

KENAN INSTITUTE CONFERENCE PROCEEDINGS



October 27, 2017

THE BUSINESS OF HEALTHCARE: ADAPTING TO AN AGING ECONOMY

UISC11201701







Every day, seven days a week, 365 days of the year for the next 20 years, we boomers will be turning 65 at the rate of between eight and 10,000 per day. That's every day, seven days a week, 365 days of the year. That's the silver tsunami.

Jim Johnston

*Director of Education, Aging, and
Economic Development Initiatives,
Kenan Institute*

On October 27, 2017 the Frank H. Kenan Institute of Private Enterprise (Kenan Institute) hosted The Business of Healthcare: Adapting to an Aging Economy at UNC Kenan-Flagler Business School in Chapel Hill, North Carolina. The conference brought together more than 100 attendees representing the diverse interests and perspectives of health care and elder care organizations, medical and pharmaceutical companies, patient advocacy organizations, government agencies and the academic research sector.

Kenan Institute Director Greg Brown opened the conference with an overview of the demographic trends in North Carolina and the nation—trends that presage a “silver tsunami” as those 65 and older are poised to make up a larger segment of our population than ever before. While this future brings new challenges, it also creates opportunities for America’s businesses, government and society.

This conference summary offers highlights from the day’s presentations and discussions.

PLENARY SESSION: BRACING FOR THE SILVER TSUNAMI

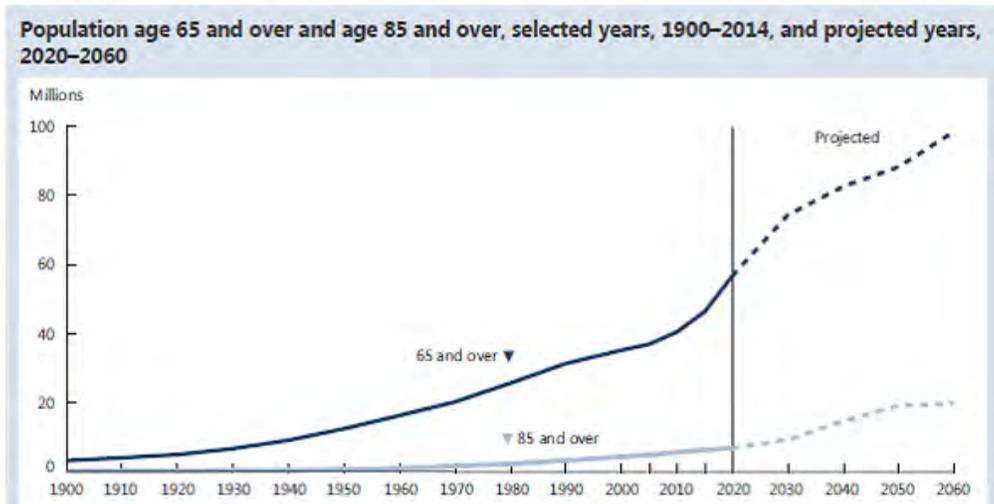
JIM JOHNSON, DIRECTOR OF EDUCATION, AGING, AND ECONOMIC DEVELOPMENT INITIATIVES, KENAN INSTITUTE

North Carolina’s elderly population is currently 1.4 million people and growing, a trend Johnson emphasized brings new challenges and huge opportunities for economic growth. The state is an attractive relocation destination for seniors from other states, but this population influx is experienced unevenly. While areas with excellent healthcare infrastructure, such as Wake and Mecklenburg counties, are booming, many of the state’s more rural counties are shrinking, losing their working-age population and amenities and creating a care gap for seniors in those regions.

To understand how a growing elderly population will affect the state, we must also consider trends in the younger age categories. While people are living longer, fertility rates

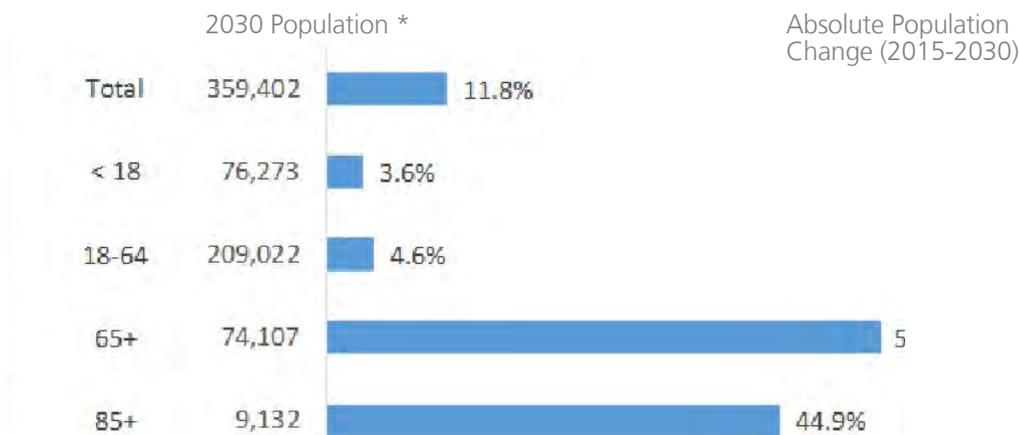
are declining. Despite significant health improvements in some populations, there are also high rates of disability and early death among our working-age population. Immigration, therefore, forms an essential piece of the demographic puzzle to stabilize our state’s workforce and provide the services needed to support older residents, Johnson said.

