Notes

1 Estimated employer contributions for residents working out-of-state who are covered under Massachusetts insurance

Massachusetts residents working in other states
Source: U.S. Census Journey-to-work and Migration Statistics Branch, Population Division

State	1990 Workers	1997 Workers
New York	4,856	
Vermont	1,416	
New Hampshire	18,952	
Maine	1,344	
Rhode Island	29,136	
Connecticut	27,166	
Other states	10,670	
Total	93,540	
Total Massachusetts workforce (working in or out of state)	2,984,800	3,118,700
Total state workforce (employed residents)	2,984,800	3,118,700
Residents working out-of-state (calculated for 1997 from 1990%)	93,540	97,736
% residents working out-of-state	3.1%	

Contributions by out-of-state employers who employ Massachusett residents.	
Default variable	**$5,241**
User chosen variable	**User Choice**
Select estimated per-employee health insurance payment by out-of-state employers. Value must be a reasonable per-employee health insurance cost between $1000 and $7000.	**$4,000**
Note: this figure is used to estimate total contributions by out-of-state employers of Massachusetts residents, and is adjusted to estimate a portion of such employers who do not offer insurance to their employees.	
Use user variable? (Y or N)	**N**

Non-medicare, non-Medicaid per worker personal health expenditure (based on note 16 estimate of non-medicare, non-medicaid expenditures)	$5,241
Non-Medicare, non-Medicaid per capita personal health expenditure (from note 16 for comparison purposes, not used in calculation)	$3,304
Non-Medicare, non-Medicaid phce per worker times residents working out-of-state ($ millions)*	$512

* Assumes that all health care costs are spread across all workers (as opposed to trying to calculate a mix of family and individual coverage contributions).

Total uninsured	766,000
Source: U.S. Census Bureau, Current Population Survey (CPS) Health Insurance Coverage: 1996, Table F. Number of Persons Covered and Not Covered by Health Insurance byState in 1996, http://www.census.gov/hhes/hlthins/cover96/c96tabf.html	
MA Children under 18 who are uninsured (CPS)	143,000
Uninsured adults	623,000
Percent of uninsured who are employed	64.0%
Source: Department of Medical Security/Harvard/Harris Associates 1995 Survey. Since based on 1995 data,and both uninsured and employed have increased since then, it may understate employed uninsured.	
Total Massachusetts working uninsured	398,720
Massachusetts working uninsured workforce as % of Massachusetts workforce	12.8%
Estimate of total health expenditures by residents who work out-of-state	$512
Estimate of health expenditures by residents who work out-of-state that are not paid for with employer related insurance ($ millions)	$65
Estimated employer contributions for health insurance for residents working out-of-state ($ millions) (to Section 4, 7D)	***$447***

Notes

2 Payments for health insurance for non-residents working in-state

For simplicity, efficiency and equity in the workplace, Massachusetts employers of non-residents would be expected to cover such employees on the same basis as other employees.

Estimate by workforce method

Massachusetts workers living in other states

Source: U.S. Census Journey-to-work and Migration Statistics Branch, Population Division

State	1990 Workers	1997 Workers
New York	5,676	
Vermont	2,461	
New Hampshire	74,382	
Maine	3,171	
Rhode Island	46,391	
Connecticut	12,258	
Total	144,339	

Total state workforce (number of residents who are employed)	2,984,800	3,118,700
Non-residents working in state	144,339	150,814
Non-residents working in state %	4.8%	
Non-Medicare, non-Medicaid per worker personal health expenditure for year of analysis	$5,241	
Estimated health care expense of non-residents working in state ($ millions)	***$790***	
Resident total private, less Medicare premiums	$19,383	
Resident total private insurance (including workers comp)	$12,965	
Private insurance portion (estimated using same proportion as Massachusetts residents)	$529	67%
Out-of-pocket portion (estimated)	$262	

Breakdown by area of expenditure (estimated)

Assumes breakdown similar to Massachusetts resident private health spending in 1999

	Total	Medical Service	Administration
Total health expenditures	$790	$596	$194
Personal Health Care Total	$706	$571	$135
Hospital Care	$218	$155	$62
Physician Services	$145	$110	$35
Dental Services	$46	$41	$5
Other Professional Services	$69	$62	$7
Home Health Care	$16	$14	$2
Drugs and other Medical non-durables	$83	$74	$8
Vision Products and Other Medical Durables	$12	$11	$1
Nursing Home Care	$82	$71	$11
Other Personal Health Care	$34	$31	$3
Insurer Administration	$59	$0	$59
Government Public Health Activities	$0	$0	$0
Research	$26	$26	$0
Special personal care	$261	$235	$26

