamily or "shared" households (for all age groups) have increased 88 percent since 1970(46). The 1980 Current Population Survey reported that 329,000 people age 65 or more were living with nonrelatives in two-person households(47). The ability of agencies to promote these arrangements appears to be limited by lack of funding, most of which comes from private agencies(42). However, case study experience indicates that programs may face difficulty if they concentrate on the well elderly, who, like other Americans, are prone to value privacy.

Nonetheless, small group residences—i.e, shared residences with community services—may be a viable option for frail elderly who may view this type of housing as less restrictive than more sheltered living arrangemeents(48,49). These arrangements—alternately named intermediate housing, community housing, "share-a-home," small congregate home, cooperative house, and shared elder house—are usually organized by nonprofit agencies and provide private bedrooms within a shared housing unit. Although social involvement rather than the provision of care is sometimes emphasized, assistance with shopping and cooking, maintenance and housekeeping, as well as access to medical and social services may be included(42). Under HUD secton 202 and other programs, 2,000 such homes have been constructed or rehabilitated for the mentally ill(5).

Commercial hotels provide single-room occupancy (SRO's) and rooming houses provide single rooms to a heterogeneous population. Low-income elderly constitute the single largest group of renters. Approximately 400,000 elderly live on a relatively permanent basis is SRO's(51). These units make up a large proportion of housing stock in many cities (as much as 25 percent of low-income rental units is San Francisco). Often in disrepair, this housing stock is disappearing rapidly as buildings are either torn down or rehabilitated and converted to other uses(42).

Mobile homes have also been available for some time and appear to be gaining in popularity. As many as 836,300 elderly-headed households lived in such homes in 1980, representing a 67 percent increase since 1975(52).

Other options have more recently been developed. "Tandem" houses(41,53), accessory apartments, and ECHO apartments (Elder Cottage Housing Opportunities), or "granny flats," are examples of such developments(42). Tandem houses are being built with

common living spaces and private bedroom suites, to be shared by two elderly or two married couples who want to own housing but need to share financial resources.

Accessory apartments are self-contained dwelling units incorporated with an existing structure originally planned for a single family. In some areas these arrangements have been used by elderly who have larger homes than they can support in order to generate income and provide security. Changes in local zoning and building codes are required in most communities.

ECHO housing or granny flats refer to small, temporary, self-contained units than can be installed in backyards of existing single-family properties. As with accessory apartments, zoning and building ordinances may require modification. These options represent housing forms that can be used by adult children to help their parents, while allowing a modicum of privacy and independence.

Finally, the increase in the number of planned "retirement communities" should be noted. A recent analysis(53) has classified retirement communities according to five categories: (1) retirement new towns; (2) retirement villages; (3) retirement subdivisions; (4) retirement residences; and (5) continuing care retirement centers. It is estimated that more than 200,000 retirees live in retirement new towns which are self-contained communities, including health services, designed for young, healthy retirees. Approximately 80,000 elderly persons live in retirement villages—smaller communities containing much more limited commercial and health facilities but generally offering a wide assortment of outdoor recreational facilities and programs. Retirement subdivisions, designed for a predominantly independent, healthy population and planned as a part of the surrounding community, house another 80,000 to 90,000 elderly persons. An estimated 175,00 elderly live in retirement residences, including those characterized as congregate housing. These living arrangements offer residents meals in a common dining room and other shared services. Continuing care retirement communities (CCRC's) offer various types of independent living with several levels of nursing care available on the same site(53). These retirement communities house an estimated 100,000 to 200,000 elderly persons. This important emerging housing alternative will be described in greater detail in section IV of the paper.

III. STUDIES OF THE IMPACT OF HOUSING INTERVENTIONS

Despite the expanding number of living arrangements, very few controlled studies have been undertaken to determine the impact of these options. The Department of Social Gerontological Research of the Hebrew Rehabilitation Center for Aged in Boston has, for over 20 years, focused on controlled studies of the impact of interventions for the elderly that are designed to improve their quality of life and help them remain in the community at an acceptable level of functioning. Findings from four such studies completed within the last 10 years that bear upon the impact of living arrangements are described below.

Age-Integrated Housing: Effects of an Emergency Alarm System

A study conducted in the late 1970's of the impact of an emergency alarm system for elderly persons who were living by themselves in their own apartments in family public housing illustrates the potential positive effects of slight dwelling-use modifications(41). The alarm, which has been expanded currently on a nationwide basis, has three components: digital electric communication equipment that automatically signals for help over existing telephone lines; a central station and operators receiving calls and getting in touch with emergency responders; and emergency responders. The signal can be activated either by a device that can be worn by the vulnerable person, which works in the apartment and up to a short distance of the apartment or by buttons placed in different parts of the apartment, including on the telephone.

Through a survey of all elderly residents, family public and leased housing in Boston and in a few housing projects in Cambridge, MA, elderly persons were identified who met clinically determined target criteria. A positive impact of the emergency alarm was found principally for most residents considered to be vulnerable (i.e., at high risk of institutionalization) who were not socially isolated; that is, if the subject were not seen by others during a 24-hour period, checking action would be likely. Among other effects, such as reducing isolation, this emergency alarm system had a positive impact on reducing days of institutionalization. Although not for the socially isolated, the cost-benefit analysis revealed a large benefit-to-cost ratio for this most vulnerable target group—a net benefit of $7.19 for each program dollar expended(54).

Board and Care/Foster Homes: Domiciliary Care in Pennsylvania

Recent media exposure has brought attention to abuses found in board and care homes. Such abuses are generally found in unlicensed homes. Brockett points out that although abuse is possible in a certified home, the potential for such abuse is much greater in unlicensed homes; he considers this type of care a "unique" option that should be pursued, but with adequate protections by policymakers and professionals (including case management and monitoring)(55). To repeat a cliche, "don't throw out the baby with the bath water." Based on their studies of adult homes in New York State, Sherman and Newman(56), for example, conclude that in many instances such homes serve as a "surrogate family" and that foster care should be considered a viable alternative for elderly persons needing supportive services. They also found general community acceptance (92 percent) of these homes by their neighbors.

Our study of the Pennsylvania Domiciliary Care program supports this conclusion. Although housed under the aegis of the Office of Aging, the Pennsylvania Domiciliary program—a case-managed program of adult foster care—is an integrated effort to serve the target populations of three agencies: Aging, Mental Health and Mental Retardation, and Income Maintenance. The county offices of these agencies were to contribute either manpower or funds to the operation of the Domiciliary Care Program in

their areas. The program offers state supplementary payments for individuals (age 18 or older) residing in approved domiciliary care facilities who: (a) are financially eligible for SSI and (b) are judged to be incapable of independent living in the community, but do not require services that can be reasonably obtained only in a nursing home or other long-term care institution (such as 24-hour medical supervision). Approved domiciliary care facilities consist of especially approved homes (small homes with one to three clients and group homes from 4 to 13 clients) in which personal care services are offered by the proprietor, in addition to the normal range of meal, laundry, and other needed household services, including 24-hour supervision. (Almost all group homes only housed MH/MR clients.)

The program consists of three major components: (1) the State provision of financial supplements to functionally debilitated financially needy (Medicaid-eligible) clients of certified homes; (2) the certification (or approval) and monitoring of domiciliary-care homes; and (3) case management, including the determination of functional eligibility of applicants for domiciliary care, placement of eligible applicants, and the continual monitoring of needs and coordination of services for these clients. From the combined State and Federal SSI payment, a fixed amount is paid to the proprietor of the domiciliary-care home by the client.

During the pilot phase of the domiciliary program, our study compared the outcomes (over a 10-month period) of placed clients with matched groups of persons in similar counties without the program. Three target groups were examined: aging agency clients (including a small number of disabled younger adults); mental health clients; and mental retardation (MR) clients.

In general, the effects were positive, particularly for the elderly and for clients of the mental health target population (almost half of whom were 60 years of age or older). Although prior to placement they were comparable to their counterparts in the counties without the program, 10 months later, domiciliary-care residents had fewer unmet needs, improved living conditions, increased community integration, and reduced institutional days(57). The program was found to be a viable and successful living arrangement for deinstitutionalizing elderly persons.

Furthermore, the cost-benefit profiles strongly indicate that this type of domiciliary care program can generate significant cost savings(58). The savings within the areas of reduced utilization of institutional and community services were more than sufficient to cover the total costs of the program, including the state SSI supplement and all administrative costs of provider certification, monitoring, and client case management functions (identifying, assessing, monitoring, service coordination, etc.), as well as the administrative overhead at both the State and local levels. With one exception (MR clients who enter the domiciliary from community settings), cost savings were found for each of the target populations, whether or not they entered the domiciliary from a community setting or from a long-term care institution. The cost savings were greatest for the populations being deinstitutionalized to the domiciliary.

For the aging client population, the benefit-cost ratio (net savings divided by net costs) was 3.85 for those who were deinstitutional-

ized and 1.59 for persons from the community. That is, for every dollar of actual costs incurred for a deinstitutionalized aging client in the domiciliary program, $3.85 was saved; for every dollar spent on an aging domiciliary client from a community setting (including those previously in foster care), $1.59 was saved. In net dollars saved, this amounted to an average of about $21 per placement day for the deinstitutionalized aging client and about $4 per placement day for aging domiciliary clients from the community.

For the mental health population, savings were even greater. The benefit-to-cost ratios were 10.16 for the deinstitutionalized clients and 1.73 for the community clients. This amounted to a net saving per placement day of about $68 for the deinstitutionalized mental health domiciliary clients and about $5 per placement day for the mental health domiciliary clients placed from the community.

However, cost savings were not consistent for the mental retardation population. Although the cost/benefit ratio for those deinstitutionalized was the highest of all target groups—a benefit-to-cost ratio of 12.89, resulting in about $88 of net savings per placement day for each deinstitutionalized client—the ratio was only 0.38 for clients placed from a community setting, resulting in additional costs of about $4 per placement day rather than cost savings.

Medically Oriented Housing

A large-scale longitudinal investigation of low-income federally sponsored housing for the physically impaired and elderly—the Highland Heights Apartment House in Fall River, MA—yielded important findings concerning the viability of enriched housing as an option for elderly individuals. Through the joint efforts of the Fall River Housing Authority and the municipal hospital for the chronically ill, a 14-story apartment house was built, consisting of 110 studio and 98 two-room apartments designed specifically for the physically impaired (usually elderly) adult who lives alone or with one other person. In addition to a barrier-free architectural design, the apartment house included on-site health and other community services and an ongoing congregate dining program. Health services included an outpatient clinic located in the basement, with physical therapy, occupational therapy, and outpatient treatment rooms. Rooms and office space for a broad spectrum of anciliary services and activities were also provided.

The study compared outcomes of persons who moved into the building when it first opened and a number of years later with applicants waiting for residency(59). In addition to housing satisfaction and participation in formal activities, positive effects were found in two very important areas. First, a positive effect was found with respect to the major goal of the developers of the building—to serve as a viable alternative to institutionalization. Throughout the 5-year impact study period, residents were significantly less likely to become institutionalized and spent less time in a long-term care facility, compared with their matched counterparts on the waiting list. Furthermore, this type of living arrangement was found to be a viable alternative for the deinstitutionalized population, although almost none had been in an institutional

setting for more than 2 years when they moved from the long-term care institution to the congregate housing setting.

Perhaps more startling, the death rate for the residents was significantly lower than for the matched applicants on the waiting list. At the end of 5 years, the average number of days alive was significantly greater for residents than applicants.

A 3-year cost-savings analysis revealed a cumulative benefit/cost ratio of 2.21, with a benefit/cost ratio of 2.83 for the first year. Thus, findings from this study demonstrated not only the potential of congregate housing for serving the frail elderly, reducing and preventing institutional stays, and prolonging life in an independent setting, but the possibility of accomplishing these goals at a cost-saving in public and private dollars.

A Comparison of Alternative Living Arrangement Models

Findings from a study funded by the Robert Wood Johnson Foundation that focused on housing models for long-term care delivery yield important insights on the viability of major types of residential settings for addressing long-term-care needs of the community elderly. We undertook a series of secondary analyses of a large database derived from a variety of longitudinal studies of the Department of Social Gerontological Research at the Hebrew Rehabilitation Center for Aged in Boston, including, among others, large-scale random samples of elderly persons and samples studied in the congressionally mandated national evaluation of the Congregate Housing Services Program.

Analyses were conducted separately for each of four institutional-risk groups (from Very Low to High Risk) of elderly persons across five residential/case management configurations. Two of these housing environments consisted of elderly in conventional housing: those who did not receive case management services provided by a social agency (Model 1) and those who did receive such services (Model 2). Two residential environments consisted of elderly in non-service-enriched publicly or privately sponsored age-segregated housing (housing for the elderly) who did not receive case management services (Model 3) and those who received such services from an outside agency (Model 4). The final residential/case management configuration we examined was congregate housing, i.e., service-enriched publicly or privately sponsored age-segregated housing providing supportive services under building management auspices (Model 5). Major outcomes examined included service utilization, cost, institutionalization rates, and quality of life.

As might be expected, receipt of formal and/or informal care appears to be a pervasive feature in the lives of elderly, although persons in the lower institutional-risk subgroups received considerably fewer hours of care than did elderly in the highest risk groups. Elderly in their own homes received the same level of services, with or without case management (whether from an outside agency or under building auspices). However, persons in age-segregated elderly housing who were not case-management clients received significantly fewer hours of total care. For elderly persons without case-management, 66.6 percent to 90 percent of the care was provided informally. For those with case management, 50 percent to 75 per-

cent of the care they received was from informal sources. At the same time, residents of elderly housing who were not case-management clients received considerably lower levels of care—a situation that can lead to deprivation of potentially needed services.

In age-segregated housing (elderly and congregate housing), for those without case management, both formal and informal care decreased over one year; the heaviest loss occurred for those with functional decline. This suggests that the informal network of those in elderly housing tends to be nonresilient. As elderly in these age-segregated environments become more dependent and require more help, their informal networks tend not only to fail to meet the increased demand but also fail to secure formal services for the elderly persons, leading to declines in formal and total care as well. In the presence of case-management programs, however, the informal network does not decrease its commitment. Formal services also increase, and total services therefore increase. These findings suggest that case management is a crucial program component in elderly housing sites. In its absence, functionally impaired elderly will lose needed care, increasing the likelihood of eventual institutional placements and decrements in quality of life.

Although studies of persons seeking a different living arrangement indicate that congregate housing can be very effective in reducing institutionalization, it appears that such positive effects may not be as applicable to elderly persons who are long-term residents in an environment to which they have already adjusted. We found enriched elderly housing to be only marginally successful in altering institutional placement patterns. Benefit was limited to residents in case-managed congregate housing and elderly housing tenants who were judged to be at high risk of institutional placement. This suggests the importance of age-segregated housing with service oversight and support for the most vulnerable elderly(60).

The quality of life findings are provocative in a number of ways. Case management and housing models did not seem to result in consistent outcomes for the high risk group. However, some conclusions can be drawn for lower institutional-risk groups.

Findings concerning survival suggest that case management surveillance can have an impact on reducing the death rate for the very low institutional risk group. Since persons in the very low risk group are generally ambulatory and function at a fairly high level, they and their families may be less likely to monitor health status and less likely to seek medical attention for what they may consider temporary symptoms of ill health. To the extent that case management takes on a surveillance function, life-threatening symptoms may be identified and acted on.

However, findings concerning physical functioning outcomes suggest that this type of positive impact may have its price. Although case management surveillance may help curtail the death rate, it may also create greater dependency among the lower-risk group. In other words, there may be a tradeoff between providing oversight and service to preserve life, on the one hand, the contributing to dependency, on the other.

Social quality of life does not seem to bear a consistent relationship to the presence of case management services. Housing for the aged (with and without case management), however, appears to

produce more favorable social interaction outcomes; the most favorable outcomes occur for tenants of congregate housing. This points to the value of the age-segregated environments in this regard.

The findings from this research may be seen as a challenge. Although some benefits of case management and age-segregated housing were observed, they did not produce cost savings. Stocks of congregate and age-segregated housing are already in place, but there is some question about their expansion in the immediate future. It can be expected, however, that the value placed on living in the least restrictive environment will exert pressure to expand the stocks of such housing as the number of aged in the population increases. Scrutiny and creativity on the part of policymakers and managers regarding admission to these housing options thus appear to be especially timely, and, in conjunction with case-management programs, may prove to be quite beneficial. At the same time, data from this study do not negate the viability of conventional housing arrangements for the elderly, the locus of the vast majority of informal support services.

IV. CONTINUING CARE RETIREMENT COMMUNITIES

Continuing Care Retirement Community (CCRC) as a concept refers to special types of housing and health care arrangements that have been developing over a period of 100 years or more. It is a housing alternative that has been used, primarily by middle-class persons of retirement age. Recent estimates indicate that anywhere from 275 to 700 CCRC's are in operation at the present time; they house from 100,000 to over 200,000 elderly residents(61,62). The rather wide discrepancies among estimates are a function of the use of different sources of information and, to some extent, differences in definition. Furthermore, the concept appears to be in a continual state of change.

Regardless of how CCRC's are defined, however, there appears to be no question that they are broadly distributed across the United States with fewer than 10 States having none at all, and that the industry is growing at a rapid rate, with more than half of all CCRC's having begun operation during the last 20 years. A recent estimate predicts that by 1999 there will be 1,500 CCRC's with nearly 450,000 elderly residents(63). Several important forces prompting the growth of CCRC's have been identified: a growing awareness among the elderly of their vulnerability to long-term care costs and an increased reluctance and inability of Medicare and Medicaid to cover these costs(65). As efforts by States, consumer groups, and others increase awareness among the elderly that their long-term care needs will not be covered by Medicare and private insurance, the search for alternatives such as the CCRC will undoubtedly create even greater demand for this and similar types of housing.

Until recently, CCRC's have been sponsored and owned by religious organizations and operated on a not-for-profit basis. One of the major changes occurring in the industry has been the introduction of more for-profit CCRC's, with attendant problems and conflicts. A recent survey in four midwestern cities showed that CCRC's tended to be the least favored among the retirement hous-

ing alternatives offered, but it also revealed that the more the respondent knew about CCRC's the more favorable his/her response was likely to be(65). As the for-profit enterprises enter more vigorously into the industry, CCRC's will become more widely known and this latent demand source may rise to the surface. This same survey also revealed that there was considerable demand among the elderly for rental housing with future nursing care included as part of the package. If there is significant response to this demand, another whole branch of the CCRC industry will be underway.

The problem of defining what a CCRC is cannot be resolved definitively at this point. However, we will use the definition established by the American Association of Homes for the Aging (AAHA) as a starting point for discussion issues and problems pertaining to the continuing care industry. AAHA's definition(66) is as follows:

> A continuing care retirement community is distinguished from all other kinds of housing options for senior citizens (such as rental units, assisted living facilities, or nursing homes) by its offer of a long-term contract that provides residence, services, and nursing care: a continuum of care.
>
> *Commitment to a community.*—The continuing care contract is intended to remain in effect for more than 1 year, usually for the rest of one's lifetime, and represents the long-term commitment of the continuing care provider to the community resident.
>
> *Residence and nursing care in one community.*—The continuing care contract provides housing, services, and health care, usually in one location, coordinated or directly managed by a single administrator responsible to the community's board of directors.
>
> *Guaranteed nursing care.*—The continuing care contract is secured by an entrance fee plus monthly fees that prepay some or all services and care, a form of insurance for one's later years. At a minimum, the contract guarantees access to health care services; at a maximum, it covers the full cost of nursing care.