Numbers of Older People 1900-2060



Source: Older Americans 2016: Key Indicators of Well-Being

Projected Change in U.S. Population by Age, 2015-2030 (in thousands)



* Projected
 Source: Table 3. Projections of the Population by Sex and Selected Age Groups for the United States: 2015-2060 (NP2014-T3)
 U.S. Census Bureau, Population Division, December 2014

Aging in place is the preferred lifestyle for many seniors. Creating the structures to support this is an endeavor with major economic opportunity. The market for products and services geared toward the aging Baby Boomer generation has been estimated at \$15 trillion globally. There is plenty of room for improvement in terms of better understanding and serving the users of these products. As demand for well-trained home-health workers

continues to rise, immigration reform will closely influence our ability to maintain the workforce in this essential sector. There are also business opportunities to create digital health initiatives and smart technologies to increase quality of life and reduce healthcare costs. Finally, the built environment, from transportation to infrastructure, will have to change to accommodate a growing senior population.

But aging in place has its risks, particularly for our most vulnerable elderly—those with high housing costs, those who rent and those who are minorities. In addition to markets targeting the “rich and young at heart,” Johnson said there is a dire need for innovation in markets serving the “poor and weak of limb.” In particular, changes are needed to slow the growth of healthcare spending, finance retirement income, finance long-term services and supports, secure the senior safety net and reduce elderly fraud and exploitation.

JOHN HAAGA , DIRECTOR, DIVISION ON BEHAVIORAL AND SOCIAL RESEARCH, NATIONAL INSTITUTE ON AGING



We really need to accelerate the thinking on [long-term care]...how we're going to organize care, how we're going to pay for it, how we're not going to go broke as a nation paying for it.

John Haaga

Director, Division on Behavioral and Social Research, National Institute on Aging

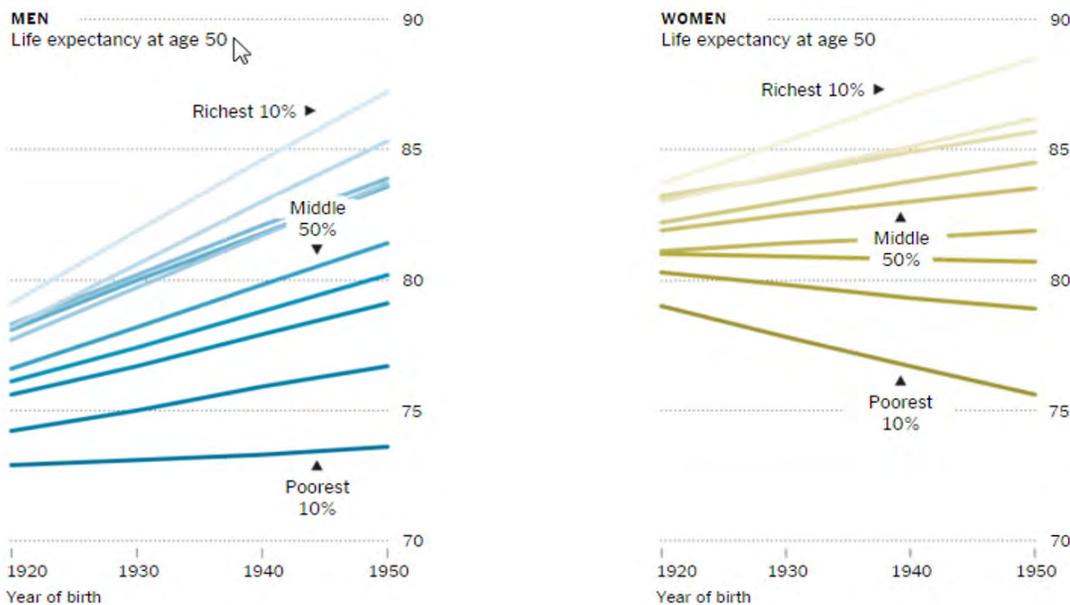
Haaga dug deeper into the nation's health and aging trends to explore important characteristics of our aging population. For example, while disability rates rise with age, this trend is now affecting people at earlier ages than in previous cohorts, such that the “younger old” today are more disabled than their older counterparts. In addition, while dementia rates are declining overall, we can nonetheless expect a large wave of people with the disease as more people live past age 85, when dementia rates increase markedly. Social changes also matter; today's older women, for example, are less likely to have married and less likely to have adult children or a partner who can support them, thus increasing the risk of social isolation and decreasing the availability of family caregivers.

In addition, health and longevity in the United States are closely entwined with socioeconomic status, creating dramatically different life expectancies for the poor, middle class and wealthy. These factors are reflected in geographic trends as well, with the Southeast and rural areas seeing higher mortality rates than coastal and urban areas.

The culture of aging is changing. Fewer seniors live in nursing homes, opting instead for group settings or aging in place, raising the need for new products and systems to support older people. But, Haaga emphasized, solutions to meet the needs of the elderly don't have to be highly sophisticated, or even specifically aimed at people who are older or disabled. For example, instead of “smarter” pill dispensers, there is a greater need for systems to support de-prescribing—taking people off of unnecessary medications.

The federal government's patchwork of healthcare programs and current legislative paralysis suggests many elderly people are likely to continue to fall into gaps in our support

Life Expectancy Falling for the Poor, Rising for the Rich



Source: Brookings Institution; U of Michigan Health and Retirement Study

structures, Haaga said. He suggested that innovations to bridge these gaps could come from examining experiments in different states, or from studying countries that have faced the challenge of a large elderly population for a longer time than the United States has. The National Institutes of Health also issues grants to foster creative business ideas to support our aging citizens, particularly those aimed at addressing dementia and other age-related problems.

BILL ROPER , DEAN OF THE SCHOOL OF MEDICINE; VICE CHANCELLOR FOR MEDICAL AFFAIRS, UNC; CEO OF THE UNC HEALTH CARE SYSTEM

Roper surfaced what he described as prevailing myths about healthcare in America and countered with key realities. First, he said, we do not have the world's best healthcare system. In fact, according to the Organization for Economic Co-operation and Development, the United States' healthcare system ranks 37th among 200 countries. This is because, while it is possible for some to access world-class treatment and diagnostic technologies in the United States, such services are not available across the population.

