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*Featuring:*

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We are entering a new age: a world of longer lives. We have done the unimaginable: added 30 years to human life expectancy in the developed world, and now in the developing world they are accomplishing, in a mere 40 years, what it took 100 years to do in the West and Japan. And we have done it through human investment. Growth in life expectancy is transforming the world. It's silent yet dramatic, and we need to embrace it much more strategically than we have so far.

No road map longer lives change our goals for global health, and change the societal institutions we need to invest in to create the full benefits and opportunities of these longer lives. We have never lived this stage of human history before – and yet science and experience in a number of countries can lay the basis for the way forward. However, we will need the openness to look at the evidence, to innovate optimistically, and invest prospectively, so as to bring benefit to both old and young and to design to strengthen mutual benefit and cohesion across age groups. The goal must be to create the wins for all ages out of these longer lives.

Today, I would like to think with you about the opportunities of this new world of longer lives, and what it will take to realize them. This will require prospective planning and policies that build from knowledge and evidence. It also requires that we seize the right moments to create the institutions and approaches we need for a new reality. Long lives are a game changer.

So let's start with the data: Since 1950, global life expectancy has increased from 47 years to almost 70. For Americans, and in most parts of the developed world, it has grown by nearly 30 years between 1900 and 2000, with U.S. life expectancy at birth at about

80 – and the US is among the least long-lived of the developed nations!

Perhaps surprisingly, more than half of the people in the world who are 65 years old and older are living in developing nations: 62 percent in 2008. That percentage will rise to more than 75 percent in 2040, with the absolute number then exceeding 1 billion. From an environmental perspective, older adults may be the only natural planetary resource on the rise!

How did this happen? I would say it is a crowning achieving of global public health initiatives – to prevent death in infancy, childhood and childbirth – along with education, poverty alleviation and, more recently, improved medical care. These young people who were saved are now going to live longer lives, growing up in a country of young ages, and – in the next 40 years – growing old in an old country, demographically. How we invest in their future health, across their longer lives, and their needs when they are old as well as in meeting the health needs of people already aged – these are the critical next stage issues of 21<sup>st</sup> Century global health – even while we sustain the successes to date.

Those 30 additional years represent a new stage of life – a third age, you might say, after childhood and middle age, but before the last years of life. It’s an exciting prospect, one that requires ensuring that these longer lives are lived healthy and not sick. If they are lived healthy, it will unleash the benefits of these longer lives, for individuals, families, communities and nations. I will come back to this.

But first: can we create health into old age? Well, 50 years of gerontological and public health science indicate the answer is yes. We now know that prevention of disease matters and works at every age and stage of life – and into the oldest ages. Healthy and adequate diets and physical activity and safe food, air and water promote growth and health in childhood and prevent the future development of obesity and chronic diseases like heart disease and asthma. But the seeds of future problems, such as memory loss in older age, are sown in infancy and early childhood – through the harms of environmental toxins, inadequate nurturing and food and insufficient education. Once these diseases quietly are initiated through adverse exposures, they progress over a lifetime, worsened by additional and cumulative exposures from these risk factors. These exposures can be controlled, to some degree, by an individual – that is, not smoking, being physically active, healthy

diets. However, one of the central lessons of public health is that half of health is created by factors that are not fully in the control of the individual – for example, if you cannot afford or find healthy food, your ability to elect a healthy diet is limited. If the air is too polluted to breathe, you are at increased risk for asthma, and have limited ability to go out and walk or exercise. Thus, the future of health across the life course must be created through the actions we take collectively, as societies and as a world, to create the conditions that make health not just the easy option but the possible one. This is global public health for the 21<sup>st</sup> Century.

It is critical to say, however, that we now know that these same exposures negatively affect health and wellbeing into the oldest ages: smoking at old age continues to undermine health; physical activity and a healthy diet are critical to preserve muscle strength and fitness and to prevent diseases, frailty and disability and loss of independence. And having meaningful roles that matter to oneself, one's family and community remain critically important to health and even to whether one lives or dies: not having a reason to get up in the morning and a place to go predicts dying! I will come back to this.