An example of a narrower definition can also be found:

> In brief, a modern-form continuing-care community is a financially self-sufficient residential community for the elderly that offers medical and nursing services in specialized facilities on the premises. Its distinguishing feature—and the basis of its existence and operations—is a lifetime contract between the community and each resident that defines each party's financial and service obligations. The resident pays a lump-sum "accommodation fee" prior to occupation and a monthly fee thereafter(67).

The major and important differences betweeen this and the AAHA definition is that here the contract must be for *life-time* and the nursing facility must be *on the premises.*

However varied the definitions of CCRC's are, the one agreed-upon feature is the contract—a rather unique kind of contract, differing fundamentally from rental, leasing, and purchase agreement—in which the CCRC resident obtains the use of a residential unit and receives certain specified services, including health serv-

ices, in return for specified monetary commitments. One writer has characterized the continuing care contract as constituting "a shared promise. Individuals make a promise to share their wealth with others, and providers make a promise to provide the necessary services"(68). Generally, the contract specifies the financial and other obligations of the resident, as well as the consequences to the resident for failure to meet them, and the service, nursing care, and other obligations of the provider. Typically, as noted previously, the resident pays an initial fee and a monthly fee; he may also pay additional fees for optional services. Again referring to AAHA, there are basically three types of contracts. A recent estimate(64) notes that CCRC's are currently divided about equally across the three types as follows:

All-Inclusive Plan.—A continuing care contract that provides an independent living unit, residential services, amenities normally associated with retirement communities, and health-related services and long-term nursing care in return for a specific price, usually as a lump-sum entrance fee and monthly payments. Continuing care contracts are deemed to be providing an all-inclusive health care guarantee to the resident, after moving to the nursing unit, continues to pay the same fee as previously paid for the independent living unit or pays the monthly fee associated with the smallest apartment unit.

Modified Plan.—A continuing care contract that includes an independent living unit, residential services, and a specific amount of health and nursing care is classified as a Modified Plan. These contracts cover a specified number of days in nursing care (either annually or over one's lifetime) and ranging from as few as 5 days to as many as 60 days, 180 days, or more. Any health and nursing care required beyond the days covered by the contract is available for a charge that is typically 80 percent or more of the full per diem rate (paid by those admitted directly to the nursing unit from outside the community).

Fee for Service Plan.—The Fee for Service Plan provides an independent living unit, residential services, and amenities, and guarantees access to nursing care. Residents pay the full per diem rate for any and all health and nursing care they may require, except for minimal health care such as 24-hour emergency and possibly a few days of infirmary care that may be included in the basic monthly fee(69).

In the first CCRC's, the resident paid an initial fee and was guaranteed a place to live, services, and nursing care, if needed, for the rest of his/her life. Obvious advantages and attractions of such an arrangement for the elderly person were the feeling of security with respect to future health care and the protection of life savings (at least to the portion that remained after the payment of the initial fee to the CCRC). In some CCRC's, the resident turned over all his assets. Obviously, the second advantage of a CCRC—protection of one's estate—does not apply to such instances. Due to actuarial miscalculations, inflation, and other factors, this arrangement did not prove feasible and monthly fees were introduced, but the notion of a life-time guarantee of nursing care remained.

Although the introduction of monthly fees reduced the risk of insolvency for the provider organization, it increased risk for the resident in that the "guaranteed" services, particularly nursing services, were now dependent upon the continuing ability to pay. Both industry and contractual language have generally placed constraints upon the extent to which providers may increase monthly fees, and there are expressions of pride throughout the industry of not evicting a resident or failing to provide him/her with needed services because of inability to pay. (But the extent to which these legal and moral commitments are honored or not honored increases the risk of a CCRC's insolvency.) The particular policies and practices with respect to these issues that may develop under proprietorship auspices remain to be seen.

The Modified Plan and Fee for Service Plans are of more recent origin and represent innovations in the attempt to deal with the problem of CCRC financing. The Fee for Service Plan, in particular, removes one of the main attractions of the original CCRC concept—protection from the total exhaustion of one's life savings. Although it is true that the individual may then go on Medicaid, many CCRC's are not, and do not care to be, certified for Medicaid. Furthermore, that outcome does not appear to be very different from what would have happened to the individual had he remained in the general community and experienced a catastrophic long-term illness or debilitation.

The CCRC arrangement is relatively unique regarding one feature. Although the resident pays substantial amounts of money—sometimes considerably more than $100,000—for which, among other things, he obtains the right to use a particular residential unit (apartment, cottage, etc.), he has no equity in the property. What he has purchased is a kind of long-term care insurance "guaranteeing" him nursing care at some time in the future, should it be needed. Many types of equity problems have arisen when contracts have been terminated, due to the death of the resident or other reasons. Continuing care contracts often allow for the termination of the contract by either the resident or the community, without cause, during a specified, usually short, period immediately after occupancy. Some allow the resident to terminate the contract at any time, providing notice has been given; they permit the community to terminate at any time, but only for cause. What constitutes "cause" is by no means clear, nor are the procedures by which the decision is made.

Refunding of some or all of the entrance fee can be a major issue in the termination process, and legal suits have arisen when the refunding arrangements have not been clearly specified in the contract. For example, questions have arisen as to whether death, when it occurs during the probationary period, constitutes "termination" as specified in the contract. However, when heirs have sued for refunds, the courts have tended to reject such claims(70). Residents have also instituted court challanges to the CCRC for increases in monthly fees. Again, the courts have tended to support the CCRC and upheld the increases(70). Recent trends have been toward policies that promise significantly higher refunds, in some cases as high as 90 percent. However, it has been estimated that a 90 percent refund provision may increase the entry fee by 50 per-

cent or more, perhaps as high as 80 percent to 100 percent, with monthly fees projected to be as high as $2,000 a month(71).

Contracts usually specify that the resident must give up a residential unit after some specified number of days in the nursing care facility, but there is often considerable ambiguity concerning the decisionmaking for procedures transferring a resident to the nursing care facility and possibly back to his/her residential unit. The fact that relinquishing the residential unit provides an opportunity for the receipt of additional funds to the CCRC in the form of an entrance fee from a new resident provides an additional basis for possible conflict. The amount of money involved depends upon the monetary value of the particular residential unit within the CCRC and the refunding policies of the CCRC. The incentive to transfer to a nuring care unit also depends upon how that care is paid for, the relative cost of maintaining the individual in the nursing facility as compared with the residential unit, and the availability of space in the two components of the CCRC. The particular combination of several factors—waiting list for the residential facility, unused space in the nursing unit, vacant residential units, and shortage of nursing beds—obviously determines the types of pressures the system experiences. The nonprofit CCRC's undergo pressures to remain financially solvent; the for-profit organizations have stockholders to satisfy.

One of the key elements of the CCRC contract—the one that distinguishes it from other housing alternatives—is the guarantee of nursing care when needed. The nature of this guarantee appears to vary considerably among the CCRC's. Presumably, the resident has priority status for one of the nursing care beds in the CCRC's nursing facility (or outside nursing home with which it has an arrangement). While we are unaware of widespread abuse in this regard, instances are known. For example, in one CCRC, the overflow of residents needing nursing care are being sent to outside nursing homes while surplus residential units are simply rented as ordinary rental housing. In this instance, if the CCRC's nursing care facility was an important element in the resident's initial selection of the CCRC, this "overflow" arrangement has at least partially diluted his or her "guaranteed nursing care." In another instance, a resident was sent to an outside nursing home, required acute hospitalization, recovered from the acute illness, and was refused admission to the CCRC's nursing facility.

One of the major ways in which CCRC contracts may vary is the length of time covered by the entrance fee. At the present time, to meet its definition of a CCRC, the American Association of Homes for the Aged (AAHA) requires only that the contract remain in effect for more than one year. In a 1984 survey by Winklevoss and colleagues, 97.6 percent respondents (107 of 275 contacted), indicated that their contracts were for life (72).[1] The trend toward increasing contract termination options available to both the resident and the CCRC has two main characteristics: the separation of nursing care commitment from the otherwise life-long contractural arrangement (with potential concomitant costs to the resident) and

[1] The Winklevoss, et al. definition of a CCRC is essentially the same as that of the American Association of Homes for the Aged.

the admission of people directly from the community to the nursing facility. The "life-term guarantee"—a cornerstone of the CCRC concept—may take on other meanings and, in a sense, become diluted. A recent analysis by a team at the Bigel Institute for Health Policy at Brandeis University view the situation in the following manner:

> Life care is a rapidly growing industry with twice as many CCRC's in the planning and development stages as currently exist. Those searching for viable private market solutions may be initially heartened by this growth. But is troubling that, along with this growth, the life care industry may be losing one of its more important distinguishing features—the pooling of risk for unlimited long-term care. At a time when other actors in the long-term care field are looking eagerly toward various models of risk-pooling and long-term care insurance, the life care industry, which first embraced these concepts, seems to be moving in the opposite direction. Newer communities emphasize life style and housing while offering little or, in some case, no opportunity for insuring long-term care costs. Long-term care risk is being shifted quite evidently from the community as a whole to individual residents. More and more communities require residents to pay on a fee-for-service basis for needed care although they may still guarantee acess to the nursing facility when needed(64).

What remains, at best, is a priority status for admission to a particular nursing facility—one of the particularly attractive features of the more traditional CCRC's. But even this guarantee may disappear, particularly among CCRC's that do not have their own nursing facilities but have arrangements with nursing homes in the outside community. Although we have found no data on how this works in practice, the advantage of being able to select a nursing facility prior to need has been seriously impaired, if not eliminated, with these types of CCRC's since, presumably, such arrangements with outside nursing homes may be changes at any time, perhaps without notice. The quality of any nursing facility of course may deteriorate over time, including the quality of on-site facilities that are part of CCRC's.

In the more traditional CCRC, in which the nursing care unit is part of the total community, the residents are on the spot to detect such developments. To the extent that residents have some management input, they are also in a position to take action. We know of several situations in which residents have expressed great dissatisfaction with the CCRC's nursing facility—to the point where they have stated that they will refuse transfer to it should they need such service. We do not know of any such actual refusals, however. What would ensue if and when such an event should take place is, of course, not known, nor are the rights of residents clear in this regard. The contract may be interpreted as providing no alternative, except, of course, the residents' right to leave the CCRC. Financially, however, this may not be a realistic alternative for many residents. Whether these kinds of problems will occur more frequently in for-profit CCRC's with on-site nursing facilities remains to be seen.

Even where the nursing facility is on site, the proportion of nursing beds to total units varies widely. In a number of CCRC's, there are considerably more nursing beds than residential units. CCRC's of this type invariably take nursing care patients directly from the community. Whatever the disadvantages of such a CCRC might be, the problem of guaranteed nursing care would appear to be minimal. But if a surplus of nursing care beds in an area occurs together with a shortage of independent living residential units, unnecessary transfer from residential units may occur. Again, we have found no data pertaining to this issue.

CCRC's that offer residents the greatest protection are those that have their own nursing home on site, do not admit persons directly into the nursing care facility from the outside community, and include all nursing care costs in the monthly fee. Residents are nonetheless subject to two main risks—the organization's solvency of and whether the nursing facility is large enough to accommodate residents as they decline to the point of needing personal care, intermediate nursing care, or skilled level nursing care. Although bankruptcy appears to be rare in this industry, it is always a threat.

CCRC's with on-site nursing facilities tend to have relatively few nursing care beds as compared with the number of independent living residential units. Since persons are not admitted to the nursing facility directly from the community, all entry is therefore via the residential units. In the early phases of the CCRC, a large nursing facility was neither financially feasible nor administratively sensible. During later stages of their development, some CCRC's have added health care units. For example, in Florida one CCRC that opened in 1965 with 154 independent living residential units and 180 residents, 15 personal care units, and 18 skilled nursing beds, added five personal care units and six skilled nursing care beds in 1984; it also added one independent residential living unit. Data on how this was handled financially and what effects it may have had on operating costs, monthly fees, and so forth, are not available. It would also be interesting to learn how the decision was made, how long it took to make it, and what difficulties may have been encountered in delivering needed nursing care services in the interim. Also, the one additional residential unit with its entry fee and monthly fee may have been an important factor in financing the construction and operation of the new nursing care units.

Ideally, there should be an ongoing projection-of-needs system in force, with sufficient lead time for appropriate planning and implementation. Whether this 33 percent addition of nursing care beds after a 20-year period of occupancy for a CCRC with a ratio of over 5.5 to 1 of residential units to nursing care units is typical is not known. But how this problem is handled is obviously vital to the long-range honoring of the residents' "guarantee" of nursing care.

Another Florida CCRC, which opened a little earlier (1963) and had a 4.6 to 1 ratio of residential to nursing care units had not added to its supply nursing care units as of 1984. There may, of course, have been important differences in the initial and subsequent health of the two populations. In any event, additions to the nursing component represent an increased financial burden to the

organization. Unless the organization's long-range planning has taken these potential problems into account through escrow funding and possible increases in monthly fees as well as increased entry fees for new residents, competition for nursing beds may become severe, and residents may remain in their residential units when they should be receiving personal, intermediate, or skilled nursing care. Or, the organization may be forced to place some of its residents in outside nursing homes, thus violating the basic concept of the CCRC as it was created. It can be seen that even in the case of the CCRC in which the "guarantee" of nursing care appears most secure, security is by no means absolute.

Adequate initial financial planning in establishing entry and monthly fees, structured flexibility with respect to fees, and good management, in the operation of the CCRC as well as in the areas of actuarial and accounting procedures, are major safeguards against serious financial difficulty and even bankruptcy. Some resident participation in the governance of the CCRC would seem to be essential to maintaining the quantity and quality of the services, from food services and housecleaning to nursing care services. Some kind of outside inspection appears to be indicated, particularly as CCRC's grow older. At least some resource should be available to residents, short of legal action, when their complaints are ignored or not handled satisfactorily by management. Whether these kinds of problems will be more prevalent in for-profit CCRC's remains to be seen.

Of those CCRC's that have their own nursing care facility on site, the ones that admit persons directly from the community and charge residents transferred to the nursing care facility on a per/diem basis would seem to be least protective of the resident, at least from the point of view of the preservation of his or her estate. This type of CCRC tends to have nursing care facilities with somewhat larger capacity, relative to the number of independent living residential units, than CCRC's that do not admit persons directly to the nursing care facility. However, competition between internal and external demand for its use would seem to present a problem. The general claim is that the residents have priority, but there does not appear to be any data on how this has actually worked in practice.

The problems discussed above pertain almost entirely to the situation in which the CCRC is already established and the residents are in place. A number of additional problems arise with the CCRC start-up process. Some of the attendant hazards—fraud and false or misleading advertising seeming to be the most prominent—can be rather narrowing. The most flagrant type of fraud occurs when the prospective resident turns over his entry or accommodation fee to the entrepreneur, who keeps the money and then simply does not build the promised CCRC. More subtle activities along this line that at least border on the fraudulent occur when the entrepreneur uses the entry fees from one CCRC to finance the construction of another. Although the first one may be built, its financial soundness is almost surely weakened. A number of states have begun to impose some regulations on CCRC's. Frequently one regulatory feature is the requirement that entry fees be held in escrow until the CCRC is in operation, thus ensuring that construction be financed

independently of the source of funding. However, at last count, only about on-third of the States have CCRC regulations and there does not seem to be any generally available data concerning either violations or enforcement. The situation is similar with respect to "truth in advertising" regulations, with only spasmodic attention and little or no data concerning violations or enforcement.

A common theme in this discussion has been the general lack of information about CCRC industry. It is probably fair to say that even the number of CCRC's, however defined, is not known. AAHA has made a valiant effort in this regard, but participation in its surveys is voluntary and its listings are therefore by no means complete; responses are generally obtained from less than half of those solicited, and the solicitation list was most probably incomplete. Additionally, because the industry is growing so rapidly such lists become quickly out of date.

Although there seems to be considerable agreement that Federal regulation of the industry is premature, the Federal Government could play a significant role at this important developmental stage by establishing and maintaining a basic dataset. Working out just how this might be done of course constitutes a major undertaking. But perhaps any housing organization that uses the name or concept of Continuing Care, or Life Care Retirement Community, and/or requires an entrance fee that does not involve equity could be federally monitored. The Government could require that each organization meeting the definition of CCRC submit, perhaps yearly, basic information that would include, in addition to descriptive characteristics, such data as: Vacancy rates, waiting lists, relinquishment of independent living residential units, deaths, and, perhaps most importantly, transfers to nursing care and acute hospital care. We need to know a great deal more about the CCRC industry in order to develop recommendations concerning the kind and amount of Federal intervention that may be needed.

As previously noted, the CCRC industry has tended primarily to serve the affluent middle class. Significant benefits can be realized from extending the CCRC model to lower-middle income and even lower-income elderly(64). These include greater financial security, enhancement of access to high quality care, and the ability to maintain independence and delay institutionalization. There is also potential benefit to Medicaid; those enrolled in CCRC's would not spend down: CCRC health care is included in the initial monthly payment, which avoids the need to spend all of one's resources to secure needed health services. One estimate suggests that as much as 25 percent of the total costs for each enrolled person would be saved(73). It should be possible to find ways for the Federal government to encourage and facilitate development of the industry in this direction.

V. FINANCING OPTIONS FOR ELDERLY IN COMMUNITY ENVIRONMENTS

Financing mechanisms for building, rehabilitating, and maintaining housing for the elderly can be viewed from several perspectives. One perspective is demarcated by the distinction between the public and private markets. A second perspective emerges from the

difference between programs and policies that serve low-income vs moderate and high-income elderly. A third major view differentiates between direct and indirect financing of residential alternatives. Direct housing supports include the building of new units, rehabilitating existing units, and providing subsidies for rental units. All such efforts are generally directed toward providing adequate shelter for low-income individuals. Of greater dollar value are the policies and programs that affect housing only indirectly. These include income transfer, health care services, social and community service, transportation, energy assistance, land use, and, of most importance, the tax codes. These indirect programs often serve either to permit or impede elderly persons from remaining in their current housing units(71). A fourth perspective focuses on indirect funding sources that support community services often necessary in order that the aging person remain in as independent a housing site as possible.

According to government data and private source statistics, the vast majority of households with heads of households over age 65 are adequately housed(74–77). Nevertheless, millions of elderly still live in housing that is poorly maintained, substandard, or too expensive, and consumes over 40 percent of their income; in 1985 older Americans were also found to pay a larger proportion of their income for rent than other age groups(78). This section primarily examine the various public and private funding mechanisms that support new and rehabilitative construction and maintenance, rental subsidies, and income supports.

