

DISABILITY IN OHIO:

**MANAGING THE
PROJECTED NEED FOR
LONG-TERM SERVICES
AND SUPPORTS**

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January 2010



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This research was funded as part of a grant from the Ohio General Assembly, through the Ohio Board of Regents to the Ohio Long-Term Care Research Project. Reprints available from the Scripps Gerontology Center, Miami University, Oxford, OH 45056; (513) 529-2914; FAX (513) 529-1476; http://www.units.muohio.edu/scripps/research/publications/DisabilityinOhio_ManagingProjectedNeed.html

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EXECUTIVE SUMMARY

In a set of three reports, we explored the size of Ohio's current and future population with disability, the current capacity of the state to meet the needs of this group, and how medical, social, and environmental advances can affect the size of this population. In this final report, through simulation, we examine how the demand for formal long-term services and supports in 2020 might be impacted if one or more of the parameters held constant in our earlier study (such as prevalence of disability or the ability of family members to provide caregiving) or one of the parameters determined by state policy (such as prevention, education, and establishment of community programs that encourage and aid self-care) are modified in a particular way. In addition, we explored the impact of inflation on the size of total expenditures when the state exercises different options to manage the total cost of care.

- By 2020, Ohio will have about 348,000 individuals with severe disability who will need formal long-term services and supports; we estimate that about 140,000 will likely need assistance from Medicaid.
- By 2020, if the utilization of long-term services and supports remains the same, then the Medicaid cost of these services will be \$5.5 billion (up from an estimated \$5.0 billion in 2009) if there is no inflation.
- The introduction of even very little inflation (1.5% per year) will increase the total projected Medicaid long-term services and supports expenditures in 2020 to \$6.7 billion.
- The cumulative effect of higher annual inflation rates will be more pronounced if the rate of 3% or the Centers for Medicare and Medicaid Services (CMS) predicted rates (slightly under 3% in the beginning and closer to 4% nearing 2020) are assumed. The total projected Medicaid expenditure for services and supports will reach \$8.1 billion if the annual inflation rate is 3% and \$8.6 billion using the CMS predictions, if there is no change in the approach to long-term services and supports.

- If the CMS predictions are accurate, in 2020 the state will experience an increase of almost 72% in Medicaid expenditures for long-term services and supports compared to 2009, of which 10% is due to an increase in the number of people with disability and 62% is due to an increase in the cost of services and supports.
- In the next 11 years, even if Ohio's economy grows at a rate equal to the inflation rate in the long-term services and supports industry, Medicaid appropriation for these services will have to grow at a higher rate than the prevailing inflation to accommodate increasing demand for services unless a scenario other than the status quo is employed.
- In the near future, between now and the year 2020, the inflation rate in the facility-based and home-care industries will have more impact on increasing Medicaid long-term care expenditures than the aging of the population.
- Efforts to manage total Medicaid expenditures should concentrate both on reducing demand for formal care and on offering alternatives to facility-based care, but managing the cost of services and supports will have the greatest overall impact on expenditures.

ACKNOWLEDGMENTS

My appreciation goes to Drs. Robert Applebaum and Jane Straker for their review and suggestions on multiple versions of this report. In particular, Dr. Applebaum provided guidance and direction when I needed advice from someone more informed on a specific policy. I am grateful for their assistance. I also received superb help from two graduate students in the Department of Sociology and Gerontology at Miami University: Lauren Thieman, who researched nursing home eligibility criteria in all states and produced a summary report; and Lauren Jackson, who searched and examined ways that reducing demand for formal care could be feasible. I am very thankful for their many hours of work on this project. As always, thanks to Lisa Grant at the Scripps Gerontology Center for her help with the report preparation and to Mike Payne who provided expert editorial assistance. I am thankful for their careful attention to details.

Finally, the insightful comments of Roland Hornbostel, Ohio Department of Aging, and the Ohio Long-Term Care Research Project Advisory Board persuaded me to revise an earlier version of this report and put the projected Medicaid long-term care expenditures in the context of Ohio's budget in current economic circumstances. I am thankful for their advice and perceptiveness.

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PREFACE

In a set of three reports, we explored the size of Ohio's current and future population with disability, the current capacity of the state to meet the needs of this group, and how medical, social, and environmental advances can affect the size of this population.

In the first report, *Disability in Ohio: Current and Future Demand for Services*, we estimated the number of people experiencing a disability in 2007 by age and type, and projected the size of this population through 2020. In addition to examining prevalence rates, we also examined the type of assistance individuals who experience chronic disability receive. That first report also explored the public and private costs of providing long-term services and supports, both today and in the future. Estimates of future long-term care use were based on the assumption that current utilization patterns would remain constant over time.

In the second report, *Disability in Ohio: Long-Term Care Providers & Programs*, we identified all the components of Ohio's long-term care system, and described each type of long-term care provider and program, examining their capacity, utilization rate, participant characteristics, and the cost of care.

In this final report, *Disability in Ohio: Managing the Projected Need for Long-Term Services and Supports*, we examine, through simulation, how the demand for formal long-term services and supports might be impacted if one or more of the parameters held constant in our earlier study (such as prevalence of disability or the ability of family members to provide caregiving) or one of the parameters determined by state policy (such as prevention, education, and establishment of community programs that encourage and assist in self-care) are modified in a particular way.

BACKGROUND

In the first report of this series, we estimated that the total population of Ohio would increase from an estimated 11,584,000 in 2007 to a projected total of 12,178,000 in 2020, an increase of 5% over 13 years. The population age 60 and older is anticipated to increase from 2.1 million in 2007 to a projected 2.8 million in 2020, an increase of 34%. The projected number of people of all ages with severe disability – those requiring assistance of another person to perform Activities of Daily Living (ADL), defined as meeting Medicaid nursing home or intermediate level of care in a facility for people with intellectual or developmental disability (ICF/MR) - will increase from 308,600 in 2007 to 348,100 in 2020, an increase of 12.8% (see Table 1).

Table 1
Projections of Disability Among Ohio's Population
2007-2020

Year	Total Population	Population with Moderate Disability	Population with Severe Disability
2007	11,584,000	802,100	308,600
2010	11,764,000	821,700	314,700
2015	11,961,000	837,900	329,400
2020	12,178,000	852,400	348,100

Source: Mehdizadeh, S. (2009). *Disability in Ohio: Current and Future Demand for Services*. Oxford, OH: Scripps Gerontology Center, Miami University.

Although our initial report assumed that the factors influencing long-term services and supports utilization would remain constant, in this report we will address the question of whether there are reasons to believe that these parameters will vary in the future. The parameters that were assumed to remain constant were birth rates, survival rates, migration rates, prevalence of disability, the proportion of the population with severe disabilities seeking formal care, prefer-

ence of consumers for particular types of long-term services and supports, and Medicaid eligibility criteria.

In general, the seven parameters listed above can be grouped into three categories: parameters that will determine the size of the population in need of care; those that reflect population choices; and the state role in providing access to care.

HOW MANY PEOPLE WILL HAVE A SEVERE DISABILITY?

The number of people with severe disability is determined by the overall size of the total population; by the age and sex structure of that population; and by the prevalence of disability.

How will the parameters that determine Ohio's population change over the next 11 years?

There is no reason to believe that birth rates in Ohio will change in the near future; however, the other two parameters (survival rates and migration rates), which also determine the size of the state population, may change slightly in the next 11 years. Any change in these two parameters would lead to different population projections than those presented in Table 1.

However, since it takes a considerably long time for a state's survival rate to change, we will assume that the survival rate will not change in the next 11 years. On the other hand, Ohio has been losing population due to outmigration, and the current trend is assumed to continue.

Therefore, we will assume that birth, survival and migration rates will continue to stay the same as in the late 1990s. For additional explanation regarding these assumptions, see Appendix A.

Prevalence of severe disability

Severe disability in these reports is defined to match Ohio's Medicaid eligibility definitions¹. In the first report in this series, we determined the proportion of Ohio's population that had a severe disability by age and gender and multiplied that number by the projected population to determine the total number of people with severe disability. We assumed that those proportions will remain the same between 2007 and 2020. However, a declining disability rate among the older population has been the subject of many studies in recent years. The National Bureau of Economic Research, with support from the National Institute on Aging and the Mary Woodard Lasker Charitable Trust, assembled a team of researchers in the field of disability measurement to examine the much-reported decline in the prevalence of disability among older people, and if it is affirmed, explore the underlying contributors to this decline. Schoeni and his colleagues (2004) found that after adjusting for differences in data collection and measurement strategies, the prevalence of disability declined among all socio-demographic segments of the U.S. older population between 1982 and 2002 (although not every group benefited from the decline equally). In 2002, the prevalence of disability was lower for those who had a college degree, were upper income level, or were married, compared to their counterparts from 1982.

¹ A person who meets Intermediate Level of Care (ILOC) with no evidence of severe mental illness or intellectual and/or developmental disability, even if he or she has a diagnosis of dementia or Alzheimer's disease, is classified as having *severe* physical and/or cognitive disability. An individual who meets ILOC, with the diagnosis of severe mental illness, is classified as having *severe* disability due to mental illness. When the individual meets ILOC, and the presence of intellectual or developmental disability is confirmed by diagnosis, the individual is classified as having *severe* intellectual and/or developmental disability.

Certainly, advances in medicine have improved diagnoses, treatment and the management of certain diseases that lead to chronic illnesses such as hypertension, heart failure, stroke, dementia (in some cases) and osteoporosis (Straus, 2001). But, with almost all these diseases, treatments have reduced mortality but have not prevented the diseases' accompanying chronic conditions. Often, living with a chronic illness leads to "chronic pain, loss of function and independence." Yet "... these pharmacological advances have had a measurable positive effect by slowing the progression of chronic illness or reducing the associated symptoms" (Warshaw, 2006, p. 7). Thus, given the new medications and disease management strategies, a 65-year-old in 2007 with several chronic illnesses, under the care of a physician, is probably managing his/her conditions much better than a 65-year-old person did in 1987. It is not clear whether the gains in the fields of medicine and pharmacology that have been observed over the last 20 years will continue in the next 11 years. Even if such strides do continue to occur, it is not possible to predict whether the gains will be at the same rate and intensity.

On the other hand, between 1982 and 2002 the prevalence of disability among the younger population rose, particularly because of increased survival rates for certain diseases and traumas, as well as improvements in neonatal care. Advances in neonatal technology have improved the survival rates of low-birth-weight infants, but the surviving infants have a higher risk of physical and developmental disabilities, and sometimes even face delayed or impaired social development (Hediger, Overpeck, Ruan, & Troendle, 2002).