And of course, as we get older and a lifetime of exposures affects us, screening for disease risk really matters – and interventions to prevent the progression and consequences of disease are highly effective, and cost-effective. For example, Dana Goldman and colleagues have estimated that effective control of hypertension alone – in the US - could reduce health care spending by \$890 billion for the 100 million older adults who will enter Medicare in the next 25 years. Thirty years ago, we thought that the diseases of old age, like strokes, were inevitable. We now know, instead, that stroke prevention for example through controlling HTN, works into the oldest ages. Further, there is substantial evidence that medical care that is expert in the needs of older adults – as offered by geriatrically trained physicians and nurses - improves health and lowers health care costs through the end of life. These systems offer a model that would be good for prevention and care for adults of all ages, particularly those with chronic diseases and complex conditions. This knowledge needs to be applied to global public health for the specifics of improving health in old age beyond that, health systems good for older people will turn out to be good for adults generally.

A major global health goal for the 21<sup>st</sup> century – in every country of the world – is to create the approaches that invest in protecting

health and preventing disease across the life course – at every age and stage of life. The goal: “Compressing morbidity” or delaying illness until the latest points in the human life span. Scientifically, we now know much about how to do this. We know that global public health needs to complete the transition from a primary focus on saving lives to a focus, as well, on investing through prevention – in long-term health preservation at every age and stage of life. Such approaches should be implemented even when a population is more young than old - so that as these young people age, they are arriving at old age healthier and staying healthier into the oldest ages. This is described as moving from “adding years to life” to “adding life to years”.

Thus, prevention and health promotion are key both for infectious and for non-infectious diseases. Effective approaches begin with strong public health policies that invest in preserving good health from birth. Those policies make healthy choices the easy choices; they lead to the design of healthier communities and cities, and they invest in preventive primary medical care.

There is strong evidence that such prevention has a high return on investment – four-fold – and that prevention of disease, frailty and disability works into the oldest ages.

Investing in health is the great modifier for the world – we know this for the young. But it is also true for the old. If people are living longer, but sick or disabled, they are not in a position to engage or contribute in the many ways they would desire. If we can successfully invest in healthy longer lives, the opportunities are huge.

So, I have tried to make the case to you that the next stage of global health must be focused on investing to create health across the full breadth of our longer lives. For the young and for the old: whether we successfully push disease and disability to the latest points in the human lifespan will determine what benefits we experience as societies, as well as individuals, from these longer lives.

So, I would now like to think with you about what those opportunities are that health into old age would unleash, the pathway to getting there, and the obstacles we need to clear out of the path.

It would be “Pollyanna-ish” to not recognize that the West, but perhaps many countries, have been thinking that more old people is not a good deal! Most people want the 30 added years of this third age for themselves – “yes, I want to live longer”, but lament

them as a society. Growing numbers of older people are viewed – at best - as a cost to be borne and a deficit to society and, increasingly, as a harmful cost to younger people.

Many of our societal narratives – in developed and developing nations – suggest that having older people live longer is a disaster for society. We convey that older people take but don't give and that we can't afford the cost of caring for their needs – from retirement to medical care to long-term care. Our policies increasingly buy into this narrative – although the evidence does not support it.

Even our primary measure of the structure of a population – the old age dependency ratio – divides the number of adults 65 and older – all considered “dependent”- by the number in the “working age population 18-64”. The metrics' structure suggests that financing the needs of – presumably dependent - older people is coming on the backs of those of working age and threatens to deprive our children. In addition to the fact that this thinking denies the years of contributions already made when these now older adults were working, and does not recognize the contributions they make into their old age, it also reflects assumptions that are out of date: that

all people over 65 are dependent and not contributing to society and that all those of working age are healthy, independent, productive, and working. I would posit that sticking with this framework undercuts the opportunities of the future – and the necessity of optimizing the benefits of our longer lives.

The truth is that older adults contribute greatly to the wellbeing of our society and always have: through traditional roles of caring for grandchildren, spouses and other family members, by serving as community glue and community watch, and through tremendous voluntary contributions. In the US, we can monetize some of these benefits: volunteering and informal care-giving by older adults in the United States contributes the equivalent of \$162 billion per year, more than the nation spends on long-term care. Our challenge will be how to create the health, institutions and opportunities that bring out these benefits of a much larger older population to the maximum. Creating health into the oldest ages is a first – but not the only – step.