The History of Public Involvement

Since the Housing Act of 1937, when the Federal Government guaranteed tax-exempt bonds issued by local housing authorities, the public sector has assumed major responsibilities for housing elderly persons.[1] Rents in this first type of public housing were based solely on operating costs. In the 1950's and 1960's, due to income limits, these buildings became homes for only the very poor. Rent supplementation programs were put into place, and in 1956 eligibility was opened to single elderly tenants and housing for the elderly was admitted to the Federal Housing Administration (FHA) mortgage insurance program. In addition, Section 202 was enacted as a direct-loan building program for moderate-income elderly and Section 231 instituted mortgage insurance for rental housing of eight or more units for higher-income elderly. In 1961, section 221(d)(3), the Below Market Interest Rate program (BMIR) allowed nonprofit and limited-dividend sponsors of elderly housing to borrow at 3 percent interest. Without the rent supplement added in 1965, this program was of little use to the elderly. The Brooke Amendment in 1968 set the rental ceiling at 25 percent of family income. This resulted in reduced revenues, and in the early 1970's the Government began to subsidize expenses based on various factors including operating costs.

[1] The discussion that follows draws considerably on a comprehensive 1967 article describing the history of Federal programs for low-income and elderly tenants by Charlotte Muller (79).

The Housing Act of 1970 provided construction funds for congregate housing but no legislation was passed to fund the mandated one meal a day. Section 7 of the Housing and Community Development Act of 1974 further encouraged this type of housing, and in 1978, Title IV of the Housing and Community Development Act allowed HUD to grant demonstration contracts for congregate housing. In 1974, Section 8, a Housing Assistance Payment program was initiated and covered new, rehabilitated, and existing housing. Under this program, tenants were required to contribute 25 percent of family income toward rent, similar to the public housing subsidies: the individual chooses his own housing and his voucher moves with him.

Since 1981, changes in this and several other programs have resulted in much greater targeting of benefits to the very low income groups, as well as a reduction in the level of subsidies by increasing the tenant's contribution to 30 percent of the family income(80). In addition, since 1982 the emphasis has been on rehabilitation rather than on new construction, with virtually no new construction being funded as of 1986, except for the Section 202 program(31).

Based on 1983 Federal budget obligations, Roy O'Connell (1986) has identified 18 need-based Government program relating to housing(81). These include:

Congregate Housing Services
Farm Labor Housing Loans and Grants
Housing for Elderly or Handicapped (Section 202)
Indian Housing Assistance
Interest Reduction Payments
Lower Income Housing Assistance (Section 8)
Low Income Housing—Home Ownership Assistance
Low Rent Public Housing (Section 236)
Mortgage Insurance—Homes for Low and Moderate Income Families
Mortgage Insurance—Rental and Cooperative Housing—Market Rate
Rehabilitation Loans (Section 312)
Rent Supplements
Rural Housing Loans
Rural Housing Repair Loans and Grants
Rural Housing Self-Help Technical Assistance
Rural Housing Site Loans
Rural Rental Assistance Payments
Rural Rental Housing Loans

As of 1980 all, but three States had authorized housing finance authorities (HHA's). Most are organized as autonomous quasi-public, self-supporting corporations operating largely through the sale of tax-exempt bonds. Broadly mandated to finance low- and moderate-income housing, assistance is in the form of construction loans and permanent mortgage financing.

Currently, Turner(74) and others have identified hundreds of State and local government units with financial policies and programs that influence housing choices. In the early 1980's, a shift away from Federal and toward greater State and local government began for the provision of low-income shelter. A number of programs involving tax-exempt bonds, Federal community block

grants or Urban Development Action grants, and the allocation of State revenues for low-income housing were tried. Local zoning laws and State-supported congregate housing programs were also implemented(31).

Federal, State, and local tax structures also have a major impact on the ability of elderly to choose their own housing. The most prevalent tax advantage offered by the States takes the form of reduced real estate taxes on property used as one's home. The two most important Federal tax provisions are the one-time exclusion of capital gains on the sale of homes and the deduction of interest payments on home mortgages. The former enables the elderly to sell their homes for any purpose without incurring a tax liability. The latter encourages the purpose of homes or condominiums by means of mortgage financing. While some of these programs target the low-income elderly, the largest in monetary terms have been directed to moderate and high income groups and concern mortgage interest and property tax deductions.

Other than tax credits or reduced real estate tax, other types of tax programs were designed to protect or provide tax relief for the elderly. These include:

"Circuit Breakers"—the less income one receives, the more relief that is provided.

Freezing the owner's tax liability for the future.

Tax deferral until one's home is sold.

Indirect funding for housing for the elderly also comes from Social Security. Government statistics from 1972–73 indicate that the average elderly hosuehold spends 23 percent of its income on housing(82). Whereas Social Security promotes independent living by providing income benefits to over 16 million persons, or three-quarters of the elderly, only 1 million participate in HUD-assisted rental housing programs(76).

Monetary assistance for home maintenance repairs is another indirect funding strategy to enhance "aging in place" (whereby elderly remain in their own homes). Many studies indicate that older home owners are less likely than younger home owners to make repairs in their homes(76). Programs focus on minor repairs as well as more extensive renovations. Minor renovations are publicly ordered and come in the form of nominal fees or no cost. The more extensive renovations are offered through a combination of grants and low-interest loans.

Three income-related programs that provide a safety net for elderly in their own homes are Medicare, Medicaid, and SSI. By reducing the burden of health care costs, Medicare indirectly provides income for housing; Medicaid reimburses some home health costs for individuals living with relatives or in shared housing arrangements; and SSI provides funds for the very-low income elderly and, in some States, supplements for SSI recipients are earmarked for specialized group housing payments.

Public/Private Ventures

Representative Edward R. Roybal (D–CA), Chairman of the House Select Committee on Aging stated: "If the President's fiscal year 1987 budget is adopted, HUD's budget will dwindle to a mere

7 percent of what it was just 6 years ago"(83). Citing the inability of the private sector to produce housing for low-income seniors and handicapped without some form of subsidy, Roybal concluded that "we must resolve at all levels of government and in the private sector to join in a partnership to develop innovative and comprehensive housing ventures."

Some of the joint ventures of private industry and public financing have developed from tax credit programs. One such recent program is the Tax Credits for Low-Income Rental Housing, a 3-year program to provide tax credits for owners and investors in low-income rental housing(84). Part of the Tax Reform Act of 1986 requires that housing be geared to incomes at 50 to 60 percent of the area's median income. The amount of the credit is directly based on the number of qualified low-income units where both the rent levels and the incomes of occupants meet the targeting requirements. However, analysts cite many impediments to the potential successful use of this credit. Guggenheim (1987) summed up some of the concern in stating that "it would be a shame if the various segments of the housing industry do not mobilize to make the tax credit work for the needy population for which it is intended"(84).

In further support of the intent to sharply reduce new construction, in 1987, Section 312 program funds are "more plentiful in this fiscal year ($178 million) than at any time in the recent past, and the program has been overhauled to make it more compatible with private sector lending practices"(85). This program provides 3 percent loans for owner-occupants of one- to four-unit properties who have incomes below 80 percent of the area's median income. Other borrower rates are based on the yield of U.S. Treasury securities. The maximum loan amount is $33,500 per residential unit, with a maximum of 99 units. Other conditions apply, but the net result of this program is to provide funds to individuals, corporations, and partnerships to rehabilitate substandard housing or convert abandoned mills, schools, or other vacant buildings to housing.

New Financing Arrangements for Individuals

According to data from the 1983 Annual Housing Survey nearly three-quarters of elderly-headed units are owner-occupied(86). Of 17.8 million elderly heads of households, 13.1 million live in homes they own; more than 80 percent have paid off their mortgages; half of the remaining 20 percent owe less than 20 percent of their home's value(87). Many of these elderly are "house rich" and "cash poor" and might greatly benefit from home equity conversion or reverse annuity mortgages. Funds generated from such payments could be used to reduce housing expenses such as taxes, insurance, and fuel. Although excessive housing costs generally affect renters more than homeowners, the 1983 Annual Housing Survey indicated that about 18 percent of elderly heads of households age 65 or above spend more than 40 percent of their income for housing expenses. Furthermore, Struyk in 1986 reported that 11.5 percent of the elderly 65 above and live in physically deficient housing(80).

Although home equity is a major source of wealth for the older homeowners, willingness to access it remains very dependent on the circumstances surrounding the loan(88). Funds generated from

reverse annuity mortgages could be used to help finance long-term care payments in the home, permitting the elderly to remain in their own homes or to pay for long-term care insurance. Reverse annuity funds could also be used for long-term income supplementation to reduce the percentage of elderly homeowners whose case income is below the poverty level. Overall, 15 percent of elderly heads of households owning single-family homes were found to have cash income below the poverty level and estimated that this rate could be lowered to 6.3 percent upon receipt of revese mortgage payments by each homeowner(87).

Interest in such financing methods was very much before the public eye in 1985 when home equity conversion became a major focus of the American Bar Association's Commission on Legal Problems of the Elderly. According to the ABA, more than a dozen States had introduced legislation related to home equity conversion by that time(89).

SUMMARY

As advancement in medical science enhances increased longevity and a fuller and independent lifestyle, the need for elderly housing will continue to expand. Presently there are and will continue to be, in the future, a significant variety of housing options for the elderly. While a significant numbr of financial options are available, these options will grow in number.

Gabler and McKinley (1986) present some selected financing choices for development of housing for older Americans(90). They primarily focus on multifamily options, including rental projects, cooperatives, and condominiums, and discuss the more conventional types of financing such as syndication, entrance fees, conventional mortgage financing, and State and local assistance through tax incentives.

The drawback to the use or the willingness of lenders to lend money for elderly housing has seemingly been one of lack of understanding, or an unwillingness to deviate from the conventional single-family home mortgage. Financing structures will continue to be designed for such individual project. At the same time, innovative financing is also needed. That is, the options for financing are both and dependent on a variety of interlaced factors. For example, any one form of housing, such as CCRC's or congregate housing, may be financed in very different ways, depending on the relation of the developer or sponsor to area banks and/or investors. Although those entering the ranks of the elderly can better afford housing of their choice than their generational predecessors, a combination of governmental and private initiatives are needed particularly to protect the lower- and middle-income elderly.

RECOMMENDATIONS

Housing policies now and in the future must take into consideration the needs of the current generation of vulnerable old-old elderly as well as the emerging "new" aged. Although the elderly as a group are no longer among the poorest of the Nation, the rise in their income is accounted for primarily by the generations entering

the ranks of the aged. The old-old, as a group, have fewer resources and greater needs.

Policymakers must attend to the dwelling-specific and dwelling-use problems of this most vulnerable group of aged.

To the extent that the government enhances physical functioning of the old-old, it can be expected that institutionalization will not be sought. Our studies of the impact of social interventions clearly indicate that a major source of cost savings is obtained by reducing institutionalization. Relatively small reductions in institutionalization rates can often result in high cost/benefit ratios, even when the total cost of the intervention (e.g., case management and monitoring) is taken into consideration.

Significant reductions in the availability of State and Federal housing programs for the elderly have increased the need for elderly housing and heightened the interest of private housing developers, health care providers, religious organizations, as well as major national corporations. However, although the need for *more* elderly housing unassailably exists, *the present supply should be protected:*

Government.—State or Federal—programs are particularly necessary to prevent the loss of housing currently occupied by lower and middle-income elderly.

The Government could also be particularly effective in supporting low- or no-interest loans as well as in strengthening more effective elderly tax relief programs.

Without Government funding support, not only does the potential exist for the loss of the existing housing units for this group of senior citizens, but housing needs will not be met for this income group in the future.

Mounting evidence indicates that many persons in existing specialized housing are "aging in place." The potential loss of current stock, particularly some of the HUD-financed, privately sponsored, age-segregated housing poses a problem for these elderly. Payments will have been completed on their mortgage debt, and sponsors will be free to convert such housing for other purposes (condominiums, for example). Without expanding and/or rehabilitating the stock, the housing situation for the poor elderly, in particular, will be seriously compromised.

We must be concerned with enlarging and/or rehabilitating the existing stock of specialized housing for the elderly.

The elderly also require protection against the possibility of loss of their homes through the use of reverse annuity mortgages. To prevent this, effective Government controls on the use of this type of mortgage money is necessary.

Even when laws have been enacted with clearly constructive intentions concerning the elderly, pressures to implement programs quickly, as well as to save Federal dollars, may, in the long run, be counterproductive.

To inform public policy, it is important to collect uniform data and to study the impact of new interventions on target populations.

Although there is certainly ample evidence of need for action, the desire to create barrier-free environments and reduce environmental stress alone does not produce the desired ends nor, for that matter, the knowledge of how best to accomplish them. If the value

of systematic data collection is not recognized and research on the impact of developing housing options is minimized, billions of public dollars may be spent without gaining concrete knowledge of what works or how to make improvements that can better effect desired ends.

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MALTREATMENT OF THE ELDERLY AT HOME AND IN INSTITUTIONS: EXTENT, RISK FACTORS, AND POLICY RECOMMENDATIONS

Karl Pillemer, Ph.D.

INTRODUCTION

The vast majority of Americans would agree that the elderly deserve respect, security, protection from harm, and humane and competent care if they someday require it. In its relationship to aged citizens, however, contemporary American society often seems to belie such lofty ideals. Although the rights of the elderly are openly acknowledged, the past 20 years have seen a litany of accounts of terrible mistreatment of the aged. The popular media, academics, and policy-makers have increasingly called the public's attention to the fact that older persons are sometimes disrespected, insecure, vulnerable, and uncared for. To the traditional roles for the aged of mentor, sage, grandparent, and elder statesperson have been added another, troubling one: victim.

Unfortunately, it has been difficult to develop sound social policy regarding the maltreatment of the aged, because so little has been known about this issue. During the last decade, much speculation has been done about elder victimization, and some fairly extreme and unsupported statements have been made about it and widely believed. States and local communities have engaged in a flurry of activities, sometimes in a rational and well-thoughtout manner, and sometimes, unfortunately, in ways that have responded more to political pressures than the true needs of the elderly. In the midst of controversies over this issue, people professionally and personally concerned about the welfare of the elderly find themselves confused about the issue. How widespread is the problem of maltreatment of the elderly? What are some of its causes? What solutions have been proposed?

Until recently, such questions have been impossible to answer. As the result of increased research attention, however, our knowledge about the victimization of the elderly has increased somewhat. Researchers have begun to employ more rigorous research designs, and policy analysts have subjected intervention programs to careful scrutiny. It is the goal of this paper to review two types of elder victimization: domestic abuse and neglect by relatives; and maltreatment in nursing homes. Research findings regarding the extent of each of these problems will be summarized, as well as current knowledge about factors which can place elderly persons at risk of such victimization. Following this discussion, possible intervention strategies for each type of victimization are briefly presented.

CASE STUDIES

The notion of victimization of the elderly is a disquieting one to most people, and disturbing phenomena are frequently denied. Even those who are familiar with the literature on crime and violence may have difficulty envisioning the circumstances in which the aged become victims. It will therefore be useful to provide an example the two types of victimization, in order to give graphic evidence of the forms that such mistreatment can take.

CASE I: DOMESTIC ELDER ABUSE

Frances was an 88-year-old woman, widowed for the past 20 years. She lived with her 55-year-old son George in her own single-family home in a pleasant, middle-class neighborhood. George had resided with his mother all his life. He had lost his job some 5 years before, and became known as a heavy drinker.

Frances' house was attractive enough from the exterior, but the inside was another matter: it was dark, grimy, and had not been properly cared for in years. Frances was unkempt, her dress ragged, and she had clearly not bathed for some time. Her vision was poor, one eye was bothering her, and she was very hard of hearing. Her legs were swollen and badly bruised, and there were lacerations on one foot, which were infected.

The situation alarmed a clergyman, who placed a call to a local elder abuse project. During a visit with the project social worker, Frances admitted that her son was seriously physically abusive to her. A few days before, she had burned his dinner, and George had thrown the hot pan at her, striking and injuring her foot. A few weeks later, a visiting nurse reported that Frances had been bruised and there was evidence of internal bleeding. Frances confessed that her son had again lashed out at her when she asked him a question while he watched television. The police were called, but Frances refused to press charges for either incident.

Frances was also a victim of neglect. She had not seen a doctor in years, her nutrition was poor, and she had no decent clothing or shoes. An elderly in-law dropped by periodically to cash her Social Security check, pay her bills, and give her the remaining cash, which she kept in her pocketbook and doled out to her son when he demanded it. Frances adamantly refused to consider relocating to a setting where she would be better protected and cared for. When such options were proposed, Frances expressed a desire to remain in her own home, as well as fear for what would become of her son if she "abandoned" him(1).

CASE II: NURSING HOME MALTREATMENT

Mr. Jones was a patient in a 65-bed nursing home located in a suburb of a large midwestern city. Mr. Jones rarely spoke to anyone in the home, except in anger or fear, when he would usually utter a barely intelligible curse. He was visited only by his wife, who rarely came to the home. Mr. Jones was found by nursing home staff sitting in a tub of hot water with the water faucet on. The staff members took him out of the bath, wrapped him in a sheet, and put him to bed.

An hour or so later, a nurse came by and looked in on Mr. Jones. To her horror, she found him lying in his bed with the skin and tissue on his legs and lower trunk "coming off in hunks." The nurse called an ambulance and he was taken to a local hospital, where he died 2 weeks later. According to sources within the home, an orderly had put Mr. Jones in the scalding water to punish him for "cursing him." A shortage of staff in the facility that night allowed the orderly the opportunity to punish Mr. Jones in this way without being detected(2).

VULNERABILITY OF THE AGED TO MALTREATMENT

Questions have persistently been raised as to whether the victimization of the elderly is a serious social problem for which specialized intervention programs are necessary. For example, in the case of domestic elder abuse, some analysts claim that it is a "non-issue," or that it at least does not need to be dealt with by categorical programs(3). This view holds that old people have many other, more serious problems, including economic deprivation and lack of needed health and social services. Maltreated elders would best be served by existing social programs.

I would argue that the victimization of older people does constitute a distinct category of maltreatment which requires special attention. The elderly share a set of characteristics which make them more vulnerable to maltreatment, and more likely to suffer severe consequences when it occurs.

First, the aged are as a group more physically vulnerable. Older people, especially those over 75, experience increased frailty and often lose the ability to perform activities of daily living. These physical vulnerabilities increase the risk for abuse, as well as affect the nature and effects of abuse when it occurs. In nursing homes, many potential victims may be so impaired that they cannot report victimization when it occurs.

Second, the aged are vulnerable to abuse because of their devalued social status. Systematic stereotyping of the elderly takes place, as does age discrimination. Society isolates the elderly and no longer seeks their contributions. Mandatory retirement further contributes to this process. Devaluation of the elderly increases their risk of abuse as a class of individuals.

A third source of vulnerability has been identified by criminologists: the attractiveness of the elderly as victims. In the eyes of potential abusers, some potential victims appear to offer greater opportunities for gain than others, and fewer risks to the offender. Elderly persons may seem to be easy marks, as they may be less able to resist or flee an attacker.