Notes

3 Additional Utilization

Summary Tables

Cost of increased utilization due to universal access to comprehensive benefits

Scenario A

No Cost Sharing, Long Term Care Benefits Covered	Total	Uninsured	Insured
Additional utilization of currently uninsured	$974	$974	$0
Additional utilization resulting from elimination of cost sharing and expansion of long term care benefits	$2,785	$177	$2,608
Increased use of hospital services	$486	$22	$464
Increased use of physicians services	$710	$31	$679
Increased prescription drug utilization	$226	$16	$210
Increased use of nursing home services	$379	$37	$343
Increased use of home care services	$425	$14	$411
Increased use of dental care	$286	$44	$242
Increased use of other professional services	$203	$10	$193
Increased use of durable medical equipment	$17	$1	$16
Increased use of other personal health care	$53	$3	$50
Total increased spending	$3,760	$1,152	$2,608
Uninsured and insured shares of increased utilization		31%	69%
Cost of insuring uninsured as percent of total increased utilization		26%	

Scenario B

With Cost Sharing and Long Term Care Benefits	Total	Uninsured	Insured
Additional utilization of currently uninsured	$974	$974	$0
Additional utilization resulting from expansion of long term care benefits	$446	$0	$446
Increased use of hospital services	$0	$0	$0
Increased use of physicians services	$0	$0	$0
Increased prescription drug utilization	$0	$0	$0
Increased use of nursing home services	$343	$0	$343
Increased use of home care services	$103	$0	$103
Increased use of dental care	$0		
Increased use of other professional services	$0		
Increased use of durable medical equipment	$0		
Increased use of other personal health care	$0		
Total increased spending	$1,420	$974	$446
Uninsured and insured shares of increased utilization		69%	31%
Cost of insuring uninsured as percent of total increased utilization		69%	

Scenario C

No Cost Sharing and Long Term Care Benefits	Total	Uninsured	Insured
Additional utilization of currently uninsured	$974	$974	$0
Additional utilization resulting from elimination of cost sharing	$4,351	$69	$2,107
Increased use of hospital services	$486	$22	$464
Increased use of physicians services	$710	$31	$679
Increased prescription drug utilization	$226	$16	$210
Increased use of nursing home services	$343	$0	$343
Increased use of home care services	$411	$0	$411
Increased use of dental care	$0		
Increased use of other professional services	$0		
Increased use of durable medical equipment	$0		
Increased use of other personal health care	$0		
Total increased spending	$3,150	$1,043	$2,107
Total increased spending not including long term care	$2,397		
Uninsured and insured shares of increased utilization		33%	67%
Cost of insuring uninsured as percent of total increased utilization		31%	

Notes

Calculations

Additional utilization of currently uninsured

Section 1

Increased utilization for the uninsured is calculated assuming that the currently uninsured will increase their use of health services to the rate of those who are currently privately insured. We assume that the demographic characteristics of the uninsured are most like those who are privately insured, since the elderly and many of the poor are insured under public programs.

The methodology described above is the same as the U.S. General Accounting Office used for their study: Canadian Health Insurance: Lessons for the United States, GAO/HRD-91-90, p. 67)

The GAO methodology estimates increased health spending by the uninsured based on the difference between current uninsured spending and the comparable spending for an insured person. We chose those with private health insurance as the comparable group. The GAO study noted that the uninsured spent about 40% less than those insured for hospital and physician services at the time of that study.

Note on cost sharing: the comparison rate for the currently privately insured is the rate that includes cost sharing. Therefore, we assume that this is the rate of utilization that the uninsured will rise to with cost sharing. Additional utilization resulting from the elimination of cost sharing is calculated for the formerly uninsured along with the insured.

Cost of increased utilization due to universal access

Cost of increased utilization at same rate as cost of current utilization at average cost (from section 2) ($ millions)	$1,437
Current personal health expenditures + increased utilization before marginal cost adjustment ($ millions)	$33,120
Cost of increased utilization at same rate as cost of current utilization (at marginal cost) ($ millions)	***$974***
Current personal health expenditures + increased utilization after marginal cost adjustment ($ millions)	*$32,657*

Breakdown of increased utilization of uninsured ($millions)	Average Cost	Marginal Cost	Marginal Cost Discount
Hospital services (from note 4)	$541	$216	60%
Physician services (from note 5)	$245	$184	25%
Prescription Drugs (from note 6)	$113	$113	0%
Nursing homes (from note 7)	$193	$164	15%
Home care (from note 8)	$77	$73	5%
Dental Care (from note 8a)	$56	$42	25%
Other professional services (from note 8b)	$119	$89	25%
Durable medical equipment (from note 8c)	$15	$15	0%
Other personal health care (from note 8d)	$46	$46	0%
Other health spending including administration (total less sum of above lines)*	$32	$32	0%
Total (from section 2 of this note)	$1,437	$974	32%

* Increased utilization of long term care services is not included in this amount (and assumed to be negligible) to reflect the relative youth and lower utilization of long term care by the uninsured population.