In addition to growing life expectancy, there is another global dynamic adding to the anxiety and fiscal challenges of nations. This is the youth bulge in developing countries, where youths 15-24 years of age are over 20% of the population. The high

unemployment and underemployment among youth – a problem in the developed world as well as the poor and emerging economies – is a great concern.

While rates vary across countries, there are shared concerns. In too many cases:

- Young people are not getting a quality education – or not moving into jobs;
- Health behaviors of young people are dangerous or poor – and the prospects for their future health are worrisome;
- Drop-out rates are high;
- University educations are not marketable;
- More vocational and practical training is needed;
- Assistance with learning workplace skills is required;
- Migration to cities is leading to larger numbers of youths seeking jobs than cities are prepared to handle.

With all of this comes another concern: that the consequences for many countries are “wasting” their “demographic dividend” – the opportunity created when a large emerging workforce that is also well-educated and prepared to be productive can be the economic engine for future prosperity.

How can this dangerous mix be transformed to the positive opportunity we need? That's one place where the opportunity of our new 3<sup>rd</sup> age of life comes in.

We have created a new stage of life, but we have not yet envisioned its purpose, its meaning, or its opportunities. Instead, we have replaced the need for strategic vision and investment with our fears – and a resulting negative reaction to investment in figuring this out.

Those fears, in turn, pit one generation against another. They lead to growing alarms that young people should fear the cost of older people.

*New York Times* columnist Tom Friedman wrote recently about Stanley Druckenmiller, the famed investor, and his current speaking tour to students at major U.S. colleges and universities. In this tour, Druckenmiller urges the students to start a movement to protect their interests, and to wrest societal resources away from the old. Educating young people about their interests is certainly to be applauded, but the danger in this proposed approach is that we unnecessarily pit one generation against another. I would suggest,

rather, that the transformational opportunity is to invest in the whole life-course of health for those now-young people, and to create the conditions for the generations to work together to the benefit of both.

A great example of that opportunity can be seen in Experience Corps, a program that I designed more than 20 years ago and brought into being with my colleague Marc Freedman. It harnesses the social capital of older adults, who volunteer in schools to support the academic success of children, while it simultaneously is an evidence-based health promotion program for those older adults. The health promotion comes from new kinds of meaningful roles for older adults that confer high societal impact – and a very motivating reason to get up in the morning! They are also designed to increase 3 other key risk factors for health: increased physical, mental and social activity.

Today, Experience Corps operates in 23 U.S. cities and several other countries with thousands of older volunteers, focusing on ensuring the success by third grade of children in public elementary schools. Imagine what it does for children, not only does the involvement of the older adults in this evidence-based model enhance school performance, but the older adults benefit

both from increased meaning and from improvements in their own health and function. This includes our mounting evidence for better ability to control diabetes, greater strength and fewer falls, less depression and evidence for activation of brains and early evidence that this kind of engagement could prevent loss of mental functions, including memory, with age in Experience Corps volunteers.

The older adults become healthier, while the children perform better in school.

It is critical to note that Experience Corps is a carefully designed, evidence-based public health intervention. It offers a 21<sup>st</sup> century social model for health creation for older adults while harnessing the untapped social capital offered by a healthy aging society. Thus, our design provides a new model for a win-win: investing in health and new roles for older adults confers benefits for the young and supports the success of teachers and schools, helps engage older people in securing the next generations' future, and brings out the social capital and opportunities offered by an aging society. In a world in which we will have at least as many older people as children, designing for these win-wins will be critical.

This is the kind of win-win we need and can build-for a successful aging society – one that serves the futures of both younger and older people, that creates meaning and purpose for both, enhances bonds between generations, and that reduces the costs on society. But it requires our thinking in less traditional, more creative terms.

It demands that we consider the need for new social institutions that benefit both younger and older people simultaneously. Experience Corps is just one example, but it demonstrates the model of mutual self-interest that can be a cornerstone for a new approach to aging in this third stage of life.

