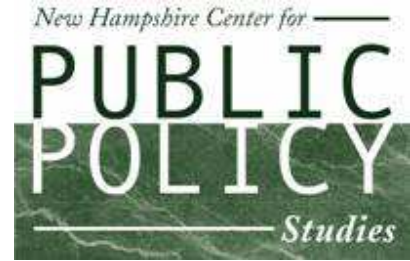


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ddelay@nhpolicy.org

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carredondo@nhpolicy.org

New Hampshire’s Silver Tsunami: Aging and the Health care system

September 2011

Author

Steve Norton
Executive Director

About this paper

This paper is one of a series published by the NH Center for Public Policy Studies on the broad topic of health-care finance and insuring the New Hampshire workforce. The Concord-based Endowment for Health has sponsored this work.

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Executive Summary

For decades, health care spending in New Hampshire has outpaced overall economic growth – a trend projected to continue into the future. This has caused no small amount of concern for legislators trying to balance state budgets and business owners managing their bottom lines. Prices and utilization are two obvious drivers of this growth: Put simply, health care is getting more expensive, and people are receiving more care, more often.

But there is a less obvious factor behind this trend, as well: New Hampshire's aging population, which will play a major role in shaping health care spending in coming decades. By the year 2020, the state's shift towards an older population will reach a peak. And by 2030, nearly half a million Granite Staters will be over the age of 65 – a so-called “silver tsunami,” representing almost one-third of the population.

Health care use varies by age and gender, and as New Hampshire's demographics shift, the health care demands of the state's population will reflect those changes. This analysis by the Center is an attempt to understand this phenomenon and help policymakers, businesses and health-care providers plan for its implications.

At the heart of this analysis is a projection of health care spending by the major payers (Medicaid, Medicare and private insurance) that can be attributed solely to the aging of the state population. We also explore how an older population may impact the state's workforce and the state budget. An aging population will likely place new financial pressures on Medicaid, a shift that will have a big impact on future state budgets. However, many other areas of state government will be affected by New Hampshire's aging population and its impact on health care, including the Department of Corrections and the Department of Administrative Services.

Among our findings:

An older population will reshape the way New Hampshire pays for health care. Our simulations of health care spending show Medicare, the federal insurance program for those over 65, assuming a larger share of total health care expenditures, as many older residents shift from private insurance to Medicare. But because Medicare reimbursement rates fall short of the actual cost of providing care, this shift will put pressure on the health system to provide more care with less money. This, in turn, will likely accelerate the increase in premiums for private insurance, as care providers look to offset losses from Medicare reimbursements.

Medicaid's financial focus will shift. Currently, Medicaid allocates 25 percent of its total medical spending to those over 65. Assuming no significant changes to the services provided to that population, that percentage will increase to 52 percent by 2030. As the population ages, the share of Medicaid program expenditures associated with long term care will increase very quickly.

Aging will affect New Hampshire's regions in very different ways. Demographic trends across the state vary considerably. Therefore, the impact of aging on the health care system needs to be understood differently from region to region. Current population projections indicate

that the share of the population over the age of 65 in Coos County, for example, will grow almost 38 percent by 2030. This shift towards an older population would seem to strain the existing health care system. However, it may actually stabilize the financing of the system. As Coos County's population ages, an increasing share of residents will be eligible for Medicare, which provides cost-based reimbursement to Androscoggin Valley Hospital, a critical-access hospital. In contrast, Carroll County, in which much of the aging of the population is driven by retirees migrating to the region, will likely experience a different effect.

Aging will play an increasingly central role in state budget policy. The aging of the population will have a profound impact on many areas of the state budget, including the purchase of health insurance for state employees and retirees, as well as for the state's prison population. One example: In less than 20 years, the number of elderly inmates will more than double. The state – and its taxpayers – will be responsible for paying for their health needs. It's possible the increase in the segment of the prison population will require the construction of a "nursing home behind walls." How should that factor into larger conversations about corrections reform in New Hampshire?

Efforts to recruit and retain a health-care workforce will face new challenges. New Hampshire physicians are already significantly older than the nationwide physician population. And as the portion of retirees increases, it will bring to the fore concerns about who will care for this aged population. What role will this trend play in New Hampshire's long-range economic development and workforce plans?

Health care spending in New Hampshire

In 1998, New Hampshire's Gross State Product (GSP), the most comprehensive measure of the state's overall economy, totaled \$40.5 billion while total health expenditure was \$5.25 billion – 13 percent of GSP. By 2018, we anticipate that health care will account for almost 24 percent of GSP.

Figure 1 displays the percentage of the state's overall economy that is accounted for by health care over the past 30 years. Through the 1980s, health care accounted for about 10 percent of the overall economy. With the onset of the 1989 recession, that percentage began to grow and reached just under 14 percent in 1993. The rapid expansion of the state's economy in the 1990s, coupled with more tightly managed health care through the expansion of health maintenance organizations (HMOs), resulted in health care's share of the economy declining slightly. The economic slowdown in the early part of the past decade and the waning influence of managed care resulted in health care expenditures again increasing sharply as a percent of the overall GSP. Even with robust estimates of economic growth (4 percent per year), health care will continue to increase as a share of overall economic activity.

Figure 1: Health Care Spending in New Hampshire

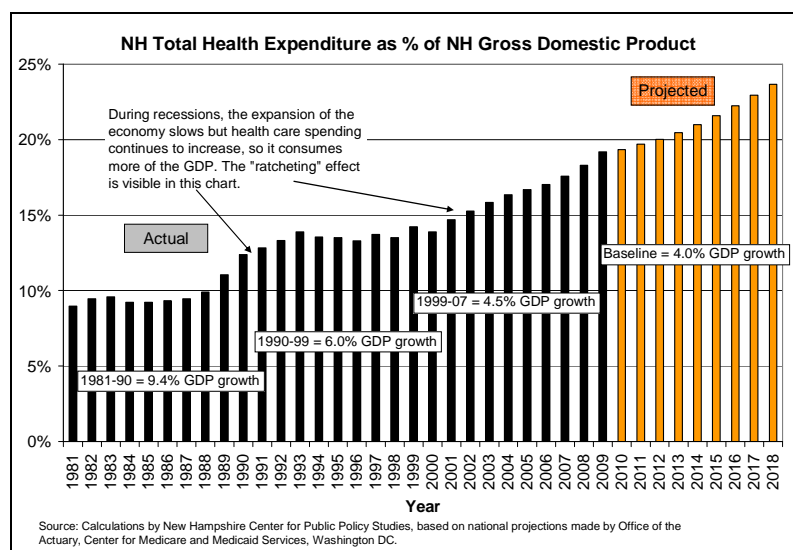
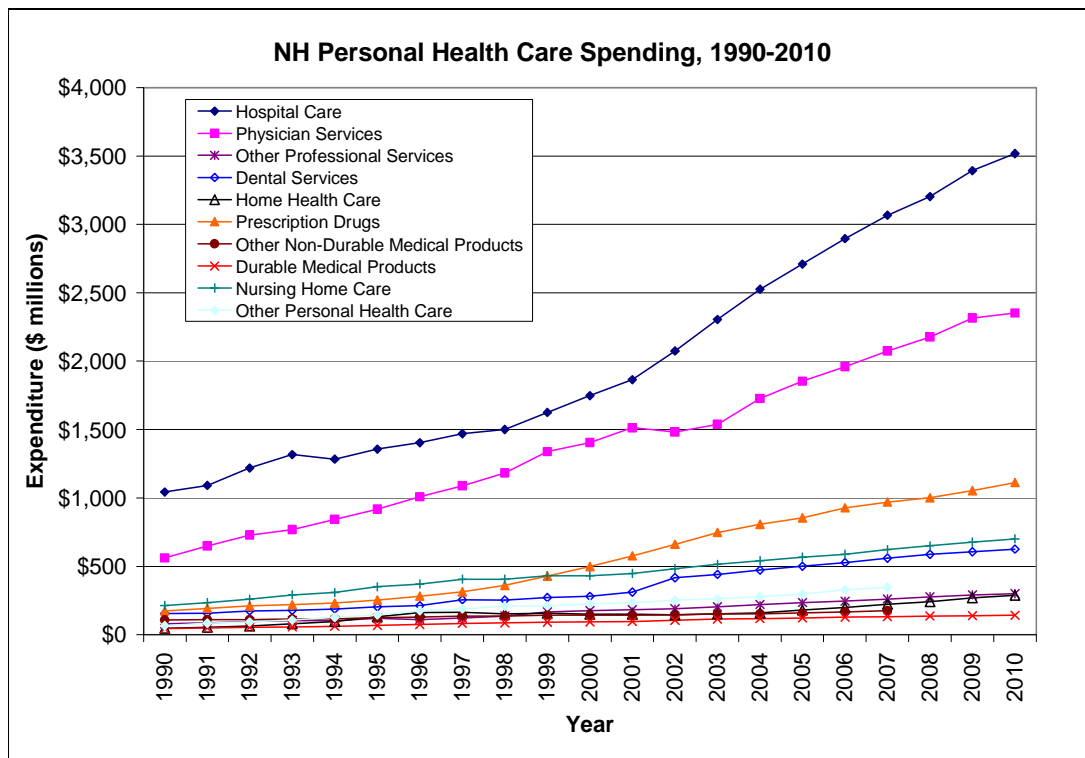


Figure 2 illustrates the primary sources of growth in aggregate health care expenditures. Hospital care and physician services remain the primary drivers of health spending in the state. Although there was a period in the 1990s when hospital care spending did not climb as rapidly as other health spending, expenditures for hospital care have escalated since 2000. The recent increase in spending for prescription drugs is clear, but even this rapid growth is small compared to changes in other sectors of health care.

Figure 2: Personal Health Care Spending is driven by hospital care

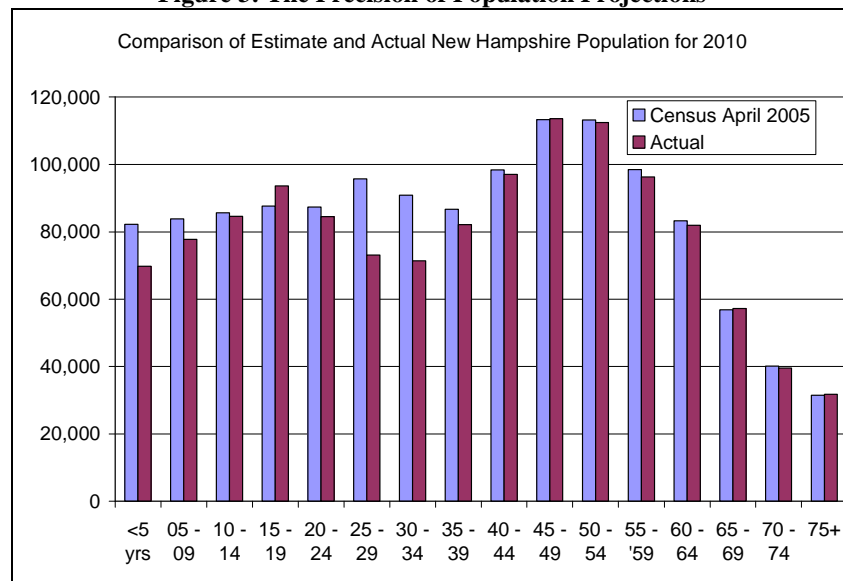


Predicting the future: the aging of New Hampshire

The U.S. Census provides a rich source of information on the population changes that have occurred across the country over the years. In addition to data that allows us to look retrospectively at how things have changed, the Census Bureau and the New Hampshire Office of Energy and Planning produce population projections that let analysts and policymakers discuss possible future outcomes. The Census Bureau works with the state Office of Energy and Planning to compile data on tax records, Medicare records and some vital statistics information. The Office of Energy and Planning also supplies vital statistics and information about group living quarters, such as college dorms and prisons, which will affect population projections. The Census Bureau and the Office of Energy and Planning combine Census and administrative record information to produce current population estimates consistent with the last decennial Census counts.

Although we base much of our analysis of New Hampshire's changing demographics on these population projections, we do so to spark conversation about the potential impacts of aging, not to suggest that the estimates are precise. No forecast of population change can be perfect. However, most of the difference between forecasts and the actual changes can be attributed to assumptions about migration. This is illustrated in Figure 3 below, which compares the forecast for New Hampshire's 2010 population broken down by age, as projected by the Census Bureau in 2005, to the actual population figures.