Spending by uninsured after reform

Total	**Total utilization after reform**	**Increased utilization**	**Existing Spending**
1) Hospital Care	$781	$216	$565
2) Physician Services	$463	$184	$279
3) Dental Services	$146	$42	$105
4) Other Professional Services	$103	$89	$13
5) Home Health Care	$94	$73	$20
6) Prescription Drugs & Medical non-durables	$196	$113	$83
7) Vision Products and Other Medical Durables	$16	$15	$2
8) Nursing Home Care	$186	$164	$22
9) Other Personal Health Care	$51	$46	$5
10) Personal Health Care Total	$2,036	$942	$1,094
11) All other health spending	$32	$32	$0
12) Total spending	$2,069	$974	$1,094

Notes

Section 2

Assumes ratio of US uninsured health expenditures per capita to US private health expenditures per capita is the same as Massachusetts Non-Medicaid, non-Medicare expenditures to Mass. uninsured health expenditures.

Source of US per capita spending, 1996: National Medical Expenditure (NME) Survey data (aligned to National Health Account Projections) in "Trends in Personal Health Care Expenditures, Health Insurance, and Payment Sources, Community-Based Population, 1996-2005," Agency for Health Care Policy and Research, Center for Cost and Financing Studies, December 1997, Table 8.

Source of number of uninsured in Massachusetts: U.S. Census Bureau, Health Insurance Coverage: 1996, Table F. Number of Persons Covered and Not Covered by Health Insurance byState in 1996, http://www.census.gov/hhes/hlthins/cover96/c96tabf.html

Uninsured per capita total health expenditures, US, 1996 (NME Survey)	$866.45
Private health insurance per capita total health expenditures, US, 1996 (from NME Survey)	$2,004.14

Increased Utilization for Formerly Uninsured	
Default variable	43.2%
User chosen variable	User Choice
Select ratio of uninsured use of medical services compared to fully insured use of medical services. Value must be between 0 and 1.	50.0%
Note: raising the ratio reduces estimate of increased use of services by formerly uninsured under universal comprehensive care, and reducing the ratio raises the estimate of increased use of medical services.	
Use user variable? (Y or N)	N

Uninsured health spending as portion of privately insured health spending (US national average)	43.2%	
Number of uninsured in Massachusetts (1996)	766,000	
Per-capita personal health expenditures for non-Medicaid, non-Medicare population (Massachusetts spending from section 3 below)	$3,304	
Estimated expenditures at non-medicare, non-medicaid per capita average	$2,531,015,421	Uninsured pop X per cap
Estimated amount actually spent for health care for uninsured	$1,094,234,091	Estimated expenditures X uninsured portion
Amount of increased utilization if insured	$1,436,781,330	
Amount ($ millions)	$1,437	

Current spending by uninsured

Assumes spending is similar to out-of-pocket spending by all	**Total**	**Per Capita**	**Percent of total**
Total	$1,094	$1,429	100.0%
1) Hospital Care	$565	$737	51.6%
2) Physician Services	$279	$364	25.5%
3) Dental Services	$105	$137	9.6%
4) Other Professional Services	$13	$18	1.2%
5) Home Health Care	$20	$27	1.9%
6) Prescription Drugs & Medical non-durables	$83	$109	7.6%
7) Vision Products and Other Medical Durables	$2	$2	0.2%
8) Nursing Home Care	$22	$29	2.0%
9) Other Personal Health Care	$5	$7	0.5%
10) Personal Health Care Total		$0	0.0%
11) Program Administration and Net Cost of Private Health Insurance		$0	0.0%

Estimated based on 1995 AHCPR breakout of under age 65 out-of-pocket spending. Except that other professional, dme, nursing home, and other personal were not separated out. We separated out these categories based on each portion of combined total for average population of these categories of spending.

Source: "Trends in Personal Health Care Expenditures, Health Insurance, and Payment Sources, Community-Based Population, 1987-1995," a paper published by the Agency for Health Care Policy and Research, Center for Cost and Financing Studies, March 1997. Table 1, and Table 4 Population under age 65.