Obesity, particularly among children and younger people, has become a major concern. Although there is no strong evidence linking obesity to mortality, Lakdawalla and his colleagues (2003) have found an increase in disability among people age 30 to 59. The increase was not limited to a particular socioeconomic group. Even though all the reasons for increased disability

among this age cohort are not explained, obesity seems likely to have had a role since the most common causes of disability among this age group were diabetes and musculoskeletal problems, two conditions that are associated with obesity.

Based on the evidence provided above, and a number of studies cited in Appendix A, it appears that even though the prevalence of disability among the older population is declining, the trends reflect a different phenomenon for the under-65 population. ***Therefore, for projecting the size of the future population with disability, in addition to holding disability rates constant at the 2007 level, we will also calculate a modified prevalence rate which adjusts the 2007 disability prevalence estimates slightly downward for the age 65 and older population, and somewhat upward for certain age cohorts of the under age 65 population.***

As we examine how Ohio can manage future long-term needs for services and supports, using the 2007 disability rates, we also entertain the possibility that the past 20-year trend in prevalence of disability will continue in the next 11 years. Those results are presented in Appendix B. The process of how we reached these new rates is presented in Appendix A, and the projected population with disability using the revised prevalence rates is in Table 2.

Table 2
Projections of Disability Among Ohio’s Population
Using Revised Prevalence Rates
2007-2020

Year	Total Population	Population with Severe Disability
2007	11,584,158	308,573
2010	11,764,333	317,034
2015	11,960,864	339,482
2020	12,177,857	364,948

WHAT PROPORTION OF THE POPULATION WITH SEVERE DISABILITY WILL RELY ON FORMAL CARE?

The discussions in the previous section examined the parameters used in estimating the size of the population with disability. In this section we attempt to determine what proportion of the population with disability will seek formal care and facility-based care. (In this study, facility-based care refers to nursing home care and ICF/MR care.) We will also explore the impact of state policy if the state were to establish community programs that promote prevention, self-care education, pay for some home modifications and provide public transportation with the aim of reducing the number of people needing formal long-term services and supports.

Factors impacting demand for formal care

In the first report we learned that about 40% of the projected population with severe disability receives almost all of their care exclusively from informal caregivers. The literature suggests that there will be fewer family members available to provide informal care in the future, as Americans have fewer children, are more mobile, and are more likely to be divorced (Tennstedt, 1999; Angel & Angel, 1997). We will examine each of these factors in projecting the size of the population with severe disability needing formal care.

Are families having fewer children?

In a recent study, Martin and colleagues (2007) examined the number of live births per 1000 women age 15 to 44 over time. The data presented in Table 3 show a steady decrease in the number of live births over time, from 118 in 1960 to almost 66 in 2000. Although the number of births per 1000 women was slightly up in 2005 (66.7), the assertion that families are having fewer children is accurate; thus, the pool of potential caregivers in families is smaller.

Table 3
Total Number of Live Births Per 1000 Women Ages 15 to 44
1950-2005

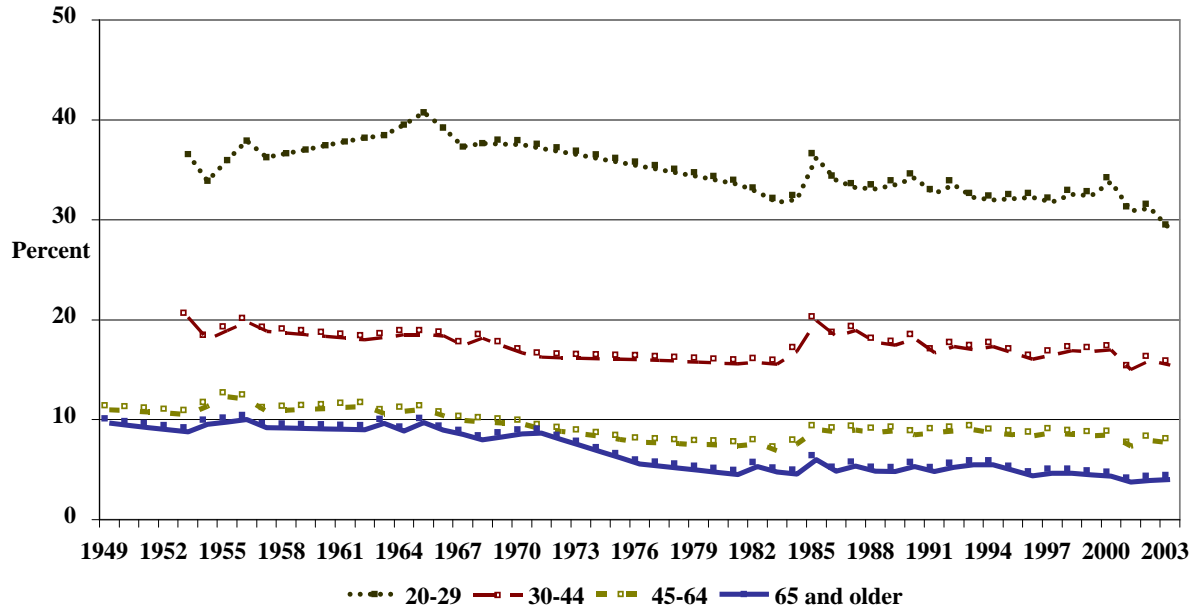
Year	1950	1960	1970	1980	1990	2000	2005
No. of Births	106.2	118	87.9	68.4	70.9	65.9	66.7

Source: Martin J.A., Hamilton B.E., Sutton P.D., Ventura S.J., Menacker F., Kirmeyer S., & Munson M.L. *Births: Final data for 2005*. National Vital Statistics System, Birth File, Centers for Disease Control and Prevention, National Center for Health Statistics, Reports. vol. 56 no. 6. Hyattsville, MD.

Are family members more geographically dispersed now, thus less likely to be available for caregiving?

In the past decade and with the current economic and employment circumstances, Ohio has been experiencing an outmigration of its citizens. However, in a national study, Wolf and Longino (2005) calculated mobility rates (percentage of individuals who moved by age group) using published U.S. census data from the Current Population Surveys for the years 1948 to 2003. They categorized moves as local moves and moves across state lines. They found that overall mobility (intrastate as well as interstate) rates have declined among all age groups over time (see Figure 1). Certain age groups, such as those 20 to 29 and 65 and over experienced a larger decline in movement; while interstate mobility for those ages 45 to 64 declined slightly or not at all. Therefore, the data do not support increasing geographical dispersion leading to unavailability for caregiving due to distance, at least nationally.

Figure 1
Percentage of Population Making Any Move in the
Past Year, by Age



Source: Wolf, D., & Longino, C. (2005). Our “Increasingly Mobile Society”? The Curious Persistence of a False Belief. *The Gerontologist*, 45(1) 5-11.

Do divorced couples have a smaller pool of caregivers to draw from?

Bumagin & Hirn (2001) state that 80% of the informal care is provided by families, and, among family members, spouses (albeit wives) provide the highest proportion of the care. With the currently divorced percentage among the population 60 and older increasing (9% of men and 10% of women over 60 in 2000 compared to 4% of people over 60 in 1960), clearly individuals will have less built in family support (Span, 2009).

Do divorced parents have a weaker bond with their children? If so, are they then less likely to be the beneficiary of informal care services?

A study based on data from the first wave of the Assets and Health Dynamics of the Oldest Old (AHEAD) survey found that divorced parents in general, and fathers in particular,

are at a disadvantage for receiving care. For parents that remarry, ties to the stepchildren are not as strong as ties with biological children. Therefore, some activities which are associated with tight family bonds, such as transfer of assets and informal care, occur less frequently between stepchildren and stepparents. Also, parents who remarry do not receive as much care from their biological children compared to those who marry only once (Pezzin & Schone, 1999.) Therefore, it appears that divorced parents are less likely to receive informal care from their biological children or their stepchildren compared to the parents with intact marriages. Since the percentage of marriages ending with divorce has increased, there may be fewer children willing to be caregivers.

Are there alternatives to care from a caregiver?

Literature suggests that in the near future the population with disability, particularly the older population (the oldest of the baby boomers), will be more educated, healthier, will have more financial resources – although current economic circumstances have had a major impact on that – and may potentially live longer than their current or past counterparts, even though these groups may spend the same number of years experiencing disability (He, Sengupta, Velkoff & DeBarros, 2005). Since baby boomers, the next generation of older people, are more likely to have exposure to computers and technical equipment, it is likely that some might employ assistive devices and technologies to give them help with mobility and to manage other daily activities. They probably will also tap into, as much as possible, the electronic services that home care workers or informal caregivers might otherwise provide, such as electronic banking and bill paying, prescription ordering, and made-to-order meals, which help those with limitations in instrumental activities of daily living (IADL) as well as those with mild dementia to function independently. Many studies using different sources of information have found increases in the

use of assistive devices. Russell, Hendershot, LeClare, & Howie (1997) using the National Health Interview Survey's Disability supplement found that the use of assistive devices increased dramatically between 1984 and 1994. The authors attributed this increase to aging of the population, to the development of new devices and to public policy initiatives. In a study using Medicare Current Beneficiary Survey data, Freedman and colleagues found that "Among older Americans living in the community and experiencing difficulty in self-care activities, the independent use of technology increased substantially, offsetting the use of personal care [services]" (Freedman, Agree, Martin & Cornman, 2006, p. 126). However, differences in employment of assistive technologies were observed even among Medicare beneficiaries. The more highly educated beneficiaries were much more likely to rely on assistive devices compared to their less educated counterparts (Freedman, Martin, Cornman, Agnee, & Schoeni, 2007).

Using the National Long-Term Care Survey data, Spillman and Black (2005) also found that the proportion of the older population with disability who remained in the community and managed their daily care without formal or informal help by using assistive devices (mobility aids and bathing aids) nearly doubled between 1984 and 1999. Other studies cited in Appendix A have similar findings.

Perhaps the more educated and informed baby boomers, those who enjoy better health and are used to finding and using technical devices, will be more open to and accepting of solutions that will allow them to remain independent even when they sense a reduced capacity to care for themselves. If we believe surveys that state baby boomers value independence, autonomy, and choice as they consider their care needs in the future, then it is reasonable to believe that they will resist formal care as long as they can manage in the community on their own with the help of assistive devices and services available to all segments of the population.