Figure 3: The Precision of Population Projections



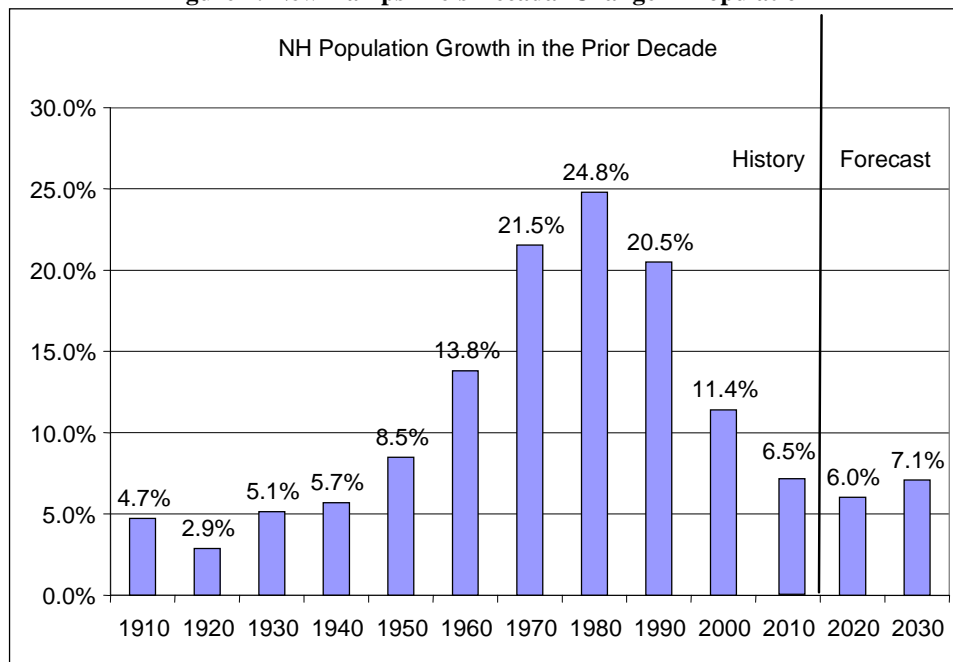
The chart shows that the Census Bureau overestimated the number of New Hampshire residents between the ages of 25 and 39. This is the age group most likely to move out of state. In addition, the overestimate of children under the age of five is probably tied to assumptions about fertility and the number of residents aged 25 to 39 – the population cohort most likely to have children.

In what follows, we provide a description of historical changes in population and an analysis of population projections.

Our high growth years are behind us

Even though New Hampshire is expected to be the fastest growing state in New England through 2030, the state’s future population growth is expected to be slower than in the past. Figure 4 shows New Hampshire’s percent change in population growth for all decades since 1900. It also includes the latest forecasts through the year 2030 from the state Office of Energy and Planning.

The years shown on the chart signify each decade’s end. For example, between 1970 and 1980, New Hampshire’s population increased 24.8 percent, the fastest growing decade in the past century. The decade from 1960 to 1970 was the second fastest, when New Hampshire’s population increased by 21.5 percent. However, from 1990 to 2000, New Hampshire’s growth rate slowed to nearly half that of the previous decade, 11.4 percent compared to 20.5 percent.

Figure 4: New Hampshire's Decadal Change in Population

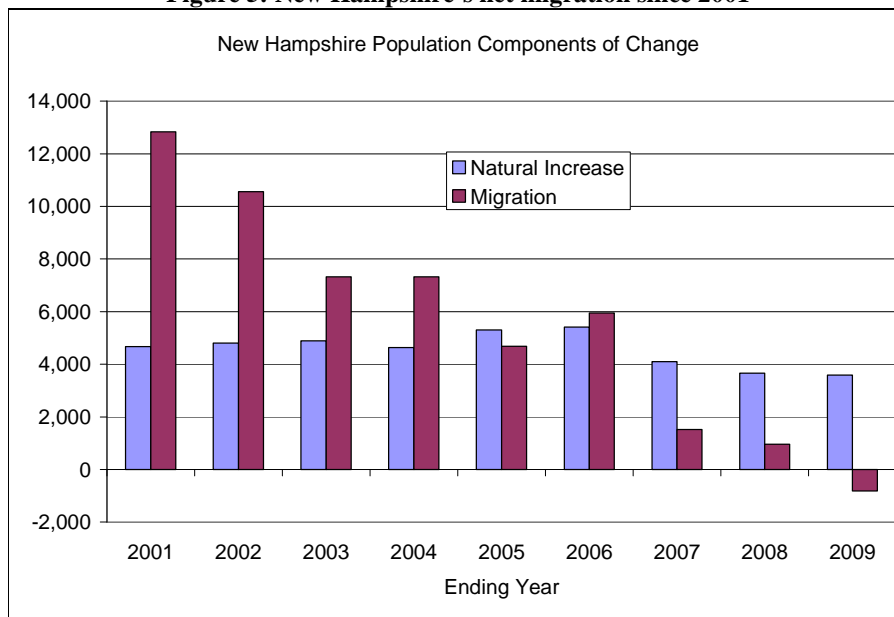
For the forecast beyond the year 2010, New Hampshire's population growth rates are expected to drop below recent decades. But even at these future rates (6 percent from 2010 to 2020 and 7.1 percent from 2020 to 2030), New Hampshire is still projected to grow faster than any other New England state.

In-migration has kept the state young

As New Hampshire grew at a slower pace in recent years compared to the 1980's and 1990's, our growth rate has lagged behind the national rate. Between 2000 and 2009, New Hampshire's population grew by 7.2 percent, slower than the national average of 9.1 percent and ranking it 24th among all states.¹

More than half of New Hampshire's population change during that time came from net in-migration – people moving into the state. However, net migration into the Granite State has slowed since the beginning of the decade, and more people left the state than arrived in 2009, as shown below in Figure 5. Natural increases – from new births – have stayed relatively constant since 2001, though they too dropped in the later years of the decade.

¹ U.S. Census estimates of Average Annual Rates of the Components of Population Change for the United States and States: April 1, 2000 to July 1, 2009, accessed at uscensus.gov.

Figure 5: New Hampshire's net migration since 2001

When natural population growth stagnates (i.e. the number of births declines), we would expect the population to age very quickly. However, such natural aging in New Hampshire has been offset by the in-migration of younger age groups. The state has historically experienced net in-migration of those in the 30-to-40-year-old cohort (and their children). Some demographers now believe that the recent recession – and the increasing difficulty of finding a job and selling a home – has fundamentally altered migration patterns across the country. If that is the case, New Hampshire will likely face an accelerated aging process, as fewer younger people move to the state.

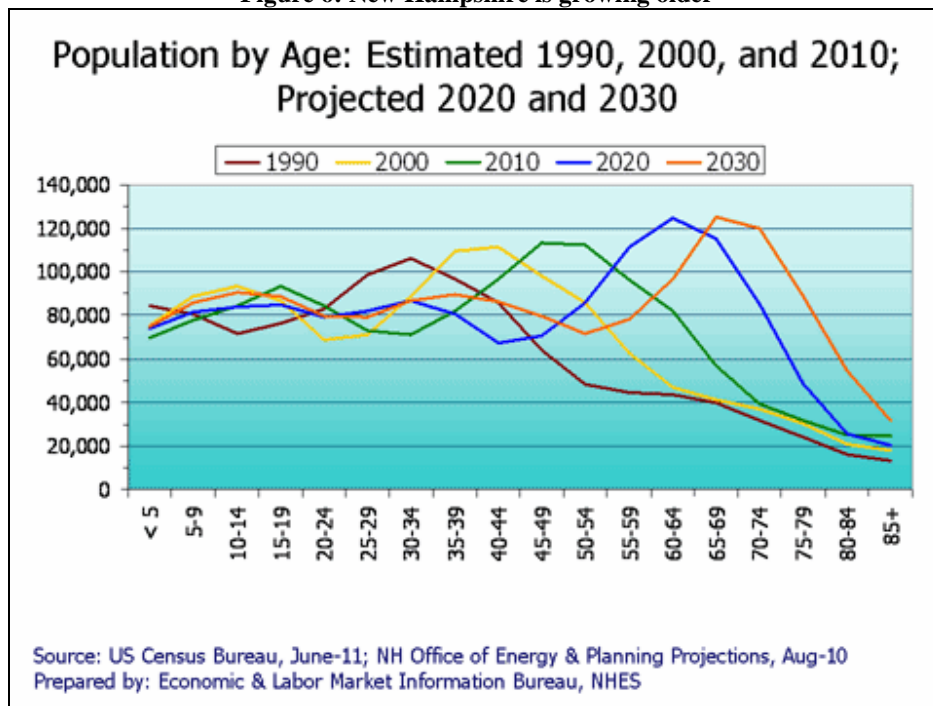
New Hampshire is growing older with fewer young people

As New Hampshire grows, its population is aging at a somewhat faster pace than the rest of the country. Figure 6 projects New Hampshire's population by age group through 2020, showing the post World War II “baby boom bubble” moving forward as it ages.

Somewhat harder to see in this graph is the projected decline in New Hampshire's young adult population. Recent studies of demographic change have concluded that the declining number of young adults in the state is not due to out-migration, but to the differential size of the birth cohorts born decades ago. Simply put, there are fewer young adults in New Hampshire today because women had fewer children 20 years to 30 years ago compared to women 60 years ago.²

² Ibid.

Figure 6: New Hampshire is growing older



The most interesting part of the above graph is the big increase in the population over the age of 65 in forecast years. The year 2020 will see the beginning of a great shift to the over-65 population. The shift will not start for a few more years, but will be clearly underway by 2020. Figure 7: New Hampshire will have a higher proportion of elderly residents in the future puts that forecast into a longer historical context by showing New Hampshire's population aged 65 and over, both in absolute numbers and as a percent of the total population. By the year 2030, nearly half a million New Hampshire residents will be 65 years or older, representing almost one third of the population. An aging population will require a different mix of social, health, housing, and other services than the current population mix now demands. The full impact of this change remains to be seen.

Figure 7: New Hampshire will have a higher proportion of elderly residents in the future

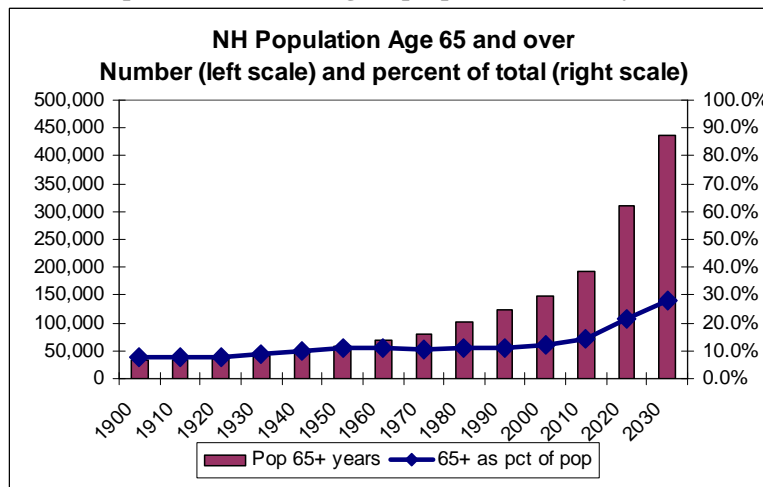
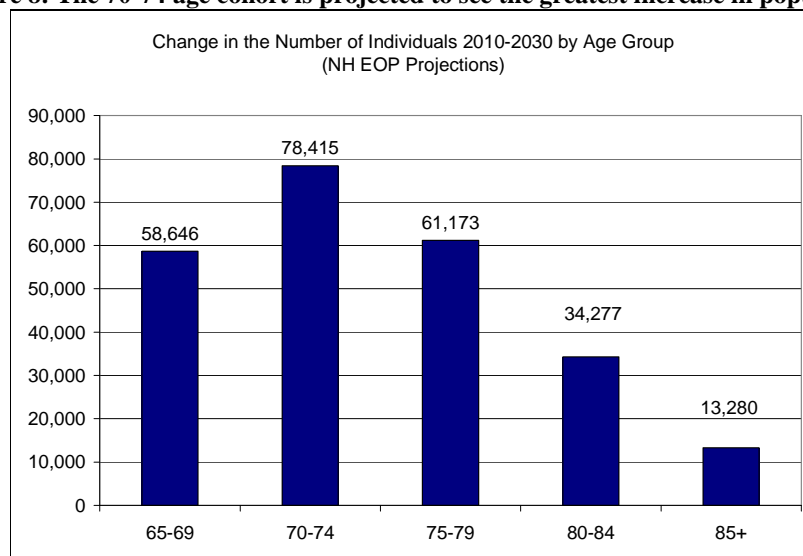


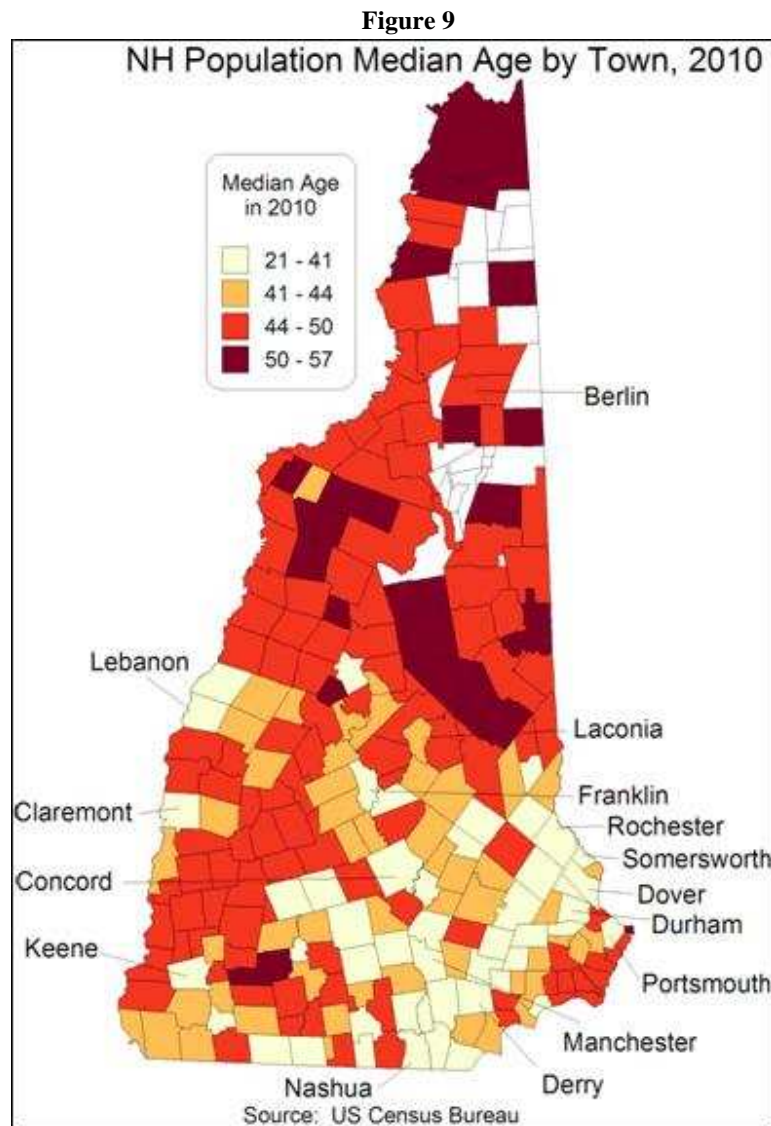
Figure 8 below breaks down the over-65 populations into more narrow cohorts. The fastest growing age cohort over the next 20 years will be those aged 70 to 74, but there is also significant growth in the number of individuals over the age of 75. This group – particularly those over the age of 80 – is much more likely to live in poverty and have significant medical and social services needs.