Notes

Section 3
Calculation of non-Medicaid, non-Medicare per capita spending in Massachusetts

Costs to be excluded in calculating per capita cost for uninsured for year of analysis ($ millions)		
Medicare expenditures	$7,461	
Medicaid expenditures	$5,112	
Medicare out-of-pocket	$824	
Medicaid out-of-pocket	$198	
Nursing home out-of-pocket spending	$1,148	
Home care private spending for over-65 population (35% of total home care)	$596	
Sum of excluded costs	$15,339	
Non-Medicare, non Medicaid PHCE	$16,344	
Total population	6,174,000	
Medicare Population	861,596	
Medicaid Population	439,618	
Estimated dual eligibles (to eliminate overcount)	73,729	
Source: DMA Commissioner's Office, "Benefit Plan Expenditures by Provider Type, FY 97," as of 3/31/97		
Non medicare, non-medicaid population	4,946,515	
Per capita phce for non-Medicare, non-medicaid population	$3,304	

Alternate estimate of increased expenditures for uninsured

Number of uninsured (1996)	766,000	12.4%
Population for year of estimate	6,174,000	
Total resident personal health care expenditures ($ millions)	$31,683	
Uninsured estimated expenses if insured ($ millions)	$2,531	Uninsured X Non-Medicaid, non-Medicare per capita
Uninsured current health expenditures (uncompensated care estimate)	$350	
Source: Uncompensated care pool spending from Health Policy for Low Income People in Massachusetts, Urban Institute, 1997		
Current Out-of-pocket payments by uninsured ($ millions)	$1,003	
Source: Estimated at $1310 per person, based on Lewin survey cited in Consumer Reports of February, 1998.		
Estimate of increased expenditures for uninsured ($ millions)	$1,178	

Cost-sharing after universal coverage with no financing or delivery system reform

	$ Millions
Cost sharing (out-of-pocket spending) before reform	$7,234
Reduction for covered services to formerly uninsured (excludes formerly uninsureds' out-of-pocket spending which is now paid for by insurance)	$1,003
Remaining cost sharing (out-of-pocket spending) for currently insured	$6,231

Notes

4 Increased use of hospital services due to reduction or elimination of cost-sharing

Source of increased utilization estimate: "Canadian Health Insurance: Lessons for the United States," GAO/HRD-91-90

Source of hospital expenditure estimate: November 1997 Phase A Report, Projection C

In estimating the effect of eliminating cost sharing, the GAO study expresses increased utilization as a percent of hospital services expenditures (p. 67). We applied this increase to Massachusetts health care costs after adding the increase for additional utilization of the formerly uninsured in Massachusetts.

Increased use of hospital services due to reduction or elimination of cost-sharing	
Default variable	10%
User chosen variable	User Choice
Select estimate of increased utilization of hospital services due to elimination of cost-sharing. Choose an percentage greater than 0.	15.0%
Note: hospital utilization in the model will be increased by whatever percent is entered. For example, to double current utilization, enter 1 (100%). The cost of the increased utilization will be calculated at the marginal cost of increased hospital services use.	
Use user variable? (Y or N)	N

	Total	Uninsured	Insured
Study year hospital expenditures before increase for uninsured ($ millions)	$11,934	$565	$11,369
Hospital services as percent of total personal health expenditures	37.7%		
Hospital Services Expenditures after increased utilization for uninsured at average cost ($ millions)	$12,475	$1,106	$11,369
Increased hospital expenditures for formerly uninsured before marginal cost calculation (used in note 3) ($ millions)		$541	
Marginal cost discount		60%	
Increased hospital expenditures for formerly uninsured ($ millions)		$216	
Hospital Services Expenditures after increased utilization for uninsured at marginal cost ($ millions)	$12,150		
Increased hospital utilization resulting from elimination of cost sharing (From GAO study)	10%	10%	
Increased hospitalization at average cost ($ millions)	$1,215	$22	$1,193
Marginal cost of increased hospitalization with no cost sharing ($ millions)	***$486***	***$22***	$464
Total Hospital expenditures after increased utilization	$12,636	$803	$11,834
Total increased hospital expenditures for uninsured and for elimination of cost sharing	$702		

Estimating marginal cost for hospital care at 40% puts our estimate in the middle of the range of other estimates. Maryland used 50-70 percent, New Jersey used 72 percent, New York used 20 percent, and Rochester used 0% for first 2% rise in volume, and 40 percent for increases in use thereafter. Source: Jack Cook, "Basic Ideas of Hospital Rate Setting," 1983, unpublished.