Fourth, the majority of the elderly population is female, with a particularly large predominance of women in the oldest age groups. Women may be more easily victimized because of their smaller stature and lack of physical strength relative to men. Further, potential assailants may in general perceive women as less able to fend off an attack.

Thus, the elderly as a group do appear to have special vulnerability to victimization. It is important to note, however, that this does not mean that some elderly people are not capable of defending

themselves or guarding against becoming victims. Nor does it mean, as we will see below, that elderly individuals are victimized *because* of these vulnerabilities. Instead, the argument presented here indicates that the victimization of the elderly deserves to be considered a special social problem, which may have causes and consequences different from the maltreatment of younger populations.

In this section and the preceding one, examples of maltreatment have been provided, and factors that make the elderly especially vulnerable discussed. In the remainder of this paper, I will discuss each of the types of victimization—domestic elder abuse, and nursing home maltreatment—in turn.

DOMESTIC ELDER ABUSE

Preliminary studies of elder abuse were conducted as early as the late 1970's, but these, because of a variety of methodological weaknesses, provided only limited reliable information(4). These weaknesses include failure to use case-control designs; reliance on interviews with professionals rather than victims; unclear definitions and measures of abuse; and a lack of population survey data.

Recently, however, our knowledge about elder abuse has increased somewhat. Researchers have begun to employ more rigorous research designs, and policy analysts have subjected elder abuse intervention programs to careful scrutiny. Here, I will discuss several fundamental points about domestic maltreatment of the elderly that are supported by this recent wave of research and policy analysis. To be sure, these points are somewhat *tentative,* since elder abuse research is still in its infancy(5).

1. No precise definition of elder abuse exists

There is no consensus as to how elder abuse should properly be defined. Researchers have varied widely in the way in which they have defined the term, and have frequently used confusing and unclear definitions. For example, as sociologist Tanya Johnson has pointed out, some researchers have fallen into a tautology, using the term to define itself. Thus, a research team defined elder abuse as "an abusive action inflicted by the abusers on adults 60 years of age or older." Similarly, for a survey of maltreatment, elder neglect and abuse were defined as: "a generic term that refers to the neglect and/or physical, psychological, or financial abuse of the older person"(6).

Further, definitions have differed so widely from study to study that the results of research are almost impossible to compare. Johnson again provides a good example of this problem. She notes that one group of researchers called "withholding of personal care" physcial abuse, while a different group called it active neglect. Another investigator subsumed such actions under physical neglect, and yet another group considered such behaviors to be psychological neglect. Similarly, some researchers define physical abuse in terms of *actions:* hitting, pushing, choking, etc. Others, however, use lists of injuries to define physical elder abuse, such as cuts, fractures, bruises, and burns.

The development of better definitions of maltreatment of the elderly must be an extremely high priority. In particular, it is critical to differentiate among various types of maltreatment. Researchers like Johnson and others are now providing useful critical analysis of the definitional issue. Such efforts must be continued, in an ongoing effort to develop standard definitions of various forms of elder maltreatment. In the meantime, researchers and policymakers must be clear and explicit regarding what they term "elder abuse."

For the purposes of my discussion here, five types of maltreatment are considered to constitute domestic elder abuse and neglect(7). These are:

Physical Abuse.—The infliction of physical pain or injury (e.g., slapped, cut, burned, etc.).

Psychological Abuse.—The infliction of mental anguish (e.g., called names, intimidated, threatened, etc.).

Material Abuse.—The illegal or improper exploitation and/or use of other resources.

Active Neglect.—Refusal or failure to fulfill a caretaking obligation, *including* a conscious and intentional attempt to inflict physical or emotional stress on the elder (e.g., deliberate abandonment or deliberate denial of food or health-related services.

Passive Neglect.—Refusal or failure to fulfill a caretaking obligation, *excluding* a conscious and intentional attempt to inflict physical or emotional distress on the elder (e.g., non-provision of food or services because of inadequate knowledge or own infirmity).

2. Family conflict with the elderly, including elder abuse and neglect have existed throughout history. There is no reliable evidence that the incidence of elder abuse is increasing

There have been several reports that hold that elder abuse has been increasing at a tremendous rate. In fact, there is *no evidence* that elder abuse is on the rise. Historians have now convincingly shown that there never was a "Golden Age," in which the elderly were venerated, and lived, in the style of the Waltons, in happy, harmonious, extended families. In fact, substantial family conflict with the aged existed in pre-industrial times. Frequently, such conflict occurred over property, as sons waited sometimes eagerly for their fathers to die so they could inherit land and start to live independently(8).

We cannot even turn to nonindustrial societies for examples of ideal treatment of the aged. Numerous peoples, perhaps the best known of which are the Eskimos, at times abandoned old people to die of exposure when they became weak and frail. The anthropological evidence indicates that in many nonindustrial societies, intergenerational conflict is intense. When old people in these cultures lack resources, they may be ignored or even treated as outcasts(9).

In summary, conflict and abuse in families of the elderly are by no means new problems; it is only their "discovery" by the American public as a social problem that is recent. While it is true that the number of reports States receive has increased over the past few years, this is a sign of the greater responsiveness of professionals to public education campaigns and mandatory reporting laws, rather than a sign that the problem itself is growing.

3. The prevalence of elder abuse may be lower than previously reported

There is evidence that the extent of elder abuse has been somewhat overestimated. In fact, one reason why critics are skeptical about the problem is that very inflated estimates, with no scientific credibility, have been widely publicized. A widely-quoted statistic is that 4 percent of the elderly are abused *each year*. Some estimates have been even higher: that as many as 10 percent of the elderly are abused.

Part of problem comes from mistinterpretation of a survey of persons living in Washington, D.C.(10). Based on this sample, the investigators estimated that approximately 4 percent of the elderly are abused, a figure which has been the most widely cited in the literature. Unfortunately, this estimate has very little scientific credibility. The response rate was so low 16 percent, and the final sample so small (73 persons) as to invalidate the finding. Other researchers conducted a survey with a sounder scientific basis. They interviewed a random sample of 342 elderly persons in the state of New Jersey. Only five of these respondents reported some form of maltreatment, which resulted in a 1 percent rate of elder abuse, a much lower estimate(11).

More reliable information has recently become available from a survey conducted to assess the scope and nature of maltreatment of the elderly occurring in the community at large, including unreported and undetected elder abuse(12). The study was designed as a stratified random sample of all community-dwelling elderly persons (65 or older) in the Boston metropolitan area. Using a variety of measures, the survey inquired about respondents' personal experience of physical violence, chronic verbal aggression, and neglect from family members and other persons close to them.

The survey found 63 elderly persons who had been maltreated in one or more of these three ways since they had turned 65. This translated into a rate for the sample of 32 maltreated elderly per 1,000. Given the sample size, this yielded a 95 percent confidence interval of 25–39 maltreated elderly per thousand (that is, the true figure has a 95 percent chance of being in this range). With an elderly population in the Boston area of 345,827 in 1985, it was estimated that there were between 8,646 and 13,487 abused and neglected elderly persons in the Boston area. If a national survey were to find a similar rate, it would indicate between 701,000 and 1,093,560 abused elders in the nation as a whole. Rates were also calculated for each type of maltreatment: 20 per 1,000 for physical violence; 11 per thousand for verbal aggression, and 4 per 1,000 for neglect. These rates are *not* for the preceding year, but instead indicate having been abused or neglected at any point since turning 65.

Thus, two relatively well-done studies show us that the overall extent of elder abuse may be less than previously thought. Perhaps one of the most important findings is that the vast majority of old people live free from serious maltreatment. Certainly, other research on the elderly shows that many families perform almost heroically to care for and assist their aged relatives.

When compared to other problems the elderly experience, the rates also do not seem so high. For example, 13 percent of the elderly live below the poverty level(13) and 6 percent have Alzheimer's disease(14). Further, elder abuse rates are lower than other forms of family maltreatment: serious physical abuse by parents against children, a recent survey shows, may affect 11 percent of children(15).

But does this mean that elder abuse is not a serious problem, one that warrants serious public attention? In fact, the general concern does seem justified. Even prevalence rates that seem low by comparison turn into impressive numbers when considered nationwide: Perhaps as many as a million elderly people have at some point been victims. Elderly citizens are surely entitled to live in environments where they are safe and respected. Further, effective intervention programs for elder abuse already exist(16). The availability of solutions to the problem makes inaction to assist victims ethically questionable.

Finally, the Boston survey just discussed indicates that serious underreporting exists. The authors' calculations indicate that only 1 in 14 cases of elder abuse comes to the attention of a reporting agency(17). It is worthy of note that such underreporting occurs in Massachusetts, where there is one of the most active elder abuse intervention programs in the country. It appears that we are treating only a fraction of victims.

In summary, it seems clear that neither practitioners, advocates, nor the elderly themselves are helped by exaggerating the size of the problem of elder abuse. And in fact, it is unnecessary to do so. Elder abuse is probably not the major problem of the elderly. But elder abuse exists, and in substantial enough proportions that we need to worry about it. It must also be recognized that additional data are needed regarding the extent of elder abuse. In particular, a national incidence and prevalence survey should be conducted.

4. A substantial proportion of elder abuse is spouse abuse

Much of the literature on elder abuse has focused on the abuse of elderly parents by adult children. In our Boston survey, however, a very different pattern was found: fully 58 percent of the abusers were the victim's spouse, compared to 24 percent children. Overall, married people were found to have much higher rates of victimization. Interestingly, some reports from intervention programs have also found relatively high rates of spousal elder abuse. In the general population, elderly persons appear to be more likely to be abused by their marriage partners than by any other person.

This finding leads to the interesting question of why intervention programs generally see more child-parent elder abuse cases than abuse by spouses. The reason for this situation can perhaps best be explained in terms of how elder abuse has developed as a social. Elder abuse has been the most recent and most neglected form of family violence to vie for public attention. In order to gain such attention some have striven to cast this problem in its most compelling light. The image of one elderly person hitting or neglecting another does not convey the same pathos as an elderly person being abused by an adult child. Further, commentators from the battered women's movement have pointed out that among all forms of

family violence, there has historically been a strong tendency to hold the victims of spouse abuse responsible for their victimization.

Another reason that spousal abuse among the elderly may seem less compelling is that many people may assume that it is less severe and damaging than abuse by an adult child against an elderly parent. From the Boston study, there is no indication that this is the case. There were no statistically significant differences between spouse perpetrators and child perpetrators in the level of violence they inflicted, in the number of injuries they caused or in the degree of upset they engendered in their victims. Abuse by spouses and abuse by children is equally serious. If spouse abuse among the elderly has been a neglected problem, it is probably not due to the less serious nature of this abuse, but instead to the more ambiguous moral imagery that this problem conjures up. These findings regarding spousal abuse among the elderly can lead to a degree of reorientation in service planning for victims. This issue will be discussed below.

5. Caregiver stress is probably not the major cause of elder abuse; deviance and dependency of abusers probably is

Interestingly, two competing theories have arisen that relate dependency to elder abuse. The first emphasizes the role of caregiver stress as a risk factor for maltreatment; abuse is seen as resulting from the resentment generated by the increased dependency of an older person on a caretaker. The second theory stresses the importance of the reverse of this configuration: the continued dependency of the *abuser* on his or her victim. Each of these theories will be taken in turn.

Many students of elder abuse have emphasized the dependency of the victim on the abusive relative(18). It is argued that families undergo stress when an elderly person becomes dependent upon his or her relatives for care. The burden of providing financial, physical, and emotional support produces severe stress on the caregiver. As the costs to the caregiver grow—and the rewards diminish—the exchange becomes perceived as unfair. Caregivers who do not have the ability to escape or ameliorate the situation, this view holds, may become abusive.

While the above theory appears plausible, there are few firm research findings to support it. It is clear from the gerontological literature that a substantial number of elderly persons are dependent on relatives. However, as the prevalence findings mentioned earlier indicate, only a small minority of the elderly are abused. Therefore, no direct correlation can be assumed between the dependency of an elderly person and abuse.

Further, the investigations which have highlighted the dependency of the victims have generally had methodological weaknesses. In particular, they have not included control groups in their designs. It is well documented that the majority of the elderly suffer from one or more chronic conditions; it should therefore be of no surprise to learn that abused elders were somewhat impaired. Thus, it is not sufficient to note that abuse victims have some level of physical dependency. Instead, we must ask: are the abused elderly more ill or impaired than nonvictims? Do they depend on the abuser more than other elders depend on nonabusive relatives?

In fact, case-control studies have not shown abuse victims to be severely dependent. Phillips failed to find any difference in level of impairment between a group of elder abuse victims and a control group. Separate case-control studies by Bristowe and by Pillemer found that physical abuse victims were actually *less* impaired in their ability to perform activities of daily living than a control group(19).

However, more rigorously designed studies have found a significant degree of dependency on the part of the *abusers*. Wolf and Pillemer found that in two-thirds of their cases, the abuser was reported to be financially dependent on his or her victim. Hwalek and her colleagues found the financial dependency of abusers to be a significant risk factor in abuse. Similarly, Pillemer found that 64 percent of the abusers in his sample were financially dependent on their victims, and 55 percent were dependent for housing. In the nonabuse control group, the figures were 38 percent and 30 percent, respectively ($p<.05$)(20).

Why should the continued dependency of an adult child or spouse upon an elderly relative lead to abuse? A key concept in answering this question is that of *power*. Finkelhor, in his attempt to identify common features of family abuse, notes that abuse can occur as a response to perceived powerlessness. In fact, abusive acts "seem to be acts carried out by abusers to compensate for their perceived lack or loss of power"(21). It may be that an adult child or other relative who is still dependent on an older person feels especially powerless, as this dependency strongly violates society's expectations for normal adult behavior. This perceived *lack* of power on the part of the abuser is better able to explain elder abuse than the view that the abuser holds much power in the relationship, as a caretaker would.

Why are abusers dependent? Some studies of elder abuse have found that the abusers are relatively impaired and unstable people. In particular, elder abusers may be more likely to suffer from psychological problems. Some research has provided evidence that persons who abuse the elderly may be developmentally disabled, mentally ill, or alcoholic(22). Further, Wolf and Pillemer found fairly widespread mental illness among elder abusers: 31 percent were reported to have a history of psychiatric illness, and 43 percent to have substance abuse problems. In Pillemer's case-control study, psychatric hospitalization was found to be much more common among abusers than among members of a control group. The Boston study also provided clear evidence that abusers are more likely to have been hospitalized for psychiatric reasons or arrested, and/or to have been violent to persons other than the abused relative.

In light of this evidence, it appears that the dominant cause of elder abuse is not the dependency of the elder, but of the abuser. This research finding also has important implications for intervention, discussed below.

6. Elder abuse can have serious outcomes

There are only a few reports on the effects of elder abuse. It is thus difficult to discuss the actual outcomes of elder abuse. However, it seems clear that three different types of outcomes might

result from being a victim of elder abuse: physical, psychological, and behavioral, as follows:

Physical outcomes.—This category includes physical injury and disability (bruises, cuts, scrapes, broken bones, etc.).

Psychological outcomes.—Depression is included in this category, as well as fear, helplessness, lowering of self-esteem, problems eating or sleeping, and anger.

Behavioral outcomes.—Abuse could result in certain behaviors on the part of the victim, including suicide attempts or violent acts toward the abuser.

The issue of the consequences of elder abuse is a critical one for future research. Are there, for example, patterns of injuries that the elderly suffer that would indicate a "battered elder syndrome," analogous to that discovered for child abuse? Do the abused elderly suffer from "learned helplessness," as has been suggested for battered women? In order to design intervention programs, funding is necessary for research on the way effects of maltreatment on the elderly.

7. Mandatory reporting laws are not an appropriate answer to the problem of elder abuse

At present, we have little data on the relative effectiveness of various prevention and treatment programs for elder abuse. In spite of attention to the problem at the Federal level, no unified national policy on elder abuse and neglect has yet emerged. States and local communities, however, have independently developed a wide variety of intervention strategies.

Perhaps the most widely-used response to elder abuse has been the adoption by States of mandatory reporting laws. To date, 43 States have mandatory reporting laws in place. Such statutes generally require that social service workers, medical professionals, law enforcement officials, and others report suspected cases of abuse to some State authority. Proponents of these laws argue that they are the best method of bringing cases to light. Major support for mandatory reporting has come from the proposed Federal "Prevention, Identification and Treatment of Elder Abuse Act," which if passed would have required States to have such laws in order to receive certain types of funding.

There are many serious problems with mandatory reporting laws for elder abuse, which argue strongly against any attempt to force States to pass them. In fact, it is much more advisable for States to seriously examine existing statutes, with an eye to whether they are really necessary and helpful. This is particularly important in light of recent observations such as those by attorney Dyana Lee, who holds in a recent issue of the *Fordham Urban Law Journal* that mandatory reporting statutes "are not the best way to reduce elder abuse because their level of effectiveness is not greater than their potential to harm"(23). In their desire to "do something about the problem," States have rushed headlong into mandatory reporting laws, without seriously examining their desirability.

What is wrong with mandatory reporting for elder abuse? There are a number of reasons to be wary of this "solution" to the problem. First, mandatory reporting for elder abuse is inherently *ageist,* as it infantilizes the elderly by equating their situation with

that of children. As aging policy analyst Stephen Crystal and others have noted, most mandatory reporting statutes borrow directly from child abuse legislation(24). There are, however, several critical differences between the two situations. Most important, a child is assumed to need a guardian who has a degree of custodial authority. Adults, whether they are over the age of 65 or not, are presumed to be competent to make their own basic life decisions. When it investigates child abuse, the State acts in *parens patriae*—that is, as a substitute parent. Unless they are deemed imcompetent, it is clear that we do not wish the State to assume a parental role for our senior citizens!

Crystal provides an important example of this problem. One of the basic principles adhered to in our society is professional confidentiality. If an elderly person goes to a doctor, for example, he or she can assume that whatever is told to the physician will never be revealed to anyone else. Mandatory reporting statutes override this critical component of the professional-patient relationship. If the physician is to obey the law, he or she must report an abused person to the State, which will result in an investigation—regardless of the doctor's own professional judgment about what is best for that person. It is reasonable to hold that children are not capable of deciding when to seek help for themselves. The elderly, however, are independent, autonomous adults. As a group, they do *not* require the State to step in, abrogate their own decision-making rights, and act as a substitute parent. To state it simply: Why should a 59-year-old battered wife be able to make her own decisions as to when and how to seek help, and a 65-year-old woman in the same situation be unable to choose whether or not to obtain assistance(25)?

The comparison to child abuse is even less appropriate in light of the new research findings cited above regarding the relatively independent and unimpaired condition of many elder abuse victims. Perhaps the child abuse analogy would have some value if the majority of elder abuse victims were unusually sick and dependent. This does not appear to be the case; in fact, many victims are quite capable of weighing the negative and positive aspects of their lives, and coming to a decision to seek help. As Lee has asserted, a mandatory reporting law may severely "limit the elder's freedom to control his or her own life."

