

21st-Century Health System Resilience: Lessons From the Pandemic on Innovation and Healthy Aging

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Innovation: The New Imperative in Aging Societies

During the now two-year and running COVID-19 pandemic, one undeniable lesson has been learned: Medical innovation has been the key to protecting billions of people worldwide against the most serious health effects of the virus.

The rapid development, testing and distribution of several highly effective COVID-19 vaccines and treatments conclusively demonstrates the power of innovation to address the most serious global health challenges and their societal disruptions. Innovative vaccines have saved millions of lives; helped end devastating lockdowns that crushed economies worldwide; and offer hope of restoring some semblance of a normal life and living safely with the virus.

Yet the looming health challenges and social disruptions don't end with COVID-19. And they are shifting in fundamental ways, driven inexorably by the powerful forces of longevity and population aging.

We cannot predict the next COVID-19 virus. But we can predict with virtual certainty the most prevalent diseases of aging, which therefore pose the most significant threats to the health of our citizens; the stability of health care systems and insurance programs; fiscal sustainability for governments; and the enduring social cohesiveness of societies.

Medical innovation will be the new imperative for societies confronting this challenge. It is the key to healthy, active and productive aging. It unlocks economic opportunity even as it supports fiscal sustainability. Medical innovation can no longer be viewed simply as "nice to have" or a welcome accident of scientific research. Instead, innovation should be embraced by governments—and not just health ministries—as essential to creating high-functioning, equitable and socially and economically viable societies. And, given its essential role, innovation should be supported and even accelerated through smart public policies.

Demographic Science Should Dictate Health Care Priorities

Certainty about the rising diseases of today rests on unalterable demographic facts: The miracle of longevity that is leading to longer lifespans and the reality that globally there will soon be more older people than young. Consider:



• **In Europe,** life expectancy increased from an average 42.7 years in 1900 to 73.4 years in 2000.¹ By 2019, lifespans had jumped to 78.4 years,² and recent research projects that by 2065, women will live 92.8 years and men 90.5 years.³





• **Worldwide,** the number of people over 64 recently exceeded the number under 5 for the first time in human history.⁷

These demographic realities have profound implications for health care systems. They promise to drive massive increases in medical conditions that target older populations for decades to come. Diseases like Alzheimer's and other dementias, osteoporosis, and cardiovascular disease are nearly perfectly correlated with aging. A never-ending, always-building wave of cases is already starting to impact developed nations.

- Alzheimer's prevalence rates double every five years from around 2% among people aged 65-69, increasing to nearly 40% for people aged 90-94.⁸ People over the age of 85 are about 14 times more likely to have dementia due to Alzheimer's compared to people 65-69.⁹
- Osteoporosis rises with age—increasing from 14% for women aged 50-59 to 22% of women aged 60-69; 39% for women aged 70-79; and 70% for women over 80.¹⁰ By 2034, an additional 1 million osteoporosis fractures will take place in Europe due to rising risk among the aging population.¹¹

• Cardiovascular disease kills 17.9 million people annually, mostly due to heart attacks and strokes; two-thirds of these deaths claim the lives of people 70 and older.¹²

Europe has begun reckoning with this challenge, creating the first-ever EU Commission on Demography and Democracy to help the EU meet the health needs of its aging population.

The United Nations in partnership with its agency, the World Health Organization (WHO), recently launched its Decade of Healthy Ageing, which is a recognition that 20th- century solutions cannot meet today's—let alone tomorrow's—challenges associated with aging.

These are welcome signals that health experts recognize the need to make health care systems more responsive to the needs of their aging societies. Fully aligning health care systems to a world with 2.1 billion people over age 60 by mid-century will require innovation on a massive scale that can only be achieved by fundamentally re-examining the way countries regulate and reimburse the treatments we will need to care for our growing aging populations.

National Health Care Systems Not Designed for Today's Medical Realities

Nearly every major national health care system was created 50 years ago or more, in the decades just after World War II. Canada's universal, publicly funded health care system— Canadian Medicare—dates back to legislation passed in 1957.¹³ France's universal health coverage was launched in 1945 and extended in 1966.¹⁴ Italy's National Health Service was established in 1978.¹⁵ And the UK's National Health Service dates to 1948.¹⁶

For all their benefits, these systems were designed to address a different set of health needs under a different model of care for a profoundly different age/demographic construction. Today's older societies are different in kind—not just in degree—from when these systems were founded. More specifically, national health care systems were built to provide and pay for acute care, where people are treated for brief, but severe periods of illness. Basically, people waited until they got sick; went to a doctor or hospital; received treatment; then were cured and went home or died. National health care systems covered specific, discrete doctor and hospital visits and medications to treat acute conditions.