Figure 8: The 70-74 age cohort is projected to see the greatest increase in population



Not all communities will age at the same rate

The map in Figure 9 shows the state by median age, community by community, according to the most recent Census figures. The darker the shade of the community, the older the median age of its residents. (The statewide median age was 41.1 years in 2010, up from 37.1 in 2000.)

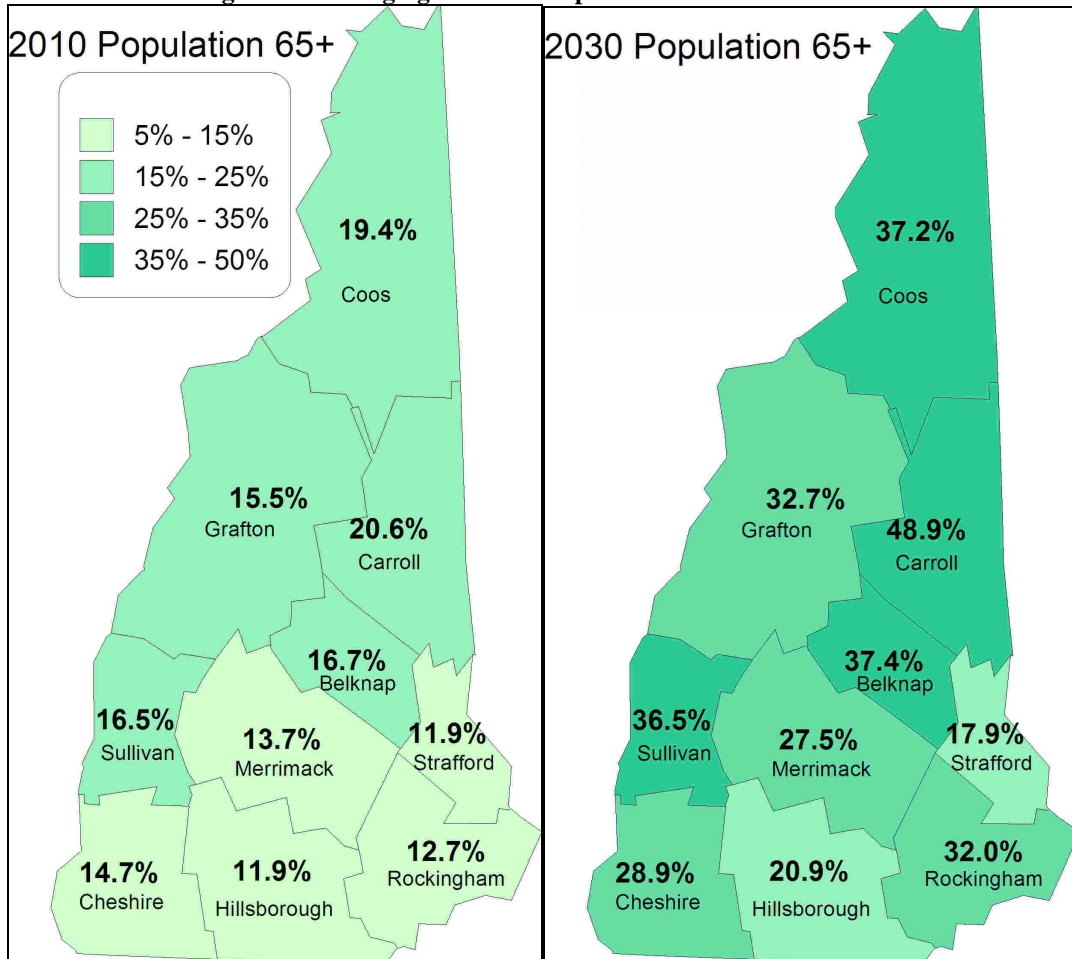


The map illustrates New Hampshire as two distinct regions when it comes to age: an older northern half, and a younger southern half. However, even in the younger half, there is a further subdivision, with the eastern region – between Interstate 93 and the Seacoast – significantly younger than the western portion.

These patterns of aging, which are a result of a complex set of factors – including migration patterns of younger families and older retirees – also suggest that the aging process will differentially affect New Hampshire communities. As was noted above, the year 2020 will see the beginning of the great population shift to the over-65 population. However, not all communities are expected to experience the same changes in population. In Figure 10 it is clear that some communities will see significantly larger increases in the population over the age of 65. Carroll County, because of the forecast for a significant increase in the number of retirees, is projected to have the highest share of the population over the age of 65 of any New Hampshire

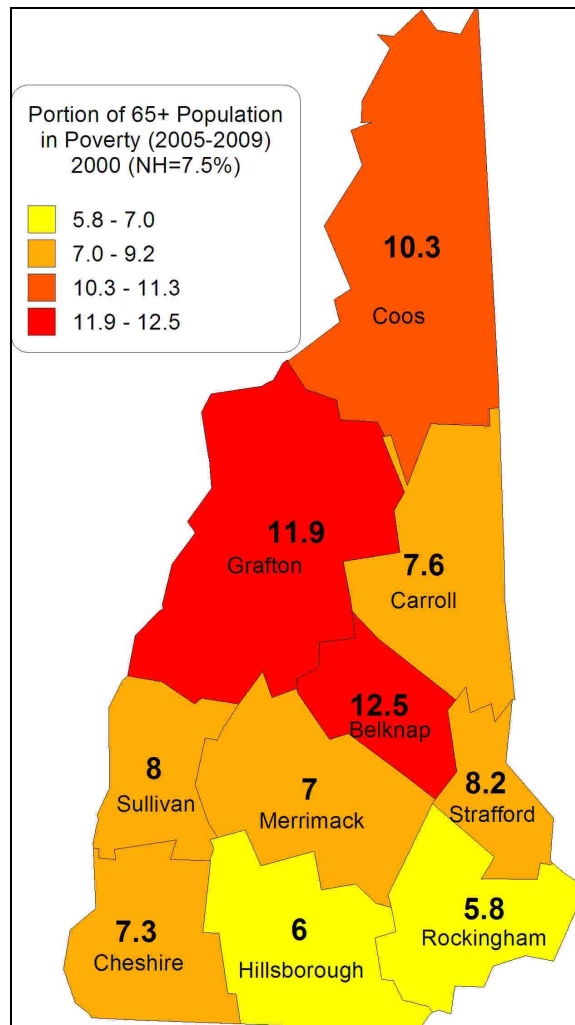
county. This variation raises important questions about how different communities will handle the population changes that will be occurring.

Figure 10: The aging of New Hampshire varies across counties



Older retirees who move to so-called “amenity communities” such as Carroll County differ significantly from populations that age in place, such as Coos County, particularly as it relates to income and poverty. (See map below.)

Figure 11: Portion of 65+ in Poverty

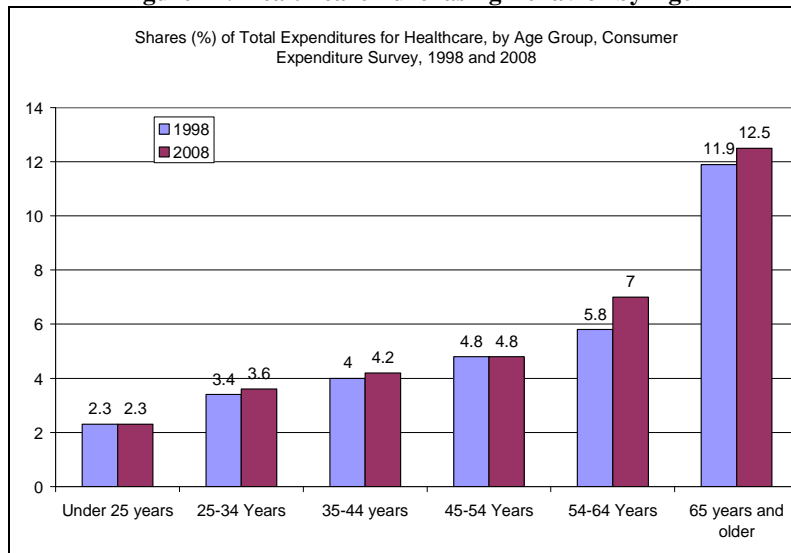


Aging and health care spending

One impact of an aging population will be a change in the demand for health care services. This change will vary considerably across sectors of the health care system. In the insurance market, for instance, Medicaid, Medicare, and private pay insurance companies are likely to experience the impact of an aging population in different ways. Similarly, the impact will vary considerably across the state. As discussed above, certain regions of New Hampshire are anticipated to age more quickly than others. Some will see an increase in the elderly population because of in-migration, while others will age in place, with current residents growing older. Each situation will present a different set of challenges to the health care system.

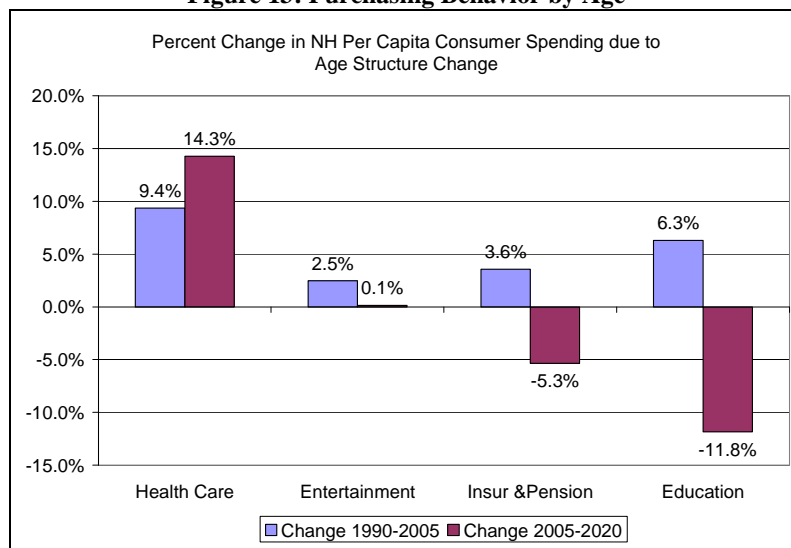
One reality for aging citizens is their need to spend a significantly higher portion of their money on health care than other goods (Figure 12). This is due both to changing levels of income as well as to changes in the demand for health care.

Figure 12: Health care Purchasing Behavior by Age



In Figure 13, we provide an estimate of the changes in consumer spending due to demographic change alone.³ Seniors spend more money on health care, for instance, and less on pensions and insurance. Seniors also spend less on education than other age groups.

Figure 13: Purchasing Behavior by Age

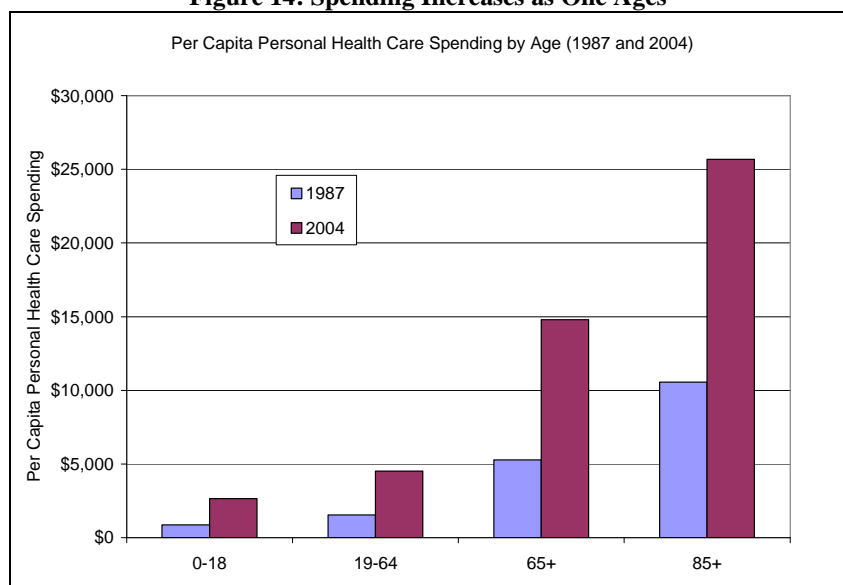


³ Simulation examines spending per capita by age group (based on the Bureau of Labor Statistics Consumer Expenditure Surveys for 1990 and 2005), and simulates the change in total consumer spending in 2020 based on the age structure of the population in that year. For example, because seniors spend more on health care an increase in the number of seniors will cause health care spending to rise.