It is important to note that many countries are experiencing an elder bulge as well as a youth bulge. Contrary to many people's perceptions, the developing countries that have a youth bulge are – at the same time – doubling or tripling the number of older adults, and will have an elder bulge in 10 to 50 years.

Overall, all countries will move towards an equal number of children and older adults in society. Fortunately, in many countries those older adults are the best educated and healthiest older adults in the history of the world. That's an asset to be embraced. It is also one to be created where it does not yet exist: through public

health, medical care, education and other investments globally. The health of people into old age will unleash the benefits. Then, as the Madrid Declaration of 2002 states, “when ageing is embraced as an achievement, the reliance on human skills, experiences and resources of the higher age groups is naturally recognized as an asset in the growth of mature, fully integrated, humane societies.”

Consistent with this approach, there are two large questions and some related proposals that I would ask you to consider:

The first question is this: What are the new needs in societies where people will be living longer lives?

As a result of our public health investments, improved education, poverty alleviation, developing countries will age in the next 30 to 40 years to the degree that it took developed countries 100 years to accomplish. This rapid shift will require preparation, prospective investment and many transitions to accomplish a society of long lives which is good for every age group – and in which longer lives are lived in health.

We need to both invest in the approaches to create health into the oldest ages, as well as to care for those who are sick and in need, and to develop at scale many new ways in which older adults can stay engaged or get engaged, offering their knowledge, a lifetime of experience, and their unique capabilities of patience and a deep desire to leave the world, and the next generations, better than they found it. Many of the needs that older adults have: for environments and cities that support their health, safety, activity and engagement, for social protections, and for both public health and medical care systems designed for their health needs and delivering high value for low cost – these are all needs that, if well designed for older people, will be adaptable - and great - for people at every age.

The second question is this: where are the opportunities that we should create to benefit fully from our long lives? One critical area to start with is whether an already-aging population can provide some of the solutions for our youths' success now, so that countries get the economic benefit of the demographic dividend? How can we best think jointly about our two bulges – youth and elder – and what opportunities might emerge? Here are two examples – both from Africa.

Of course, older people provide for the young all over the world. One important example that has been carefully studied is offered through the South African pension experiment. In the early 1990s, older adults in some rural townships received pensions, while others did not. The outcomes were compared by MIT economics professor Esther Duflo and colleagues. The results showed that in the households of the grandmothers getting a pension, their granddaughters were taller and weighed more, and the health and nutrition of girls was better overall. Thus, cash transfers to older women led to a sizeable effect on their grandchildren's health.

In the second instance, an intentional transfer between generations has been established in the Uganda Rural Development and Training initiative in Kibaale district. There, a bottom-up approach to integrated rural development has been developed over the past 25 years. Their programs are designed, as Kofi Annan once said, "to fix the glaring mismatch of a mass of educated young people who cannot find jobs in the cities, and who are unwilling to go back to the rural areas from which they came."

The programs include, among other efforts, a Vocational Skills Institute that develops mid-level, skilled tradespeople who can successfully create small businesses in their rural townships. The

teachers of the vocational training include older adults in the community –often in a team with middle aged adults; the students are unemployed and underemployed young men and women who don't have vocational or business skills.

The Institute teaches them very practical skills in making products – from household cooking equipment to loaves of bread to car repairs – and in writing business plans and managing businesses, so they can be job creators. The older adults teach the vocational skills, while the middle-aged adults teach the business skills. Most of the students, after completing the program, have not gone back to the city, but are instead returning to the rural villages from which they came, now that they know how to start their own businesses.

These examples, combined with evidence from Experience Corps, suggest many levels of positive consequences in putting old and young together in the right kinds of 21<sup>st</sup> Century social institutions. They also suggest that, by underutilizing the capabilities of older people, the world is leaving a lot of resources untapped for assisting children and youth.

**Evidence to date indicates that, as people get older, they develop attributes that potentially offer new assets to society:**

- A lifetime of knowledge and expertise;
- Deep connections to community and resources;
- A tolerance for complex problems and the patience and ability to solve them;
- A desire to make a difference and to ensure that the world is left better than one found it.