Putting these five issues together, the population with disability in the future will have fewer children, and, if divorced, fewer children willing to assist them with daily chores. Divorced couples will have the additional disadvantage of missing the live-in help which spouses usually provide. On the other hand, geographical distance from caregivers does not appear to have changed much and the utilization of assistive devices seems to have aided in reducing dependency on informal caregivers. Therefore, the assumption that ***there will not be any change in the proportion of the population with severe disabilities seeking formal care due to unavailability of caregivers will be relaxed in this study, and we will examine the impact of reduction in need for formal care as the result of an individual's persistence and state efforts to promote independence and self-care. Since we don't know the exact impact of such an effort, we will examine no change in the size of demand for formal care along with 0.5% and 1% annual reductions.***

IN THE FUTURE, WILL PEOPLE WITH DISABILITY CONTINUE TO LOOK FOR THE SAME TYPES OF PROVIDERS AS THEY DO TODAY?

In the previous section we learned that people reaching age 60 and older in the next 11 years, on average, will be more educated, probably healthier, have more financial resources (He, Sengupta, Velkoff, & DeBarros, 2005), and potentially will live longer than their earlier counterparts, although they may spend the same number of years with disability. Given the educational level and exposure of this population to assistive technology and the internet, and efforts by state and community agencies to educate the public on different forms of long-term care services and supports as well as the tremendous expansion of home and community-based services and assisted living, it is reasonable to assume that fewer people will seek long-term care

from facility-based providers in future. A hierarchy they might rely on includes: (1) assistive devices that aid with mobility and help individuals to manage their daily activities on their own; (2) home care services and supports funded by private or public funds; and (3) the use of facility-based services. *Thus, it is plausible to expect that in the next 11 years a smaller proportion of older people with severe disability might seek facility-based care compared to today's aging population. To examine the impact of a switch in demand from facility-based care to community-based care, we will explore the effect of no change in the population seeking facility-based care as well as a 0.5% and 1% annual decrease in the current proportion of the population receiving facility-based care.*

The results of more active efforts by the state to divert nursing home admissions (reducing projected nursing home population by 2% annually) are presented in Appendix C, Table C1.

HOW DO OHIO'S MEDICAID ELIGIBILITY CRITERIA COMPARE WITH OTHER STATES?

In the previous sections, we have attempted to determine how accurately and realistically we have approximated the size of the population with severe disability, and, by inference, the number of people with severe disability seeking Medicaid long-term care services and supports. Based on 2009 data, 39.2% of all those with severe disability in need of long-term care services and supports received Medicaid assistance to pay for that care. One way to reduce Medicaid expenditures² is to tighten Medicaid eligibility criteria, thus reducing the number of people meeting nursing home or ICF/MR level of care. We examined the plausibility of this option. To

² Throughout this report any time Medicaid expenditures are mentioned, it is in reference to the total Medicaid dollars combined from state, federal, and local sources.

do so, we first compared Ohio's Medicaid nursing home level of care criteria with that of other states in order to assess the similarities and differences. We then explored whether Ohio could reduce the number of Medicaid consumers by restricting its eligibility criteria. In Ohio, for a person to be eligible to receive long-term services and supports in the community, in a nursing home, or in an ICF/MR, she/he must meet at least one of the intermediate (ILOC) or skilled level of care criteria as defined by OAC 5101:3-3-05, and OAC 5101:3-3-06; or OAC 5101:3-3-15.5, or OAC 5101:3-3-15.3 (for people with intellectual or developmental disabilities). To meet ILOC, one must meet at least one of the following four criteria: (1) require hands-on assistance with at least two activities of daily living (ADL); (2) need hands-on assistance with at least one ADL and also require the help of another person to administer medication; (3) need 24-hour-per-day supervision from another person to prevent harm to self or others because of cognitive impairment including, but not limited to dementia; and (4) have an unstable medical condition and require at least one skilled nursing service at less than seven days per week, and/or a skilled rehabilitation service fewer than five days per week (at a lower level than skilled level of care (SLOC))³. The vast majority of individuals who seek long-term care meet intermediate level of care eligibility, however, a small percentage of applicants meet SLOC. To qualify for SLOC the applicant must meet both of the following conditions: (1) the applicant's medical condition must be unstable; and (2) the applicant's physician has ordered one skilled nursing service at least once daily or more frequently per week, and/or one skilled rehabilitation service five days or more per week.

³ Anderson Online Documents. (2007). Ohio Administrative Code 5101:1-39-24. Retrieved March 13, 2007 from <http://onlinedocs.andersonpublishing.com/oh/lpExt.dll?f=templates&fn=main-h>.

In examining the Medicaid nursing home eligibility criteria of other states, we found that, in general, states use one of the following three criteria:

1. Medical necessity only;
2. Medical and functional needs; or
3. ADL score or reaching a composite assessment score threshold.

Only four states rely exclusively on medical necessity, while 25 states use a combination of medical and functional needs. Seventeen states rely on ADL and /or assessment threshold score. Ohio's requirements are somewhat similar to both groups 2 and 3. Only six states had more stringent eligibility criteria than Ohio. Arkansas requires at least three ADL impairments; Florida at least four; Kansas at least two, plus a certain assessment score; Mississippi at least three ADL impairments or two ADL impairments plus dementia; Nebraska three or more ADL impairments, or one ADL plus dementia plus a risk factor; and Virginia 2-4 ADL impairments not including mobility, or 5-7 ADL impairments including mobility (Office of Disability, Aging, and Long-Term Care Policy, 2005). In Ohio, the average number of ADL impairments among Medicaid nursing home consumers in 2008 was 4.4; for PASSPORT consumers, 3.0; for Ohio Home Care consumers, 3.8; and for all other smaller waivers, such as Aging Carve-Out and Choices, the average number of ADL impairments was greater than 3.0 (Mehdizadeh, Applebaum, Deacon, & Straker, 2009). Given that the population in Ohio that receives long-term services and supports paid for by Medicaid is considerably more disabled than the minimum required criteria, and the state's eligibility criteria do not appear to be lenient compared to other states, *reducing the use of care by restricting eligibility criteria will not be one of the scenarios considered in this study.*

SIMULATIONS

In reviewing our assumptions from the earlier study, we have retained some parameters, such as birth, migration, and survival rates as well as Medicaid eligibility criteria, when there is little evidence that they will change in the next 11 years. Other areas, such as no change in preference of consumers for formal versus informal care, and no change in the use of facility-based care versus home- and community-based care, were examined as we hypothesize that change in state policy could play a role in the future. As presented earlier, there is evidence that the prevalence of disability in general has changed slightly during the last 20 years, such that the prevalence of disability is a little higher for the under 65 population and a little lower for the over 65 population. For that reason, the entire simulation process is repeated and presented in Appendix B with changes in the size of the population with severe disability due to the trended prevalence rates included in the estimates. The size of the population with severe disability discussed in the remainder of this report is based on the assumption that prevalence of disability in 2010 to 2020 will be the same as it was in 2007.

Since the precise magnitude of the proportion of the population that could be persuaded to rely on community resources and products, assistive devices and use of technology for assistance in daily care is unknown to us, we will experiment with a few different percentage changes to show the range of outcomes each produces. Similarly, we will explore different percentages of switching from the use of facility-based care to home- and community-based care services to show the impact of each change on total Medicaid long-term care expenditures. Initially, we will change one parameter at a time to see the effect of each individual change on the size of the demand for Medicaid funded long-term services and supports. Ultimately, changes

in more than one parameter will be combined to show the overall potential outcomes that could occur. To make the study more manageable, we limit the simulation to the following scenarios:

Status Quo: Consumers' health and disability, use of informal care, including assistive devices, and the utilization rate of facility and community-based care will remain the same as it is today.

Reduced Demand for Formal Care: Through education, home modification, creation of aging friendly communities and introduction of assistive devices and technologies, demand for formal hands-on care will be reduced; thus, fewer people will be seeking long-term care supports and services paid for by Medicaid. The reductions will be at annual rates of 0.5% and 1% (and 2% presented in Appendix C).

Less Facility-Based Care: By encouraging the use of the alternatives to facility-based care through programs such as PACE, Choices, Aging Carve-Out, Assisted Living or PASSPORT, the use of nursing home and ICF/MR will be reduced annually by 0.5% or 1%. A 2% annual reduction in facility based care is presented in Appendix C.

Optimistic Scenario: As a result of education and improved diversion and transition efforts, formal care and facility-based care will be reduced. This scenario entails 1% reduction in formal care and 1% reduction in use of facility-based care annually.

Practical Scenario: A combination of gradual and small reductions in the demand for formal care (0.5% annual) and facility-based care (0.5% annual) is estimated in this model.

In all of the scenarios presented below, we are assuming that the prevalence of severe disability will remain constant, and by 2020 there will be 348,100 individuals with severe disability. In 2009, 39.2% of all those with severe disability received formal care paid for by Medicaid. This proportion is assumed to remain the same throughout the simulation. If this rate is held constant at the present level, then by 2020 there will be 136,400 individuals with severe disability seeking services and supports paid for by Medicaid, an increase of 14,000 consumers compared to 2009, or about 1270 additional people each year.

STATUS QUO

In this scenario, it is assumed that the proportion of the population with severe disability using facility-based care or home-and community-based care services remains the same as it was in 2009. Table 4 (Column 3) shows the care settings for the 136,400 persons with severe disability. The small proportion of the population with severe mental health disability receiving services and supports outside nursing homes, those in the PACE program and individuals with severe disability in Ohio's prison system, are combined and presented as the "other" programs and settings category. Under this scenario Ohio will serve about 56,650 individuals in nursing homes and an additional 8350 in ICF/MR facilities. Over 41,000 individuals will be served in home-and community-based waivers and another 25,000 in ID/DD waivers.

REDUCED DEMAND FOR FORMAL CARE

In this scenario we examine the impact of a reduction in demand for formal long-term services and supports. If through assistance with home modification, community organization, case management, prevention and raising awareness of local programs and services, and through the use of assistive devices and technologies, more people remain independent longer resulting in a reduction in demand for formal care in each year by 1%, then by 2020 the number of individuals needing formal care will be reduced to 122,100 (compared to 136,400 in the **Status Quo** scenario; see Table 4, Column 4.) Of note, a 1% annual reduction in demand for formal long-term services and supports reduces the number of people relying on Medicaid to pay for their care by 11.5% by 2020 (about 1300 fewer individuals each year).