New Hampshire health care spending will increase significantly in the future due to demographic change alone. Assuming that current age specific spending patterns do not change, we can expect per capita spending on health care to increase by almost 15 percent in the next 15 years.

That health care spending varies by age is well documented. As shown in Figure 14 below, personal health care spending for those 85 and above was almost 10 times as high as spending for children, ages 0-18 in 2004.⁴ This relationship between age groups and spending has remained somewhat consistent over time. Since 1987, the ratio of spending between the aged over 85 and children declined slightly, reflecting significant investments in national spending on children with the implementation of the children's health insurance program.

Figure 14: Spending Increases as One Ages⁵



This fact – increased spending as age increases – along with population projections showing significant growth in the aged population across the country, has sparked significant interest in the potential impacts on public finance, access to care, and the way health care is provided. Most research points to technology – the emergence and adoption of new techniques for managing health – as the primary driver of health care costs.⁶

However, a number of analyses have tried to disaggregate historical trends into the component parts. The Congressional Budget Office produced a report, for example, which projected federal spending on Medicare and Medicaid. Using an excess cost growth methodology – which attempts to disaggregate inflation and demographics from other factors – the report noted that approximately 25 percent of the expected growth in spending was a function of the aging of the

⁴ Hartman et. Al. U.S. Health Spending by Age, Selected Years Through 2004. Health Affairs 27, no. 1 (2008) w1-w12. Published online 6 November 2007; 10.1377)

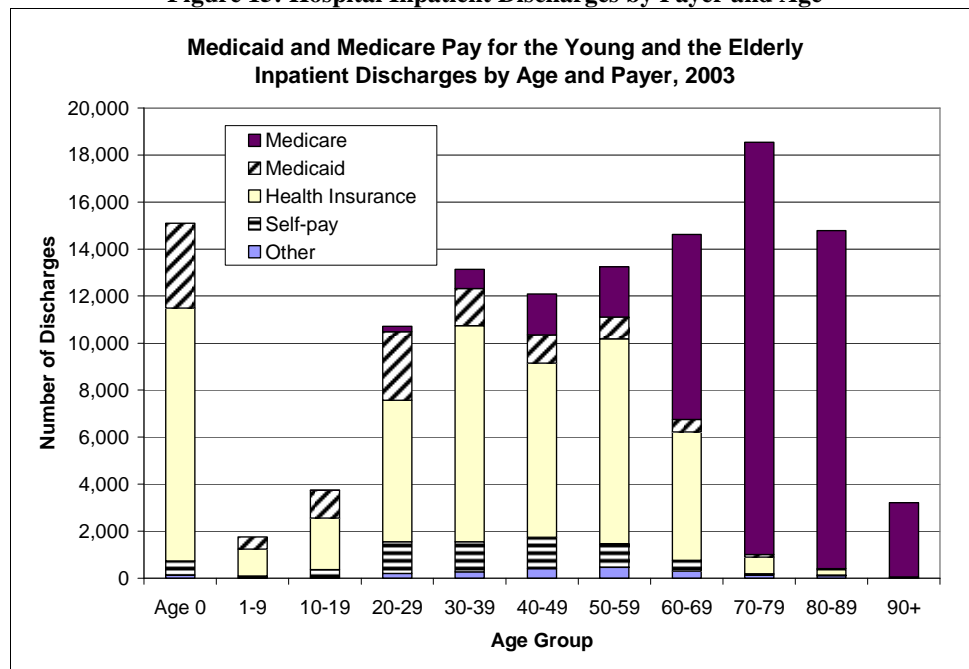
⁵ Ibid. Data taken from Exhibit 2: US Personal Health Care Spending, by Service and Age Group, Selected Years 1987-2004

⁶ Newhouse, Joseph. P., "Medical Care Costs: How Much Welfare Loss?" Journal of Economic Perspectives, vol. 6, no. 2 (Summer 1992).

population.⁷ Reinhardt's meta-analysis of studies showing the impact of aging on health care demonstrates that the aging of the population will have a demonstrable impact, but one that is dwarfed by the other factors driving health care, such as technology.⁸

Changing the level of funding is not the only way in which an aging population can change the health care system. In its analysis of hospital discharge data,⁹ the Center showed clearly that different payers pay for different populations. At least in this one area of acute care spending (see Figure 15), private insurance pays for the lion's share of health care expenditures for those under the age of 60. Medicare pays for most of the rest. Assuming for the sake of argument that this holds true for acute care services generally, the process of aging could significantly alter the underlying market dynamics by creating large shifts in market share between the private sector and Medicare and Medicaid.

Figure 15: Hospital Inpatient Discharges by Payer and Age



Estimating growth in direct medical spending due to aging

Aggregate health care costs increase for a variety of reasons: technological changes, increases in the costs of business inputs like rents, changes in the mix of services offered for a condition, increases in the number of people with access to health care and the type of care they receive.

⁷ Congressional Budget Office, "The Long Term Outlook for Health Care Spending. November 2007

⁸ Reinhardt, Uwe P. "Does the Aging of the Population Really Drive the Demand for Health Care?" *Health Affairs*, Vol 22. No 6 November/December 2003.

⁹ Norton, Steve and Peter Antal. "Peeling the Onion: Inpatient Hospital Care In New Hampshire." Working Paper, NH Center for Public Policy Studies. February 2006.

In this analysis, however, we attempted to understand the impact of an aging population on the health care system by aging existing health care expenditures, and holding constant other variables.

There were a number of methodological obstacles for this analysis. Data from each payer were not consistently available. Information on the use of services and expenditures associated with the 130,000 uninsured people in New Hampshire, for example, was simply not available. There is no source of data on the uninsured in New Hampshire. However, the uninsured tend to be younger, so this omission does not significantly affect the overall assessment of the impact of the aging of the population.

In addition, the data were not available with the same level of granularity (by type of service, by age, and by geography) or for the same time periods. For simplicity's sake, and because Census population data were available for 2010, we attempted to normalize all data to 2010 dollars, although data on the underlying population, participation, and expenditures were generally not available for that time period. We note where our estimates were adjusted.

Methodology for simulating the impact of aging on direct medical expenditures by age

Medicaid

For Medicaid, we use administrative data to develop health spending estimates by age, gender and type of service. The Medicaid estimates are based on data provided by the Office of Medicaid Business and Policy, which include per member per month estimates for 2009 by age, gender and disability status and type of service.

We produce two estimates of the impact of aging in Medicaid. For aggregate estimates of spending by age in 2030, we multiplied 2009 participation rates in Medicaid (broken down by five-year age and gender cohorts) by population counts in 2030, and then in turn multiplied by per-member-per-month costs. This produces an estimate of aggregate costs assuming no changes in prices, service mix, technology or any other factors which might affect health care costs.

For estimates of spending by type of service in 2030, we use existing participation rates by broad age categories (< 19, 19-44, 45-64, 65-74, 75-84, and 85+) and by type of service (including inpatient and outpatient hospital, skilled nursing facilities, intermediate care nursing facilities, mental health centers, clinic services, drugs, durable medical equipment, physician services, dental services, home and community based care for the elderly and the disabled, private non-medical institutions for children and all other services). Estimates of spending in 2030 based solely on the projected population changes were produced by multiplying population counts in 2030 by participation rates by age and type of service by per member per month costs by type of service. This produces an estimate of expenditures assuming no changes in prices, service mix, technology or any other factors which might affect health care costs.

Medicare

We were unable to collect data on Medicare spending in New Hampshire by age or type of service. As a result, we produced only one estimate of the impact of aging on spending on Medicare and were forced to rely on some non-New Hampshire specific data to do so.

To estimate aggregate spending on Medicare, we rely on the most recent data available on national annual Medicare spending by age group (2004 inflated to 2010) and New Hampshire specific information on Medicare enrollment by age (2009) and population in 2010 and population projections in 2030. Mathematically, estimates of Medicare spending in 2010 are computed-based on the number of enrollees in 2009 multiplied by national average Medicare spending in 2004 inflated to 2010. Estimates of Medicare spending in 2030 are produced by multiplying population counts in 2030 by participation rates by age and then by the inflation adjusted estimates of Medicare spending in 2010.

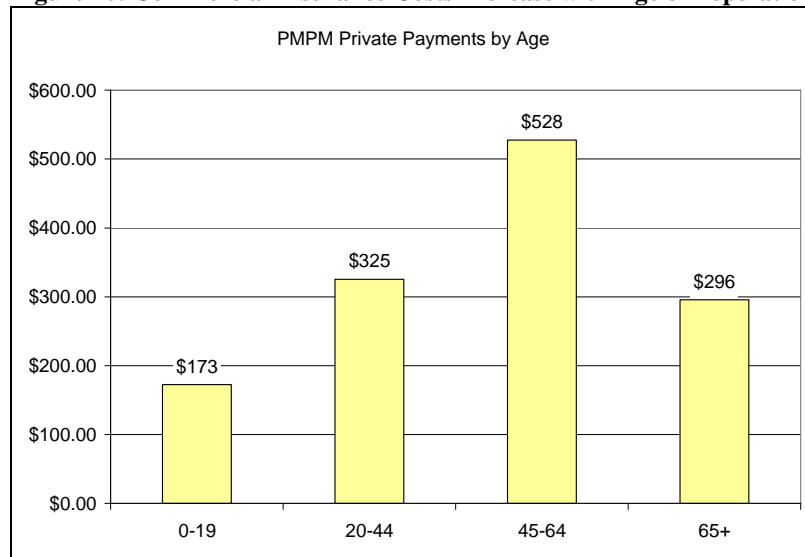
Private insurance

For spending in the private sector, we use administrative data from the state's comprehensive health information system and estimates of spending by age group and type of service produced by the New Hampshire Department of Insurance. For aggregate estimates of spending by age in 2030, 2009 health care service participation rates in the private sector by 5 year age cohorts are multiplied by population counts in 2030 and in turn multiplied by per member per month costs. This produces an estimate of aggregate costs assuming no changes in prices, service mix, technology or any other factors which might affect health care costs.

Simulating the impact of aging on commercial insurance

As shown in Figure 16 below, per-member-per-month expenditures generally increase as an individual ages through the private insurance market. Children (ages 0-19) are relatively inexpensive, with monthly expenditures under \$173 per member per month. Per-member-per-month expenditures increase for adults, up until one reaches the 65-plus age cohort, where commercial per member per month expenses decline given the availability of the Medicare program.

Figure 16: Commercial Insurance Costs Increase with Age of Population



The type and intensity of service use changes with age, which explains the significant increase in the per-member-per-month costs as the population ages. As shown in Figure 17 and Figure 18 below, in younger populations a significantly higher share of health care resources are spent on primary care. For those between 0 and 19 years of age, for example, almost 20 percent of commercial expenditures are spent on primary care services compared to only 6 percent for those between 45 and 64. Conversely, the older population uses a higher share of prescription drug and hospital services than the younger cohorts.

Figure 17: Distribution of Commercial Spending by those 0-19

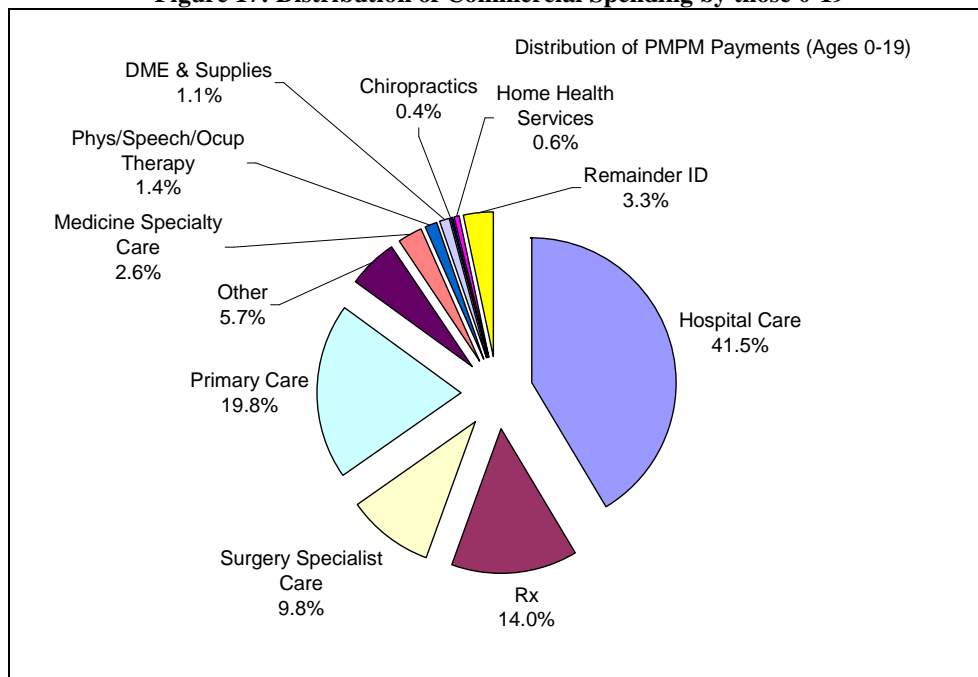
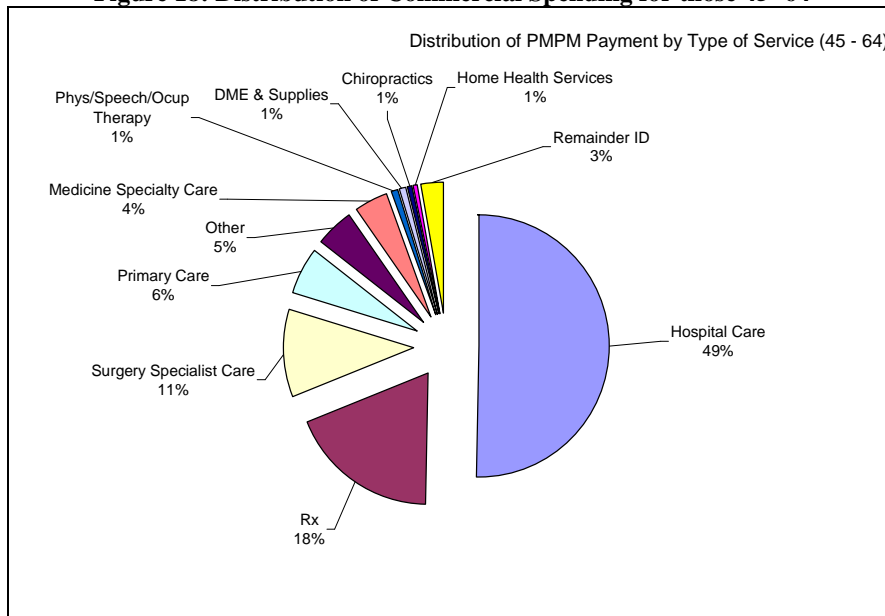