Out-of-pocket spending for hospitals

Out-of-pocket spending for hospitals before increased utilization by uninsured	$1,150	Projected hospital out-of-pocket for 1999
Out-of-pocket spending as percent of hospitals spending	9.6%	Out-of-pocket portion of hospital spending in 1999
Estimated out-of-pocket hospitals spending after increased utilization of uninsured.	$1,218	Out-of-pocket portion X total hospital spending after increased utilization

Note on out-of-pocket spending: since 1990, when the GAO study was done, some factors have worked to increase out-of-pocket spending, while others have worked to decrease it. We make the assumption that the net effect is zero. See the BLS consumer expenditure survey data which shows that out-of-pocket expenditures in 1995 are the same as those in 1990, although they varied wildly in years in between.

Notes

5 Increased use of physicians services due to reduction or elimination of cost sharing

Source of increased utilization estimate: "Canadian Health Insurance: Lessons for the United States," GAO/HRD-91-90

Source of physicians services expenditures estimate: Phase A projection C estimates.

Increased Utilization

In estimating the effect of eliminating cost sharing, the GAO Canada study expresses increased utilization as a percent of physicians services expenditures (p. 67). We applied this increase to Massachusetts total health care costs after adding the increase for additional utilization of the formerly uninsured in Massachusetts. For increased physicians services utilization, the GAO study used the average of the Rand Health Insurance Experiment estimate (31%) and Canada's experience (3%).

Increased use of physician services due to reduction or elimination of cost-sharing	
Default variable	17%
User chosen variable	User Choice
Select estimate of increased utilization of physician services due to elimination of cost-sharing. Choose an percentage greater than 0.	31.0%
Note: physician services use in the model will be increased by whatever percent is entered. For example, to double current utilization, enter 1 (100%). The cost of the increased utilization will be calculated at the marginal cost of increased physician services use.	
Use user variable? (Y or N)	N

	Total	Uninsured	Insured
Study year physician services expenditures	$5,387	$279	$5,108
Physician services as percent of total personal health expenditures	17.0%		
Physician services after increased utilization of formerly uninsured (at average cost)	$5,632	$524	$5,108
Increased physician services expenditures for formerly uninsured before marginal cost calculation		$245	
Marginal cost discount		25%	
Increased physician services utilization of formerly uninsured after marginal cost calculation		$184	
Physician services after increased utilization of formerly uninsured (at marginal cost)	$5,571		
Increased physician services utilization resulting from elimination of cost sharing	17%	17%	
Increased physician services utilization at average cost	$947	$31	$916
Marginal cost of increased physician services utilization at 75% of average cost.*	***$710***	***$31***	$679
Total physicians services expenditures after increased utilization	$6,281	$494	$5,787
Total increase in physician services expenditures	$894		

* This represents a 25% discount off average payments. Use of marginal cost here assumes that there is sufficient supply of physicians' time to meet the increased demand for services without incurring additional capital and overhead costs.

Out-of-pocket spending for Physicians services

Out-of-pocket spending for Physicians services before increased utilization by uninsured	$1,467	Projected physicians out-of-pocket for 1999
Use oop % for people who are already insured (Medicare, Medicaid and pvtly insured)		
Out-of-pocket spending as percent of physicians services spending	27%	Out-of-pocket portion of physicians services in 1999
Estimated out-of-pocket physicians services spending after increased utilization of uninsured.	$1,711	Out-of-pocket portion X total physician spending after increased utilization

Notes

6 Increased utilization of prescription drugs

Projected Prescription Drug Spending in Year of Analysis

	Total	Uninsured	Insured
Drugs and medical non-durable before increased spending by uninsured	$3,210	$83	$3,127
Portion of drugs and medical non-durables that are prescription drugs	77.5%	77.5%	
Prescription drugs before increased spending by uninsured	$2,487	$64	$2,423
Drugs as percent of total personal health spending	7.8%		
Prescription Drugs after increased utilization of currently uninsured	$2,600	$113	$2,487

Projected out-of-pocket spending for prescription drugs

Out-of-pocket spending for prescription drugs and medical non-durables	$925	$83	$842
Out-of-pocket spending for medical non-durables	$723	$19	$704
Out-of-pocket payments for prescription drugs	**$202**	**$64**	$137
Rx drug out-of-pocket as percent of Rx drug	8%		

Increased Prescription drug utilization resulting from elimination of cost sharing

The estimate of increased utilization of drugs is based on a study cited below conducted by AAMP that estimated the need for assistance in paying for prescription medications in Massachusetts in 1995. This estimate was adjusted to account for two factors: a) increased utilization by persons over 200% of poverty, and b) to eliminate a double-counting of out-of-pocket prescription drug spending by those under 200% of poverty. This resulted in an 12% increase in prescription drug spending.