LESS FACILITY-BASED CARE

Another strategy we examined is the impact of change in the type of long-term services and supports consumers may utilize. Since Ohio facility-based care, on average, is about three times more expensive than home and community-based care, any switch from facility-based care to home care will reduce the total Medicaid expenditures, even when the number of individuals seeking services remains the same. Ohio, along with other states, is actively engaged in strategies to balance the system to rely less on facility-based care and more on home and community-based services and supports.

In order to isolate the impact of reduced facility-based utilization, Table 4 (Column 5) shows that an annual switch by a small percentage of consumers (1%) leads to a modest number of consumers (620) switching from facility-based care to community-based care each year. Even a switch at this level reduces the average daily nursing home and ICF/MR census by 6800 residents over 11 years, while the number of individuals using less costly home-and community-based waiver services increases by the same amount.

OPTIMISTIC SCENARIO

The two previous scenarios investigated the individual effects of reducing demand for formal care – total number of people with severe disability needing long-term care services and supports paid for by Medicaid – and facility-based care. This scenario combines the effects of the two strategies and shows the sensitivity of the total demand for formal long-term services and supports paid for by Medicaid by assuming a two pronged policy effort that encourages and accommodates independence – thus less use of formal care – and a switch from facility – based care to home care for a select number of participants. This scenario entails a relatively modest

Table 4
Comparison of the Cumulative Impact of Different Scenarios on Demand for Long-Term Care Services and Supports and Community & Facility-Based Care Services in 2020

Type of Program/Setting	Actual 2009 Utilization Number (Percent)	Unique Strategies			A Combination of two Strategies	
		Status Quo Number (Percent)	Reduced Demand for Formal care Number (Percent)	Less facility-Based care Number (Percent)	Optimistic Number (Percent)	Practical Number (Percent)
Nursing Home	51,500 (42.1%)	56,650 (41.5%)	50,550 (41.4%)	50,750 (37.7%)	45,350 (37.1%)	50,500 (38.8%)
ICF/MR	7500 (6.1%)	8350 (6.1%)	7550 (6.2%)	7450 (5.5%)	6600 (5.4%)	7000 (5.8%)
HCBS*	37,000 (30.2%)	41,250 (30.8%)	37,000 (30.9%)	47,850 (34.7%)	42,200 (35.1%)	42,050 (33.5%)
ID/DD Waivers	22,600 (18.5%)	25,150 (18.5%)	22,500 (18.4%)	26,000 (19.1%)	23,450 (19.2%)	24,700 (18.7%)
Other**	7900 (3.1%)	8750 (3.2%)	8350 (3.1%)	8950 (3.2%)	8400 (3.1%)	8600 (3.2%)
Total	122,400	136,400	122,100	136,400	122,100	129,100

* Medicaid assisted living slots were limited when this project started thus they were included in HCBS programs. Those slots have increased to 2000 by 2009.

** The prison population with severe disability (4100 in 2009) is included in the number but not in the percentage. The PACE program participants and individuals with severe mental health disability living in the community are included in the other category.

1% reduction in the number of people demanding long-term care services and supports paid for by Medicaid (about 1300 fewer individuals every year for the next 11 years) and a modest 1% reduction in the use of facility-based care (reducing average daily nursing home census by 1025 and ICF/MR by about 160 residents). Table 4 (Column 6) presents detailed results of this scenario. Under this scenario, the total number of people using formal care will be reduced to 122,100 (a reduction of 14,300 over 11 years) and the number of people seeking facility-based care reduced to 51,950 (total for both nursing home and ICF/MR), down from 65,000 in the **Status Quo** scenario (Column 3).

PRACTICAL SCENARIO

This scenario is similar to the **Optimistic** scenario in the sense that there will be a reduction in the number of people needing formal long-term care services and supports paid for by Medicaid and a reduction in the use of facility-based care. But the annual reduction will be half as much as the **Optimistic** scenario (0.5%).

Under this scenario, the total number of people with severe disability seeking formal care, paid for by Medicaid is gradually reduced to 129,100 over the next 11 years, down by 7300 from the **Status Quo** scenario, or an annual reduction of 660 individuals. The number of individuals using nursing home care will be reduced to 50,500, down from 56,650 in the **Status Quo** scenario, a reduction of 6150 over 11 years (see Table 4, Column 7).

The reduction of nursing home average daily census by more than 6000 is accomplished in two steps. First, reducing demand for formal care by 0.5% annually decreases demand for nursing home care by 3100 residents; in addition, a switch from facility-based care to community-based care reduces the demand for nursing home care by another 3050 for a total of 6150 residents every day. Since the annual reduction in the number of individuals needing long-

term care services and supports is relatively small (660), likewise the efforts to switch 280 individuals, annually, from facility-based care to community-based care are modest enough to make this scenario practical in the short term.

THE ROLE OF INFLATION IN MANAGING MEDICAID LONG-TERM CARE EXPENDITURES⁴

All the previous discussions will assist in determining how many people will need long-term services and supports and what type of services they might be using. To gauge the impact of different scenarios on Medicaid expenditures, we must determine the unit cost of each service. We will take the actual 2007 unit cost of each type of service from two recently released reports from the Scripps Gerontology Center (Mehdizadeh, Applebaum, Deacon, & Straker, 2009; Brothers-McPhail and Mehdizadeh, 2009) and adjust it, annually, assuming a number of inflation rates.

No matter what options consumers choose, or what alternatives to facility-based care the state offers, the cost of care, to a large degree, will be determined by the national and state economies and the labor market for health care workers. A study that examined Medicaid nursing home expenditure growth between 1977 and 2004 found that, on average, these expenditures grew by 6.7% a year (Stewart, Grabowski, & Lakdawalla, 2009). Prior to the current national and state economic circumstances, the projected annual inflation rate for health care expenditures for the next 10 years was more than 6% (Keehan, Sisko, Truffer, Smith, Cowan, Poisal, Clemens & National Health Expenditures Accounts Projections Team, 2008). However, with the anticipation of health care reforms and prolonged economic downturn most recent projected long-term annual price increases from Centers for Medicare & Medicaid

⁴ As mentioned earlier, Medicaid expenditures refer to total dollars combined from state, federal, and local sources.

Services are more modest, between 2.8% and 3.8% (Center for Medicare and Medicaid Services, 2008). Although no one can predict the amount of increase in the price of services in the health care industry in the future, we estimate total Medicaid expenditures for each scenario with the unit price held constant (to show the impact of increase in needs for services and supports free from inflation) and at annual inflation rates of 1.5%, 3% and the CMS predicted implicit price deflator. These inflated prices will be used to calculate the total Medicaid expenditures for long-term services and supports in 2020 for each of the scenarios.

Table 5 displays the projected Medicaid long-term care expenditures for all of the proposed scenarios discussed earlier, allowing prices to stay at the 2009 level (not realistic but useful for measuring total expenditures' sensitivity to price changes) and to grow at 1.5% , 3% and the annual rate increase predicted by CMS.

For example, if Ohio maintains the same pattern of utilization in 2020 as it did in 2009 – no change in the proportion of the population using formal care and the same proportion using facility-based care – and there is no inflation, then the total Medicaid cost of support and services in 2020 will be \$5.5 billion, an increase of \$0.5 billion from 2009 due to an increase in the number of people with disability, mostly as a result of the aging of the population. The **Status Quo** model is also estimated at an annual price increase of 1.5% and 3%, and the CMS projected annual medical price deflator rates. The total Medicaid expenditures for long-term services and supports in 2020 increases by \$800 million for each 1% annual increase in the cost of services initially, and then at a faster pace because of the compounding effect of annual cost increase, reaching \$8.6 billion, if CMS predictions are correct. That is 72% higher than Medicaid expenditures for similar services and supports in 2009. The other four scenarios discussed earlier are also evaluated at different inflation rates and presented in Table 5.

In the **Reduced Demand for Formal Care** model, if the cost of each unit of service in the next 11 years remains as in 2009, then total Medicaid long-term care expenditures would be \$5 billion in 2020. In other words, if Medicaid intends to spend a similar dollar amount in 2020 as it did in 2009, it would have to reduce the number of individuals using long-term care services paid for by Medicaid. Any increase in the cost of services must be accompanied by a utilization reduction in order to keep total costs constant. For instance, a 3% annual increase in the cost of care, even when accompanied with a 1% annual reduction in the proportion of the population with disability utilizing formal services, increases the total Medicaid long-term expenditures to \$7.3 billion.

The **Less Facility-Based Care** scenario replaces nursing home and ICF/MR care with less costly community-based care, yet it is not as effective in reducing Medicaid expenditures as the **Reduced Demand for Formal Care** scenario because the total number of individuals receiving care remains the same as the **Status Quo** scenario. In order to measure the impact of this scenario on total Medicaid expenditures, we evaluate the cost of services and supports when the switch is as much as 1% of the facility users. A 1% switch from facility-based care settings to community-based care reduces total Medicaid expenditures for services and supports in 2020 from \$5.5 billion in the **Status Quo** scenario to \$5.3 billion (Table 5, row 3) in the absence of any inflation, thus reducing Medicaid expenditures by \$200 million solely based on fewer people receiving care in a facility. When there is inflation, these savings will be a little larger. In the event of any price increase, which is very likely, the expenditures on services and supports could range from \$6.4 billion when there is a very modest annual price increase of 1.5% to about \$8.2 billion when the annual price increases are at the level that CMS predicted. Even though the process of diverting or transitioning a moderate number of individuals – which amounts to

reducing facility-based care average daily census by 620 annually – is lengthy; this effort alone doesn't curb the increases in the expenditures adequately. Thus the next two scenarios are introduced and evaluated.

The **Optimistic** scenario is a combination of the **Reduced Demand for Formal Care** and the **Less Facility-Based Care** scenarios. Under this scenario, there will be fewer people who need formal long-term care services and supports paid for by Medicaid in 2020, thus, in the absence of any inflation in the next 11 years the total projected Medicaid expenditures on services and supports will be \$4.7 billion, \$800 million less than the **Status Quo** model. However, even with efforts to reduce demand for formal care and intervention and transition efforts to use community-based care rather than facility-based care, inflation will likely increase Medicaid obligations. For instance, at a 1.5% annual inflation rate, the projected Medicaid expenditures in 2020 will increase to \$5.8 billion and, if the CMS predicted rates occur, the expenditures will increase to \$7.4 billion.