Roper also asserted that it is not true that everyone gets the care they need, anywhere they need it. In fact, people living in the United States without health insurance have less access to care and worse outcomes, reducing their quality of life and adversely impacting the national economy. Care quality is also uneven across different healthcare systems, with a need for structured improvements in even the highest quality ones. Addressing these



We need not just more high-powered doctors, but we need...healthcare workers and other support staff. And we don't have those numbers now.

Bill Roper
*Dean of the School of Medicine;
 Vice Chancellor for Medical Affairs,
 UNC; CEO of the UNC Health Care
 System*



The out-of-pocket medical cost for a couple retiring in 2013 is...\$220,000.... if you look at the downturn in the economy that happened because of the Great Recession in 2010, we know that boomers lost somewhere between 25 and 28% of their median net worth... And we know that Medicaid is already spending a significant amount on this population. That makes me, as the person who's running Medicaid now for North Carolina, very nervous.

Mandy Cohen

Secretary, NC Department of Health and Human Services

challenges is complicated, however; while we know that we need to improve care and facilities, we don't always know how to do it. It is also unclear what consequences (good or bad) might come from the large consolidations that are becoming increasingly common in the U.S. healthcare industry.

Cost, of course, is a challenge that pervades all of these issues. Healthcare in the United States is enormously expensive—to the tune of more than \$10,000 spent per year for each man, woman and child—which severely impacts local and national budgets. Roper emphasized that we still need to expand health coverage nationally, which will address key gaps but also add even more costs. Finally, Roper noted that healthcare is always changing, and we can expect more change in the future. Looking backward to what worked in the past will not solve the problems of tomorrow. What is needed, he said, is cost-effective solutions that recognize and address the realities of healthcare in America—rather than the myths.

KEYNOTE SESSION

MANDY COHEN, SECRETARY, NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

Despite some areas of improvement in aging services, Cohen expressed concern about our ability to adequately serve North Carolina's rapidly growing elderly population in the future. While Medicare is often a focus of conversations around healthcare and the elderly, Medicaid is a crucial part of the equation as well, Cohen said, noting that North Carolina spends about a third of its Medicaid budget on the elderly. As this population and their related health costs skyrocket, our society is likely to face wrenching decisions about how to prioritize services for the elderly in relation to other crucial needs including education, infrastructure and children's services.

We need more caregivers to meet the needs of the growing senior demographic. Family members are stretched to the breaking point, many older people don't have a spouse or an adult child nearby and our communities are not designed to help seniors age safely and independently. Similarly, emergency rooms and hospitals are not the right places for seniors to get the regular, preventive, collaborative care they need. Instead, Cohen said, the state should encourage the growth of community-based services that support aging in place and reduce social isolation. Recognizing each elderly subgroup's health needs, encouraging care planning throughout a person's lifetime and facilitating care transitions can also help people age better. There is a need for technological and systematic innovations in all of these spaces, Cohen said.

Cohen highlighted some promising program models, including Home and Community Care Block Grants (HCCBG), chronic disease self-management programs, fall prevention

programs, family caregiver support and dementia care programs. These programs are saving money and improving lives, she said, but they are also operating at small scales and already failing to keep up with demand—challenges that will only become more pronounced as the population of seniors increases. Elderly people are also subject to neglect, abuse and exploitation, and more resources are needed to address these risks.

Looking forward, Cohen offered several avenues in which making strategic investments today can help the state prepare for the challenges ahead. First, there is a need to design improvements in the Medicare system to drive innovation. Second, there is a need to build systems that support all aspects of a person's life, instead of dealing with living arrangements, medical care, transportation and social services through separate and inefficient silos. Also, comprehensive care management should be used to devise holistic care plans and address problems before they become emergencies; in particular, nursing homes could be incentivized to reduce costly hospital transfers. In closing, Cohen emphasized that by strategically and efficiently directing our social services and medical investments, we can yield better results both at the individual level and for all of our elderly residents.

BREAKOUT SESSIONS

INNOVATIONS IN LONG-TERM SERVICES AND SUPPORTS

Chair: Heather Altman, Director of Community Connections at Carol Woods Retirement Community; Panelists: Philip Sloane and Sheryl Zimmerman, Co-Directors of the Program on Aging, Disability and Long Term Care at UNC's Cecil G. Sheps Center for Health Services Research; G. Lawrence Atkins, Executive Director of the Long-Term Quality Alliance; Robyn Stone, Senior VP of Research at LeadingAge; Rodney Harrell, Director of Livable Communities, AARP



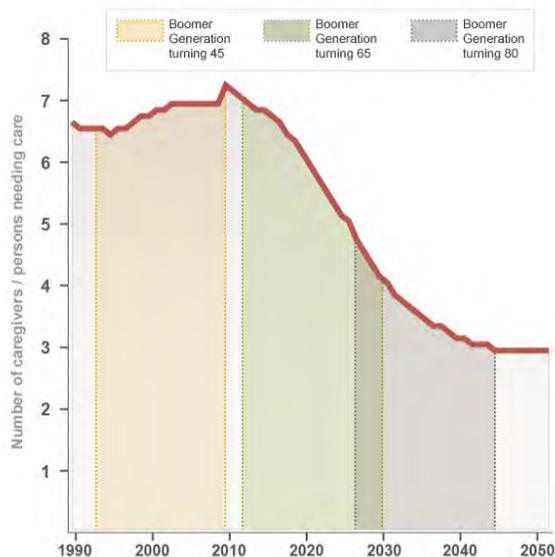
From left: Sheryl Zimmerman, Philip Sloane, G. Lawrence Atkins, Robyn I. Stone, Rodney Harrell, Heather Altman

Sloane and Zimmerman opened the session with an overview of trends and attitudes regarding long-term care options and the caregiving workforce in the United States. While options vary widely across the country, overall there has been a growth in community care, a reduction in family-based caregiving, a decrease in personal savings and fewer people who believe long-term care should be a government-granted right. Sloane noted some promising models, including Medicare’s PACE (Programs of All-inclusive Care for the Elderly), Seniors Helping Seniors, The Villages co-housing and neighborhood-based long-term care. However, these models also suffer from various drawbacks, including the inability to handle all types of disability and a lack of sufficient government incentives. Finally, he noted that outsourcing may provide some interesting opportunities to expand long-term care options and supports.