Figure 18: Distribution of Commercial Spending for those 45- 64



The implication of this relationship between aging, service mix and intensity is that aggregate health expenditures will increase as the population increases. In a recent analysis of commercial claims data, the New Hampshire Department of Insurance found that, between 2005 and 2009, the average age of the underlying insured population increased by almost 2 percent. Figure 19 below shows the distribution of the commercially insured individuals by age. This graph shows that the proportion of those aged 50 to 64 increased and the population between 30 and 50 decreased.

Figure 19: The Changing Age Distribution of Commercial Health Insurance Membership

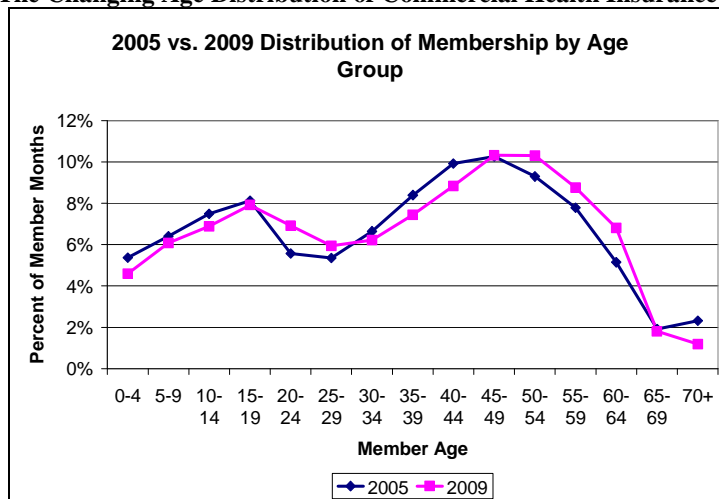
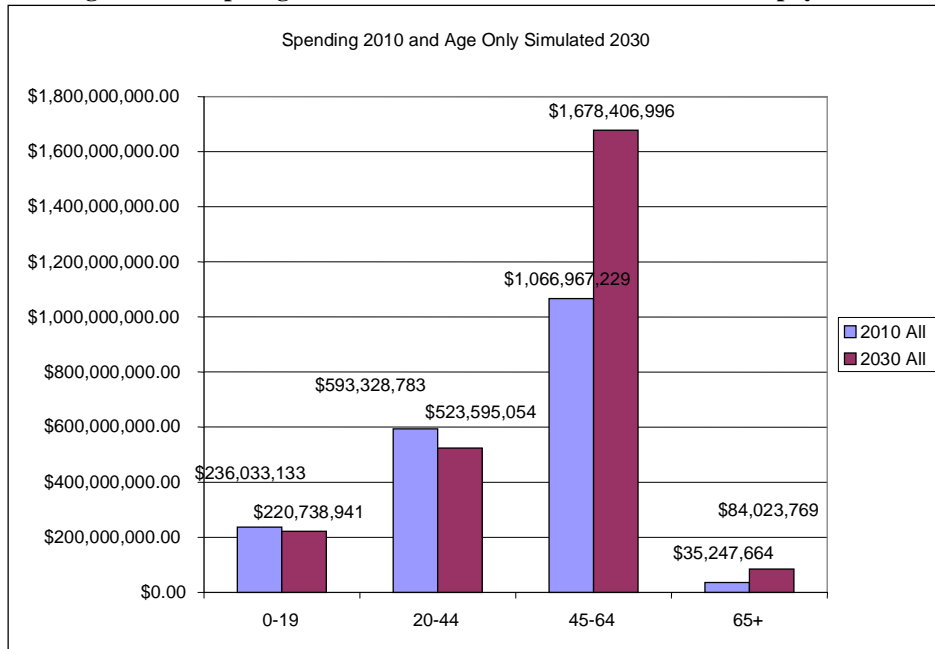


Figure 20 below shows our simulation of spending by age from 2010 to 2030. Because the population of individuals in the younger age groups declines, total expenditures in those age groups decline as well.

Figure 20: People aged 45 to 64 will drive commercial insurance payments.

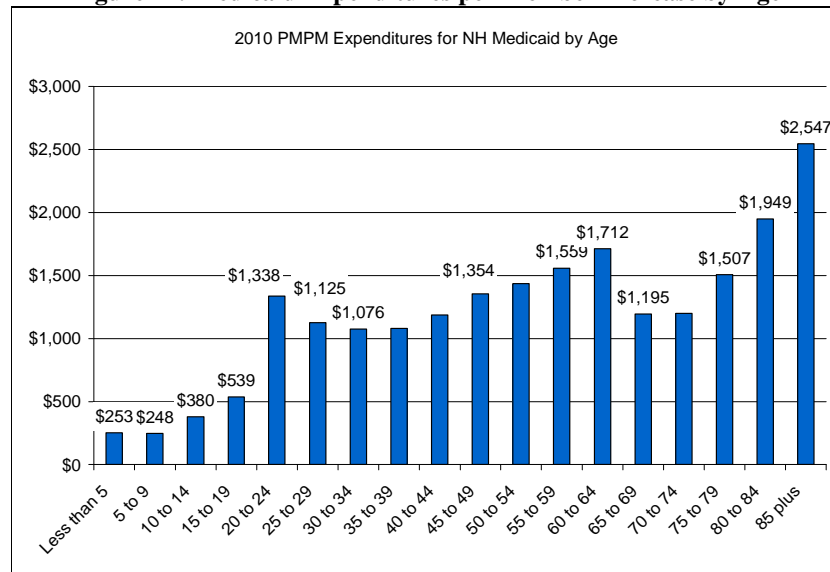


Simulating the impact of aging on Medicaid

As shown in

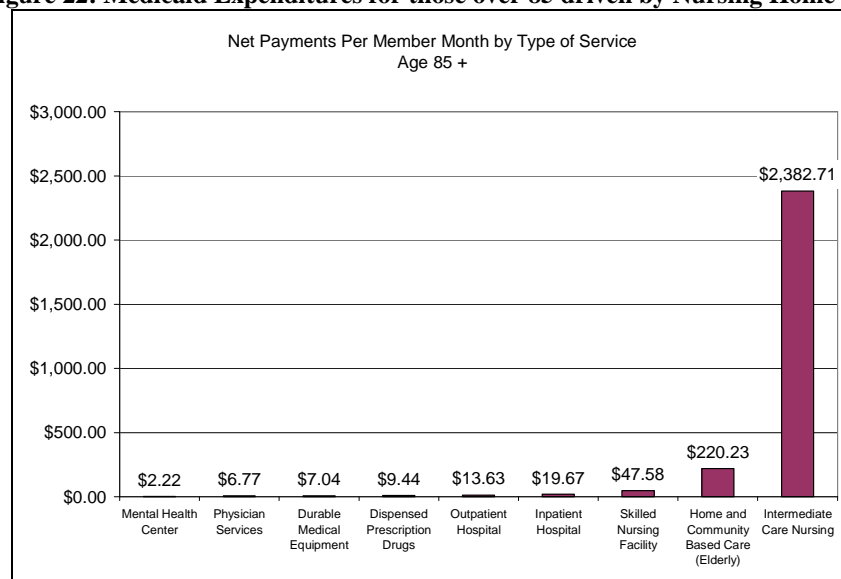
Figure 21 (next page), per-member-per-month Medicaid expenditures generally increase as one ages. Children under 18 are relatively inexpensive, with monthly expenditures under \$600 per month. Monthly expenditures increase for adults; this is because the state's Medicaid program covers a smaller but more expensive adult population, including pregnant women and those with mental or physical disability. The highest cost individuals are in the 80 plus group.

Figure 21: Medicaid Expenditures per Member Increase by Age



Expenses are higher in the 80-plus age cohort because of the high rate of nursing home use. As shown in Figure 22, per-member-per-month costs in the 85-plus age group are driven by a per month cost of approximately \$2,400 for nursing home services.

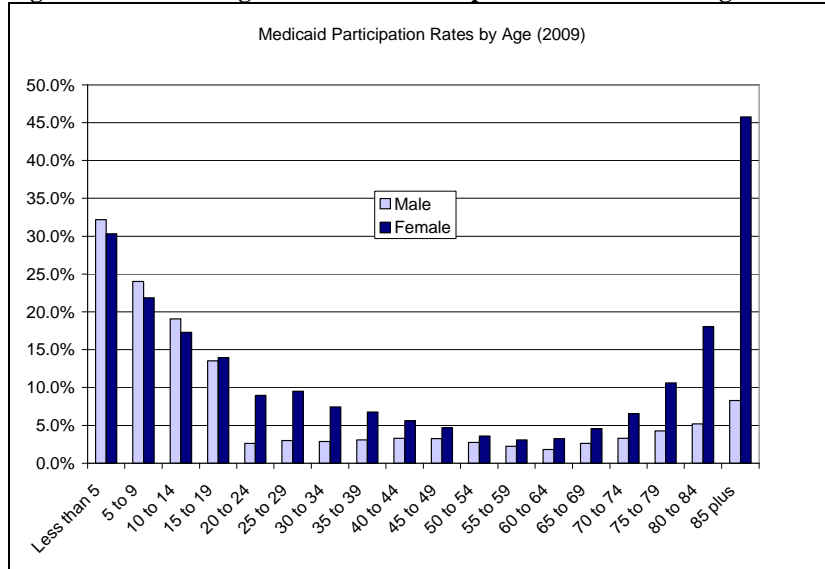
Figure 22: Medicaid Expenditures for those over 85 driven by Nursing Home Use



We also know that different age and sex cohorts participate in the Medicaid program at different rates – in part because of the characteristics of the Medicaid eligibility process, but also because financial security varies across age groups (See Figure 23). Medicaid covers a significantly higher rate of children than adults, because eligibility levels for children are higher (up to 300 percent of the federal poverty level) than for adults, who are largely only eligible when they are mentally or physically disabled. Moreover, the older a New Hampshire resident is, the more likely it is that he or she will be eligible for Medicaid. Women over the age of 85 are the most

likely to be Medicaid participants, with slightly more than 45 percent of people in that age cohort enrolled in Medicaid.

Figure 23: The Young and the Old Participate in Medicaid at Higher Rates



Given high Medicaid participation rates in the older age cohorts and significantly higher expenses associated with the use of expensive long-term-care services, what can we expect to happen to Medicaid as New Hampshire's population ages?