Access and Affordability Monitoring Project, "Why Should Americans Pay More? Cutting Prescription Drug Prices to Foreign Levels Will Save Lives and Money," Boston University School of Public Health, Feb 1996 (Draft), Appendix I: Estimating the Need for Help in Paying for Vital Prescription Medications, as modified for this analysis by AAMP in April 1998.

Increased use of prescription drugs due to reduction or elimination of cost-sharing	
Default variable	9%
User chosen variable	User Choice
Select estimate of increased utilization of prescription drugs due to elimination of cost-sharing. Choose an percentage greater than 0.	15.0%
Note: prescription drug use in the model will be increased by whatever percent is entered. For example, to double current utilization, enter 1 (100%). The cost of the increased utilization will be calculated at the marginal cost of increased prescription drug use.	
Use user variable? (Y or N)	N

	Total	Uninsured	Insured
Estimate of increased use resulting from elimination of cost sharing ($ millions)	$226	$16	$210
Marginal cost discount*	0%	0%	
Increased utilization of prescription drugs at marginal cost($ millions)	***$226***	***$16***	$210
Increase as percent of current utilization	9%	24%	
Total prescription drug costs after increases for uninsured and elimination of copayments	$2,826	$128	$2,697

* We assume no marginal cost adjustment for prescription drugs, since drug manufacturers charge administered near-monopoly prices on drugs under patent.

Alternative Estimate

Source: "Pharmaceutical Expenditures: Forecasts for the New Marketplace," Meyer, Dodson, & Naughton, New Directions for Policy, Jan 1994. p. 10).

Estimate of increased use resulting from elimination of cost sharing	5%	5%
Increased utilization of prescription drugs ($ millions)	$130	$6
Marginal cost discount*	0%	0%
Increased utilization of prescription drugs at marginal cost($ millions)	$130	$6
Total prescription drug costs after increases for uninsured and elimination of copayments	$2,730	$118

* We assume no marginal cost adjustment for prescription drugs, since drug manufacturers charge administered near-monopoly prices on drugs under patent.

Average of two methods	$178	$11

Notes

7 Estimation of increased cost to make Nursing Home Care available to meet need.

Charlene Harrington, and Christine Cassel, et. al., "A National Long-term Care program for the United States," JAMA 266:No. 21 p. 3025. They suggest that "[l]ong-term care insurance could legitimately result in a 20% increase in nursing home utilization..." Their source is the Pepper Commission report and Rivlin and Weiner, "Caring for the Disabled Elderly: Who will Pay?" Washington, DC: Brookings Institution, 1988.

	Total	Uninsured	Insured
Nursing home expenditures before increased utilization by uninsured	$4,264	$22	$4,242
Nursing home spending as percent of total	13.5%		
Increased nursing home expenditures for formerly uninsured before marginal cost calculation		$193	
Nursing home expenditures after increased utilization of uninsured	$4,457	$215	$4,242
Marginal cost discount		15%	
Increased nursing home utilization of formerly uninsured after marginal cost calculation	$4,406	$164	$4,242
Nursing home spending after increased utilization of formerly uninsured (at marginal cost)	$4,428	$186	$4,242

Calculation of increased utilization of nursing home services

Increased use of nursing homes resulting from full coverage of long term care benefits	
Default variable	**20%**
User chosen variable	**User Choice**
Select estimate of increased utilization of nursing homes resulting from full coverage of long term care benefits. Choose an percentage greater than 0.	**15.0%**
Note: nursing home use in the model will be increased by whatever percent is entered. For example, to double current utilization, enter 1 (100%). The cost of the increased utilization will be calculated at the marginal cost of increased nursing home use.	
Use user variable? (Y or N)	**N**

Nursing home estimated increase after universal coverage in average state	20%	20%

Compared to the US average, Massachusetts had about 16% more nursing home residents per 1000 persons aged 85+, the age group most likely to use nursing homes (473 in MA vs. US 408).

Estimated increased utilization of nursing homes already exhibited in Massachusetts (to be conservative, we use one-half of difference between US and MA for over 85 population)	8%	8%

Source: National Center for Health Statistics, Health, United States, 1996-97 edition, Hyattsville, Maryland: 1997, Table 115. http://www.cdc.gov/nchswww/data/hus96_97.pdf)

Increase needed to reach 120%	10.0%	10.0%

Cost of providing increased nursing home care after elimination of cost sharing	$4,903	$237	$4,666
Cost of increased utilization at average cost	$446	$43	$403
Marginal cost discount	15%	15%	
Marginal cost of increased nursing home utilization at average cost.*	***$379***	***$37***	$343
Total nursing home care after increased cost	$4,836	$273	$4,563

Increased utilization of nursing homes with non-medical cost sharing ***$379***

We assumed that the only cost sharing for nursing homes would be a minimum payment for the room and board expense portion of nursing home care. This non-medical cost sharing would occur under single payer financing, just as Medicaid patients now contribute from their social security checks for nursing home care. We have not estimated the effect of capping this cost-sharing for low-income patients, as would be appropriate.