Turning to workforce trends, Zimmerman noted that while younger women have traditionally made up the formal caregiving workforce, demographic and economic trends are changing that. The vast majority of caregivers are actually unpaid; while there are about 3 million aides and nurses caring for older adults, there are an estimated 34 to 62 million unpaid caregivers, typically relatives of the older person. As the Baby Boomer generation ages, caregiver demand will only grow, and caregivers themselves will grow older and need support. Models and innovations that could help enhance independence, improve seniors’ social lives and facilitate earlier detection of illnesses include shared homes, assisted living facilities, small-model nursing homes, integrated long-term healthcare, new technologies and educational services. While North Carolina currently lags behind other states in creating integrated care models, supporting these innovations could make a dramatic difference in seniors’ quality of life, Zimmerman said.

A Crisis in Informal Caregiving

Caregiver Support Ratio
 Number of Potential Caregivers Ages 45-64 for Each Person 80+



Building on those points, Atkins stressed that today’s workforce, medical institutions and economy are not prepared for the scope of anticipated long-term care needs. Family members are the most likely caregivers, but they will become overwhelmed and look for paid solutions, such as part-time care. The Baby Boom generation averages less than \$100,000 in retirement savings per person, so Medicaid and families will bear the financial burden to make up the rest. In addition to the financial challenges, caregivers need more support to navigate and manage fragmented services. Integrating services through approaches such as PACE can improve efficiency, reduce costs and enhance families’ experiences, Atkins said. A shift to more social-, community- and home-based care models, instead of over-medicalized specialists and resources, will also create improvements. Finally, Atkins said that more training, professionalization and better pay and career paths can make caregiver work more appealing and help meet the growing demand for services.

There are some very specific things that people can work on, and begin to try to bring about change. And it’s not going to happen in Washington. It’s going to happen in each and every community.

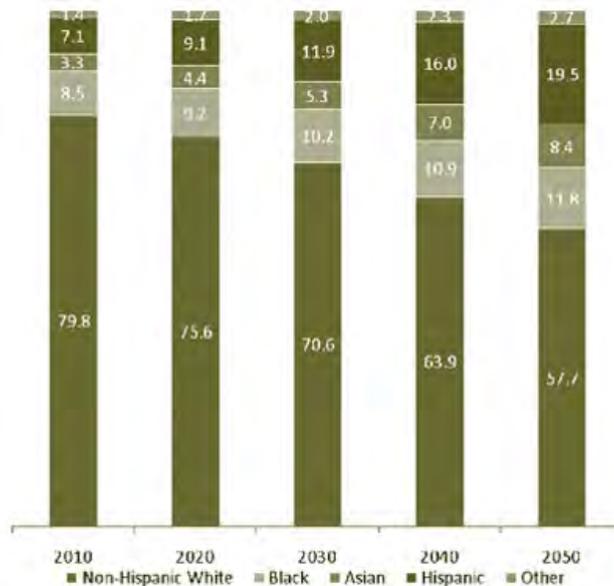
G. Lawrence Atkins
Executive Director of the Long-Term Quality Alliance

Stone opened her presentation by describing the aging population as today’s fastest-growing and most important industry segment. She posited that improving services and quality of life for the elderly, who have broad ethnic and economic diversity, is a tremendous business opportunity. Seniors today are more educated, more demanding as consumers and more technologically savvy than previous generations. Innovations in nursing homes and other residences can improve their quality of life and even return some seniors to the workforce. The best technological innovations, Stone emphasized, are those that are easily adopted by and usable for seniors. Echoing sentiments raised throughout the day, Stone cautioned that challenges in this space include an overemphasis on medical rather than social solutions, a lack of career paths for home care aides and an underappreciation of the strong potential for economic growth related to serving older adults.