This "disease-cure" model worked when lifespans were short and diseases that target the older population were rare. But it is not designed for a world where people live for decades with steadily worsening conditions like Alzheimer's, osteoporosis, or cardiovascular disease. We need a new model that is aligned with the need to prevent or slow the declines in functional ability often seen in adults as they age.

The result of this mismatch between the health systems we have and the systems we need is worse health outcomes for older adults that could be prevented through better monitoring, earlier diagnosis, more effective treatment and care for diseases that accompany aging, along with mounting costs to health care systems never designed to care for millions of people in declining health.

Moving From Acute Care Model to Predict/Prevent Model

The world stands on the verge of one of the most significant periods of medical innovation in history. The development of several highly effective COVID-19 vaccines in record time, along with multiple treatments that lessen the risk of hospitalization and death, offer the most high-profile evidence of the power of innovation to address the needs of society.

Yet today the speed of science is outpacing the government-built systems we have in place for treating disease. Innovations need to pass through two major gateways before reaching patients:

- A drug approval process to evaluate the safety and efficacy of new medications.
- A reimbursement decision-making stage that determines which drugs will be covered by national health plans and how much these plans will pay.

To encourage innovation for conditions correlated with aging, the drug approval and reimbursement processes need to be reformed to incorporate holistic and societal consideration of how to treat the diseases of aging.

Take Alzheimer's for example.

European governments will face immense pressure to bolster Alzheimer's strategies as the number of people impacted is projected to double from about 10 million today to 20 million by 2030.¹⁷ The cost of caring for this growing population of people living with Alzheimer's will soar to €250 billion—equivalent to the entire GDP of Finland.¹⁸

Yet most countries cannot care effectively for the current number of people living with Alzheimer's, much less the coming wave of patients.

Alzheimer Europe recently evaluated the level of care services available for people with dementia across 18 care needs—from meal delivery services and personal hygiene to residential/nursing home care and career training for caregivers. Only one area of care—help with incontinence—was sufficiently available in more than half of the countries studied.¹⁹

Major shortcomings include insufficient home care (in France, Germany, Italy and the UK among others); insufficient day care (in Spain, Norway, Sweden and Poland among others); and insufficient residential care (in Germany, France, the UK, Italy, Poland, Sweden and Spain among others).²⁰

Can we expect health care systems that are already over-stretched financially to discover untapped sources of revenue without burdening economies? Should we count on a new-found willingness of people to be taxed at higher and higher rates to plug holes in a system that is profoundly mismatched to the health challenges we face?

Fortunately, these are not the only choices. By unleashing the power of innovation through health system realignment as recommended below, we can develop new ways to prevent, diagnose and treat diseases. In fact, this is the only route to financial and social sustainability in a world with more old than young.

Take Alzheimer's. Again.

If a disease-modifying therapy delaying the onset of the disease by two years had been introduced by 2020, estimates suggest that such a therapy could have reduced the number of people with Alzheimer's by 19 percent by 2050; delaying the onset by five years could reduce Alzheimer's population by 33 percent.²¹

Such an innovation could help sustain health system budgets, reduce the burden on overwhelmed caregivers, and ease the social stress of fewer and fewer young people caring for more and more older people—not to mention maintaining health and independence for the untold millions who would otherwise become victims to this devastating disease.

Is the innovation pathway a pipe dream? Hardly. In recent years, medical innovation has all but conquered many forms of cancer and transformed HIV/AIDS from a certain death sentence into a treatable condition.