There may be some reduced utilization with the additional level of cost sharing in the second single payer scenario, but we have no data to model these differences with.

Notes

Room and board income calculation for nursing homes

Assume that nursing home patients will be required to pay for their room and board after 2 months of care.

Estimated daily room and board cost	$35
Monthly room and board cost	$1,065
Annual room and board charge (for ten months of year)	$10,646
Total nursing home days (in year of analysis)	18,225,712
Total nursing home years	49,933
Total nursing home cost sharing years	41,611
Estimated room and board payments made for nursing homes ($ millions)	***$443***

We assume that short stay patients who don't contribute at all will offset the 11th and 12th month contributions from patients in their 2nd or later year.

* Marginal cost is estimated at 85% since most new beds will have to be built and staffed, and there is limited room for expansion under current levels of capital.

Notes

8 Increased use of Home Care services

Ten years ago, it appeared that a 50 to 100% increase in home care utilization was reasonable to meet the need.

[See: Charlene Harrington and Christine Cassel et. al., "A National Long-term Care program for the United States," JAMA 266:No. 21 p. 3025. They suggest that "[l]ong-term care insurance could legitimately result in a ... 50% to 100% increase in use of community and home health care by the elderly." Their source is the Pepper Commission report and Rivlin and Weiner, "Caring for the Disabled Elderly: Who will Pay?" Washington, DC: Brookings Institution, 1988.]

Since then, home care use has soared, in part to help keep patients out of nursing homes. However, need for home care has also risen because of shorter hospital stays. We present cost estimates here that assume a 75% increase in home care is currently needed nationally.

This seems a reasonable figure to reflect substantial human need. The need for home care, however, may be seen as potentially limitless within the relevant range. It may be subject to the softest estimates of any health care sector, in part because home health care is hard to distinguish

from homemaker services, personal care, and social services, which all may serve to maintain health as well as quality of life.

Massachusetts Medicare patients receiving home care received 31% more visits per patient than the national average in the mid-1990s. [See 1993 Medicare data in U.S. General Accounting Office, GAO-HEHS-96-16, Medicare: Home Health Utilization, Appendix II, page 36, Figure II.2. See also 1995 HCFA data shown in Carol Gentry, "Region's Home-Care Firms Face Being Punished for Their Efficiency," Wall Street Journal, January 7, 1998.]

We assume that the same relationship between Massachusetts and the national average holds for all home care utilization. Massachusetts has higher than average incomes, higher rates of private insurance coverage, and also a substantial state program to support home care services. All these factors would tend to raise use of home care services in Massachusetts significantly above national levels.

Thus, we believe, Massachusetts has already progressed towards the assumed optimal home health care use rate, and-- as compared with the U.S. average-- requires a smaller increase to reach that optimal rate. If Massachusetts home care use overall is 31% above the U.S. average, a 25% additional increase would be needed to reach an optimal level.

	Total	Uninsured	Insured
Total Home Health Care Expenses before increased utilization for the uninsured	$1,704	$20	$1,683
Home care as percent of Total Health Expenditures in Massachusetts	5.38%		
Increased home care expenditures for formerly uninsured before marginal cost calculation		$77	
Total home care expenses after increased spending for uninsured	$1,781	$20	$1,760
Marginal cost discount		5%	
Increased home care utilization of formerly uninsured after marginal cost calculation	$1,757	$73	$1,683
Home care spending after increased utilization of formerly uninsured (at marginal cost)	$1,704	$94	$1,683

Calculation of increased utilization of home health services

Increased use of home health services resulting from full coverage of long term care benefits	
Default variable	75%
User chosen variable	User Choice
Select estimate of increased utilization of home health services resulting from full coverage of long term care benefits. Choose an percentage greater than 0.	50%
Note: home health service use in the model will be increased by whatever percent is entered. For example, to double current utilization, enter 1 (100%). The cost of the increased utilization will be calculated at the marginal cost of increased home health service use.	
Use user variable? (Y or N)	N

Expected national average increase in Home Care if no cost sharing (%)	75%	75%	
Estimated increased utilization of home care services already exhibited in Massachusetts	31%		
Increase needed in Massachusetts to reach expected national average increase	25.1%		
Increased cost	$448	$15	$432
Marginal cost discount	5%	5%	
Increased Cost at marginal rate	***$425***	***$14***	$411
Total home health care after increased cost	$2,129	$29	$2,100