Increased Racial/Ethnic Diversity

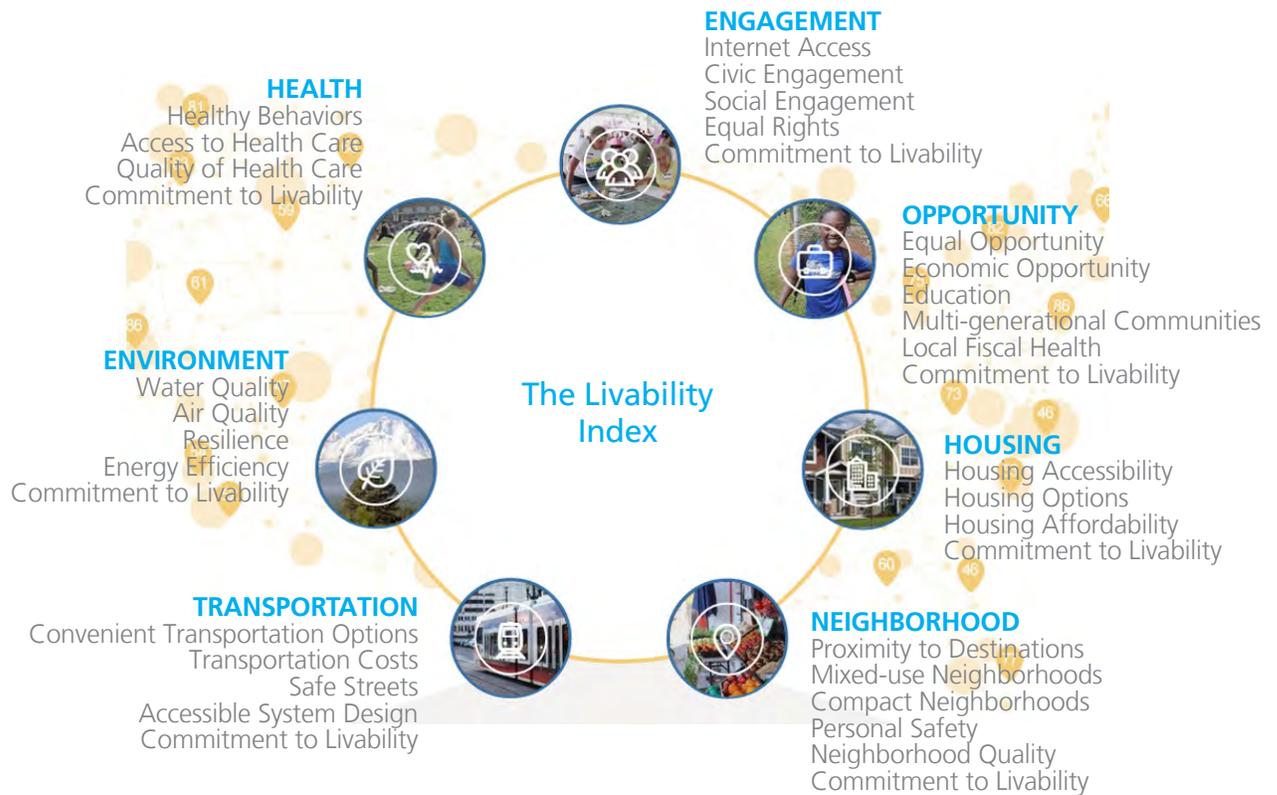
Projected Racial-Ethnic Percentage Distributions: U.S. Adults, Ages 65 and Older, 2010–2050

“Other” includes American Indian and Alaska Native, Native Hawaiian and Pacific Islander and multiple-race combinations



Source: U.S. Census Bureau, 2008 National Population Projections.
<http://www.asaging.org/blog/diversity-and-our-common-future-race-ethnicity-and-older-american>

Harrell described AARP’s research on each state’s long-term services and supports, covering areas such as affordability and access, available choices, quality of life and care, caregiver support and effective care transitions. On these metrics North Carolina ranks 38th in the country, suggesting the state could benefit from systematic improvements, such as those in AARP’s toolkit of promising practices. Nursing homes are failing our elderly, Harrell asserted, and more and better-subsidized housing and transportation can help seniors live independently without being isolated. An additional tool, AARP’s “Livability Index,” measures community amenities for seniors. Designing or remodeling communities along these lines can greatly improve everyone’s quality of life, Harrell noted—not just seniors’.



ECONOMICS OF AGING

Chair: Larry Chavis, Assistant Professor of Strategy and Entrepreneurship, UNC Kenan-Flagler Business School; Panelists: Robert Clark, Zelnak Professor at NC State’s Poole School of Management; Donald H. Taylor, Professor of Public Policy at Duke University; Mark Costley, estate planning attorney at Clarity Legal Group

Clark opened with the stark reality that most people have not saved nearly enough for retirement, especially considering increased longevity. While there is a need for better education and government support, such as retirement-friendly tax policies and updates to Social Security and Medicare, the bottom line is that we can expect to pay more taxes but receive fewer benefits in the coming decades, leaving it up to individuals and their families to fill in the gaps.



From left: Robert Clark, Donald H. Taylor, Mark Costley

Taylor described how systems and incentives within the healthcare system further compound this challenge. He posited that there is far too much emphasis on high-cost medical procedures and not enough emphasis on caregiving. In part, this is because people facing medical and caregiving decisions are overwhelmed and inexperienced. It's a learning problem, he said, noting, "Your mother dies only once." There are situations in which options such as palliative care can be better for a person's quality of life than medical interventions such as chemotherapy or surgery, but people are rarely equipped to understand available alternatives and sometimes face disincentives that dissuade them from the optimal choice. Policy can help families overcome this steep learning curve, as long as it doesn't create overly-strict rules for treatment or remove individual choice, Taylor suggested.

Costley, who helps families plan for retirement and budget for healthcare, said that his clients are highly educated but nonetheless ill-equipped to handle the challenges of predicting and planning for the health care costs they will face. Often their financial advisors are equally uninformed about healthcare costs, despite the fact that financial decisions affect the care you can afford and the subsidies for which you qualify. It is impossible to predict how long we will live, or what medical problems we will have, and the disappearance of fixed pensions means that money could run out, even for those considered quite wealthy. He noted that more adult children must now assist their parents financially, which impacts their own retirement savings and can upend family dynamics for seniors who hoped to live independently and leave an estate to their children.

Following the presentations, attendees and panelists discussed various options for addressing these economic challenges. For example, in the absence of pensions, some raised the need to redefine what we think of as "retirement" and support opportunities for people to stay employed longer. Though that could reduce the financial challenges for some, incentives and capabilities to delay retirement are also influenced by other workplace

shifts, including lower peak earnings, less job security, changing employer-contribution retirement plans and a highly mobile population.