Figure 24: Medicaid Spending by Age and Gender in 2010

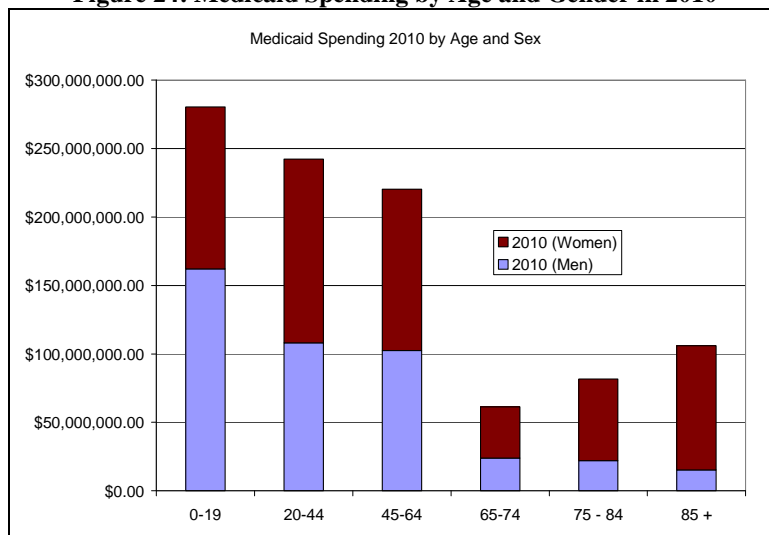


Figure 25: Simulated Medicaid spending by Age and Gender in 2030

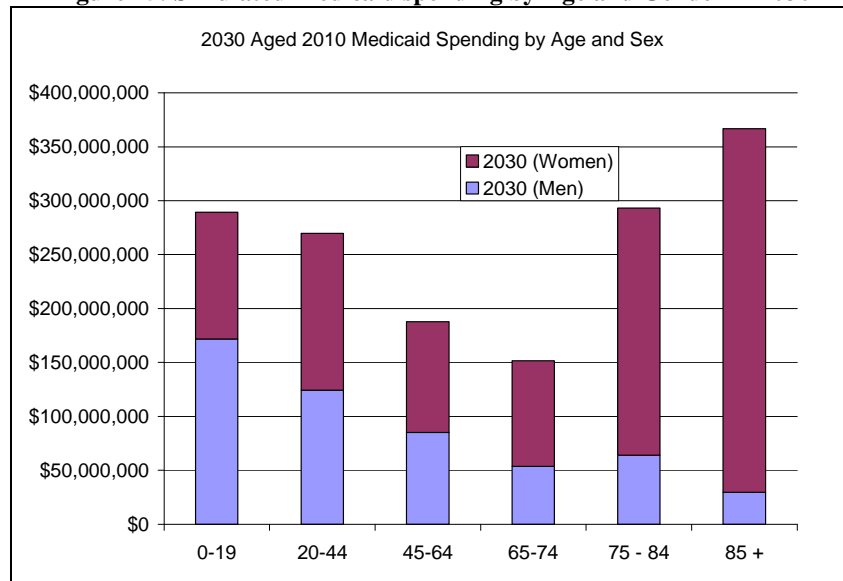
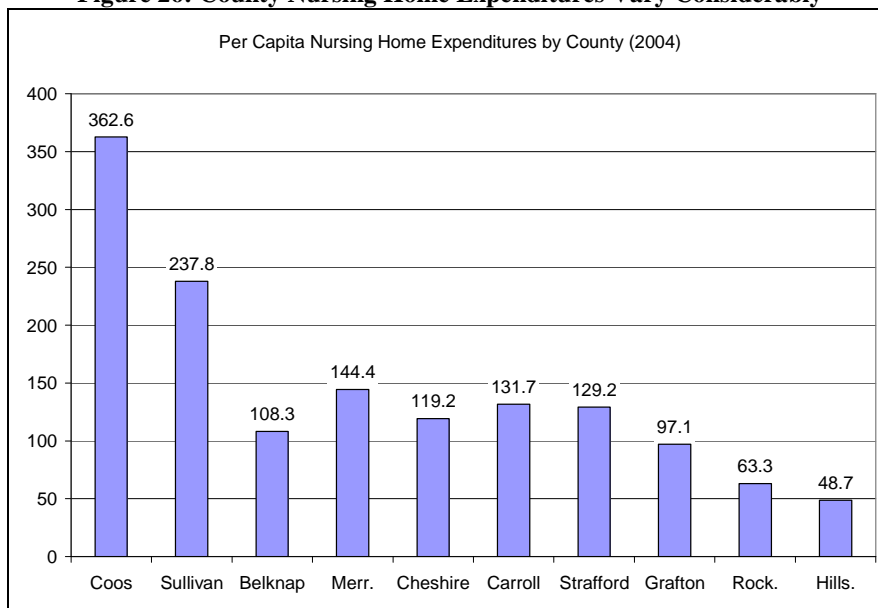


Figure 24 shows estimated 2010 aggregate Medicaid expenditures by age, and Figure 25 shows estimates of spending in 2030 based solely on the aging of the population. Across this simulation period, estimated Medicaid expenditures remain flat or decline slightly for the population younger than 65. However, Medicaid expenditures for the elderly skyrocket. The population over the age of 65 increases considerably, and the population over the age of 85 increases the quickest. In 2010, expenditures for those over the age of 85 were roughly \$100 million. In the simulation, which looks at only the aging of the population, we see a threefold increase in expenditures. In other words, by 2030, aging alone could result in expenditures exceeding \$350 million.

This change in the distribution of expenditures will have profound implications for the management of Medicaid. Under the current long-term-care system, much of the financial burden of the system is borne by New Hampshire's ten counties, even though the program's policy parameters are set by the state. As shown in Figure 26, counties have faced significantly different financial burdens associated with Medicaid long-term-care expenditures.

Figure 26: County Nursing Home Expenditures Vary Considerably

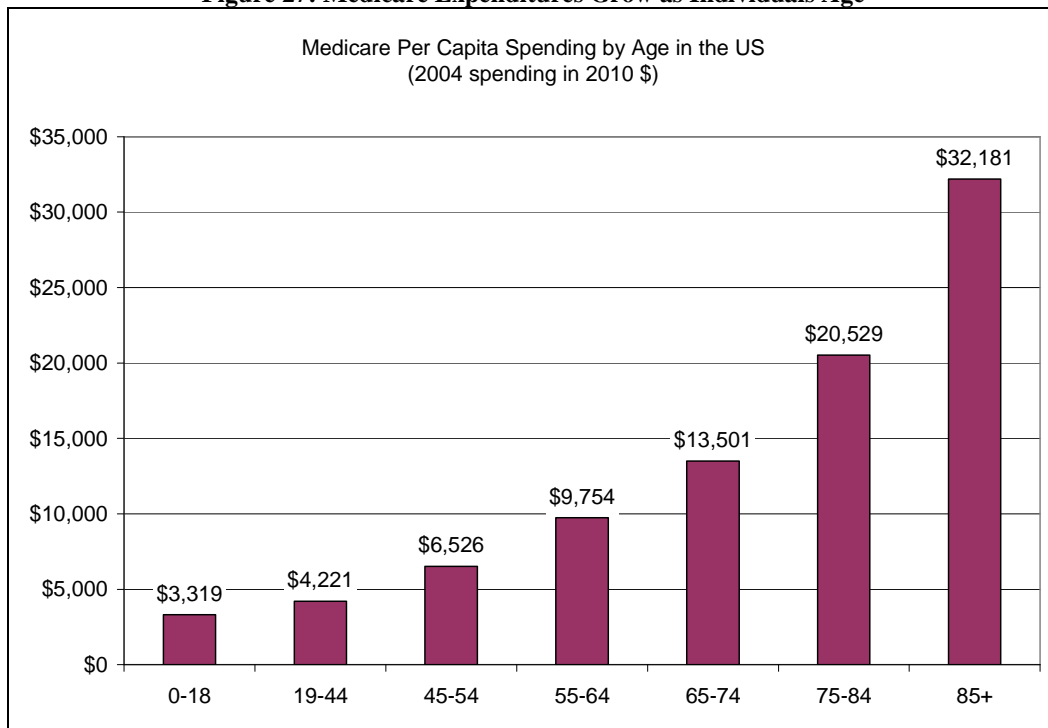
Nonetheless, there will likely be significant concern that the state will have to reconsider its policies and financing of the long-term-care system. For instance, the state will have to grapple with questions about the moratorium on nursing home beds. In addition, the state will have to examine whether the existing balance of community based, assisted living and nursing home capacity can meet the demands of the population. Because these programs take time to change – both politically and in planning – any reevaluation of the long-term-care system should happen sooner rather than later.

Moreover, the state's current focus on implementing managed care programs for its acute-care Medicaid program is a harbinger of times to come in the long term care arena. States across the country are struggling to find ways to manage long term care costs and are implementing strategies which include the use of managed care – and at times capitated reimbursement – as a means of providing more coordinated and cost-effective care.

Simulating the impact of aging on Medicare

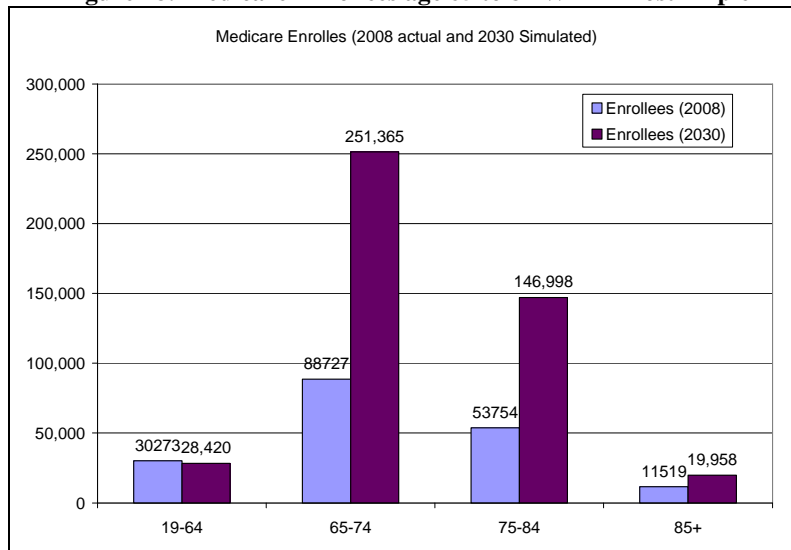
As in the commercial and Medicaid markets, per-member-per-month expenditures generally increase with age for Medicare enrollees. Figure 27 below shows Medicare's per-capita spending by age. These expenditures increase steadily from \$3,300 for children to \$32,000 for those over age 85.

Figure 27: Medicare Expenditures Grow as Individuals Age



As the population ages, more people will enroll in Medicare. As shown in Figure 28, if the individuals participate in Medicare at past rates, the number of people over age 65 in the program will almost triple.

Figure 28: Medicare Enrollees age 65 to 84 Will Almost Triple



The implication of these trends – an increasing number of more expensive individuals enrolled in Medicare – are obvious: Medicare expenditures will grow quickly. Figure 29 below shows the impact on spending to reflect projected populations in 2030 by age group. Total direct expenditures could grow from \$2.9 billion to slightly more than \$7.2 billion, an annual increase of almost 5 percent. As shown in Figure 30, this is a significantly higher rate of increase than our simulated changes in Medicaid and commercial expenditures.

Figure 29: Significant Growth in Medicare Expenditures for those 65 to 84

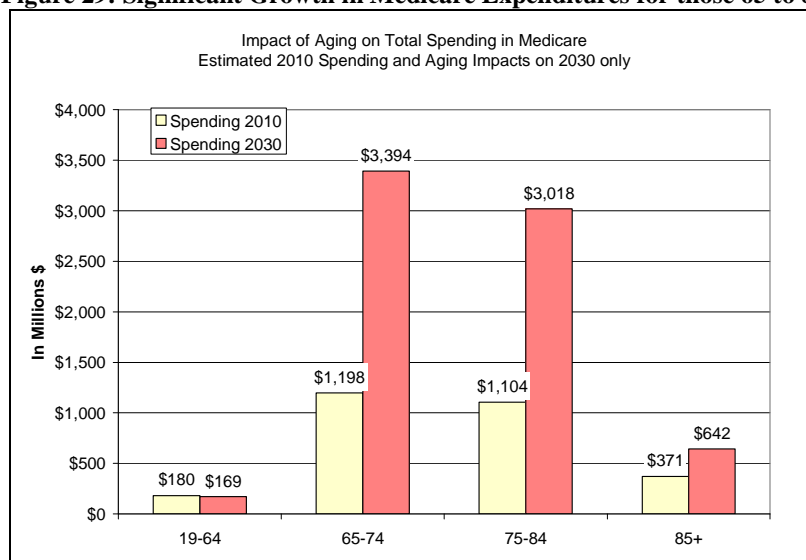
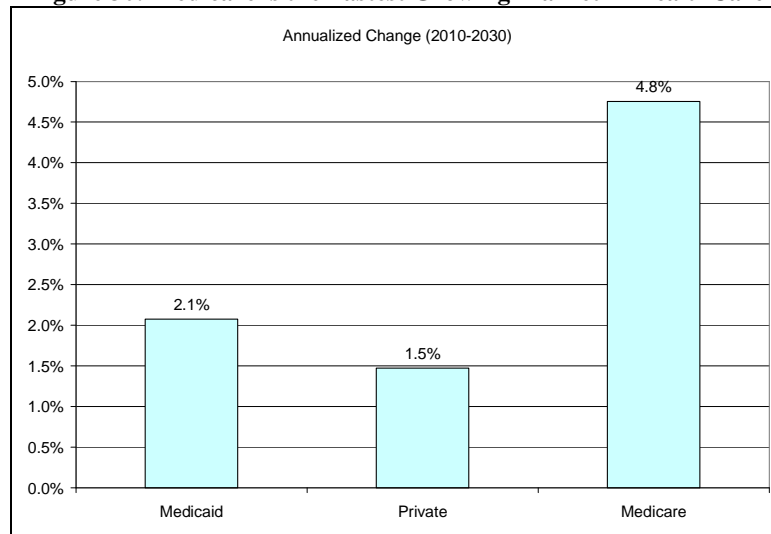


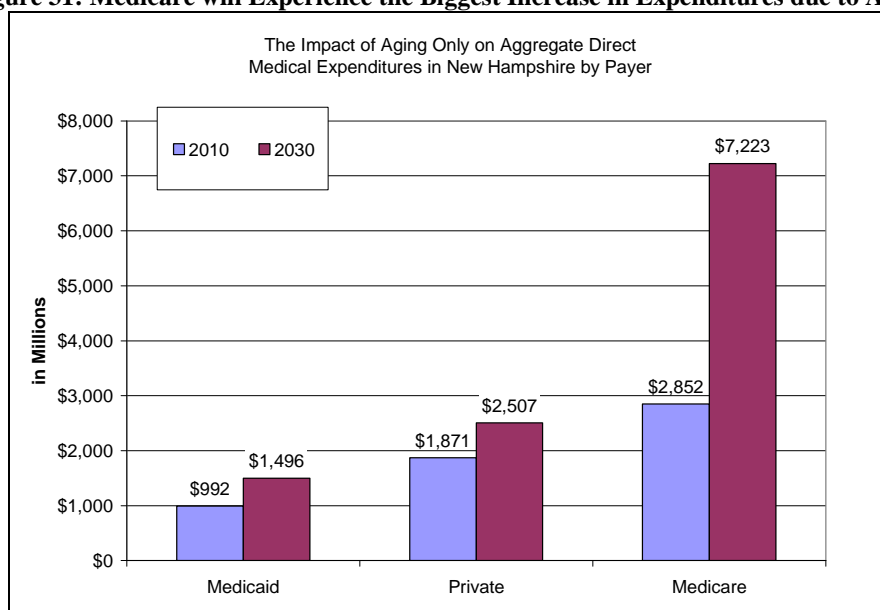
Figure 30: Medicare is the Fastest Growing Market in HealthCare



Changing market share: implications for private premiums

Across the health system as a whole, one of the most important impacts of an aging population will be the increasingly large share of the market managed by the public sector, particularly Medicare. As shown in Figure 31 below, our simulation of aggregate expenditures by age show a sizable increase in Medicare expenditures in New Hampshire, from roughly \$3 billion to more than \$7 billion. On an annualized basis, our simulations of aging indicate that Medicaid, private insurance, and Medicare expenditures will grow at 2.1 percent, 1.5 percent, and 4.6 percent per year, solely as a result of the aging of the population.