Although the **Optimistic** scenario records lower expenditures while paying for the care of those in need of services in the most appropriate setting, it will take time to have all social and community programs in place to achieve such reductions in formal care. A more modest version of the **Optimistic** scenario (**Practical** scenario) that reduces the number of people in need of services and supports by 0.5% annually seems to be more practical in the short run. Under this scenario, in the absence of any inflation in the next 11 years, the total projected Medicaid expenditures on services and supports will be \$5.1 billion, about \$400 million less than the expenditures in the **Status Quo**. However, inflation, even at the lowest annual level, would increase total Medicaid expenditures to \$6.2 billion; \$7.4 billion at the inflation rate of 3%; and \$7.9 billion if CMS predictions occur.

Table 5
Estimated Cost of Medicaid Long-Term Care Expenditures in 2020 for Different Scenarios

Different Scenarios	Different Inflation Assumptions			
	No inflation rate	1.5% Annual inflation rate	3% Annual inflation rate	CMS projected rates
	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)
Status Quo	136,400 (\$5.5)	136,400 (\$6.7)	136,400 (\$8.1)	136,400 (\$8.6)
Reduced Demand for Formal Care	122,100 (\$5.0)	122,100 (\$6.0)	122,100 (\$7.3)	122,100 (\$7.7)
Less Facility-Based Care	136,400 (\$5.3)	136,400 (\$6.4)	136,400 (\$7.8)	136,400 (\$8.2)
Optimistic Scenario (1% less formal & 1% less facility-based)	122,100 (\$4.7)	122,100 (\$5.8)	122,100 (\$7.0)	122,100 (\$7.4)
Practical Scenario (0.5% less formal & 0.5% less facility-based)	129,100 (\$5.1)	129,100 (\$6.2)	129,100 (\$7.4)	129,100 (\$7.9)

Note: The total estimated Medicaid long-term care expenditures for 2009 were \$5.0 billion.

REVISITING MEDICAID LONG-TERM EXPENDITURES FOR SERVICES AND SUPPORTS, AND OHIO'S BUDGET⁵

Medicaid is a joint state and federal program that provides health and long-term services and supports coverage to low-income individuals and families. During 2008, Medicaid paid almost \$12.0 billion (state, federal, and local) for the health and long-term services and supports of over 1.8⁶ million Ohio residents. Ohio categorizes its Medicaid consumers into two broad categories: consumers who are age 65 and older, are blind, and/or are disabled, usually referred to as ABD population (Aged, Blind, and Disabled); all other consumers under age 65 are referred to as Covered Families and Children. Of the ABD population, 52,500 received care in nursing homes, 1200 in assisted living, and about 70,000 received services through one of the many Medicaid waivers in Ohio designed for people with physical and/or cognitive or intellectual and/or developmental disabilities. Much of the discussion in this report concerns the ABD population (Ohio Department of Job and Family Services, 2009).

Ohio is experiencing the economic slowdown more intensely than most other states. The economic downturn has impacted Ohio's budget creating challenges regarding appropriation of funds among competing state functions and obligations. In fact, even with the aid of the American Reinvestment and Recovery Act of 2009, Ohio's enacted budget (including federal subsidies) for 2011 is slightly lower than it was in 2006. On average, Ohio's budget has contracted (or will be contracting) about one-quarter of one percent (0.25%) a year between 2006 and 2011, while the budget, on average, grew about 4.9% annually between 2000 and 2006 (Ohio Office of Budget and Management, 2009). Comparatively, the Medicaid appropriation from all sources is budgeted to grow from \$13.6 billion in 2006 to \$13.9 billion in 2011, an

⁵ The Ohio budget in this context includes state, federal, and local Medicaid dollars.

⁶ Data is point-in-time, not cumulative.

annual growth of a little over one-third of one percent (0.38%). In contrast, Medicaid allocations, from all sources, between 2000 and 2006 grew at the average annual rate of 13% from \$7.6 billion to \$13.6 billion. Total Medicaid appropriations as the proportion of the state budget (including federal General Revenue Funds (GRF)) have been gradually increasing from 30.6% in 2000 to almost 40% in 2006. The enacted budget for 2010 and 2011 put this proportion at 37.4% and 43.6%, respectively (S. Ackerman, November 1, 2006; D. Liphtratt, September, 2007; Ohio Office of Budget and Management, 2009).

In this report, we have examined the needs of the population with severe disability who would likely need Medicaid to pay for their care. The increase in the number of people with severe disability is due to the aging of the population and also due to the continuing increase in the prevalence of disability among those under age 65. Those increases are independent of the current national and state economic circumstances, unless the severe downturn in the stock market that occurred in the early months of 2009 has left some individuals with disability financially vulnerable who otherwise would not meet Medicaid financial eligibility criteria. For the remainder of this report, as we did earlier, we will assume that the proportion of the population with severe disability meeting Medicaid financial eligibility criteria will remain as it was in 2009, around 39.2%.

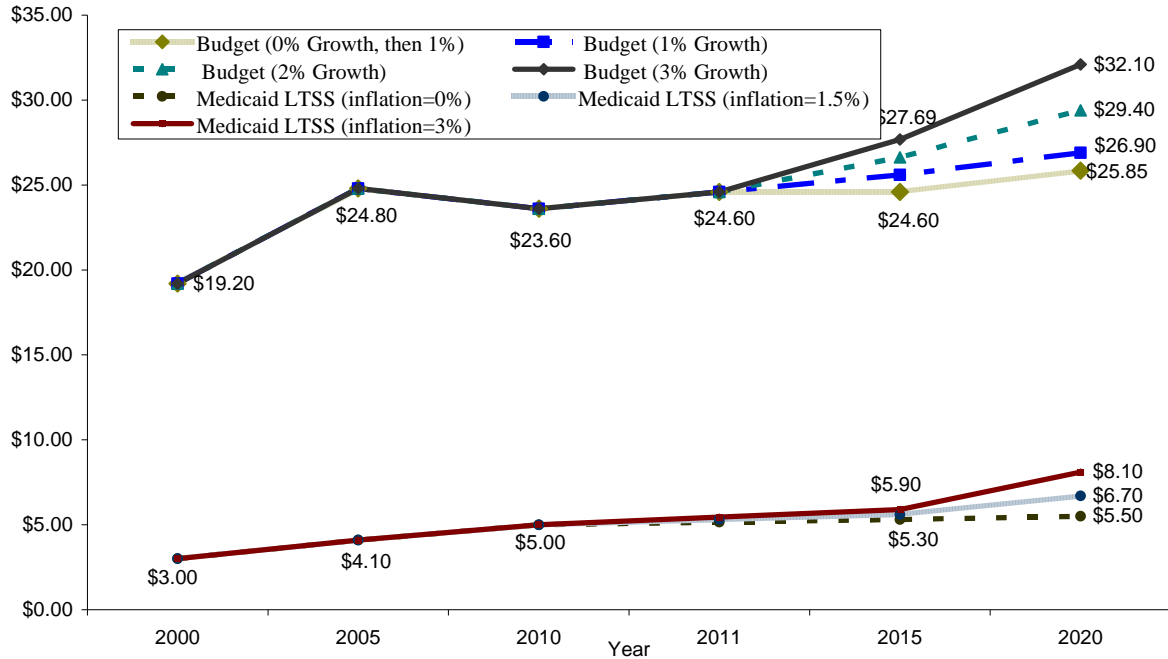
In the following section, we put the Medicaid cost of services and supports in the context of Ohio's budget by examining the projected cost of services and supports in the **Status Quo** scenario when the state's budget assumes different growth rates. Because Medicaid is a joint state and federal program and, traditionally, Medicaid long-term services and supports expenditures have been shared by federal funds (at the rate of about 60% federal and 40% state

dollars), the state's budget doesn't need to grow at the same rate that the Medicaid long-term services and supports grow for these expenditures not to impact other state functions.

Figure 2 reflects the changes in Ohio's budget since 2000 and assumes four possible budget growth scenarios based on how slowly or strongly the state might recover. If, the state doesn't experience any growth soon (thus no additional revenues until 2015), and then grows at 1% between 2015 and 2020, then the state projected budget (including federal Medicaid contributions) for 2020 will be \$25.8 billion. If, on the other hand, Ohio begins to recover quickly and vigorously such that state revenues begin to grow at 3% annually between 2011 and 2020 then the Ohio state budget by 2020 will be more than \$32 billion dollars. A growth rate between these two examples, such as a 1% annual budget growth, between 2011 and 2022, will raise the budget for 2020 to almost \$27 billion, and a 2% growth to \$29.4 billion.

To understand how increases in Medicaid expenditures for long-term services and supports could impact appropriation of funds to other programs and functions of the state, we incorporated the results of one of the scenarios (**Status Quo**) in Figure 2 which displays the proportion of the state budget needed for Medicaid expenditures for long-term services and supports. In the past, those costs increased from \$3.0 billion to \$5.0 between 2000 and 2009, an increase of 66%. If there is no attempt to reduce demand for services or any additional effort to switch from facility-based care to community-based care, and in the absence of any inflation in the next 11 years, then Medicaid expenditures for supports and services in 2020 are estimated to be \$5.5 billion. If the inflation rate is 1.5% annually, the expenditures will be \$6.7 billion; and, if the inflation rate is 3%, then expenditures will be \$8.1 billion. The Medicaid expenditures for long-term services and supports have been steady increasing and will continue to do so as the number of people with disability due to the aging of the population increases. In 2000 these

Figure 2
Simulation of Total State Budget and Medicaid Long Term Services and Supports Expenditures (Different Budget Growth and Inflation Rates are Assumed)
(in Billions of Dollars)



expenditures accounted for 15.6% of the total budget, but, by 2010 the appropriations for these services will rise to more than 21% of the budget. If there is no inflation, and the state budget begins growing at least 1% from 2015 to 2020, then the Medicaid proportion of the state budget will stay about the same.

However, if there is even 1.5% inflation and the budget grows at 2% between 2011 and 2020, the proportion of funds that needs to be allocated to Medicaid long-term services and supports will increase to 22.8%. A 3% inflation rate and 3% growth in the budget will put the proportion of the funds needed for long-term services and supports to 25% of the budget. Any higher inflation rate must be accompanied with an even higher overall budget growth to prevent these expenditures from seriously hampering other state activities and functions.