We have a tremendous trust fund of older people in this world. They are already raising the orphans of HIV, serving as trustees of our culture and values, and working in the full breadth of jobs in the world. Can we now find new roles for which they could be trained and deployed to bring social capital to those in the youth bulge? And can these roles be simultaneously designed for the win-wins we need, to bring meaning and productivity to old age while also supporting and enhancing health and well-being into the oldest ages?

There could, potentially, be many roles, globally, for members of the elder bulge to help secure the demographic dividend for youth and society:

- Vocational training;
- Training the teachers to improve quality education;
- Teaching – in new capacities and new ways;
- Mentoring;
- Preventing dropouts and supporting those at risk;
- Preparing youths for the workplace;
- Helping young people create new businesses;
- Serving as community health workers.

These roles would – if designed well – additionally reduce societal costs by enhancing healthy aging and preventing or slowing disability, frailty, and memory impairment, thereby improving healthy later years.

This could all happen en masse – with the right social institutions and the right public health expertise and policy will. It could take place in-person, online, in country, or across countries. If designed to be good for all involved, it could work.

A key consideration in envisioning these institutions and their creation, however, is timing. Are there stages in a country’s aging process when certain social institutions or other policies need to be

implemented in order to optimize the impact of an aging population – for all ages?

The stages – demographically – of transitioning to an aging society are fortunately predictable. All countries begin in a stage where fertility – the number of children a woman conceives – is high, and mortality is high. This is still the situation in some developing countries, while many others are emerging out of it into a next stage. Let's call this Stage 0.

Stage 1, the next stage in a country's demographic evolution, is called the "first demographic dividend". In this stage, death in childhood and in childbirth has declined – primarily as a result of public health measures, education, and poverty alleviation – and the size of the working age population grows. Life expectancy starts to increase, but the population overall has not yet aged.

If there is adequate education and job availability, and policies that can support jobs and economic growth, there can be substantial increases in per capita income and government tax revenues. This was the case for the United States in the early to mid 20<sup>th</sup> century, and is the case in India now. During this time, a country has significant potential for investment in the education and health of

the younger generation, increasing wealth and productivity. Harnessing this demographic dividend has led to the ability to invest in a country's economic future, its innovation and competitive strength. This is where we are now in many developing countries.

Are there experiences of countries that have already progressed to the next stage that could inform best practices for those countries aging rapidly – and, therefore, with less room for error? Based on the experiences of the already-developed nations, it appears crucial that basic social protection mechanisms for the older population – as well as other vulnerable ages - be initiated during the first demographic dividend, even while society invests in education and workforce training for the young.

The combination of increased earning power and pensions for their parents ensures that working-age people can experience a heightened standard of living, protected even when parents become ill. It's important to recognize that U.S. programs like Social Security and Medicare are not all about the elderly: they are family policies: social protections for working-age people as well as older adults, created to protect both generations when parents have financial needs.

The U.S. experience with those programs offers valuable lessons about timing. Social Security and Medicare were created at a stage in our nation's development before we were living markedly longer lives, while the proportion of those who were old was small. Our will to implement this was anchored in the first demographic dividend, which came to full flower after World War II – with an increased working population and enhanced government revenue, but a relative by small older population.

These policies support intergenerational cohesion and improved standards of living, through shared benefits across generations and future assurance of a floor of support: protecting working-age people's standards of living if they also had to support their older parents, while raising older adults out of poverty and permitting choice in living situations.

Now, in retrospective, it appears that instituting these policies in the first demographic dividend was crucial. It seems unlikely that the United States could implement these social security mechanisms now, when the population has aged and fears are high. They had to be implemented during the 1<sup>st</sup> demographic dividend.

Similar programs are still needed in less developed countries, and the window of opportunity will be shorter than it was for the United States. As noted by the World Economic Forum, “on average, only 20% of populations in less developed countries are covered by social security benefits; beyond that the role of families in supporting his/her parent in old age is diminishing, with urbanization (rural/urban divide), decline in family sizes, and increasingly individualistic attitudes increasing”.