In sum, mandatory reporting for elder abuse is a highly ageist response to the problem. This is evident in State laws that equate being old with lack of ability to exercise good judgment. For example, Florida's elder abuse law defines an aged person as one who is: "suffering from the infirmities of aging as manifested by organic brain damage, advanced age, or other physical, mental, or emotional suffering"(26). It is difficult to interpret such laws as anything other than evidence of ageist stereotypes that view the elderly as sick, feeble, and incompetent.

Forcing the reporting of a competent elder becomes even more questionable in light of lack of resources to help him or her after the report. Funding is rarely sufficient for complete follow-up of cases. In 1984, States spent roughly $2.90 per elderly resident for protective services, compared to $22 per child resident for child protective services(27). In the absence of concrete services for abuse

victims, it is argued, being reported does not result in any benefit for the victim. Instead, it brings only a potentially disruptive visit from the reporting agency. In the absence of services, there seems to be a real basis for fears that protective services intervention may lead to inappropriate institutionalization of elder abuse victims.

In addition, the laws are in general riddled with inconsistencies. It has been noted that there is considerable variation from State to State in mandatory reporting laws. Definitions vary as to who should be classified as abused. Some States only intervene in cases where there is a perpetrator, while others become involved in what they term "self-neglect" or "self-abuse." Laws exist that only cover physically or mentally impaired elders, while in other jurisdictions, all the elderly are included. States also differ as to the age of victims (e.g., over 60 or over 65); whether a central registry exists for complaints; and whether penalties result from failure to report. It has been correctly noted that the identification of an older person as "abused" depends heavily on the state in which he or she resides, rather than some set of objective characteristics(28).

Further, opponents hold that mandatory reporting laws do not lead to the reporting of new cases, but instead to the reporting of already known ones(29). Mandatory reporting laws have not been shown to lead to a substantial increase in reports from mandated reporters. In fact, there is evidence that few reports come from physicians, regardless of the laws(30).

As an adjunct to mandatory reporting, many states have also initiated protective services programs which cover the elderly. These programs generally assign a legal intervention role to social workers, who investigate cases of abuse and attempt to treat the situation, bringing in services where needed. The protective service workers usually have access to legal surrogate options, such as guardianship or conservatorship, when the older person is declared incompetent(31).

Protective services for the elderly have been criticized for the same reasons as mandatory reporting laws: that they are based on a false analogy to child abuse, and thereby infantilize the elderly; that these programs intrude upon the civil liberties of the aged; and that most States define abuse so broadly that they allow for a stigmatizing intrusion into families with merely the normal range of human problems. Further, critics argue that guardianship, which takes away many of the rights of an old person, is too freely used.

Perhaps the major problem is the almost total lack of information regarding the effectiveness of these two options. Few States with such programs are evaluating the degree to which they actually help the elderly. We simply do not have evaluation data that would allow us to resolve the debate over mandatory reporting and protective services for elder abuse. Certainly, careful research is needed to make certain that the impact on those they would help is not in fact harmful.

8. The real answer to the problem of elder abuse is a comprehensive, coordinated program of services to victims and their families

Perhaps the best indication from the nearly 10 years of attempts to intervene in elder abuse is the following: we have learned that coordinated, comprehensive services to abused and neglected elders does work. Communities have initiated a wide range of service programs for abused elders. Evaluations have demonstrated that direct services to victims and their families, coupled with a strong case management role by a specialized elder abuse worker, have great potential to resolve the maltreatment(32).

Three basic types of services should be used to treat elder abuse. The first category is services to victims. Most discussions of the needs of abused elders have included a list of health and social services which, although they may be helpful, are not specific to abuse. These services, including home health nursing, homemaker services, chore assistance, and the like, are most appropriate for cases in which the victim is impaired and dependent, and in which the maltreatment is related to caregiver stress. As noted previously, research indicates that this pattern of physical abuse occurs only in a minority of cases.

In many other cases, older persons are abused by dependent relatives. In addition, the Boston study indicated that a considerable proportion of elder abuse is committed by spouses. Further, elder abuse in general has close parallels with the situation of abused wives: legally independent adults who live together out of choice for material and/or emotional reasons. A number of interventions pioneered by the battered women's movement are therefore likely to benefit abused elders.

For example, consciousness-raising groups could profitably be used with elder abuse victims. The opportunity to discuss the experience of domestic violence with other victims can have a therapeutic and empowering effect. Such groups are able to allay the feelings of helplessness and self-blame to which victims are often subject. Shelters and "safe houses" would also benefit the abused elderly. In particular, temporary residential settings are needed which are specifically geared to the needs of the elderly abuse victim. One promising option would be to establish shelters in congregate housing facilities. This model would offer a needed alternative to the permanent placement of elder abuse victims in nursing homes. Funds for such programs should be increased.

Finally, greater involvement of the police may be required in some situations. Police and public prosecutors have been characteristically reluctant to intervene in family violence situations. Further, because of its relative novelty as a social problem, law enforcement officials are unlikely to be aware of the existence of elder abuse. Recent research on wife abuse suggests that police involvement may reduce revictimization(33). Thus, arrest may be a deterrent in elder abuse.

The finding that elder abusers are often heavily dependent on their victims suggests certain services for perpetrators. Children who have remained unhealthily dependent on their aged parents can be offered psychological counseling. Dependent abusers may also require assistance in finding employment and alternative

housing. In those situations where the abuser is a caregiver, support groups are available in many communities.

Equally important are coordinative mechanisms or "linkage" services. These services connect abuse victims and their families with resources in the community. Case management programs for abusive families have been found to be effective in some cases in resolving abuse situations. Information and referral services are useful in connecting victims to services, and transportation may be necessary if such services are to be taken advantage of.

It is imporltant to note that we do not as yet have reliable data on the effectiveness of most of these services. In particular, we do not know what particular package of services is most appropriate for a specific abuse situation. Demonstration projects should be funded (possibly through the Administration on Aging) in which victims are randomly assigned to different treatment modalities, in order to evaluate the relative success of these service options.

Conclusion

The preceding discussion indicates considerable progress in the study of elder abuse and neglect. Researchers are now beginning to use more rigorous research designs to investigate the problem. Constructive criticism of State policies has begun, which may lead to the alteration of poorly conceived State legislation. As I have tried to demonstrate, some basic information is now available regarding the extent of elder maltreatment and factors that place the elderly at risk of abuse.

It should also be clear at this point that our greatest need is for more information. Additional research on risk factors for elder abuse is critical. Without better data about who is most likely to be abused, it is extremely difficult to plan prevention programs. An equally pressing need, as just noted, is for careful evaluation studies of different types of interventions. There is at least some indication that mandatory reporting and protective services legislation are ineffective solutions to the problem of elder abuse, and may even cause harm to some they would serve. The controversy over this issue cannot be resolved until definitive data become available on the consequences of mandatory reporting and on the effectiveness of protective services intervention. *Thus, research on the issues of elder abuse is not a luxury; it is a basic, critical component in the search for solutions to domestic maltreatment of the elderly.*

PATIENT MALTREATMENT IN NURSING HOMES

Every morning, over 1.5 million Americans wake up in nursing homes. For most of these individuals, the institution in which they reside will be the last home they ever know. Many of us will also reside in a nursing home at some point in our lives: One in five persons will spend some time in a long-term care facility before they die. As the proportion of the population that is over the age of 75 continues to grow—as will occur dramatically over the next 20 years—the number of nursing home beds will increase greatly. In spite of the growth of noninstitutional services, then, there is no question that nursing homes are here to stay.

Although nursing homes have a central place in the long-term care system, research on many aspects of these institutions is still in its early stages. One area that has been all but neglected by researchers has been of *greatest* concern to the media and the public: inadequate or inappropriate practices used by staff in the course of patient care, including deliberate patient maltreatment. Since the 1960's, allegations of patient neglect and abuse have abounded, but few hard data on this topic have been available. Until very recently, little was known about those situations in which staff, either intentionally or unintentionally, act toward patients in ways that cause them additional suffering.

The past 20 years have also seen an unrelenting series of attacks on the nursing home industry. The authors of such works have characteristically cited gross limitations of patient freedom, substandard nutrition and housing, and verbal and physical abuse. In general, a picture has been presented of nursing homes as substandard living environments in which patients run serious risk of maltreatment.

In light of such observations, the paucity of empirical investigations of the treatment of patients in nursing homes is surprising. Although anecdotal evidence abounds, we know little about the way in which staff relate to patients on a day-to-day basis or about staff attitudes toward their charges. Eva Kahana has asserted:

> Those few accounts which look at the quality of life at institutions for the aged at close range tend to conjure up images of Dante's *Inferno* . . . Nevertheless, it must be kept in mind that there is *no hard data* on the prevalence of inhuman treatment in various institutional settings. Consequently there is the possibility that we are interpreting the isolated or occasional event as the norm(34).

As with domestic elder abuse, however, more information has become available in the past few years. In this section, the most important of these findings are reviewed.

Definitional Issues

The first obstacle encountered in examining the issue of nursing home patient maltreatment is that of definition. In general, writers on the topic of patient maltreatment in nursing homes have either not provided a specific definition or have defined the term in a vague and confusing fashion. It is imposible to resolve the definitional issue here. A tentative approach to a definition, however, can be formulated.

In order to define the scope of my discussion here it is necessary to identify the specific types of actions that will be considered as "maltreatment." The literature on nursing homes provides a host of examples of ways in which patients might be abused or neglected, ranging from the neglect of basic needs to serious physical abuse(35). Three basic types of behaviors will be considered here under the term "patient maltreatment": violence, verbal aggression, and neglect.

In defining physical violence, I follow the relatively simple and clear definition of Straus et al.: "an act carried out with the intention, or perceived intention, of causing physical pain or injury to

another person"(36). Verbal aggression, similarly, is defined as an act carried out with the intention, or perceived intention, of causing emotional pain to another person (e.g., threats or insults). Neglect is defined as the intentional failure of a nursing home staff person to meet the care needs of a patient.

Before proceeding, two additional areas require definitional clarification. A wide range of settings exists in which some form of long-term care services are provided. I confine my discussion to the two most predominant types: skilled nursing facilities and intermediate care facilities. Skilled nursing facilities provide care under the supervision of a physician, including 24-hour skilled nursing and a variety of therapeutic services. Intermediate care nursing homes serve individuals who need less intense care, but who require institutionalization because of functional impairments. Board and care homes, rest homes, and other shared living arrangements are excluded, primarily because of the paucity of research on these settings. Second, in this analysis, "staff" refers to registered nurses, licensed practical nurses, and nursing aides. Administrators, physicians, social workers, dietary personnel, and other profesional staff are excluded, because of their less frequent and intense contact with patients.

Extent of Patient Maltreatment

As noted above, the media and the general public appear to view patient maltreatment in nursing homes as extremely widespread. In fact, representatives of the nursing home industry have repeatedly called for better public relations and information campaigns to allay some of these fears. Definitive epidemiological data on the incidence and prevalence of physical violence, verbal aggression, and neglect in long-term care facilities, however, are lacking. Nevertheless, several sources exist that indicate that patient maltreatment does occur with some frequency. After discussing two types of information—descriptive analyses of nursing homes, and State and Federal statistics—I focus on a survey of staff in nursing homes recently conducted by my colleagues and I at the Family Research Laboratory.

First, considerable evidence of abuse and neglect is available from descriptive studies of nursing homes. In fact, in some studies, maltreatment of patients is dwelt upon extensively. In his study of a single facility, Stannard observed or heard about such actions as "pulling a patient's hair, slapping, hitting, kicking, punching, or violently shaking a patient, throwing water or food on a patient, tightening restraining belts so that they cause a patient pain, and terrorizing a patient by gesture or word"(37). Other qualitative studies of nursing homes have found numerous examples of one or more of the types of maltreatment under consideration here.

A second source of evidence is available from State and Federal statistics. Both of these sources report numerous incidents of patient abuse and neglect each year(38). Further, state nursing home ombudsman programs receive many complaints about staff treatment of patients. There is also evidence that a substantial amount of maltreatment is never reported(39).

Surveys of Nursing Home Patient Maltreatment

The above sources give an indication of the existence of victimization of patients in nursing homes. However, in order to estimate the extent of the problem or understand its causes, survey evidence is necessary. A few exploratory surveys have examined patient abuse and neglect in a very preliminary way. Surveys of staff in nursing homes in Michigan and Ohio uncovered reports of maltreatment, as has one study that interviewed both staff and patients(40). These studies indicate in a preliminary way that maltreatment exists, and that it can be the subject of interview studies. These studies, however, tended to use relatively small and unrepresentative samples. Further, none of them had patient maltreatment as its primary focus.

In spring 1987, my colleagues and I conducted the first large-scale, random-sample survey on staff-patient conflict in nursing homes. Nearly 600 nurses and nursing aides from 32 nursing homes in a Northeastern State were interviewed about a number of issues, including whether they had seen or committed a variety of actions in the course of patient care. Although it is not possible to calculate precise incidence or prevalence estimates from these data, they do give us a clearer indication than ever before of the frequency with which maltreatment of patients may occur.

The survey asked staff about whether they had ever seen a variety of actions that could be interpreted as maltreatment, and then whether they had done them. For the purposes of my discussion here, I have divided maltreatment into two types: physical and psychological(41).

A. PHYSICAL ABUSE OBSERVED BY STAFF

To determine rates of abuse in nursing homes, respondents were asked to report on actions they had observed other staff commit. As noted, they were then asked about actions that they personally had taken in response to conflicts with patients. The questions were preceded with the statement that "sometimes when conflicts occur with patients, the staff may find it difficult to respond in ways that they are theoretically supposed to." The actual items that were read to the respondents were all of a nature that clearly went beyond norms for generally acceptable staff behavior (the items appear in Table 1).

The most frequent type of physical abuse reported by staff was restraining a patient beyond what was needed to control the patient (Table 1). Just over one respondent in five (21 percent) had seen another staff member do this to a patient. Further, of those who did mention excessive restraint of patients, more than two-thirds said they saw it multiple times in the preceding year.

The second most frequent type of abuse was pushing, grabbing, shoving, or pinching a patient in anger. About one respondent in six (17 percent) mentioned having observed this kind of action, and

TABLE 1.—PHYSICAL ABUSE COMMITTED BY STAFF AS SEEN BY RESPONDENT

	Never (percent)	Once	2 to 10 times	10+ times	Sum (percent) yes
Restrain patient beyond what was needed	79	6	9	6	21
Push, grab, shove or pinch patient in anger	83	7	9	1	17
Threw something at patient	97	2	1	(*)	3
Slap or hit patient	88	6	6	(*)	12
Kick patient or hit patient w/fist	99	1	(*)	(*)	1
Hit patient w/object or try to hit w/object	99	1	(*)	(*)	1
Other physical abuse actions	99	1	(*)	(*)	1

Respondents seeing staff commit some kind of physical abuse—36 percent.

again, substantially more than half of those who saw these actions say it happened multiple times in the preceding year.

Finally, the third most frequent type of abuse reported about other staff was slapping or hitting a patient. About one respondent in eight mentioned (12 percent) this kind of abuse, with half of those who did mention the action saying it occurred multiple times.

Other abusive actions observed by staff, although committed much less frequently, were throwing something at a patient (reported by 3 percent of the respondents), kicking or hitting a patient with a fist (1 percent), and hitting a patient with an object or trying to do so (1 percent).

Thus, overall more than one-third of the respondents (36 percent) in our survey saw one or more physically abusive actions in the past year committed by a staff member.

B. PHYSICAL ABUSE COMMITTED BY RESPONDENT

Predictably, the proportion of respondents who admit to abusive actions is much smaller than those who said they saw others commit those actions (Table 2). Still, the rank order (in terms of frequency) of actions taken by respondents is the same as the rank order of actions observed by staff, although the overall reported frequency of respondent actions is much lower.

TABLE 2.—PHYSICAL ABUSE ADMITTED BY RESPONDENT

	Never (percent)	Once	2 to 10 times	10+ times	Sum (percent) yes
Restrain patient beyond what was needed	94	3	2	1	6
Push, grab, shove or pinch patient in anger	97	2	1	(*)	3
Threw something at patient	99	(*)	(*)	0	1
Slap or hit patient	97	2	1	(*)	3
Kick patient or hit patient w/fist	100	0	0	0	0
Hit patient w/object or try to hit w/object	99	(*)	(*)	0	1

Total respondents admitting some kind of physical abuse—10 percent.

Thus, excessive restraint of patients was the most frequently reported action, taken by 6 percent of the respondents. Pushing, grabbing, shoving or pinching patients, and hitting or slapping a patient, were each reported by 3 percent of the staff.

Finally, 1 percent reported throwing something at a patient, and 1 percent also mentioned hitting a patient with an object, or trying to do so.

No one reported having kicked a patient or hit a patient with a fist.

These figures combined indicate that about 1 respondent in 10 admitted to committing one or more physically abusive actions toward patients in the past year.

C. PSYCHOLOGICAL ABUSE SEEN BY STAFF

In this report, psychological abuse includes verbal aggression toward a patient as well as other actions which do not necessarily involve verbal conflict. Thus, isolating a patient beyond what the respondent felt was needed to control the patient, neglecting a patient's care needs, and denying a patient food or privileges as punishment were all included in the psychological abuse category (see Table 2 for components of psychological abuse). We recognize that there could be some debate as to whether the neglectful actions constitute psychological abuse. Because they certainly do cause psychological anguish for some patients, and because the data presentation is simplified by including them in a summary measure, we have chosen this route. In future analyses of the data, we intend to examine neglect separately.

The most frequent type of abuse was yelling at a patient in anger. We explicitly phrased the item to *exclude* yelling at a patient because the patient could not hear, or because yelling may have been an appropriate way to communicate for other reasons. But we do make the judgment that yelling *in anger* is a form of verbal/psychological abuse because (1) there are other, more effective ways to communicate with patients than angrily yelling at them, and (2) yelling in anger exhibited by staff, who are already in a position of power, is clearly an intimidating action toward patients.

Our survey shows that more than two respondents in three (70 percent) have witnessed staff members yelling at patients in anger (Table 3). Moreover, the vast majority saw that happen multiple times in the past year.

TABLE 3.—PSYCHOLOGICAL ABUSE COMMITTED BY STAFF AS SEEN BY RESPONDENT

	Never (percent)	Once	Times	Times	Percent yes
Isolate patient beyond what was needed	77	7	12	4	23
Insult or swear at patient	50	9	30	11	50
Yell at patient in anger	30	11	44	15	70
Deny patient food or privileges as punishment	87	2	8	3	13
Neglect patient's care needs	71	4	17	8	29
Threaten to hit or throw something at patient	85	5	9	1	15
Other psychological abuse	96	4	0	0	4

Respondents seeing staff commit some kind of psychological abuse—81 percent.

Just half of our respondents also saw staff members insult or swear at patients in the past year, and again, the vast majority of those who saw those actions reported seeing them multiple times.

The next two most frequently mentioned items were neglecting a patient's care needs (29 percent) and isolating a patient beyond what was needed to control the patient (23 percent).

Finally, a significant number of respondents also saw staff members threaten to hit or throw something at a patient (15 percent) and deny a patient food or privileges as part of punishment (13 percent).

Overall, then, more than four respondents in five (81 percent) report having seen staff members take some kind of action that can be classified as psychological abuse.