This has been achieved by steady, progressive advances that allow new treatments to enter the market, yielding step-by-step improvements. Former U.S. Food and Drug Administration Commissioner and director of the National Cancer Institute, Dr. Andrew von Eschenbach, describes how the innovation process works against complex diseases:

"In recent decades we have made exceptional progress against certain cancers by building incrementally on small successes that accumulate to significant outcomes. Early chemotherapy drugs approved for testicular and childhood cancers, for example, produced some benefit for only a small percentage of patients, but enabled investigators and clinicians to learn, improve and create the next, better therapy. That first drug approval stimulates further research. It generates real-world experience leading to new scientific insights. It draws more resources into the battle, both financial and intellectual. It creates crucial momentum ..."²² New breakthroughs in Alzheimer's treatments hold the potential to relieve burdens on individuals and health systems, which are increasingly stressed as the population ages. One such therapy—the first ever to treat the underlying disease pathology—has been approved by regulators in the U.S. but has faced opposition from reimbursement agencies in the U.S.²³ These decisions will severely limit the drug's use among patients, slowing down the cycle of innovation that has led to better therapies and better combinations of therapies.

The fact is the world needs an entire portfolio of effective treatments that can slow Alzheimer's. The key challenge now is political. Science is now outpacing the policy mechanisms needed to approve and pay for the new therapies and treatments medical innovation is delivering. Societies cannot take advantage of scientific breakthroughs unless we update the approval and reimbursement paradigms that date back half a century or more.

Governments need to re-evaluate their health care systems from top to bottom with an emphasis on identifying obstacles to innovation; incorporating lessons from the successful vaccine development efforts during COVID-19 to accelerate drug approvals; and re-inventing reimbursement systems to align with the needs of aging societies. Potential areas of reform include:

Adopt a Patient-Centered Approach Based on New Metrics:

Under the old acute care models, absence of disease is the primary measure of success. For the diseases of aging, functional ability—the combination of an individual's physical and mental capacity to function—should become the primary metric for measuring health. Traditional measures used to assess value, such as Quality-Adjusted Life Years (QALYs) are age-based, and can therefore lead to undervaluing new innovations, such as treatments of Alzheimer's disease.

Predict, Prevent and Manage Disease to Promote Functional Ability:

Health systems must be redesigned to emphasize the early detection of the diseases of aging and become aligned to the need to manage these conditions over decades as people age.

Accelerate Innovation Across Drug Development:

The rapid development, testing and distribution of COVID-19 vaccines demonstrated that the regulatory approval process can be dramatically accelerated without compromising safety. We should explore new ideas for clinical trials—including the use of real-world data and digital data collection—to bring new innovations to patients more quickly. This would not only improve outcomes for patients; it would promote competition and drive down drug costs.

Expand the Discussion to All Stakeholders:

Discussions about these and other diseases should extend well beyond health departments and ministries to include finance and economic officials. The magnitude of the challenge for societies means that policymakers across the spectrum need to be involved in health system reform. The discussion must include finance ministers because healthy aging is now inextricably linked to economic growth and fiscal stability; transportation ministers because aging societies need transportation systems that enable them to stay mobile; housing ministers because new approaches to building design are needed to ensure their accessibility; and, of course, health ministers who hold power over drug approval and reimbursement systems.

Adopt a Comprehensive Approach for Determining Value in New Innovations:

Many diseases of aging, such as Alzheimer's, impose tremendous costs outside those incurred by health systems. In Europe, for example, more than half the costs of caring for people living with Alzheimer's falls on informal caregivers, such as family members, friends and neighbors.²⁴ Six years ago, Alzheimer's Disease International estimated informal caregivers dedicated 82 billion hours to helping a loved one with dementia. Reimbursement systems must factor in these informal care costs when evaluating the value of new therapies coming to market.

The stark truth is *all* current health care systems are unsustainable. Regulatory and reimbursement models are now colliding with a powerful set of demographic facts that cannot be altered.

Innovation to prevent, diagnose and treat diseases that nearly perfectly correlate with aging is now the dividing line between a future of economic growth or stagnation; between sustainable national health budgets or potential insolvency; between societies than enable people to age with dignity or leave them to fend for themselves without hope.

Science is ready to meet this challenge. Nations must now summon the political leadership needed to make reforms that take advantage of the breakthroughs that could turn the coming decades into the greatest period of scientific innovation in human history.

Endnotes

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About the Global Coalition on Aging

The Global Coalition on Aging aims to reshape how global leaders approach and prepare for the 21st century's profound shift in population aging. GCOA uniquely brings together global corporations across industry sectors with common strategic interests in aging populations, a comprehensive and systemic understanding of aging, and an optimistic view of its impact. Through research, public policy analysis, advocacy, and strategic communications, GCOA is advancing innovative solutions and working to ensure global aging is a path to health, productivity and economic growth.

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