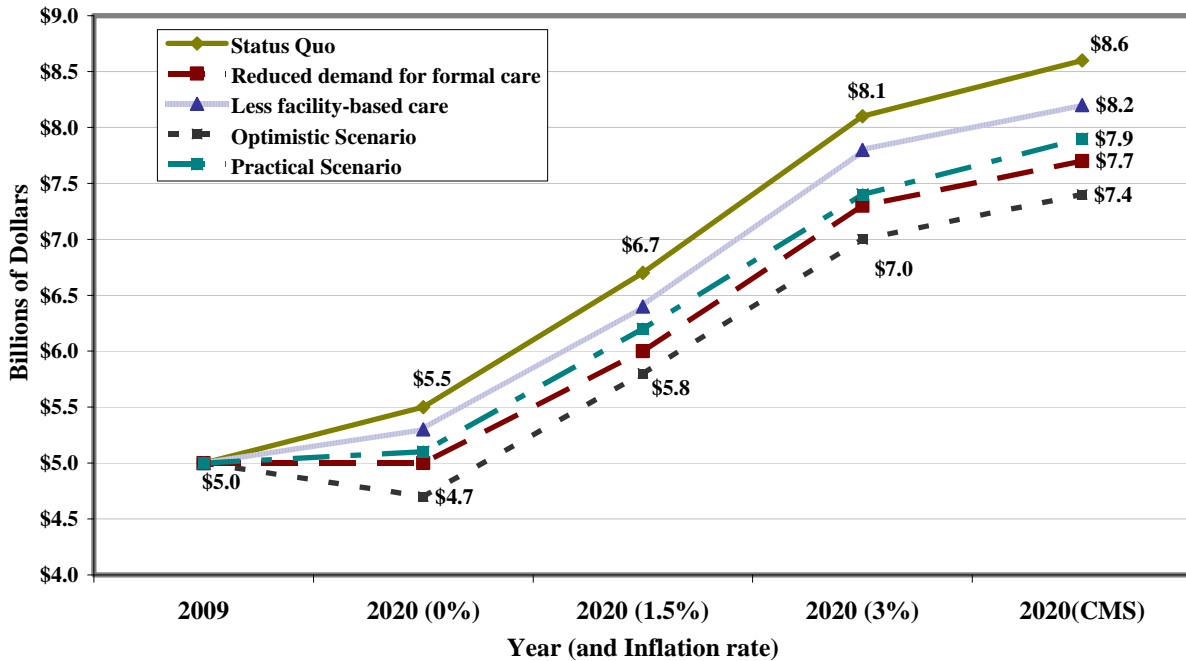
DISCUSSION

The impact of the annual increase in the cost of services on total projected Medicaid expenditures is displayed in Figure 3. In the scenarios featured, the projected number of people receiving long-term services and supports is held constant along each line, while allowing the cost of services to be based on different inflation rates. Each line represents a scenario embodying the number of people projected to receive services and supports in 2020. The expenditures increase along each line as higher inflation rates are assumed. The vertical distance between the lines at each point are due to differences in the projected number of individuals in the two scenarios and the mix of facility and community-based care that the scenarios assume.

For example, if the state chooses to do nothing more toward balancing the system (**Status Quo** scenario), then by the year 2020 the total Medicaid long-term services and supports expenditures will be 10% higher at \$5.5 billion if there is no inflation in the next 11 years. At 1.5% annual inflation, the projected expenditures for 2020 in this model would be \$6.7 billion; at 3% inflation rate, the expenditures will be \$8.1 billion, and at the CMS predicted rates it would be \$8.6 billion. Such a rapid increase in expenditures even before the oldest of the baby boomers reach their eighties signals a much higher growth in these expenditures beyond 2020.

Often, discussions around reducing long-term care expenditures focus on reducing facility-based care and increasing community-based care services. The next scenario, presented in Figure 3, will rely on controlling expenditures by reducing the number of individuals relying on facility-based care. The **Less Facility-Based Care** scenario is centered on the idea that the state, through nursing home and ICF/MR diversion or intervention, would switch 1% of the potential facility-based users of services to home-based care.

Figure 3
Projected Medicaid Expenditures for Long-Term Care Services and Support
in 2020: Different Strategies



The impact of this annual switch is about \$200 million if there is no inflation and \$400 million if the inflation rate is as CMS predicted. The Medicaid services and supports expenditures still would increase to \$8.2 billion, an increase of 64%, if CMS predictions are correct. Given the financial impact of the two scenarios presented so far, it appears just switching the care setting from facility-based use to community care will have a relatively small impact on future Medicaid expenditures.

The **Reduced Demand for Formal Care** scenario will employ a series of prevention, education, and self-care strategies to help individuals with disability remain independent longer. If the state succeeds in reducing the number of people with severe disability who are relying on Medicaid by 1% annually, then by 2020 there will be 122,000 individuals needing care rather

than the 136,000 individuals that are estimated in the two previous scenarios. In such a case, in the absence of inflation, there will be no increase in the total Medicaid long-term services and supports expenditures between 2009 and 2020. However, any inflation pushes the expenditures higher: to \$6.0 billion when inflation is 1.5%; \$7.3 billion when inflation is 3%; and \$7.7 billion when inflation is at the rate that CMS projected. Even in this model, where the number of individuals with disability using formal long-term care system is reduced, the Medicaid long-term care expenditures for services and supports increase by 54%.

The two other scenarios (**Optimistic** and **Practical**) combine two of the previously discussed scenarios, reducing both the overall number of people in need of formal care and switching some people from facility-based use to community-based care. If the state pursues an active policy of reducing the number of individuals in need of formal care by 1%, and switching individuals from facility-based care to community-based care by 1%, then the total expenditures, if CMS predicted rates are assumed, will be \$7.4 billion (an increase of 48% over 2009). A similar but more modest scenario that would reduce the number of people needing formal care by 0.5% annually, and exchanging facility-based for community-based use by 0.5%, has equally modest results by reducing expenditures for 2020 to \$7.9 billion, an increase of 58% over 2009.

Finally, we explored the role of inflation on the price of services and supports and its possible impact on budget appropriations for other functions and services offered by the state. If Ohio's economy and its GRF grow at the rate of inflation, then in the next 11 years the proportion of the total budget (including federal subsidies) allocated to Medicaid long-term services and supports will still need to increase slightly because the number of people with severe disability is increasing.

POLICY IMPLICATIONS

By 2020, Ohio will have about 348,000 individuals with severe disability who will need formal long-term care services and supports, and we predict that about 140,000 of them will likely need assistance from Medicaid. If the utilization patterns of long-term services and supports remain the same (**Status Quo** scenario), then by 2020 the cost of Medicaid long-term services and supports will be \$5.5 billion in the absence of any inflation (an unlikely option). The introduction of even very little inflation (1.5% per year) will increase the total projected Medicaid long-term services and supports expenditures in 2020 to \$6.7 billion.

The cumulative effect of higher annual inflation rates will be more pronounced if the rate of 3%, or the CMS predicted rates (slightly under 3% in the beginning and closer to 4% by 2020), are assumed. The total projected Medicaid expenditures for services and supports will reach \$8.1 billion if the annual inflation rate is 3%, and \$8.6 billion using the CMS predictions, if there is no change in the long-term care approach. If the CMS predictions are accurate, the state will experience an increase of almost 72% in Medicaid expenditures for long-term care supports and services compared to 2009, of which 10% is due to an increase in the number of people with disability and 62% is due to an increase in cost of services and supports.

Even if Ohio's economy recovers rapidly and GRF (both state and federal) starts growing, this growth has to be higher than the prevailing inflation rate in the long-term services and supports industry in order for the Medicaid expenditures for such services not to surpass the current proportion of the total budget.

Given the current economic circumstances in the country and in Ohio, these additional projected Medicaid expenditures represent a major challenge to state policy makers. This study examined ways that the state could intervene: 1) by reducing the number of people with severe

disability needing formal long-term care services through education, home modification, creation of aging friendly communities and introduction of assistive devices and technologies; 2) by reducing facility-based care through introduction of a range of community-based care options that meet individuals' varied needs for care; and 3) by controlling cost via legislation and negotiation with care providers.

In the near future, between now and the year 2020, when the annual increase in the number of older people in need of long term services and supports in the state is still low, the inflation rate in the facility-based and home-care industries will have more impact on increasing Medicaid long-term care expenditures than the aging of the population.

Efforts to manage total Medicaid expenditures should concentrate both on reducing demand for formal care, and on offering alternatives to facility-based care, but managing the cost of services and supports will have the greatest overall impact on expenditures. It is the combined effect of all three that could help Ohio best manage its Medicaid expenditures for long-term services and supports in the future.

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**APPENDIX A:
POPULATION
PROJECTIONS
METHODOLOGY**

PARAMETERS THAT DETERMINE THE SIZE OF OHIO'S POPULATION

Survival rates — The survival rates used in this study are based on the projected national mortality rates from the U.S. Census and actual mortality rates for the state between 1990 and 2000. However, there has been concern, nationally, that obesity and its related complications, such as diabetes and heart disease, could impact survival rates. The Center for Consumer Freedom in 2005 reviewed many longitudinal and epidemiological studies that examined and monitored the relationship between obesity, defined by a body-mass index (BMI), and mortality and learned that none of the studies found a consistent relationship between BMI and mortality. At best, these studies found a weak relationship, although in some segments of the population there was a relationship between mortality and very high BMIs, that is, BMIs that are much higher than recommended by the National Heart, Lung, and Blood Institute guidelines as desirable (The Center for Consumer Freedom, 2005). Given the findings of the several studies that expressed lack of any notable relationship between mortality and obesity, ***we will continue to assume that there will not be any change in the survival rates in the next 11 years.***

Net migration rates — Net migration rates are the difference between the number of people that are leaving and those that are moving into the state. These rates have been affected by both Ohio's economy, and by opportunities for Ohioans to live in other climates or other parts of the country. Trends show that many younger Ohioans, during their productive years, leave the state in search of employment opportunities, while older residents retire to warmer climates. However, this pattern has been reversing among people older than 85, who often return to Ohio to be close to family and friends. Some models project migration rates, not based only on the past state migration trends, as we did in this study, but also on a state's economic circumstances (Isserman,

Plane, Rogerson, & Beaumont, 1985). These models are most helpful for examining migration among the working age population. However, older retirees have other motivations for moving in or out of a state, while disabled individuals, who may be dependent on family for their care, have migration patterns that mirror those of their families. Since the majority of Ohio's disabled population are older persons and have a physical or cognitive disability (see *Disability in Ohio: Current and future demand for services*), it is unlikely that changes in the state's economic climate will impact the migration pattern for this population. ***Therefore, we will also hold the migration rate constant in this study.*** Having kept in place the birth (discussed in the body of the report), mortality, and migration rates between 2007 and 2020 as they were between 1990 and 2000, the size of the projected population will remain the same (as discussed in the first report of this series) and is reproduced in this report in column 2 of Table 1.