D. PSYCHOLOGICAL ABUSE BY RESPONDENT

The proportion of respondents who admitted to yelling at patients in anger is only about half of those who say they saw staff yell at patients in anger, but the number who admitted to this kind of action is still quite substantial. Fully one-third of the respondents said they yelled at a patient in anger in the past year, and over half of those said it occurred multiple times (Table 4).

TABLE 4.—PSYCHOLOGICAL ABUSE COMMITTED BY RESPONDENT

	Never (percent)	Once	Times	Times	Percent yes
Isolate patient beyond what was needed	98	1	1	4	2
Insult or swear at patient	91	4	5	1	9
Yell at patient in anger	67	15	17	1	33
Deny patient food or privileges as punishment	97	1	2	1	4
Neglect patient's care needs	95	1	2	1	4
Threaten to hit or throw something at patient	98	1	1	0	2

Total respondents mentioning some action—41 percent.

Almost 1 respondent in 10 (9 percent) also reported that they had insulted or sworn at a patient during the past year, and again more than half of those reporting the action said it happened multiple times.

Neglecting a patient's care needs (4 percent) and denying a patient food or privileges as punishment (4 percent) occurred in equal frequency.

Finally, isolating a patient beyond what was needed to control the patient was mentioned by 2 percent of the respondents, as was threatening to hit or throw something at a patient.

Overall, then, more than two respondents in five (41 percent) reported personally taking some kind of action that can be classified as psychological abuse.

E. SUMMARY OF RATES OF MALTREATMENT

When any type of abuse was reported, either about other staff or about the respondents themselves, it was usually not an isolated incident. In the vast majority of cases, it happened a number of times.

The rates of abuse reported about other staff were much higher than the self-reports. To some extent, such a difference in rates of abuse would be expected. Even if respondents are assumed have told the complete truth about actions taken by themselves and

staff, the rates of respondents' actions could be less than about staff in general because there are more other staff to report about. Some of the actions reported about staff by one respondent, for example, could be the same actions reported by another respondent, since we interviewed a number of respondents at each nursing home.

The difference between rates and respondent rates is so great, however, that another factor should be considered. To the extent that the figures in this study are not accurate, we would have to assume that they *under*estimate, rather than overestimate, the actual rates of abuse. The introduction to the section asking how often these actions had been taken clearly stated that the actions were not appropriate responses. The "social desirability" of the responses, therefore, favored nonreports of such actions.

This social desirability factor may also partially explain why the rates of observation of abuse by other staff are so *much* higher than those for respondents. Although 36 percent of the respondents reported seeing staff commit some type of physical abuse, less than a third of that number (10 percent) admitted to the same behavior. Similarly, while 81 percent of the respondents reported seeing staff commit some type of psychological abuse, just about half of that number (41 percent) admit to the same behavior. It may be more socially acceptable to admit *seeing* other staff members take these actions than it is to admit personally doing them.

Whatever the explanations for the differences between staff rates of abuse and self-reported rates of abuse, the latter rates are still quite substantial and provide important evidence that maltreatment exists in nursing homes.

Factors Associated With Patient Maltreatment

The findings presented here indicate that certain staff members are more likely to engage in inappropriate patient management practices than others. From our survey, we found staff members to be more likely to commit physically or psychologically abusive acts if they: (1) were considering quitting; (2) had primarily financial motives for working in nursing homes; (3) did not feel that others respect nursing home work; (4) reported symptoms of job burnout; (5) were experiencing a mixture of personal and job stress; (6) reported having too much or too little time; (7) had negative attitudes toward patients; (8) felt that physicians' visits are inadequate; (9) reported frequent arguments with patients; and (10) reported verbal and physical abuse from patients.

One cautionary point must be noted here: *Staff characteristics are not the only, and may not be the best, predictors of maltreatment.* Our survey focused on the characteristics of staff, but other types of predictors of abuse should be included in future studies. In a recent comprehensive review of possible factors that might lead to abuse in nursing homes, I identified three other sets of factors that could lead to maltreatment. These are:

> *Factors external to the facility, including* a shortage of nursing home beds in a given area, which may make it difficult for potential patients to select an abuse-free home; and a low un-

employment rate, which may hinder facilities in attracting well-qualified staff.

Characteristics of the nursing home.—Facilities at higher risk of maltreatment include those that have a high rate of staff turnover, that have fewer financial resources, that have lower staff-to-patient ratios, and that have a more custodial environment, among other factors.

Characteristics of patients.—Patients more likely to be abused may be more likely to be those who are more impaired, socially isolated, and female.

POLICY IMPLICATIONS AND RECOMMENDATIONS

In this section, I have presented important new data on the extent and nature of inappropriate patient management practices in nursing homes. Such figures on their own, however, do not tell the entire story. We must attempt to interpret them in some policy or ethical context. In this final section, the major implications of the study findings are discussed.

It is extremely important to place one qualification at the outset. *It must be emphasized that the vast majority of nursing home staff are deeply concerned with the welfare of their patients, and the state of nursing home care in general.* The findings described in this section indicate that nursing home staff are not usually willful perpetrators of abuse or neglect, but are most often the victims of difficult circumstances. What is needed is a commitment on the part of government, the nursing home industry, researchers, and others to the continued improvement of the nursing home as a place to work.

1. Funds should be made available to study the issue of the victimization of patients in nursing homes

With nearly every sensitive topic, from drug abuse, to wife beating, to homosexuality, doubts are raised about the possibility of conducting a survey on the subject. And yet, in every case, it has been found that people are surprisingly willing to discuss even the most controversial or difficult issue. The same has proven to be true here: We *can* ask questions about possible patient maltreatment of staff, and receive valid answers. Thus, one important finding of the survey described above is that this type of research can and should be done. It is possible to question staff about life in their institutions, and problems they encounter, and receive honest answers. Our study should certainly not be the last that attempts to survey staff on such issues; we hope it will be the first of many. The Administration on Aging and the National Institute on Aging should consider making additional studies of nursing home patient maltreatment a major priority.

2. Staffing shortages in nursing homes may be a factor in inadequate care

Many of the staff reported that their homes are understaffed, and that when they are short of staff, patient needs may go unmet. Changes in the reimbursement system that allow the hiring of additional aides and supervisory nurses is strongly recommended.

3. Staff screening and development are needed to protect patients against victimization

The data presented in this report indicate that individuals with certain characteristics may be more likely to act inappropriately towards patients. Nursing homes may wish to study these characteristics carefully, with an eye to staff screening and training programs.

4. Steps should be taken to reduce the serious stress that nursing homes staff are subject to

The survey revealed that in nursing homes, staff are placed in a situation of very high conflict, in which they risk verbal and physical assault from patients. The staff sometimes receive little training, and work under serious staff shortages. Further, the wages for nursing home work are generally low, the work is physically very taxing, and the prestige of the job is not high. In such a context, it might be more surprising if inappropriate patient management practices did not exist. Federal and State agencies must work with the nursing home industry to upgrade the quality of nursing home staff, and to reduce the stress and tension staff feel. Steps in this direction include better pay for staff, improved training and supervision, and public awareness campaigns regarding the contributions of nursing home workers.

5. Research on patient maltreatment in nursing homes strongly supports recent regulations proposed by the Health Care Financing Administration

In response to a report by the Institute of Medicine, the Health Care Financing Administration recently proposed new conditions of participation for Skilled Nursing Facilities and Intermediate Care Facilities (52 Federal Register, No. 200, Oct. 16, 1987, pp. 38582–38606). Several of these recommendations have strong potential to reduce patient maltreatment in nursing homes, including:

(a) The elevation of resident rights provisions to a condition of participation.

(b) The addition of a new condition of participation which requires that a facility ensure that residents receive care in a manner, and in an environment that maintains or enhances their quality of life.

(c) An increase in the number of hours a skilled nurse must be on duty in a facility.

(d) A requirement that facilities provide training for untrained nursing aides.

(e) A new standard that would require resident participation in policy and operational decision-making.

In addition to upgrading the overall quality of care in nursing homes, these regulations will help create facility environments in which victimization of patients is less likely to occur. Most nursing homes are, to be sure, already providing their patients with a relatively safe environment; the new regulations will help to further insure patient safety.

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CONGRESSIONAL RESPONSE

William F. Benson, Subcommittee on Housing and Consumer Interests, House Select Committee on Aging

I would like to begin by complimenting Sylvia Sherwood and her colleagues for producing this comprehensive paper on housing issues facing our Nation's elderly population. In general, their paper—"Housing Alternatives for an Aging Society"—is an excellent background piece on housing and the elderly; it would provide an ideal overview for anyone interested in this issue.

I believe that the best service that I can provide as a reactor to the paper prepared by Dr. Sherwood and her colleagues is to provide an overview of congressional actions related to specific aspects of housing policy raised in the paper.

CONGREGATE HOUSING

Dr. Sylvia Sherwood is certainly no stranger to Congressman Bonker and the Aging Committee's Subcommittee on Housing and Consumer Interests, which he chairs. A major concern of Mr. Bonker has been the Department of Housing and Urban Development's [HUD] congregate housing services program [CHSP], which has operated as a HUD demonstration program for the past decade. Sylvia and her colleague, John Morris, conducted a major evaluation of the CHSP for HUD. Mr. Bonker's subcommittee has held several hearings on the program, with the most recent being in July of this year. Dr. Morris testified for himself and Dr. Sherwood at our July hearing. The hearing successfully rebutted the continuing efforts of the Reagan administration to kill the CHSP and to say that the program's impact has not been significant. Sylvia has included congregate housing in her discussion of housing options in the housing alternatives paper.

Sylvia Sherwood, et al., speak of the importance of congregate housing. In this context, I would like to say a few words about the administration's attacks on the CHSP. In HUD's draft 1986 annual CHSP report to Congress, the administration concluded with these comments:

> The major recommendation of the report dealing with program targeting and tailoring among different buildings and populations are largely irrelevant in the long-term as the program should be shutdown. There is nothing gained by keeping these 61 grants alive when sufficient funds for institutional care of the supported individuals are available from other Federal, State, and local resources and the private sector.

As Dr. Sherwood knows, the evaluation from CHSP, and from other congregate housing demonstrations, shows that if services are carefully targeted to those most at risk, congregate housing can be cost-effective, prevent unnecessary institutionalization, and can provide significant deinstitutionalization benefits. Since the early

stages of the CHSP demonstration, HUD has tightened targeting to those with limitations in two activities of daily living [ADL's].

The CHSP demonstration did not adversely affect informal support as the administration had conjectured. It is very important to note that Sylvia's recent examination shows that informal support for those most at-risk of institutionalization diminishes over time, but if congregate services are provided, *informal support is actually enhanced.* In other words, the provision of services has not only *not supplanted assistance provided by family and friends, but seems to actually bolster such support.*

Housing Reauthorization

Congress is very close to passing a free-standing housing authorization bill. The House has accepted the conference agreement, and it now awaits final action by the Senate. A Presidential veto looms as a distinct possibility, however. If enacted, this would be the first free-standing housing reauthorization bill enacted during Reagan years. During this very dark period for housing, federally assisted housing budget authority has been cut by 70 percent.

Highlights of the conference agreement include:

12,000 units of 202 housing would be maintained;

The CHSP Program would become permanent and $10 million would be authorized for fiscal years 1988 and 1989;

A home equity conversion [HEC] demonstration would be authorized providing for 2,500 loans with significant lender and consumer protections; and

Provisions to temporarily address the very significant problem of the potential loss of hundreds of thousands of units of federally assisted low-income housing over the next two decades if proprietary project owners exercise their right to pre-pay their mortgages after 20 years of their 40-year mortgage period.

HUD Appropriations

Conference between the House and the Senate on the fiscal year 1988 HUD appropriations bill is stalled for now—there is a strong likelihood of fiscal year 1988 funding being provided through a continuing resolution. The decision is likely ot be based upon the pending "budget summit." The following are several key pending differences between the House and the Senate regarding appropriations:

—*Section 202.*—The House would provide approximately 11,000 units in fiscal year 1988 (it was 10,000 units—Mr. Bonker worked with Mr. Boland to add back nearly 1,000 units); the Senate would provide for approximately 12,000 units. Also, the House has a 25-percent "set-aside" of units for the handicapped—the housing authorization bill calls for 15 percent.

—*CHSP.*—The House is at $4.4 million (a Smith/Bonker amendment to increase the level to $10 million was unsuccessful); the Senate provides for $7 million.

Other Housing Issues

Just briefly, I would like to touch upon several other points based upon issues raised in the housing alternatives paper.

Sylvia mentioned CCRCs—the Federal Trade Commission [FTC] reauthorization bill has passed both the Senate and House (conferees have not yet been named). The House version contains a provision requiring the FCT to engage in a study of unfair and deceptive practices in the CCRC industry. This is especially important in light of the changing nature of this industry.

Board and Care.—We need to closely examine board and care for its viability as a housing and long-term care option.

Prepayment Issue.—I mentioned a few moments ago, the potential loss of units due to prepayments is staggering, as is the potential loss of units if rent subsidy contracts, such as section 8, are not renewed and/or extended. There isn't time to go into this issue here, but it is a critical one. Congressman Bonker is planning to conduct a hearing on this serious issue.

Census Issue.—Again, there isn't time to go into this issue but it should alarm housing analysts and advocates. The Office of Management and Budget [OMB] has forced significant housing-related changes in the questionnaries and the sample size to be used for the 1990 decennial census. The result will be a serious loss of data including our ability to analyze the harmful effects of the Reagan administration's housing cuts.

To conclude—as we look ahead—it is essential to note that a major effort to improve the Federal role in housing Americans is underway. Senator Cranston has launched a major national initiative to redefine Federal housing policy. Researchers, analysts, and advocates concerned about housing the elderly must play an active role in this process. We clearly need new innovation and new efforts at Federal/State/private partnerships. Thank you for this opportunity to respond to a thoughtful and well-written paper on the subject of housing and the elderly.

ELDER ABUSE

In addition to commenting on Sylvia Sherwood's paper on housing options, I have also been asked to make a few comments in response to Dr. Pillemer's paper concerning elder abuse. Unfortunately, the Congressional staff member who was to comment on Dr. Pillemer's paper today was unable to join us at this session. Therefore, I have been asked to pinch hit. I did have enough notice to quickly review the elder abuse paper so please bear with me as I offer a few thoughts on this topic.

First of all, I am pleased that Dr. Pillemer addresses the issue of abuse in both the institutional and noninstitutional settings. That is, the paper covers abuse that occurs within families—domestic violence—as well as abuse that occurs within nursing homes and other institutional or group living environments. Both aspects of the abuse issue need to be examined in any overall discussion of abuse of the elderly. Poor care and various forms of maltreatment of elderly residents of nursing homes and board and care facilities cannot be thought of as just a quality of care concern—too often, outright abuse is involved. I believe that his point that the elderly are vulnerable to abuse because of their "devalued social status" applies equally to the elderly who reside in various facilities and

those who are frail and vulnerable but live in a noninstitutional setting.

The second general observation that I would like to make is that I concur with Dr. Pillemer's viewpoint that "mandatory reporting laws are not an appropriate answer to the problem of elder abuse." For a number of years I was a supporter of mandatory reporting and, in fact, was involved in developing California's mandatory reporting law. I have changed my view on this issue for several reasons. Chief among them is the fact that while mandatory reporting is an important vehicle in dealing with child abuse, it is not appropriate to apply this approach to dealing with the elderly. An adult abuse reporting law would make more sense than limiting it to elderly adults only.

In addition, it seems somewhat pointless—and perhaps cruel—to require reporting without a corresponding commitment to provide appropriate services. It may be useful to look at California's law which has, or at least had 3 years ago, language saying that reports of abuse do not require the provision of services. This was a response to local agencies with responsibility for protective services who expressed concern that they could not handle the potential workload. Of all people, if APS workers do not want to be obligated to serve the victims of elder abuse, the potential good of reporting abuse seems quite limited.

As I did with the housing paper, it may be useful for me to provide a brief overview of current Congressional activities related to the topic of elder abuse.

The most significant development is pending language in the conference agreement on the Older Americans Act (OAA) reauthorization legislation which is scheduled to go to the House floor tomorrow. The conference report on the 1987 amendments to the OAA, which is expected to easily pass, includes a new Part G to Title III of the Act with $5 million authorized for fiscal year 1988. This provision would provide for grants to the States to "carry out a program with respect to the prevention of abuse, neglect, and exploitation of older individuals."

Without elaborating on particular provisions in the new elder abuse provisions, let me summarize a few key points. The new part would: (1) require that complaints and reports of abuse be referred to appropriate specified agencies ranging from law enforcement, protective services, ombudsman programs, and others as appropriate; (2) not permit "involuntary or coerced participation" by alleged victims, abusers, or their households; and (3) provide for confidential treatment of information gathered in receiving and referring complaints. Furthermore, the new part calls for referring older individuals, with their consent, to sources of assistance.

The OAA amendments also include extensive new provisions to strengthen the long-term care ombudsman program, which each State must have to investigate complaints made by or on behalf of long-term care facility residents. My boss, Congressman Don Bonker, who chairs our Subcommittee, sponsored the House ombudsman amendments. Senator Glenn introduced similar legislation in the Senate. The ombudsman provisions are too extensive to elaborate upon here, but such new requirements as immunity for ombudsman and prohibitions on retaliation against those who com-

plain or provide information to ombudsmen should strengthen the ability of ombudsmen to address abuse-related problems in nursing homes and other long-term care facilities.

While on the topic of institutional abuse, it is important to call attention to the pending comprehensive nursing home reform legislation that is expected to be a major part of this year's reconciliation bill. This extensive legislation is based upon the Institute of Medicine's nursing home quality report and reflects numerous findings of Congressional committees including the Senate and House Aging Committees. I am certain that David Schulke, Congress' resident staff expert on nursing home quality, discussed the nursing home reform packet earlier today. Among the numerous provisions in this packet, the legislation addresses the training of nurse aides, increases nurse staffing requirements, elevates the significance of residents' rights, prohibits discrimination against Medicaid patients, and requires each State to have a range of sanction authorities. Each one of these areas is significant in terms of the maltreatment of nursing home residents.

Certainly one of the most important points that Dr. Pillemer makes is that the availability of a "comprehensive, coordinated program of services to victims and their families" is the real answer to elder abuse. The 1987 OAA amendments provide some hope for improved—albeit limited—services, particularly the new part D which would provide in-home services through the aging network. The House version of the catastrophic care legislation contains an important new respite benefit for families of chronically ill beneficiaries. And, Claude Pepper's home care bill, which should go to the floor of the House in early 1988, would provide substantial help to chronically ill elderly, children, and disabled adults of all ages, and their families.

Our optimism over any of these legislative actions must be tempered, however, by the realities of our current budgetary situation. I don't need to elaborate upon this point. Our situation is grim. The anticipated so-called summit agreement on the budget will hopefully assure that we avoid a devastating Gramm/Rudman cut, but that does not offer much encouragement for expansion of most social services. Nonetheless, the catastrophic care legislation, Claude Pepper's home care bill, and, on a limited scale, the OAA amendments, offer some hope for clear movement toward the types of services that may be helpful in alleviating some of the strains that may lead to maltreatment or neglect, or at least help victims.