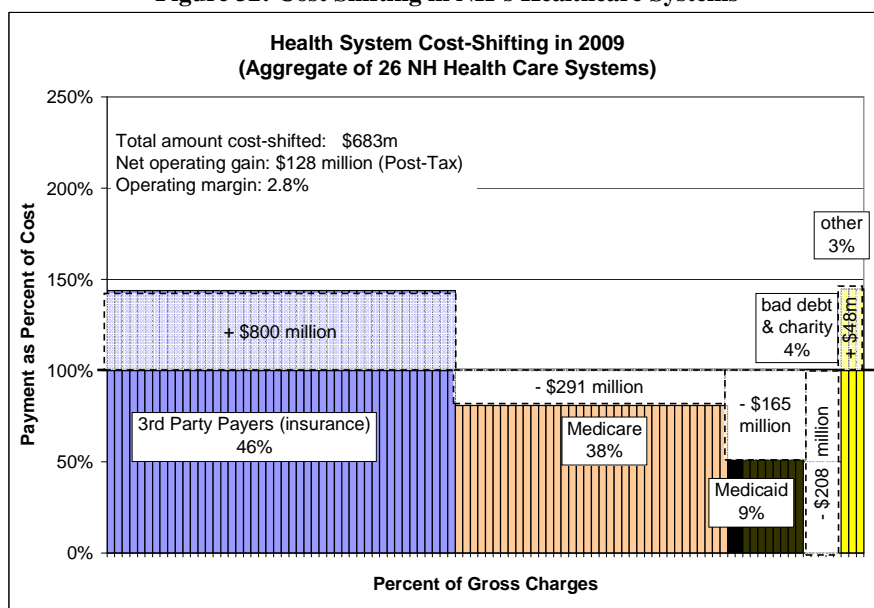
Figure 31: Medicare will Experience the Biggest Increase in Expenditures due to Aging



These trends will significantly increase Medicare’s share of the overall market, with far-reaching implications for the financing and management of the health care system. One of the most important implications will be the increased pressure on providers either to lower costs or to shift the expenses that are not covered by Medicare’s reimbursement rates.

Figure 32 below shows the health system cost-shifting in 2009. Medicare payments fell \$290 million short of the actual cost of services provided to Medicare patients. Health care providers offset this gap by charging privately insured patients above cost for their care. This is the fundamental tension at the heart of Medicare in an aging society – more people on Medicare, resulting in a greater need to cost shift, but fewer people who are privately insured, thus shrinking the pool of people you can downshift to.

Figure 32: Cost Shifting in NH’s Healthcare Systems



Thus, aging could accelerate the increase in commercial health care premiums for two reasons. First, as shown earlier, the aging of the population will increase the total anticipated expenditures in the commercial market. Second, increases in the total market share of Medicare enrollees – which reimburses providers at below expenditure levels – will increase the pressure on health care providers to cost-shift to the private insurance market. If that cost-shifting behavior is successful, health care premiums in the commercial sector would increase at a rate greater than they would otherwise due to changes in utilization and price. How this will happen in New Hampshire will depend on a complex set of market characteristics. A recent study found that hospitals, when faced with Medicare payment shortfalls, focused on raising prices to private insurers in non-competitive markets¹⁰. This will in part depend on the degree of competition in each health care market.

¹⁰ Robinson, James. 2011. “Hospitals Respond to Medicare Payment Shortfalls by Both Shifting Costs and Cutting Them, Based on Market Concentration.” *Health Affairs*, July 2011, 30:7.

Aging, health care and the state budget

Aging will touch almost all of the main spending drivers of New Hampshire's state budget. A declining population under the age of 18 will reduce the pressure on state education spending. At the same time, an aging population will require the state to reconsider policies around tax exemptions to elderly homeowners (as an aging population will increase the tax shift associated with those tax exemptions) and transportation policy.

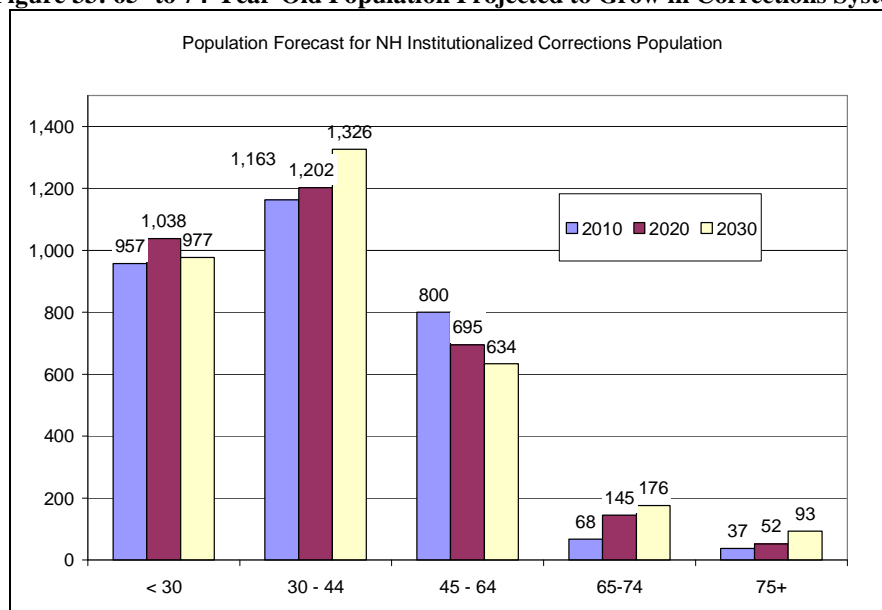
In addition, the state is a purchaser of health care, beyond the Medicaid program. For example, the state purchases insurance coverage for its employees. If that pool of employees ages at the same rate as the rest of the population, costs will rise quickly. In addition, the state has responsibility for the health care needs of its incarcerated populations. In what follows, we provide a description of how the health care demands of the corrections system could change with an aging demographic.

The corrections system

New Hampshire's incarcerated population will also age, which will have significant implications for the corrections system and the provision of health care within that system. In 2010, there were 105 people over the age of 65 living in state correctional facilities (including the state prisons for men and women and halfway houses). This number is likely to increase dramatically as the general population ages and as the population in the corrections system ages in place.

Using current incarceration rates and population estimates for 2020 and 2030, we can forecast the aging pattern of this population. This forecast assumes no changes in sentence length or other factors which affect incarceration terms. Figure 33 below shows the Center's forecast for the prison population by age. Not surprisingly, given the fact that incarceration rates are much higher for the younger population, the number of incarcerated individuals is driven in large part by those under the age of 64.

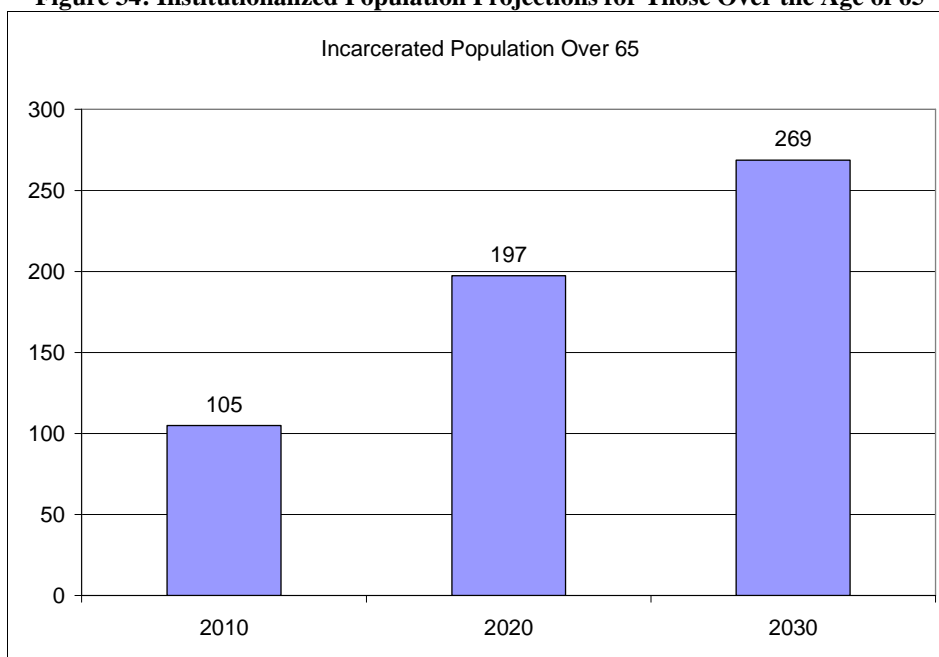
Figure 33: 65- to 74-Year-Old Population Projected to Grow in Corrections System



However, the increases in the population over the age of 65 will likely be quite dramatic, as shown in Figure 34. In 2010, there were 105 individuals in the corrections system over the age of 65. By 2030, we forecast that number to increase to 269, more than doubling in two decades.

When looking at the health care use of the elderly, particularly long-term care needs, researchers identify the over-85 population as the most expensive. That population is more likely to require more care, and costlier care, for longer periods. And, while that likely remains true for the population in the prison system, there are reasons to focus also on the 65-and-over population to a greater extent than in the general population. This is due to the fact that older prisoners are more likely to have health problems than their non-institutionalized counterparts. In 2006, 41 percent of Americans older than 65 indicated they had at least one disability. Among adults institutionalized in a correctional facility, 67 percent had at least one disability.¹¹

Figure 34: Institutionalized Population Projections for Those Over the Age of 65



This aging of the corrections population raises two important issues related to health care. First, in a constrained fiscal environment, increases in medical expenditures will require the state to consider ways to offset costs or find more cost-effective means of providing services. Moreover, growth in the 65-plus population may require the development of a plan for a long-term-care or assisted-living unit for elderly and infirm inmates.

Second, the nature of necessary services for mental and behavioral health will change. In New Hampshire, slightly more than two-thirds of prisoners over the age of 65 are sex offenders. As the population of older offenders increases in this crime category, the demand for sex offender

¹¹ U.S. Census Bureau. 2006. *The older population in the United States: 2006*. Washington, D.C.: US Census Bureau, Population Division.

treatment is likely to expand, impacting both prison- and halfway-house-based sex offender treatment programs.

Aging and the health care workforce

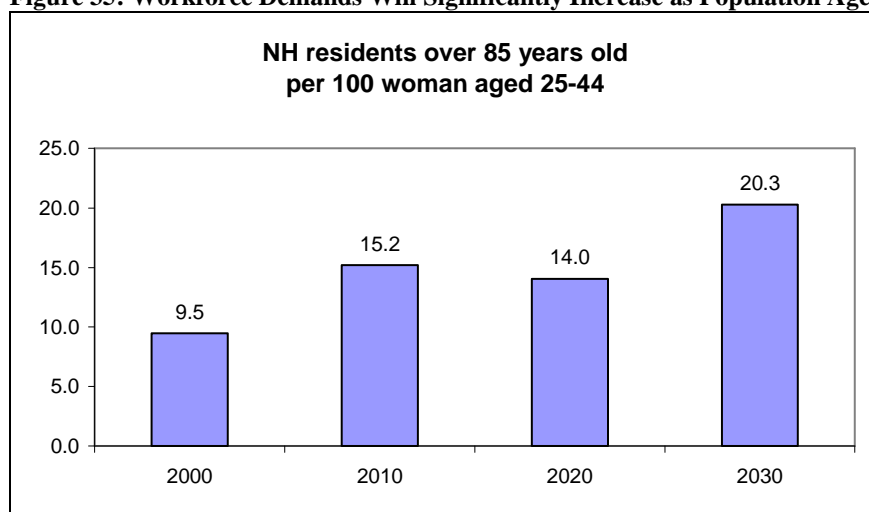
Several recent studies have analyzed the impact of an aging population on the workforce. Most recently, the New England Public Policy Center at the Federal Reserve Bank of Boston released a report noting that the number of individuals entering the labor force in New England will be 15 percent smaller than the number retiring by 2020. This raises important questions about the size of the workforce, but also about the skills that workers will have to meet the needs of the new New England economy.¹²

This dynamic – a shrinking labor pool following the retirement of the baby boomer generation – is analyzed in greater detail below.