Prevalence of severe disability — Severe disability in these reports is defined to match Ohio's Medicaid eligibility definitions⁷. In the first report, we determined what proportion of Ohio's population had a severe disability at every age and for each sex and we assumed those proportions will remain the same between 2007 and 2020. Much of the argument regarding the declining prevalence of disability among the older population was summarized in the body of this report. Even though a lower overall disability prevalence was observed and reported for people age 65 and older in early 2000s, the differences are particularly pronounced for those who had a college degree, were upper income level, or were married, compared to their counterparts from 1982.

⁷ A person who meets Intermediate Level of Care (ILOC) with no evidence of severe mental illness or intellectual and/or developmental disability, even if he or she has a diagnosis of dementia or Alzheimer's disease, is classified as having **severe** physical and/or cognitive disability. An individual who meets ILOC, with the diagnosis of severe mental illness, is classified as having **severe** disability due to mental illness. When the individual meets ILOC, and the presence of intellectual or developmental disability is confirmed by diagnosis, the individual is classified as having **severe** intellectual and/or developmental disability.

Medication and disease management are widely credited for improved health status and chronic conditions among older population. Although it is not clear that all members of different socio-economic groups have equal access to new medical treatments, the passage of Medicare Part D, with all its flaws, probably has made access to prescription medications possible for some older people or people with disability who would not have been able to afford them otherwise (The Amundsen Group, Inc, 2008).

On the other hand, between 1982 and 2002 the prevalence of disability among the younger population rose, partly due to increased survival rates and also due to recognition of new physical, developmental, or mental illnesses that are referred to as “emerging” conditions. Fujiura in 2004 stated that... ““Emerging” conditions are syndromes around which there is recent recognition or consensus, including multiple chemical sensitivity and chronic fatigue syndrome (CFS), or established conditions such as asthma, autism, mental illness, and learning disorders that appear to be growing in prevalence. A common point of dispute is whether reported increases represent growth in actual incidence, greater awareness of the condition, better surveillance, or simply a lessening of the stigma of reporting.” (P. 1)

It appears that even though the prevalence of disability among the older population is declining, the trends reflect a different phenomenon for populations under age 65. To incorporate the changes in the prevalence of disability that occurred between 1982 and 2004 into our calculated prevalence rate, we relied on two studies that provide disability trends by age cohort. The first, is a study by Schoeni et al. (2005) that used data from the National Health Interview Survey (NHIS), a cross-sectional survey of the non-institutional U.S. population. The authors looked at two NHIS questions that assessed personal help needs. They calculated the percentage of the age 70 or older population who in the years between 1982 and 2002 responded “yes” to

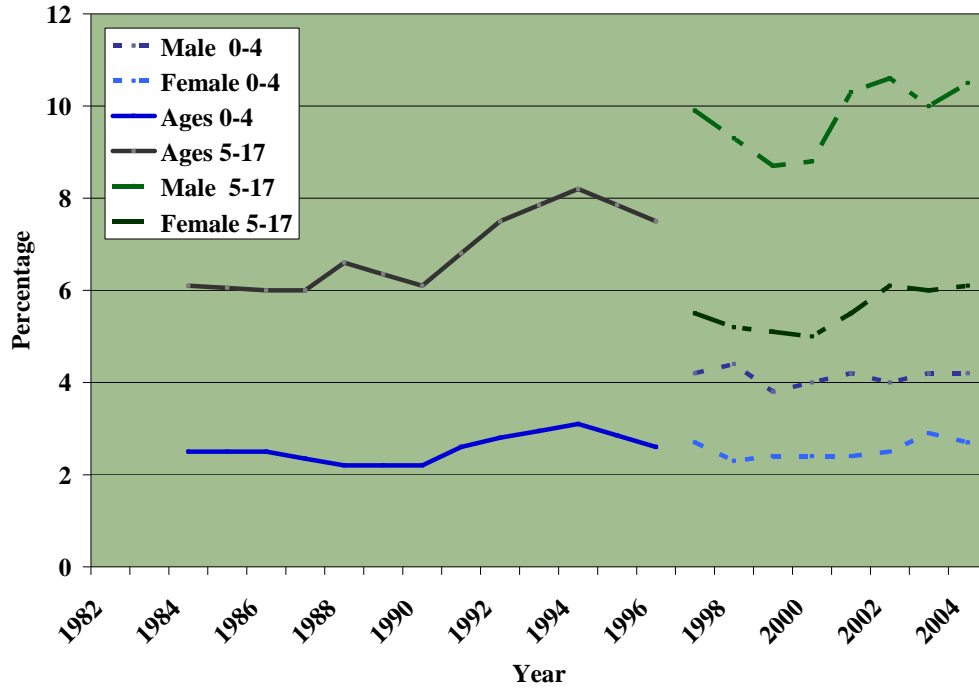
the following question regarding activities of daily living (ADL): “Because of any impairment or health problem, does [respondent]___ need help of other persons with personal care needs, such as eating, bathing, dressing, or getting around this home?” Those who answered “no” to this question were then asked about limitations with instrumental activities of daily living (IADL): “Because of any impairment or health problem, does [respondent]___ need help of other persons in handling routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?” The questions were modified somewhat in 1997 by preceding each question with the introductory phrase: “Because of a physical, mental, or emotional problem.”

The second study was conducted at the request of the Committee on Disability in America in 2007 by H. Stephen Kaye of the University of California San Francisco, Disability Statistics Center. He calculated disability prevalence by using the proportion of the population that indicated needing the assistance of another person with performing their activities of daily living from 1984 to 2004. Figures A1 and A2 present the findings of these two studies.

The increase in the prevalence of disability among those age 0 to 4 (weighted average of both genders) was minimal, while there was an annual increase of 9 per 10,000 for those between ages 5 and 17 and 9 per 100,000 for those between ages 45 and 64. The only group that showed a decline in prevalence of disability was the 70 to 79 age group (4 per 10,000 annually). Those over age 80 maintained a consistent level of disability over time. Neither study looked at the 60 to 64 age cohort by itself. Combining these small but measurable changes in prevalence of disability over time among the community population allowed us to create an alternative population projection which accounts for these trends. These trended projections are presented in Table 2 in the body of this report. Since the prevalence of disability among the facility-based

Figure A1

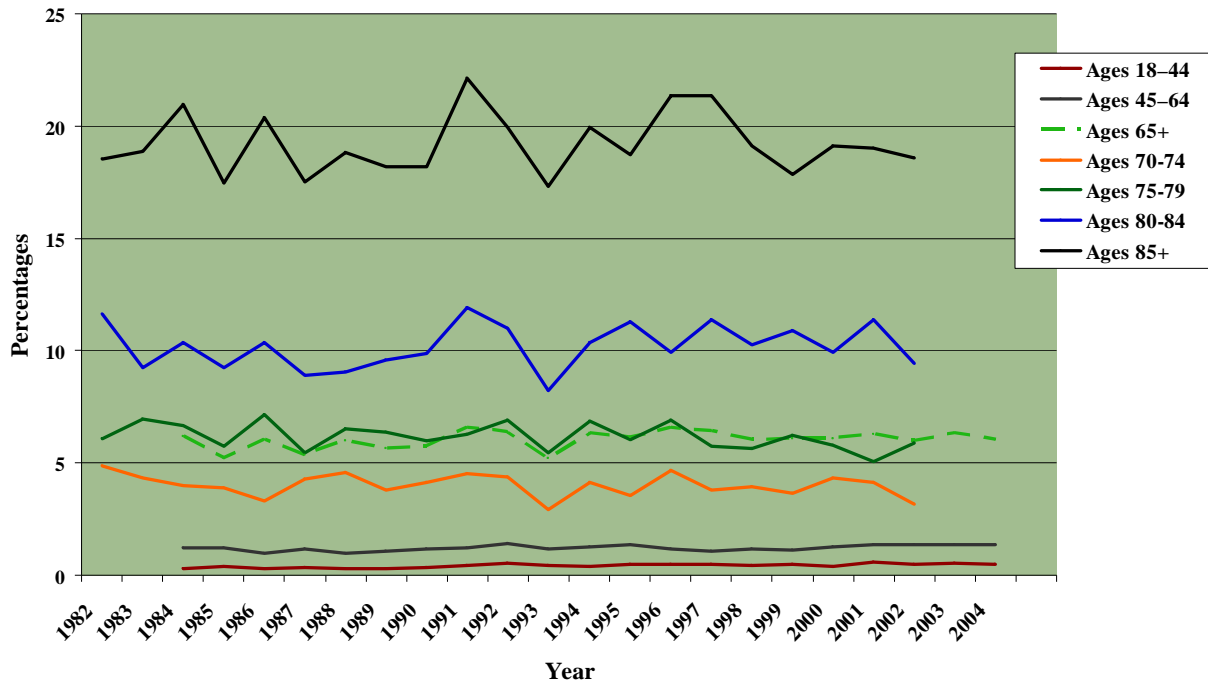
Percentage of Young Population with Disability, by Age and Sex, 1982-2002



population has not been measured in a consistent way, and the facilities serve some residents with very short stay, and others for an extended period of time, it is difficult to differentiate between short-stay rehab patients and long-stay residents. Therefore, we used the snap shot of Ohio facility disability rates in 2007 and assumed these rates will remain constant until 2020.

Figure A2

Percentage of population with Disability, by Age, 1982-2004



Sources: Schoeni, R., Freedman, V., & Martin, L. (2005). *Socioeconomic and Demographic Disparities in Trends in Old-Age Disability*. Trends Working Paper 05-014. Data for ages 70 and older in this figure were obtained through a personal communication with the first author.

H. Stephen Kaye, UCSF, Disability Statistics Center, Unpublished tabulations from the National Health Interview Survey. Note: Only limitations in activity caused by chronic conditions or impairments are included in the above table; respondents are reclassified as having no activity limitation if they report a limitation due to a condition that is not known to be chronic. The five basic ADLs are bathing, dressing, transferring, eating, and toileting. The survey also asks about getting around inside the home, but this measure is not included in the tabulation. Data for under age 65 and 65+ in figures A1 and A2 were obtained through personal communication with H. Stephen Kaye.