On a final note, we are very concerned about the potential for abuse that exists with respect to guardianships. We are working with the Center for Social Gerontology of Ann Arbor, MI, to develop model national standards for guardianship services and those who serve as guardians, on both a nonprofit and proprietary basis. To our knowledge, this is the first time that this has been attempted. In addition, Claude Pepper is expected to introduce legislation to address serious due process problems that were identified throughout the Nation in a recent expose on guardianships by the Associated Press.

PANEL IV: THE IMPACT OF SCIENCE AND TECHNOLOGY

MODERATOR: PAUL SCHLEGEL, HOUSE SELECT COMMITTEE ON AGING

PRESENTORS

THE ROLE OF SCIENCE IN AN AGING SOCIETY

Vincent J. Cristofalo, Ph.D.,
The Wistar Institute, University of Pennsylvania

RECENT ADVANCES AND FUTURE NEEDS AND DIRECTIONS IN BIOMEDICAL RESEARCH ON AGING

Edward J. Masoro, Ph.D.,
Department of Physiology, University of Texas Health Science Center

CONGRESSIONAL RESPONSE

Lesley M. Russell, House Committee on Energy and Commerce

THE ROLE OF SCIENCE IN AN AGING SOCIETY

Vincent J. Cristofalo, Ph.D.

My assignment is to speak about the role of science in an aging society. The title implies that my talk might address two things: (1) The needs and strategies for science to have an impact on an aging society (presumably to improve the quality of life of the elderly); and (2) The needs of science and society once science has had such an impact. My remarks will emphasize the first of these two, namely the needs and strategies for science to have a positive impact on the quality of life in an aging society.

The next speaker, my colleague, Dr. Masoro, will outline the current status of knowledge and research in aging. However, you will ask yourselves after his talk, if you haven't asked already, where are these much heralded scientific advances? Why have we not made significant advances in our understanding of aging? What kinds of strategies of research do we need to bring results that would have significant impact on the quality of life of the elderly?

Well, one obvious reason why these answers are lacking is that aging is an overwhelmingly complex problem. Second, the term "aging" means different things to different people. To many, aging is defined in terms of dying; the results of research are evaluated using death as the end point of aging. To others, aging is described in terms of functional capacity and environmental fitness. So what one can do is the basis for evaluation. How can strategies be developed for research when the researchers don't agree on the meaning of the problem? Third, even within each of these two groups the specific biological problem of aging is undefined. There is not enough fundamental information in this field to allow formulation of the basic hypothesis. Thus, over the years, much of science has flailed at the problem, with much hand waving about theories of aging without ever identifying the questions. We don't have answers because only recently have some, and only some, specific questions been identified.

The modern era of research on aging probably began in the 1950's. Since then two research approaches have been taken. The first identifies the diseases of aging either by their prevalence in the aged or by their compelling nature and directs talent and resources to the understanding and treatment of these diseases. The rationale for this approach is sound. Arthritis, Alzheimer's disease, atherosclerosis, cancer—these diseases all cause untold suffering. What more important goal does biomedical research have than the alleviation of human suffering. This certainly applies to the elderly.

The other general approach is to direct talent and resources toward the goal *understanding the mechanism of the process of aging.* This seems esoteric to some, and many, particularly the el-

derly, are impatient about the long term prospect for the payoffs. I would like, however, in my presentation to argue the merits of this second approach.

First, let me clarify one point. There is a clamoring from many sides for a program to address aging similar to the "Manhatten Project" or the "man on the moon project". It is appealing to call on our spectacular successes of the past as models for accomplishing special goals. Why not immerse ourselves in the same directed kind of effort?

The reason why not is that there is a fundamental error in that thinking. The development of the atomic bomb and placing a man on the moon were technical advances, not conceptual ones. The superb efforts of these programs were directed at such things as making better fuels for the rockets and finding ways to separate the isotopes used in the fission reaction. The fundamental chemistry and physics involved were well known to scientists for many decades and longer when these efforts were begun. To understand aging, as I mentioned earlier, we need to identify the fundamental conceptual hypotheses of this area of investigation. We do not have in gerontology information comparable to the periodic chart of the elements or Newton's laws. This is what's needed. The technical advances will follow that understanding.

Let me illustrate the point with a few examples from the literature of biomedical research.

If we agree that awarding of the Nobel prizes in physiology and medicine reflects research success in these fields with the findings ultimately having a significant impact on society, we see that most of those prizes were awarded for work directed at understanding basic mechanisms in biology, not for the study of disease. Thomas Morgan introduced us to the role of the chromosome in heredity by working with the fruit fly. He received the Nobel Prize in 1933.

In 1950 Reichsten and others received the Nobel prize for working out the chemical structure of the hormones of the adrenal cortex. Much of the therapeutic effectiveness of modern clinical endocrinology is based on these studies.

Beadle and Tatum, who received the Nobel prize on 1958, told us about the relationshhip between genes and enzymes setting the stage for a better understanding of inborn errors of metabolism. They worked with molds. Then in the 1960's and 1970's, the accomplishments of Watson, Crick, Luria, Baltimore, Nirenberg and others were recognized with the Nobel prize for their work on the genetic material and how its information is expressed. They studied such unlikely organisms as tobacco mosaic virus, bacterial viruses and bacteria, yet their studies have provided the basis for the biological revolution that has matured in this decade as molecular genetics and recombinant DNA technology and that holds untold potential for dealing with human disease.

Let me be a little more specific with my examples.

Many historians suggest that modern medicine had its beginnings in the 1930's with the advent of the sulfa drugs and later penicillin and other antibiotics. Lewis Thomas points out that, with the advent of antibiotics, for the first time doctors could really do something for sick people beyond providing comfort and encouragement for them and their families. But the studies on antibiotics did

not begin in the 1930's but 75–100 years before that, when scientists sorted out, piece by piece, this world of microorganisms.

Imagine the overwhelmingly complex problem these 19th century investigators faced. Here was this newly discovered universe of living things which no one could even see without the microscope. Some organisms, like viruses, could not be seen even with a microscope. Some looked like and could be variants of each other; some were quite different; some were known to be involved in the conversion of sugar to alcohol, in wine and beer; while others seemed in some way to be associated with illness. But it was the meticulous sorting out of these organisms, their metabolic requirements, growth characteristics and behavior that set the stage for the antibiotics of a much later time. Research on antibiotics would have made no sense had this work not been done. However, the investigators of this era had no clue and probably not even a dream that antibiotics lay just ahead.

Another more recent example is poliomyelitis, a disease that is now essentially gone from developed countries. In my own memory it was a summertime scourge and every neighborhood had at least a few polio victims each summer. The vaccines against polio were truly sensational accomplishments. Prior to the development of these vaccines much research was focused on the technology and engineering of what were called iron lungs, machines to help patients with failing strength to breathe. However, in Boston and elsewhere some scientists were preoccupied with growing the cells of various animals in culture, outside the body, and then trying to grow viruses in those cells. Experiments were focused on monkey cells and I'm sure the question was raised as it always is—how do we know that monkey cells have anything to do with humans and worse—how do we know that what we see in culture is relevant to people. In 1954 Enders, Weller and Robbins were awarded the Nobel prize for showing that the virus of polio could be grown in animal cells in culture, thus providing the basis for the polio vaccine. What's more, this work set the stage for the growth of human cells in culture and the development of another generation of vaccines against many of the other viral diseases of children. I might add that this work is really part of the foundation of later work, which Dr. Masoro will mention, which opened a whole new approach to the biology of aging in cell culture.

Finally, I would like to mention AIDS to illustrate the most recent example of the power and importance of basic research.

AIDS has come upon us much in the way that the plagues of the Middle Ages descended on Eurpoe. No one had any notion that it was coming. No virologists or immunologists of the 1950's, 1960's or 1970's anticipated such a frightening and implicable disease. Yet, for what may be the first time in human history, civilization was prepared for this plague. The conceptual framework to understand the disease was in place; techniques for learning more about the virus and its interaction with the body were all in place. Scientists well trained in the appropriate fundamental scientific areas—virology, immunology, cell biology and so forth were available to bring to bear the full armamentarium of the biological sciences on this frightening disease. All of this is possible because of the investment in basic biological research made in the recent preceding two or

three decades by the National Institutes of Health and especially by the National Cancer Institute. It's true that the sums of money spent in cancer research over the last 25 years have not given us a universal cure for cancer. However, the investment in the future that science policy made by supporting basic research has given us the knowledge to deal with cancer in general and with the AIDS problem in an intelligent and systematic way. We have placed ourselves in the best position possible to ultimately eradicate this and other cancers.

I have always seen a parallel between the evolution of aging research and the evolution of cancer research, with cancer research running about 25 years ahead of aging. When I was a new postdoctoral trainee in cancer biochemistry 25 years ago, the arguments over approaches to cancer research—basic research versus research on treatment of the disease—were quite prominent; much as this same argument exists today about aging research—disease or mechanism. Science policy makers then made an impressive investment in the future in interpreting the goals of research on cancer to include and perhaps be dominated by research at the most fundamental levels. It is in part at least because of that decision and similar ones in other areas of biology, that we have the knowledge in biology and really the explosion in biotechnology with its far reaching implications that we have today.

Policy makers dealing with the question of aging research can learn much from this piece of history. Those who formulated the objectives of the National Institute of Aging when it was established seemed to see clearly the important role of basic research. In 1977, shortly after the establishment of the National Institute of Aging, the research objectives of the new Institute were published in a document entitled "Our Future Selves". I will quote briefly from that document:

> The approach of investigators in the field of aging is unique: the emphasis is not so much on specific diseases per se, but on the genetically controlled, time dependent mechanisms that result in progressive changes in structure and function of the body, changes that are likely to set the stage for disease.

I must say, parenthetically, that over the last 10 years that statement has been considerably broadened and weakened and age-associated diseases have been specifically targeted for research. I have serious reservations about whether this has been for the best.

I think I understand the reason for it, however. When developing a science policy which is dependent for its support on individuals who are, by and large, trained in areas other than the natural sciences, the temptation is great to make the most compelling case by targeting what we can see right now—the diseases of aging and hopefully their alleviation.

On the other hand, it is completely predictable that this approach is palliative at best and in the long run unsatisfactory. After all, how many bypass operations can be done? How many Meals on Wheels served? How many treatments for arthritis developed? How many treatments for dementia? As the aging population increases and infirmity increases, the potential economic and social burden becomes overwhelming. What's more, by definition, this approach addresses the problem after the damage has been done. An effective solution must deal with the basis for the problem and pre-

vent the damage. No one knows in which direction the key to the problem lies. We must rely on the imagination and serendipity of scientists to pursue ideas, some of which will be right on target. Just as the 19th century microbiologists, we don't really know what lies ahead, but the answers are certainly ahead, and effective policy requires that the work required to get there be nurtured. The problem of aging must be understood at the level of its mechanisms before effective strategies can be developed to deal with our aging society.

At the Wistar Institute, a biomedical research institute where my laboratories are located, they recently ran a contest for the best slogan for the postage meter to stamp on the envelopes that go out of Wistar. It happens that Jennifer McIlhenny, a young technician in my lab, won the contest with the slogan "Let's get back to basics—support basic research". I'll leave you with that thought.

RECENT ADVANCES AND FUTURE NEEDS AND DIRECTIONS IN BIOMEDICAL RESEARCH ON AGING

Edward J. Masoro, Ph.D.

During the past few years, significant advances have been made in the subject of biomedical gerontology. These advances permit reasonable projections to be made in regard to future directions and needs of this research area. The following is a brief overview of recent findings and future directions and needs.

Genetics.—It is generally accepted that genetics play a major role in the aging process(1). Much recent work has focused on human genetic diseases that have features that resemble premature aging. Research on the roundworm *C. Elegans* identified the genetics of lifespan extension and the relation of other characteristics to this(2). Changes in gene expression in mammalian systems with aging have begun to be explored and are the subject of much current research(3). Finally, attempts have been made at identifying the locations of genetic defects in the chromosomes associated with specific age-associated diseases such as Alzheimer's disease but the findings must be considered to be initial attempts which require much more work to be solidified(4–9).

It is reasonable to project that the use of the rapidly developing technologies of molecular biology will make research on genetics of aging a future major aspect of experimental gerontology and that great progress will be made. It is to be expected that the genes involved in the aging processes will be identified. The importance of regulatory genes in aging will be established and the modifications in gene structure that occurs during aging delineated. Finally, it is possible that modifications of the genetic system can be accomplished that will retard or reverse deleterious suspects of aging.

Free Radical Theory.—The free radical theory of aging was first proposed in 1954 by Denham Harman. Free radicals have long been known to be generated by ionizing radiation and a variety of other non-enzymatic and enzymatic reactions(10). More recently it has become clear that oxygen free radicals are generated during the consumption of oxygen by the mitochondria of the cells(11). Free radicals can cause a spectrum of cellular damage including oxidative alterations of long-lived molecules (e.g., DNA, collagen), oxidative degradation of mucopolysaccharides, generation of lipofuscin, alterations in biological membranes. However, cells have many defense mechanisms protecting them from free radical damage (e.g., antioxidants such as tocopherols and carotenes and protective enzymes such as peroxidases and superoxide dismutases). The cell is also able to repair damaged molecules and cellular structures. Research is now addressing the question of the rate of generation of free radicals and the level of protective mechanism

in relation to age and to the life span differences between species as well as in regard to the nutritional modulation of aging.

Although much data are consistent with the free radical theory of aging, studies designed to test the causal relationship between free radicals and the aging process have yet to be done. It is to be expected that a major future effort in experimental gerontology will be aimed at designing and executing studies that will test the possible causal role that free radicals play in the aging process.

In Vitro Cellular Senescence.—Hayflick and Moorehead(12) reported that human fibroblast-like cells in culture have a limited period of an active proliferation. Subsequent work showed that this limited replicative life span was due to the number of cell divisions that have occurred and not to the amount of calendar time in culture. It has been found that this limited cell division potential is true of other cell types in addition to fibroblast-like cells and probably is an intrinsic property of mammalian cells. It has been suggested that this type of in vitro system may be an appropriate model for the investigation of aging processes at the cellular level. In recent years much data on the properties of the cell culture model have been collected. However, the relationship of the senescence of cells in culture to aging of the animal in vivo remains to be defined. Indeed, the aging of the intact animal may be the result of homeostatic deterioration due to errors in cell to cell interactions which are the result of subtle rather than major alterations in cellular function.

Nevertheless, cell culture systems are attractive because they provide ease of experimental manipulations, the ability to rapidly explore specific questions, and potentially a way of circumventing the need for animal models. For these reasons, it is to be expected that much future effort will be aimed at determining the usefulness of this model system for the study of aging and its limitations in regard to applicability to the aging of the intact animal.

Food Restriction.—Only one manipulation has been found to reproducibly extend the maximum life span of a mammalian species and that manipulation is food restriction in rodents(13). In addition to increasing life span and life expectancy, food restriction retards most, but not all, age-related physiological changes as well as most age-related disease processes. It is not feasible to directly determine if food restriction in humans would have a similar action. Nevertheless, research on food restriction in rodents is of importance to humans because of the likelihood that uncovering the mechanisms by which food restriction retards the aging processes in rodents will provide a basic understanding of the primary aging processes and a data base of value for the development of effective interventions of human aging. Currently, much ongoing research is aimed at understanding the mechanisms by which food restriction influences the aging processes.

Much future research will also focus on the mechanisms underlying the actions of food restriction. In addition, other approaches to life span extension will be sought. In part, the reason for doing so is the desire of people for immortality or at least a long, healthy life. In addition, there are compelling scientific reasons for exploring life span extension in animal models. Life span extension manipulations provide powerful approaches to the study of the aging

processes and the use of several such manipulations may be the only way to validate biomarkers of aging.

Biomarkers of Aging.—A biomarker of aging is a biological event or measurement that can estimate or predict one or more of the aging processes. Current interest in biomarkers of aging relates to their potential role for guiding research on aging, assessing the effects of pharmacologic and environmental agents on aging and assessing the physiologic age of an individual in regard to the ability to do specific jobs (e.g., functioning as a airline pilot, a construction worker, etc.) At this time, there are no agreed upon biomarkers of aging.

Part of the confusion about biomarkers of aging is that this general term refers to different uses which can be classified as follows: (a) estimation of chronologic age; (b) estimation of biologic age; (c) prediction of the occurrence of an age-associated disease; (d) prediction of the impending death of an individual; and (e) prediction of the life span of a species and the influence of a manipulation on life span.

Amino acid racemization in structural proteins sequestered from metabolic turnover has been found to be a good marker of chronologic age(14). Such a biomarker is needed when knowledge of the age of an animal or person is desired for whom the birth date is not known.

Biomarkers of biological age would clearly be of great value to researchers in biogerontology and to decision makers considering such issues as retirement age. It is still not clear that there is such a thing as biological age distinct from chronologic age, and if so, whether biologic age can be assessed(15). Different systems in the same individual can age independently (e.g. the occurrence of grayness of the hair does not correlate with the development of deafness) and the rate of aging of an individual is not constant during sequential intervals of the life span. Both cause interpretational problems. Since estimating biological age on the basis of a single process is hazardous, many investigators examined several systems simultaneously. They assess the resulting data set by multiple regression analysis or by "profile" analysis. Unfortunately, such analyses have not been found to provide better information about biological age than does chronologic age.

Biomarkers that predict the occurrence of age-associated diseases are referred to as risk factors for that disease. For instance, arterial blood pressure is a risk factor for stroke(16) and the serum low density lipoprotein cholesterol: high density lipoprotein cholesterol ratio is a risk factor for coronary heart disease(17). Since the relationship of age-associated disease to the aging process has not been defined, the relationship of these risk factors to the aging processes is conjectural.

Predictors of impending death have been viewed as potential biomarkers of aging. Impairment of pulmonary function is an example because it is a predictor of cardiovascular disease and cancer(18). Since a predictor of such diseases may not relate to the aging processes, and since mortality data may also provide little information about aging, these predictors of mortality cannot necessarily be viewed as biomarkers of aging.

The life span of a species has the potential of being a valid biomarker of aging. Moreover, a manipulation which increases the life span of a species probably does so by retarding the aging processes. Clearly, physiological events influenced by such manipulations might well be valid markers of the aging processes. Unfortunately, as of now, only food restriction has been shown to increase the life span of a mammalian species. Whether a physiologic process influenced by food restriction is a biomarker of the aging processes or relates to another action of food restriction cannot be defined from food restriction studies alone. To do so will require the extension of the life span of a mammalian species by several manipulations. If a particular physiological process is influenced in the same manner by each of these manipulations, it is highly likely that the particular physiological process is a valid biomarker of aging. To develop such manipulations is a major challenge for future research.

It is clear that valid biomarkers of aging in animal models and human subjects are sorely needed if rapid progress in biogerontology is to occur. It is also clear that at this time no such markers have been validated and to do so is most difficult to accomplish. However, so important are valid biomarkers that it is to be expected that much future effort will be made towards developing approaches for the validating biomarkers of aging.