Participants also discussed whether there is a way to collectively share the risks associated with aging to help those who need the most help. Risk is difficult to assess, and affects younger people differently than the elderly. Although it may be impossible to make sweeping policy changes right now, it is worth considering how to incentivize people to invest in savings and insurance for long-term care, attendees agreed. In addition, workers without workplace savings options, Clark noted, need easy, opt-out incentives to save, such as a state-managed fund their employers pay into. Expensive public sector pension plans have been well protected in North Carolina, but many states and private pensions are reducing benefits and increasing employee contribution rates. It is also important to understand the economic burdens on unpaid family caregivers, who need to be recognized and supported.

PHARMACEUTICAL AND HEALTHCARE MARKETING

Chair: Sri Venkataraman, Associate Professor of Marketing at Kenan-Flagler Business School; Panelists: Robert Furberg, Public Health Informaticist at RTI; Alex Gray, Principal at Echo Health Ventures; Jon Kaplan, Health Care Strategist at The Boston Consulting Group; Candy Lurken, Partner at Monitor Deloitte Strategy Consulting



Jon Kaplan



Alex Gray



Robert Furberg



Candy Lurken

Data was a common theme among the presentations in this session. Furberg opened by highlighting how increased consumer sophistication can influence changes in public health and medical care, in part through the provision of data. For example, passive, low-burden technologies such as Fitbits and other wearable devices are expanding data collection abilities and improving health behavior and indicator data. However, he cautioned that there are limits to the degree to which delivering care to seniors can be automated, so data will never supplant the need for health workers. Based on his experience at Echo Health Ventures, Gray noted that, while data creation outpaces data analysis, data nonetheless can be a valuable asset in improving seniors' quality of life and lowering overall healthcare expenses. In particular, giving consumers access to more information and allowing them greater choice enables people to make better health decisions and protect their finances.

Kaplan built on this theme of consumer empowerment and grappled with tricky issues around choice and efficiency. Healthcare is ultimately about economics, he said, and while the fee-for-service model is more popular with doctors and patients because it represents "choice," managed care actually performs better. Primary care physicians can become experts in managed care, while specialists and hospital beds will become commoditized. However, there is no one-size-fits-all way to run a health business, so despite incentives and education, there will always be challenges and disagreement. Looking forward, Kaplan suggested we are likely to see seismic shifts as Amazon and other mobile and online services expand their presence in the healthcare and aging sphere, disrupting the current system. These developments, he suggested, could empower people by encouraging us to see healthcare as something we choose, consume and can challenge.

Lurken works with pharmaceutical companies seeking to engage seniors amid the backdrop of unsustainable costs and fragmented, uncoordinated service systems. She described a variety of methods companies and organizations are adopting to create better outcomes for seniors, such as framing aging as positive, creating medication tracking apps and improving data collection, connection and sharing. The goals of these efforts, she said, are to enhance the delivery of personalized, precision medical care, increase individual engagement and enable predictive treatment modeling. In addition, medical non-adherence increases costs and disability rates, especially for chronic disease treatment, so companies are merging data science and behavioral science findings to improve adherence rates.

In the discussion that followed, attendees explored the factors that contribute to low patient engagement, such as the fragmentation of health care, distrust of medical institutions, wide-scale inefficiencies and the challenges associated with managing chronic conditions with strong lifestyle components, such as diabetes. Also, because the healthcare industry is heavily regulated, innovations take a long time to reach the market. These various factors—consumer engagement, public health policy, regulatory affairs and compliance

issues—must continue to coalesce to drive improvements.

HOSPITAL OPERATIONS AND EMERGENCY CARE

Chair: Brad Staats, Associate Professor of Operations at Kenan-Flagler Business School;
Panelists: Bob Batt, Assistant Professor of Operations at Wisconsin School of Business;
Jason Katz, Associate Professor of Medicine at UNC – Chapel Hill; Diwas KC, Associate
Professor of Operations, Emory University



From left: Brad Staats, Bob Batt, Diwas KC, Jason Katz

Hospitals, in particular emergency departments and intensive care units, are often central to the delivery of care to seniors, but this care frequently falls short of what older patients actually need. Batt offered an overview of recent studies exploring key problems with emergency department operations. A significant issue is that long waits and lack of information often lead to patients walking out before being seen. In addition, staff are stretched to the breaking point, and, because of shift rules, can't always take the time to stay with a patient, investigate someone's situation more deeply or provide the needed level of patient education. These weaknesses, in turn, can lead patients to return to the emergency room, an outcome that is undesirable from the standpoint of both the patient and the hospital.

Diwas KC expanded on these points, noting that while emergency departments have become a safety net for uninsured Americans, they are not designed for the long-term, preventive care older patients actually need. Solutions must address overcrowding, better management of emergency care resources and improved options for those seeking care, he emphasized. He noted that studies of universal health care in Massachusetts showed that obtaining insurance can improve patient choice and healthcare consumption, worker productivity and healthcare quality.

Katz explored weaknesses in how intensive care units (ICUs) serve elderly patients. These units are typically crowded with staff and equipment, not visitor friendly and extremely expensive. Elderly patients are at a much higher risk of becoming sicker in the ICU, being readmitted or reacting negatively to a drug or anesthesia. Aging is a multisystem medical problem, but ICUs are meant to treat acute, life-threatening problems and then discharge the patient. While specialized geriatric ICUs or better risk predictors could help, Katz expressed his view that right now it is not cost-effective or safe for the elderly to be in the ICU. Furthermore, while family members of very ill older patients understandably expect the focus to be on extending life, it is important for palliative care physicians to actively engage patients and families in frank discussions about goals and expectations.

Attendees and panelists discussed the complexities involved in “rationing” care, for example, to reduce the amount of time patients spend in medical environments that they are unlikely to benefit from. In particular, it is extremely difficult to make predictions, for example, regarding how long a given patient will live. Batt noted that we can never fully remove uncertainty or randomness from healthcare, although KC expressed his belief that better system design can help to reduce uncertainties.