In some countries, tradition is codified into law. For example, children have the legal obligation to support their parents in China and Singapore. In China, family support is the primary source of income for nearly half of those over 60 years old; in Singapore, parents can sue their children for support. Nevertheless, young people will be increasingly stretched in China, as the number available to support parents diminishes due to the one-child policy. China is rapidly aging at an earlier stage of economic development than most other aging societies.

In developing countries, where the rate of population aging is now increasing, young adults are growing up in a young country – in the first demographic dividend; however, in 40 years they will grow old in an old society. Each of these countries will need to

evolve its policies soon in anticipation of these young people becoming old.

In the “second demographic dividend”, people live longer as a result of strong prevention through public health – especially of deaths in childhood and childbirth – and the population starts to age. In many countries the rate of population aging is enhanced by concurrent declines in fertility. If there are increased savings and greater accumulated wealth in the prior stage, and if these persist with population aging, the wealth of a nation can be strengthened in an enduring way.

It seems to me that there is an early and a late component of this stage, based on the experience of many developed nations. Early in population aging, while productivity and wealth are increasing, optimism rises, the social security mechanisms as initially established are affordable, and individuals experience the benefits. In the United States, there is strong evidence that Social Security has decreased poverty among older adults, and Medicare has improved the health status of older Americans.

Developed nations are now in what I would call a late stage of the second demographic dividend, with full-blown population aging

and a narrative about not being able to afford those who are old. At the same time, perhaps bounded by our fears and assumptions, we are not seeking alternate evidence as to possibilities, or investing in how to create a more optimistic future. While many opportunities could be invested in – and amplified or even created – we have circled around the same negative policy arguments for a long time. These are arguments that focus on scaling back social protections and health investments, on the grounds that resources are limited and that we cannot support both the old and the young.

If those who believe that we cannot afford this new third stage of life win out, the resulting policies would lead to diminishing social protections and social capital, and little opportunity to experience the contributions and benefits of older adults in an aging society. Those older adults would be living, in increased proportions, in ill health and poverty. We would then not invest in new social institutions needed for “old people”, not benefit from their ability to help ensure a successful future, and would continue to pit one age group against another.

The evidence, however, is that disinvestment in one generation does not secure the future of the next. In fact, the evidence is the opposite:

- Nations that are aging successfully are wealthier;
- Investing in health across the life course leads to people being healthier in old age, with potential for lower medical care costs;
- All generations do better when older people receive pensions and are healthier;
- More older people working does not take jobs away from young people;
- Young people do better when older people are involved, collaborating in intergenerational teams at work or in the community, and invested in their success.

So, our current policy intuitions to disinvest do not appear to be preparing us to find the opportunities of this new stage of life. The alternative is to focus on understanding the opportunities and needs of longer lives and move out of the last stages of the second demographic dividend – and into what I would propose as a more positive “third demographic dividend”. Our policy decisions will determine that transition.

In this to-be-created stage, we realize and invest in the potential of increased numbers of older adults in an aging society – for all ages.

In that stage, we transition from the divisive frame of the old age dependency ratio to the unifying frame of mutual support and investment and collective benefit.

A core principal of this *third demographic dividend* is not to waste people. This means creating roles that matter to people, in ways that older adults would pursue and from which younger people would benefit. It means investing in health creation, so we reap its rewards.

Success in the third demographic dividend will require investing in health and disease prevention across the whole life course, so that people are healthier in old age and able to stay engaged. We have to do it through our collective actions – the public health approaches of the 21<sup>st</sup> century – and through age- and stage-appropriate medical care. The policy goals will be to optimize benefits and opportunities of an aging society while meeting human needs and costs – a benefit-cost relationship an Old Age Dependency ratio!

The core institutions of this era will be for population health creation, for economic well-being, engagement, the physical environment, education, and cohesion. These categories can be

used to measure the success of any country in making that transition.

Achieving the third demographic dividend should be a goal for our nation – and a model for the world. It would have to be embraced by all ages as the best way of benefiting everyone and tapping most effectively into the world's uniquely increasing natural resource – older adults. Global health is the key to unlocking this.

That resource can be of enormous value to the young. It represents a trust fund that every child could hope to inherit.