Testable Hypotheses.—To develop any area of biology requires hypotheses that can be tested experimentally. Many of the theories of aging were developed with little concern about the experimental testing of their validity. For example, the Free Radical Theory of Aging has much data consistent with it but what is currently needed are experimental designs which test the causal relationship of free radicals to the aging processes. In a similar vein, immune deficiencies and autoimmunity occur with aging and have given rise to the Immune Theory of Aging. At this stage of our development it is not clear if these immune changes are the result of the primary aging processes or are causally involved in aging(19). Major needs of biological gerontology are the development of theories of aging that can be experimentally tested and experimental designs which enable existing theories to be tested.

Animal Models.—Rats and mice are currently the most important models for the study of aging and they are likely to continue to be in the immediate future because of their short life spans. There is a need to further develop animal models for specific areas of research. A critical issue faced by the scientific community is the threat to use of animals models posed by the "animal rights groups" and related organizations. The response of government agencies and university administrators to the animal rights movement often results in unnecessary harassment of investigators rather thn constructive responses. Humane treatment of animal models is a must and those used for aging research require uniquely excellent care. In the case of rodent models, they must be protected from exposure to pathogenic organisms, must be provided a constant, defined environment including ambient temperature, the rate of turnover of air, ambient humidity, and must be fed defined diets with optimal levels of specific nutrients. Indeed, every effort must be made to eliminate environmental hazards if successful research is to be accomplished. Unfortunately, "animal rights

groups" appear to be more interested in eliminating the use of animal models than the careful and successful execution of the research. In responding to such a view, it is important to stress that the use of animal models for aging research is absolutely necessary to gain a basic understanding of the aging processes. Moreover, such knowledge is essential for the development of beneficial interventions of aging processes. Such interventions are required to meet the demographic challenge of the twenty-first century. It is important for university administrators and those of government agencies and for federal and state legislators to recognize that it is not sufficient to provide the financial resources for biomedical studies of aging but that rules and laws must promote and not hinder the use of animal models. It is often claimed that mathematical models and computer technology can replace animal models in learning about aging processes. Such a view must be clearly recognized as not being valid. By this it is not meant to deny the important role of mathematical models and computer technology in biogerontology but rather to make clear that these technologies do not replace animal models but rather greatly aid in the development of experimental designs for the use of these models and in the analysis of the data generated from such studies.

The Study of Human Aging.—Most of us have human aging as a primary interest. The human subject has proven to be difficult to use for aging studies because of problems encountered in executing longitudinal studies in such a long lived species and because of the difficulty in obtaining valid data on the life long environment of the subjects. Approaches to circumvent these problems must be developed. Emerging approaches warrant a brief discussion.

The issue of disease, often not considered in early studies of human age-associated physiological or behavioral change, is addressed in most recent work. The Baltimore Longitudinal Study of Aging has focused on what is called normative aging in which the subjects are screened to assure that discernable disease is absent. There are problems with such an approach, however. First, a relatively small fraction of the total population meet these criteria. Second, the assumption is made that age-associated diseases have nothing to do with normal aging processes and this may not be so. Some of these longitudinal studies of "normal" subjects in the Baltimore Longitudinal Study of Aging have yielded surprising results. For example, earlier cross-sectional studies have clearly shown that glomerular filtration rate falls with age(20). In the longitudinal study(21) the subjects ranged in age from 30 to 90 years and their glomerular filtration rates were measured over long periods of time (up to 24 years). About two-thirds of these subjects showed an age-associated fall in glomerular filtration rate similar to that reported in previous cross-sectional studies. However, one-third of the subjects did not show a decrease in glomerular filtration rate with age. This shows that a physiological deterioration that was felt to be an inevitable consequence of aging does not necessarily occur.

This general issue was recently addressed in a paper by Rowe and Kahn(22) in which it is pointed out that aging research has focused on the mean level of physiological and behavioral parameters of various age groups. In the absence of disease the conclusion drawn is that the change in the mean levels indicates a loss of

function due to the aging processes. Rowe and Kahn note that there is substantial heterogeneity within age groups and a significant number at advanced ages do not exhibit the loss in function. They suggest that the subjects in the normal aging population (i.e., people free of disease) should be classified in two categories: one is the "usual" aging group which shows functional loss and the other is the "successful" aging group which does not show such a loss. They suggest that the losses in function in the "usual" aging group may not relate to the aging processes per se but may be secondary to diet, exercise, personal habit and psychosocial factors. If so, functionals losses due to aging processes per se have generally been overstated. If this view is correct, there is great promise that the functional loss found in many of the elderly can be circumvented. So important both theoretically and practically is this postulate that it should be the subject of much research effort.

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CONGRESSIONAL RESPONSE

Lesley M. Russell, House Committee on Energy and Commerce

The papers we have heard today have presented an excellent case for the increasing need for research that will lead to an understanding of the processes of aging and enable the elderly to live healthy and productive lives.

Recent developments in the biomedical sciences offer exciting possibilities for dramatic science breakthroughs. The ability of scientists to answer the questions that beset the health of mankind has been extended manifold by the new biotechnologies. Not only do these new techniques contribute to our understanding of the fundamental mechanisms of life, but they offer exciting possibilities for new therapies—drugs, vaccines, hormones and immunomodulators.

Some speakers today have talked about specifically-targeted research, directed at solving certain problems. However, I would like to present the case that those interested in aging research should work not for more funding in a few areas specific to the problems of aging, but rather for increased Federal funding for a wide range of basic biomedical research. The "tribkle down" theory has not worked particularly well in economics, but it works wonderfully in science. Benefits can always be guaranteed to flow from high quality research.

Thus, research in immunology will aid the understanding of AIDS infection, lead to the prevention of cancers, and also help to develop effective treatments for arthritis. The current program to sequence and map the human genome will lead to an elucidation of the genetic factors which determine the development of schizophrenia, Huntington's chorea, and Alzheimer's disease. Studies in endocrinologym will help in understanding diabetes, infertility and the mechanisms of aging.

The jewel in the crown of U.S. biomedical research is the National Institutes of Health. Former Presidential science advisor Dr. Frank Press has said that NIH research drives the world's biomedical research. Despite this, and despite the incredible contributions to health that have come from NIH-funded research, nevertheless in recent times the NIH has found itself beseiged.

The Reagan Administration has every year sought to undercut and undermine the NIH research budget. But each year Congress had fought to add back the lost dollars and research grants. There have been other, more subtle attempts to strifle the progress of NIH-funded research. Until recently, research on AIDS was very underfunded, and drew money away from other research areas. Research facilities around the Nation—the buildings and laboratories and the equipment—are in need of upgrading and modernization. An increasing problem for biomedical research is the rising power

of the animal rights lobby. They threaten to bring to a halt research in some areas.

At times such as these, what is needed to ensure the continued appropriate support of biomedical research is better communication between the scientists and the public and the policy makers. Such communication can be facilitated by organizations such as the Gerontological Society. They can be important advocates for biomedical research, and present the arguments in layman's language. A thoughtful and wide-ranging approach will also guard against syndromes such as the "Disease of the Month" which is seen all too often in Congress. Under these circumstances a particular disease captures attention, and research funds, for a brief period. Such vagaries of support are not conducive to quality research.

Our current understanding of the changes in functions that aging brings have led to the realization that there are some areas of research where increased efforts are needed for the benefit of the elderly. Too little attention has been given to the mental health of the elderly—depression is often assumed to be "normal," and senile dementia has been used as an explanation of erratic or inappropriate behaviors. There is a growing recognition that many problems of the elderly, both physical and mental, are due to the inappropriate use of drugs. An excellent case can be made not only for an increased awareness of the problems that can arise from an incorrect dosage or multiple drug combinations, but also for a study of pharmacodynamics in the elderly as a separate group. And it is certainly true, that as the population of the United States ages, and as we recognize the special needs of the elderly, we will need a cadre of scientists and health care workers trained in the gerontological specialties.

The basis of a long and healthy life span is found in the continued availability of a dynamic and responsive health care system, based on the most up-to-date knowledge, and reaching from before birth to old age. Similarly, the scientific foundations upon which such a system rests must be based on a first-class, well-funded, peer-reviewed research system, where scientists are encouraged to push back the frontiers of knowledge, and where interesting laboratory ideas can be transformed into beneficial products and treatments.

CLOSING SESSION

THE DEMOGRAPHIC IMPERATIVE: A POLICY PERSPECTIVE

Beth J. Soldo, Ph.D., Department of Demography, Georgetown University

Distinguished members of the House Select Committee on Aging, the Senate Special Committee on Aging, and the House Subcommittee on Health and Long-Term Care.

The rapid increase in the number of elderly will pose unprecedented challenges to domestic policy over the next half century. This challenge will require that Congress balance the multiple needs of the elderly against societal resources over an extended period of time. The current negotiations to reduce the Federal deficit make this point painfully obvious. The House and Senate committees involved in this Forum are to be especially commended for their thoughtful, integrated consideration of these unwieldy issues in an environment of creative budget cutting.

As members of committees concerned with aging and long-term care, you are undoubtedly aware of the major *quantitative* features of population aging: rapid, but uneven, increases in the number of Americans aged 65 and over; dramatic growth of the extreme elderly such that by the year 2000 those 80 and over are projected to be the *largest* single entitlement group in the United States;(1) and the predominance of women (mostly widowed) in the older age groups. Other speakers this afternoon have alluded to additional and important demographic features of an aging society.

My comments, however, are directed to the more qualitative aspects of this demographic trend. My basic message is that: the demographic imperative of increasing numbers of elderly may motivate much of our policy concerns, but sheer numbers can neither drive nor reliable of guide policy deliberations. This is because the changing needs and service demands of older cohorts do not follow directly from increases in the sheer number of elderly or even in the number of extreme aged. A projected 150 percent increase in the number aged 85 and over, for example, does not necessarily imply a comparable increase in the number of frail elderly or in the rates of hospital or nursing home use.

There are at least two reasons why simple interpolation logic fails us in anticipating the needs and service equirements of older populations. First, the actions of Congress directly shape the mix and distribution of needs among our elderly. Consider, for example, the health care requirements of the aged. Changes in the health status of the elderly are caused by and, in turn, cause major shifts in the age structures of the U.S. population as a whole and in the needs profile of future cohorts of older persons. Because the health needs of the elderly are due to disease processes, the health care

requirements of a population will respond to the amount of resources allocated to disease prevention, treatment, and palliation. Ultimately, the resource allocation decisions of Congress will influence the future course of old age mortality, life expectancy, and morbidity.

Second, policy makers cannot be hostages of the demographic imperative because of the heterogeneity that is innate to the human aging process. By *heterogeneity* I mean diversity in age-related statuses and risks which result in a changing distribution of needs by age. In other words, differences *within* the older population may be more important for a broad range of issues, including those of resource allocation and targeting, than contrasts between the elderly and other broadly defined age groups.

On the simplest level, heterogeneity means that it is misleading to base policies on averages that pertain to those "65+." Averages, including the often quoted reduced poverty rate of about 12 percent, mask important differences within the older population with respect to race, geographic location, living arrangements, and, of course, age. Poverty is still concentrated among the very old, blacks and Hispanics, women, and those who live in rural areas. The combined effects of these differentials are staggering, making very old, non-white, rural women the poorest of all. Thus capping or eliminating the Social Security COLA's would create a disproportionate burden on select subgroups even though the overall average poverty rate may creep up only slightly. From a policy perspective this means looking at the distribution as well as the average and asking if we are willing to tolerate the extremes.

Heterogeneity also means that changes in the age structure of the population alone provide at best only broad guidelines for anticipating the needs of the elderly in the 1990's and into the next century. Consider, for example, efforts to project the health care needs of the future elderly.

As we heard earlier today, old people make use of extensive health care services because they are sick, *not* because they are old. Even among the very oldest segments there are significant subgroups who are physically and cognitively intact. Recent research indicates furthermore that differences in mental and physical capacity at older ages are due to the effects over time of underlying factors such as race, education, and socio-economic status associated with health and survival(2, 3). "Heterogeneity" means that we must consider predisposing risk factors among both today's and tomorrow's elderly. There are scientific reasons to believe that there will be more, not less, diversity in the aging process in the future. These differences in risks and in the rates of transition from a "well" state to a "disabled" state will map onto service requirements in ways that may not be obvious.

As a concrete example of this consider the inter-dependence among the processes of morbidity, disability, and mortality. As many of you are aware we are in a historically unique period in which we are seeing major and largely unanticipated changes in the incidence of disease (e.g., stroke and cancer) as well as increases in survival at the later ages.

But the exact linkages among morbidity, disability and mortality processes are not straightforward, in part, because of heterogeneity

in risks and predisposing factors. If we are reasonably anticipate increases in life expectancy (which I and most demographers/epidemiologists believe we can) then we should see declines in rates of disability by age if the three processes are related in some fashion. The importance of this is demonstrated in Figure 1. The Baseline, or worst case, projection assumes no change in age-specific disability even as the number aged 85 and over increases, i.e., we assume projected increases, i.e., we assume projected increases in life expectancy are *not* associated with improvements in disability rates. In contrast the alternative, or best case, projections were prepared assuming a decline in disability proportional to projected mortality rate declines utilized in the Social Security Administration projections. In the alternative projections there are still real increases in the number of very disabled elderly (those with limitations in five or six of the Activities of Daily Living—ADL) but relative to the baseline series there are large declines in the numbers of persons expected to be disabled. There would be, for example, a 23 percent reduction for females aged 85+ in 2000 and a 34 percent reduction for comparably aged women in 2040. All told, there would be 1.4 million fewer disabled elderly, 85+, under the alternative scenario. Most likely there will be some improvement in health at advanced ages but not a perfect correlation as implied by the alternative. These projections indicate a probable upper and lower bound on the likely numbers of very old, disabled elderly, and hence bounds on the total volume of demand for long-term care services in the community.

It is important to remember that *disease processes and risks operate at the individual level; the policy impact, however, is played out at the aggregate level.* It is probable that, in the future, trends at the two levels will paradoxically move in opposite directions. The recent drop in mortality risks for diabetes, for example, has resulted in a 24 percent increase in disease prevalence(4) and possibly, a greater prevalence in peripheral circulatory disease(5).

The cure or elimination of specific chronic degenerative diseases would have untold benefits for individuals; the success of such efforts, however, may stimulate an increased demand for health care services. This is because individuals spared from one disease are at risk for other life threatening conditions, and possibly have even an elevated risk of other diseases. Thus, over time, the subgroup of intact elderly may shrink in relative size as the lives of more frail individuals are spared until the eighth or ninth decade of life. Thus we can anticipate greater heterogeneity in health states within future populations as we curb the natural selection process that used to cull out the most vulnerable at earlier ages.

What changes in the demand for health care services can we reasonably anticipate if we take into account increasing heterogeneity as well as increases in sheer numbers? At least four: (1) upward shifts in the age structure of morbidity and disability as age at onset increases and rate of disease progression is better managed; (2) some increase in disease/disability prevalence as technology and better disease management (e.g., the implanted insulin pump) allow affected individuals to live longer; (3) potential increases in rates of those diseases having long latency periods, e.g., the cancers and some forms of cerebrovascular disease, since as life expectancy

increases there will be added time for disease progression and, ultimately symptom manifestation; and (4) continued concentration of health care expenditures in the last 12–24 months of life even as the average age at death increases. The net effects of these changes may be to increase the number of person-years lived in a disabled state and long-run exposure of federally sponsored health programs.

Changes in the health care needs of a population have an obvious, but not necessarily direct, effect on the volume of health care services produced and consumed in a society. If, for example, we assume that rates of disability will decline proportional to mortality reductions, the required per annum rate of nursing home bed construction may drop from 2.2 percent to 1.4 percent—or by about one-third from 1980 to 2040. But this simple projection assumes no changes in the organization and financing of health care services for the elderly. It is exactly in these areas—the organization, structuring, and financing of the health care system—that the effects of population aging will pose the greatest challenge for policy makers.

Finally it is important to take note of the other demographic trends that define the context of population aging. The demand for long-term care services will peak as the size of the labor force dwindles relative to the size of the older dependent population. Workers of the future will have more employment opportunities and are unlikely to be attracted to service-types of jobs unless pay scales and prestige are revised upwards. At the same time, other demographic trends (e.g., reduced fertility, continued sex differentials in life expectancy, and increasing rates of divorce) may inhibit the availability of family members for caregiving. Postponement of disability until the extremes of old age also will mean that adult children will confront parental care problems as they themselves are retiring and living off reduced and/or fixed incomes. In sum, issues of recruiting and retaining sufficient health care workers may be a sizeable problem as the health care system adapts to changes in the volume, type, and mix of service demand.

Thank you for the opportunity to address the complex questions related to the demographic imperatives of an aging population. I will be happy to answer questions from members of the committees.

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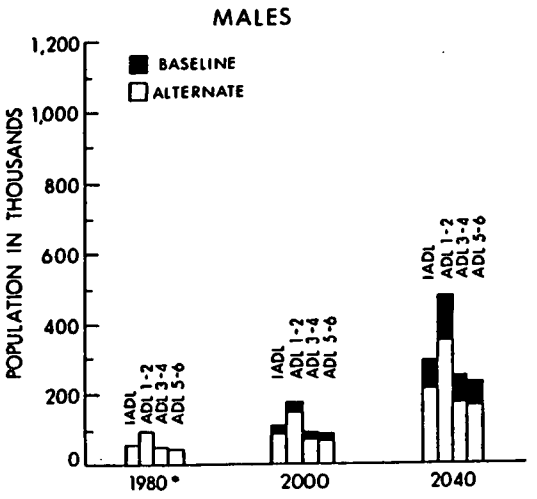
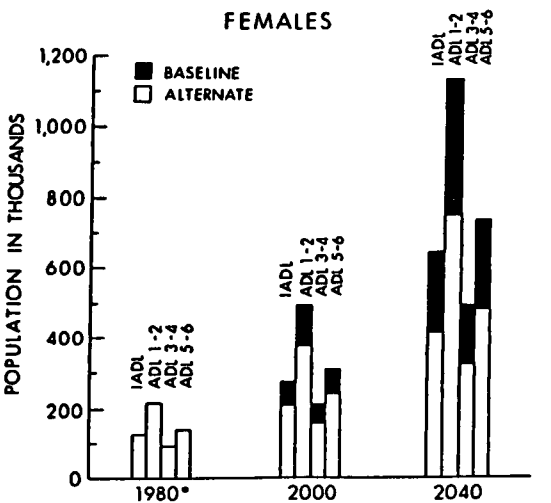
FIGURE 1
Baseline and Alternative Projections of Disability in the Activities of Daily Living (ADL), for Males and Females Aged 85 and older, 1980, 2000, and 2040



*Baseline and alternate figures for 1980 are the same.



*Baseline and alternate figures for 1980 are the same.

Source: Data from the 1982 National Long-Term Care Survey Reprinted from K.G. Manton and B.J. Soldo. 1985. Dynamics of health changes in the oldest-old: New perspectives and evidence. Milbank Memorial Fund Quarterly, 63(2): 206-285.

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