The caregiver crunch

The typical caregiver for people over 85 is a woman between the ages of 25 and 44. Because the population of the first group (85-plus) is outpacing growth of the second group (those between 25 and 44), there may be a shortage of caregivers in the future. Figure 35 below shows how the ratio of New Hampshire residents over 85 to women aged 25-to-44 has changed over the past ten years and how it is anticipated to change over the next 20 years, based on current population projections.

Figure 35: Workforce Demands Will Significantly Increase as Population Ages



From 2000 to 2010, the ratio increased considerably. Population projections suggest that over the next 20 years, the ratio of those over age 85 to women aged 25-to-44 will increase by almost 25 percent.

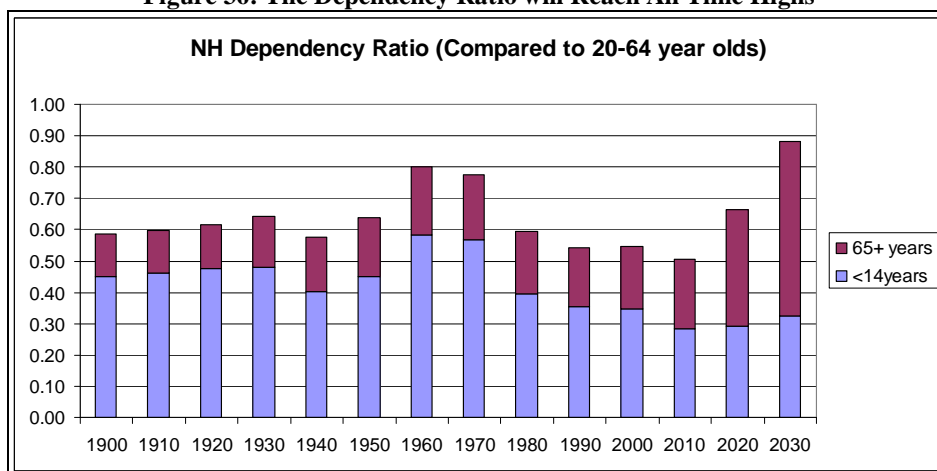
¹² Dennett, Julia and Alicia Modestino. 2011. "The Middle-Skills Gap: Ensuring an Adequate Supply of Skilled Labor in Northern and Southern New England." New England Public Policy Center. April 2011.

The dependency ratio

The dependency ratio is a fraction with the numerator measuring persons of all ages who are likely not to be working, and the denominator indicating the total working-age population. This dependency ratio includes children requiring lots of schooling and seniors receiving Medicare and other services. In

Figure 36 below, we show the dependency ratio at ten-year intervals from 1900 to 2010 and the Office of Energy and Planning projection for the years 2020 and 2030.

Figure 36: The Dependency Ratio will Reach All Time Highs



New Hampshire has had a lower dependency ratio than the nation as a whole, and the dependency ratio has been declining from 1960 through 2010, primarily because the number of children has declined as a portion of the overall New Hampshire population. However, the dependency ratio will increase over the next two decades, because of the expected large increase in the number of residents over the age of 65. As the graph shows, the ratio of those over age 65 to those in the traditional working age population (ages 18 to 64) will double in 2030 compared to today.

It is also interesting to note that the New Hampshire dependency ratio in 2030 is nearly a mirror image of the 1960 dependency ratio: Children accounted for most of the dependent population in 1960, but seniors are expected to account for the majority of the dependent population in 2030.

An important note: For future seniors, the distinction between work and retirement will continue to blur. Future seniors will be healthier and have access to more non-heavy lifting jobs than past older generations. They may therefore work well past the “traditional” retirement age.

The aging of the physician supply

Like the general population, New Hampshire’s physicians are aging. Figure 37 below shows the distribution of the population of MDs in New Hampshire by age in 2004. Of note: Almost 40 percent of MDs either are already in retirement age (65 and older) or are within 10 years of retiring.

Figure 37: Two-thirds of NH's Population of MDs are older than 45

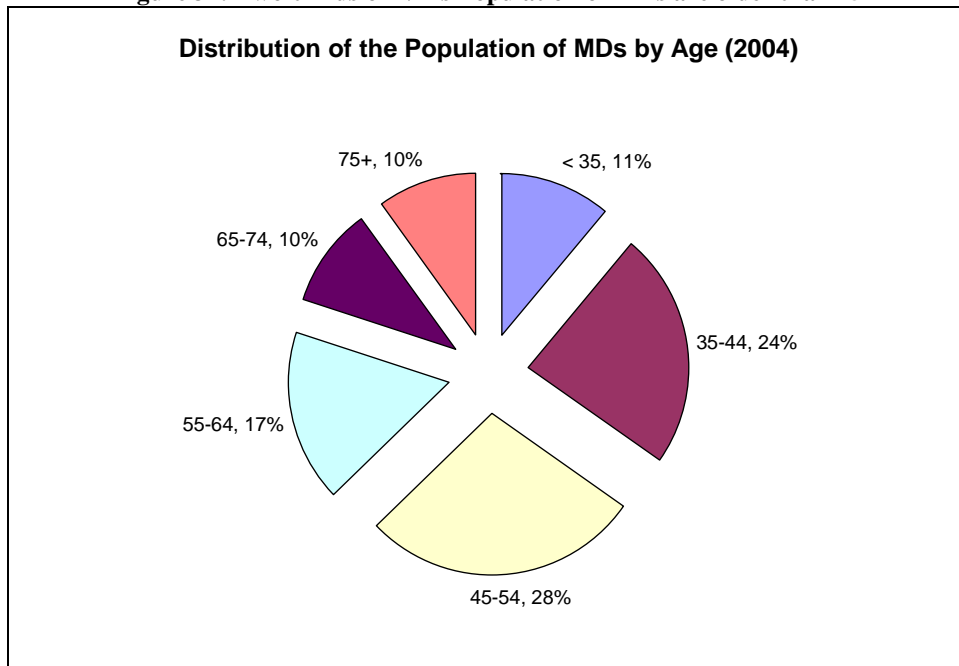


Figure 38 below shows the distribution of the population of MDs in New Hampshire compared to the national averages. A significantly smaller share of the population of MDs is under the age of 35 in New Hampshire compared to the rest of the country. Not unlike our general population, we have a higher share of physicians aged 45-to-54 and 55-to-64 than the rest of the population. If the state has difficulty recruiting young physicians, it will face a potential shortage of physicians, at the same time that an aging population increases the demand for services.

Figure 38: NH Doctors are Older than their Counterparts in the Rest of the Country

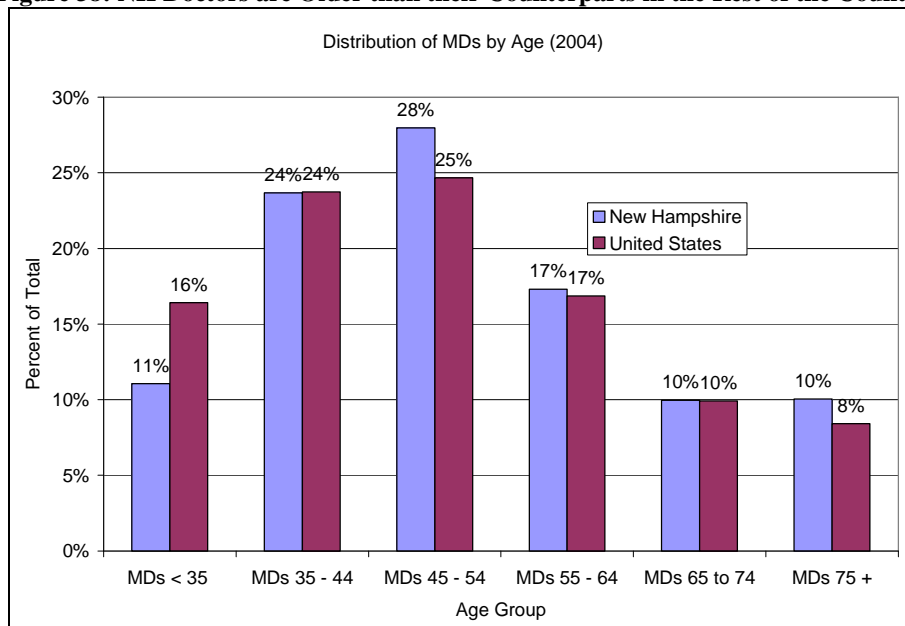
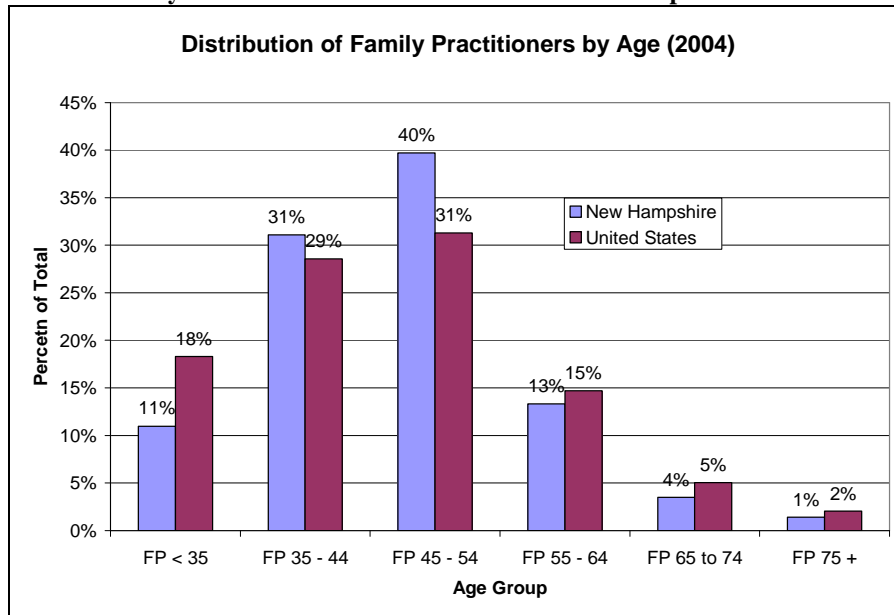


Figure 39 below shows the distribution of the population of family practitioners in New Hampshire relative to the national average. As you can see, the state is even more dependent on family practitioners between the ages of 45 and 64 than in the general population of MDs. We may face an even more acute problem with respect to family practitioners than general MDs given the population distribution of the two groups.

Figure 39: NH Family Practitioners are Older than Their Counterparts in Rest of the Country



Conclusion

The aging of New Hampshire’s population creates both opportunities and challenges, but it requires more than simply stating obvious facts about the state’s demographics. The timing of this process, the demographic forces shaping it, and geographic variation add a subtlety to the issue that is often missed. Aging, as a social phenomenon, is a complex and varied engine of change.

At the same time, this work demonstrates that the impact of aging is ubiquitous and touches virtually every critical question the state is likely to face in health policy and in other policy areas in coming years. We focused on aging and health care and found a series of implications that are not currently part of the policy conversation – but should be. For example, our simulations of the prison population suggest the need to develop long-term solutions for the state prison health system. How should this inform conversations about prison reform? If the state needs to develop a “nursing home” behind its prison walls, does that increase the cost of building a new prison in the Concord area? Another question beyond the scope of this analysis is the impact of the aging of the population and the local workforce on the local property tax.

From a policy perspective, it makes sense to incorporate aging into all of the state’s critical health care discussions. From this work come three major policy suggestions:

1. *Now is the time to begin an assessment of the state's publicly-funded long-term-care system.* Over the past 20 years, the Medicaid long-term-care system has shifted its focus from institutional-based care to community-based care. This shift has come at the expense of nursing home systems, with a stronger focus on consumer-directed care. Each delivery system reflects a series of political and policy goals. It is time to take a fresh look at the long-term-care system to analyze the available infrastructure and future demands. This should involve the analysis of managed-care efforts in other states and their applicability to New Hampshire.

2. *Health care systems need policy support in developing systems that will be sustainable in a market in which Medicare accounts for an ever-increasing share.* Our simulations suggest that one major implication of the aging process is the shift in market share from private insurance to Medicare as a payer. As discussed, this will put downward pressure on reimbursements, reducing them ever further below what it costs providers to care for patients. What combination of policies will support health systems as they attempt to provide the same level of services in the face of ever increasing demand and technological growth? Might this include tort reform? How might the system educate individuals about the role they play in decisions about medical expenses as they age? The important role of the baby boomer cohort suggests that their explicit engagement on this issue will likely shape the health care system that emerges as the population ages.

3. *Health care workforce issues need to be more aggressively addressed through a systems approach.* The aging process problems will only exacerbate the problems that more rural states face in recruiting and retaining a clinical workforce. Increasing demand for a health care workforce alongside an aging and retiring clinical workforce represents the perfect storm of excess demand. Similar to the health care system issues discussed above, more workers may not be the solution. What set of policies – including state workforce funding, local zoning initiatives, workforce housing, and the development of information technology in long-term care – will help meet the increasing demands for long-term care in a fiscally-constrained environment?

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