CHALLENGES AND OPPORTUNITIES IN THE LONG-TERM CARE INDUSTRIES

Chair: Lauren Lu, Associate Professor of Operations at Kenan-Flagler Business School;
Panelists: David Grabowski, Professor of Healthcare Policy at Harvard Medical School;
Susan Lu, Assistant Professor of Management at Purdue University Krannert School of Management;
Michael McGregor, Regional Clinical Director at Genesis Rehab Services



David Grabowski



Susan Lu



Michael McGregor

Grabowski discussed the implications of a shift toward pay-for-performance (PFP) and away from fee-for-service models in healthcare. Nursing homes, which are currently fee-for-service, receive low reimbursement for their costs, operate in a highly regulated

marketplace and have opaque quality standards. Creating a well-designed PFP model, including offering providers meaningful, immediate rewards and using best practices, could bring improvements and avoid negative consequences, he said. He pointed to studies of three different PFP experiments for instructive insights. The first study saw little in the way of quality increase but a surprising amount of Medicare savings. The second, a meta-analysis of state initiatives, found no consistent effects from the shift to PFP. The third, an incentive program in which providers created their own care goals and were given funds up front to meet them, had the most success. Although Grabowski expressed his belief that the punitive PFP experiments being initiated by the Centers for Medicare and Medicaid Services could have severe unintended consequences, he underscored the importance of refining such programs as we look toward a future PFP care delivery system.

Lu explored the interplay of technology and labor in nursing homes. Automation and digitization can have a huge impact on the healthcare workforce, making employees more productive and reducing staffing needs. But while nurses might be nervous about what this means for their jobs, Lu emphasized that technology can assist staff but only partly substitute for nurses in nursing homes. Nurses, especially the most skilled, are very hard to replace via automation, because so much communication and attention is required, especially when caring for the elderly. Also, while price competition is limited for nursing homes, ratings are not, and these are often heavily influenced by staff-patient ratio. Ratings factor strongly in the choice of care facilities, particularly by those who can pay the highest fees, thus creating an incentive for facilities to maintain high staffing levels.

McGregor discussed how the aging population will affect skilled nursing facilities (SNFs), which he said are working to adopt value-based care in anticipation of increased demand. Noting that SNFs struggle with patient engagement and integration of services, hospital readmissions, reduced lengths of stay and post-discharge patient engagement, he suggested that creating individual patient pathways and risk management screenings can help patients while also creating a collaborative process that includes other medical providers. In particular, McGregor stressed the benefits of early attention to cognitive interventions and fall risk management, noting that his facility screens for cognitive ability regardless of a patient's diagnosis. He also expressed hope that his fellow practitioners will become more knowledgeable resources for patients, who often struggle to navigate a fragmented service world. More collaborative care discussions with other providers, he said, will create better care and care delivery.

DIGITAL TECHNOLOGY FOR ADAPTIVE AGING AND WELLNESS

Chair: Noel Greis, Director of the Center for Digital Enterprise and Innovation, Kenan Institute; Panelists: Walt Gall, Global Director for Digital Health at Saffron Cognitive Systems, Intel Corporation; Bill Rogers, CEO and Founder of Orbita; Michael Levy, Entrepreneur-in-Residence at the UNC Center for Health Innovation



From left: Michael Ley, Bill Rogers, Walt Gall

This session focused on emerging technologies to support the healthcare and everyday needs of older people, particularly those living at home. Gall explored the opportunities offered by complementary learning systems, a segment of artificial intelligence (AI) that uses accurate, relevant data to help people make decisions. He offered examples of how intelligent, adaptive analysis of an individual’s financial, clinical, physical, emotional and social data can create more precise diagnoses, offer remote screening and detection and improve overall wellness and patient engagement. AI, used effectively, can also improve personal workflow, reduce stress and even prevent disease. Gall stressed that while this technology is ready for the mainstream, there is a need to communicate better with consumers to successfully market it and help people effectively integrate it into their lives.

Rogers focused on the adoption and applications of voice-assistance technologies. Voice assistance can be invaluable to the elderly because it offers an intuitive interface that can monitor a person’s health, react in case of emergencies and even work on a flip phone or landline. Voice-input devices may seem impersonal, but if they are dynamic and ultimately connected to a human, they can improve overall care, lower costs and reduce false positives. One way they do this is by extending the circumstances in which people interact

The Promise of Connected Healthcare



with health resources; while people stop visiting the doctor once they recover from an illness, having an AI-enhanced home health device can offer an easy-to-use platform for the patient to continue to receive health coaching at home.

Levy explored the opportunities of digital health innovation as well as the forces that hold this innovation back, such as limited access to data and large-scale investment. Many startups fail, he said, because entrepreneurship and healthcare operate on vastly different timescales and philosophies: while entrepreneurs seek to “move fast and break things,” healthcare operates in a mode of “move slowly and don’t kill people.” Collaboration and education between health and industry can bridge this gap, however. Both groups want change, and must stop competing against each other so that digital health innovations can create better care delivery, improved health and economic growth, Levy said. A digital health innovation sprint, where entrepreneurs work quickly and closely with healthcare workers, can propel ideas from discovery to piloting and even help guide national policy to support innovation and improve care delivery.

Following the presentations, participants discussed how we can better bridge the gaps to allow innovation to flourish. Rogers noted that Massachusetts’ healthcare experimentation has benefited from strong collaboration among sectors, and Gall agreed that multifaceted collaboration, at all stakeholder levels, is essential. One challenge, however, is that “quality” is a goal that is very difficult to measure, and changes based on how a patient feels that day. Another is that current pay models do not support a more holistic view of care. To truly understand healthcare technology users, their experiences and their needs, and create successful innovations that make a difference and a profit, one attendee suggested conducting large, multi-disciplinary “real world” studies. Technologies today are still in their infancy, but more advanced systems can better capture context and engagement, including in rural areas that are often left behind due to a lack of proximity to care.