In support of less need for formal care — Prior to the current economic crisis, it was widely believed that tomorrow's elderly will enjoy much better personal economic circumstances; but that assertion may not hold true any longer, yet they will be healthier, more educated and even more accustomed to the use of technology. Education has been found to impact prevalence of

disability; it is apparent that the older population of tomorrow has attained higher levels of education (Hobbs and Damon, 1996). Nusselder and colleagues in a recent study found that diseases such as cancer, heart disease/stroke, asthma/chronic obstructive pulmonary disease, diabetes, and arthritis are more prevalent among people (age 30 and over) with lower education. They also found that people with lower education had lower life expectancies, and they spent more years with disability (Nusselder et al., 2005). Similarly, Guralnik, Land, Blazer, Fillenbaum, and Branch (1993) found that people with higher educational levels (12 or more years of education) at the age of 65 can expect to live 2.5 to 4.6 years longer than those with lower education (less than 12 years) and have 2.4 to 3.9 years longer active life expectancy (Guralnik et al., 1993).

Based on the studies cited, in the near future the population at every age (particularly over age 55) will be more educated than the current population at that age currently is; therefore, it is very likely that the prevalence of disability among Ohioans age 65 and older will be lower for the future population compared to the current population of the same age group. A lower prevalence rate among the older population means fewer people will be disabled, thus demand for services and supports would be lower.

In addition, more and more people with disability are seeking ways to achieve and maintain their independence by embracing technologies that promote self-care and accommodate and assist them in performing their daily activities. The introduction of devices, services, and home modifications, some of which are still in the early stages of development, will all assist individuals to remain independent with limited assistance from caregivers or formal providers.

**APPENDIX B:
EXAMINING EACH
SCENARIO IF THE
CURRENT TRENDS IN
PREVALENCE OF
DISABILITY CONTINUE
INTO THE FUTURE**

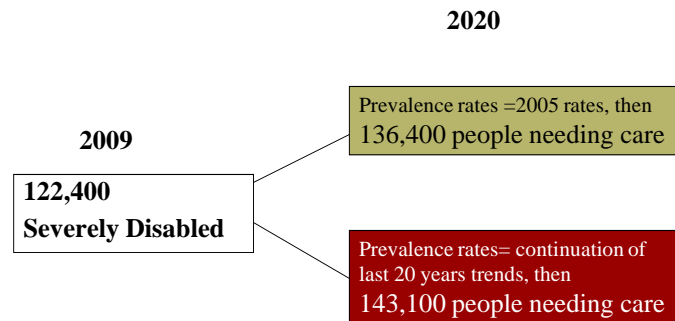
TRENDED DISABILITY RATES SCENARIO

Earlier, we examined the plausibility of holding the disability rates constant for all age groups at the 2007 level. The literature referred to observations that point to slightly lower disability prevalence among older ages and slightly higher than previously estimated among younger than 60 age groups. Using the newly projected disability rates, we calculated the projected number of people with severe disability in 2020 to be 143,100 as presented in Table 2 (page 5) and Figure B1 below.

Figure B1

Two options for prevalence of severe disability:

1. Stays the same as 2005
2. Follows the observed trends in the last 20 years;



If the observed patterns of disability prevalence in the last 20 years continue in the future, we will have 6700 more individuals with severe disability in 2020 than estimated in the **Status Quo** model. The increase is almost all in the younger age categories due to injuries and intellectual or developmental disabilities partially due to survival of low weight infants. A comparison of tables 5 and B2 shows that in the absence of any inflation in cost of care, the **Status Quo** model produces different levels of expenditures based on the prevalence rate assumed. Any additional person with severe disability increases the Medicaid expenditures in 2020, thus 6700 additional people will make the cost of the **Status Quo** scenario with no inflation about \$400 million higher in 2020 than if the prevalence rates had stayed the same. Distribution of the care recipients by care settings according to each scenario and the associated cost of each scenario are presented in Tables B1 and B2.

Table B1
Comparison of the Cumulative Impact of Different Scenarios on Demand for Long-Term Care
Services and Supports and Community & Facility-Based Care Services in 2020
(If Current Trends in Disability Continue in Future)

Type of Program/Setting	Actual 2009 Utilization	Unique Strategies			A Combination of Two Strategies	
		Status Quo	Reduced Demand for Formal care every year	Less facility-Based care every year	Optimistic	Practical
	Number (Percent)	Number (percent)	Number (percent)	Number (Percent)	Number (Percent)	Number (Percent)
Nursing Home	51,500 (42.1%)	60,200 (42.1%)	53,900 (42.1%)	53,900 (37.7%)	48,250 (37.7%)	53,900 (39.8%)
ICF/MR	7,500 (6.1%)	8750 (6.1%)	7,850 (6.1%)	7,850 (5.5%)	7,000 (5.5%)	7,300 (5.4%)
HCBS*	37,000 (30.2%)	43,250 (30.2%)	38,750 (30.2%)	49,550 (34.6%)	44,400 (34.7%)	44,000 (32.5%)
ID/DD Waivers	22,600 (18.5%)	26,400 (18.5%)	23,600 (18.4%)	27,300 (19.1%)	24,450 (19.1%)	26,000 (19.2%)
Other**	7922 (3.1%)	9,500 (3.1%)	9,000 (3.1%)	9,500 (3.1%)	9,000 (3.0%)	9,200 (3.1%)
Total	122,400	143,100	128,100	143,100	128,100	135,400

* Medicaid assisted living slots were limited when this project started thus they were included in HCBS programs. Now, those slots have increased to 2000.

** The prison population with severe disability (4100 in 2009) is included in the number but not in the percentage. The PACE program participants and individuals with severe mental health disability living in the community are included in the other category.

Table B2
Estimated Cost of Medicaid Long-Term Care Expenditures in 2020 for Different Scenarios
(If Current Trends in Disability Continue in Future)

Different Scenarios	Different Inflation Assumptions			
	No inflation rate	1.5% Annual inflation rate	3% Annual inflation rate	CMS projected rates
	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)
Status Quo	143,100 (\$5.9)	143,100 (\$7.1)	143,100 (\$8.6)	143,100 (\$9.1)
Reduced Demand for Formal Care	128,100 (\$5.2)	128,100 (\$6.4)	128,100 (\$7.7)	128,100 (\$8.1)
Less Facility-Based Care	143,100 (\$5.6)	143,100 (\$6.8)	143,100 (\$8.2)	143,100 (\$8.7)
Optimistic Scenario (1% less formal & 1% less facility-based)	128,100 (\$5.0)	128,100 (\$6.1)	128,100 (\$7.4)	128,100 (\$7.8)
Practical Scenario (0.5% less formal & 0.5% less facility-based)	135,400 (\$5.4)	135,400 (\$6.5)	135,400 (\$7.9)	135,400 (\$8.3)

Note: The total estimated Medicaid long-term care expenditures for 2009 were \$5.0 billion.

**APPENDIX C:
EXAMINING THE IMPACT
OF A MORE ASSERTIVE
UTILIZATION
MANAGEMENT
STRATEGY ON MEDICAID
LONG-TERM SERVICES
AND SUPPORTS**

On page 15 of the report, we examined a series of scenarios that explored how any reduction in demand for formal care and facility-based care impacts total Medicaid expenditures for long-term services and supports. In those scenarios we considered a 1% reduction in demand for formal care and a 1% reduction in use of facility-based care annually.

A more expanded presentation of these scenarios when the demand for formal care and facility-based care is reduced by 2% annually, and a **very optimistic** scenario which combines 2% reduction in demand for formal care with 2% reduction in facility-based care appears in Tables C1 and C2. These tables in comparison to Tables 4 and 5 show the impact of a more aggressive and concerted effort to reduce both demand for formal care and demand for facility-based care.

Table C1
Comparison of the Cumulative Impact of Different Scenarios on Demand for Long-Term Care Services and Supports and Community & Facility-Based Care Services in 2020

Type of Program/Setting	Actual 2009 Utilization Number (Percent)	Unique Strategies			A Combination of Two Strategies	
		Status Quo Number (percent)	Reduced (2%) Demand for Formal care every year Number (percent)	2% Less Facility-Based care every year Number (Percent)	Very Optimistic 2% less formal & 2% less facility Number (Percent)	Optimistic 1% less formal & 1% less facility Number (Percent)
Nursing Home	51,500 (42.1%)	56,650 (41.5%)	46,000 (42.1%)	45,500 (33.4%)	36,800 (33.7%)	45,350 (37.1%)
ICF/MR	7500 (6.1%)	8350 (6.1%)	6700 (6.1%)	6700 (4.9%)	5350 (4.9%)	6600 (5.4%)
HCBS*	37,000 (30.2%)	41,950 (30.8%)	33,000 (30.2%)	53,100 (38.9%)	42,200 (38.6%)	42,200 (35.1%)
ID/DD Waivers	22,600 (18.5%)	25,150 (18.5%)	20,150 (18.5%)	26,800 (19.7%)	21,450 (19.6%)	23,450 (19.2%)
Other**	7922 (3.1%)	8750 (3.2%)	8400 (3.1%)	9300 (3.2%)	8400 (3.1%)	8417 (3.1%)
Total	122,400	136,400	109,200	136,400	109,200	122,100

* Medicaid assisted living slots were limited when this project started thus they were included in HCBS programs. Now, those slots have increased to 2000.

** The prison population with severe disability (4100 in 2009) is included in the number but not in the percentage. The PACE program participants and individuals with severe mental health disability living in the community are included in the other category.

Table C2
Estimated Cost of Medicaid Long-Term Care Expenditures in 2020 for Different Scenarios

Different Scenarios	Different Inflation Assumptions			
	No inflation rate	1.5% Annual inflation rate	3% Annual inflation rate	CMS projected rates
	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)	Number of people (Cost in billions)
Status Quo	136,400 (\$5.5)	136,400 (\$6.7)	136,400 (\$8.1)	136,400 (\$8.6)
Reduced Demand for Formal Care (2% annually)	109,200 (\$4.5)	109,200 (\$5.4)	109,200 (\$6.6)	109,200 (\$7.0)
Less Facility-Based Care (2% annually)	136,400 (\$5.1)	136,400 (\$6.2)	136,400 (\$7.5)	136,400 (\$7.9)
Very Optimistic Scenario (2% less formal & 2% less facility-based)	109,200 (\$4.1)	109,200 (\$5.0)	109,200 (\$6.0)	109,200 (\$6.4)
Optimistic Scenario (1% less formal & 1% less facility-based)	122,100 (\$4.7)	122,100 (\$5.8)	122,100 (\$7.0)	122,100 (\$7.4)

Note: The total estimated Medicaid long-term care expenditures for 2009 were \$5.0 billion.