CLOSING PLENARY SESSION: CEO PANEL

Chair: Greg Brown, Director, Kenan Institute; Panelists: Mark Velleca, CEO of G1 Therapeutics; Liddy Manson, Director of Georgetown University’s Aging Well Hub; Andy Anderson, Development Director of Community Innovations (CI); Robert Mallernee, CEO of Eton Advisors Wealth Management and Eton Solutions

The closing session began with a brief overview of companies and organizations focused on serving seniors, followed by a facilitated discussion of how intersections among the private sector, academic research and government can help address the needs of our aging population.

Velleca’s company, which started at UNC, develops cancer-fighting therapies. While this work is relevant to patients of all ages, Velleca noted that cancer is increasingly a disease of



From left: Liddy Manson, Mark Velleca, Andy Anderson, Robert Mallernee, Greg Brown

the elderly, as life expectancies continue to grow and chronic conditions such as diabetes and heart disease are better treated.

Manson’s organization, the AgingWell Hub, promotes cross-industry collaboration to spur innovative technologies that support aging in place. Many good ideas fail in the marketplace, which she said stems from a variety of issues. Sometimes innovators and caregivers can’t find common ground, and caregiving overall is so fragmented that it’s difficult to identify commonalities and work within them. Another common pitfall, she said, is that new solutions often are introduced during a medical crisis, when patients and families are averse to risk-taking and simply too stressed to learn new habits. Echoing the points raised by Michael Levy, Manson also noted the fundamental mismatch that occurs when entrepreneurs are in a financial crunch to sell their product in an industry that is slow to adopt new practices.

Anderson’s organization has used innovative care models combined with litigation to restructure care for the intellectually and developmentally disabled (IDD) community. Community Innovations (CI) promotes the independence of IDD individuals while balancing the risks that independence can bring. The model has had many successes, and CI has a long waiting list for services. Anderson suggested the government should incentivize businesses like CI to provide needed innovations and solutions to support those who need help.

From a financial planning standpoint, Mallernee described the complicated calculus involved in considering life expectancies, family growth, cost of living increases and unknown medical problems. Given the enormous number of unknowns, creating financial plans is often confusing and concerning, even for those with significant financial resources. Mallernee noted that being able to build sufficient resources to sustain a desired lifestyle through the end of life is a privilege that is not feasible for most older people in this country.

“You start to do the math on this and you see a problem where I can’t imagine how a lot of these people are going to be able to retire...and I think that’s going to be a huge problem for the country.”

Robert Mellernee
CEO of Eton Advisors Wealth Management and Eton Solutions

“We need to make...the quality of life a priority in our nation and in our world. And we need to stop playing politics with that.”

Andy Anderson
Development Director of Community Innovations (CI)

“With the advancement of AI and robotics and smartphone technology, what is a 90-year-old person going to even look like 50 years from now? It’s pretty fascinating.”

Mark Velleca
CEO of G1 Therapeutics

“When your health is declining, when you’re not feeling well, that’s probably not the time you want to learn something new. And it’s certainly not the time you want to be inundated with data. So how do we think about timing things and windows of opportunity, where people can learn new things and are willing to adapt to different models? And I think there’s been traditionally a big mismatch between what the technology people offer and what is the reality of a long-term care situation.”

Liddy Manson

Director of Georgetown

University’s Aging Well Hub

The panel discussed how businesses focused on serving older people balance risks and opportunities. Anderson noted that, in CI’s experience, policy, longevity and business sustainability are intertwined: securing healthcare access for people with disabilities means those people live longer, which helps CI’s business. On the other hand, Velleca pointed out that it is possible to overspend on medical care. Someone has to pay these costs, and in some cases there is little demonstrated return on investment for extremely high expenditures. Manson noted that many new products in the healthcare space are consumer products seniors would have to pay for themselves, yet these consumers are on a limited income and so are unlikely to adopt new products unless they have an emergency. One paradox, Manson pointed out, is that low-cost solutions may well fit consumers’ needs better, but because manufacturers of these products have smaller marketing budgets, they face an uphill battle against larger companies with offerings that are more expensive for the consumer. Mallernee expressed his view that senior services could offer attractive and untapped investment opportunities.

Brown put forward the idea that if the U.S. government cannot deliver the benefits it has promised, people need to save more, spend less and work longer. Mallernee noted that technological innovations, such as telecommuting, could help older people work longer and save money. Anderson noted that it is also important to develop a healthy culture in general, so that employees are healthy enough to keep working as they age. Manson agreed, noting that “successful aging starts at age 35,” not 80. She added that small group housing also offers better health outcomes and could be a more financially viable model for some people, so creative changes are needed in this space. Velleca noted that older employees offer more experience and different expertise, which can be a competitive advantage.

Can policies help? Manson stressed that non-medical care, such as for dementia, is not covered but should be. Velleca agreed, suggesting that the government needs to better invest in supportive health services. Noting that economics are about choice, Anderson said that as a society, “we need to choose life” over politics. Given lengthening life expectancies, panelists agreed that it is also important to reassess, as a society, our expectations about when a person should retire and what retirement looks like.

In the end, the systems and solutions we need to support an aging society will be made up of people—people working to understand and help other people. New technologies hold great potential, but even the best ideas will fail if they are not specifically designed, implemented and marketed for older customers. In closing, panelists highlighted how breakthrough technologies such as self-driving cars, robotics, smartphone extensions, artificial intelligence and regenerative medicine can improve the outlook for today’s seniors—and tomorrow’s.





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