Notes

Increased utilization of home care with copayments

Analysis year	1999
Total Home Care	$1,704
Medicaid home care expenditures	$192
Medicare home care expenditures	$1,079
Non-Medicaid, Non-Medicare Home Care Expenditures for year of analysis	$432
Increased need for non-Medicaid, non-Medicare population only (same as above for entire population)	25.1%
Increased home care with copayments	$109
Marginal cost discount	5%
Increased home care spending with copayments at marginal rate	***$103***

Out-of-pocket spending associated with increased utilization of home care with copayments

Home care cost sharing is assumed to be designed to eliminate over-utilization by wealthier patients, while not penalizing poor patients. Cost-sharing will be based on income status. For example, those under a specified percentage of the federal poverty level would have no cost-sharing. Those with middle incomes would pay 20% of the cost of care up to $100 per month. Those above a specific percentage of poverty would pay 20% of the cost of care.

We assume that the extra amount paid by those at higher cost sharing levels will offset the subsidies for those at lower incomes, and estimate income from cost sharing at $100 per month per beneficiary.

Source: Home Health Care Association of Massachusetts

Total patients (1995)	208,094	
Total visits of all types (1995)	13,148,156	
Total Revenue	$717,515,713	
Average cost per visit	$54.57	
Average cost per month	$287.34	
Average visits per patient	63	
Estimated visits per month	5.3	
Estimated cost sharing (patients X $100 X 12)	$249,712,800	
Cost sharing as percent of revenue	35%	
Estimated cost sharing in year of analysis	***$741***	$741

Notes

A Increased use of Dental Care

	Total	Uninsured	Insured
Study year dental care expenditures before increase for uninsured ($ millions)	$1,227	$105	$1,123
dental care services as percent of total personal health expenditures	3.4%		
Dental care expenditures after increased utilization for uninsured at average cost ($ millions)	$1,283	$160	$1,123
Increased dental care expenditures for formerly uninsured before marginal cost calculation (used in note 3) ($ millions)		$56	
Marginal cost discount		25%	
Increased dental care expenditures for formerly uninsured ($ millions)		$42	
Dental care Services Expenditures after increased utilization for uninsured at marginal cost ($ millions)	$1,269		
Increased dental care utilization resulting from elimination of cost sharing	30%	30%	
Increased dental care at average cost ($ millions)	$381	$44	$337
Marginal cost of increased dental care with no cost sharing ($ millions)	***$286***	***$44***	$242
Total dental care expenditures after increased utilization	$1,555	$204	$1,350
Total increased dental care expenditures for uninsured and for elimination of cost sharing	$327		

B Increased use of other professional services

	Total	Uninsured	Insured
Study year other professional services expenditures before increase for uninsured ($ millions)	$2,622	$13	$2,608
Other professional services services as percent of total personal health expenditures	7.3%		
other professional services expenditures after increased utilization for uninsured at average cost ($ millions)	$2,741	$132	$2,608
Increased other professional services expenditures for formerly uninsured before marginal cost calculation (used in note 3) ($ millions)		$119	
Marginal cost discount		25%	
Increased other professional services expenditures for formerly uninsured ($ millions)		$89	
Other professional services Services Expenditures after increased utilization for uninsured at marginal cost ($ millions)	$2,711		
Increased other professional services utilization resulting from elimination of cost sharing	10%	10%	
Increased other professional services at average cost ($ millions)	$271	$10	$261
Marginal cost of increased other professional services with no cost sharing ($ millions)	***$203***	***$10***	$193
Total other professional services expenditures after increased utilization	$2,914	$129	$2,785
Total increased other professional services expenditures for uninsured and for elimination of cost sharing	$293		

Notes

C Increased use of medical durables

	Total	Uninsured	Insured
Study year medical durables expenditures before increase for uninsured ($ millions)	$323	$2	$322
Medical durables services as percent of total personal health expenditures	0.9%		
Medical durables expenditures after increased utilization for uninsured at average cost ($ millions)	$338	$16	$322
Increased medical durables expenditures for formerly uninsured before marginal cost calculation (used in note 3) ($ millions)		$15	
Marginal cost discount		0%	
Increased medical durables expenditures for formerly uninsured ($ millions)		$15	
Medical durables Services Expenditures after increased utilization for uninsured at marginal cost ($ millions)	$338		
Increased medical durables utilization resulting from elimination of cost sharing	5%	5%	
Increased medical durables at average cost ($ millions)	$17	$1	$16
Marginal cost of increased medical durables with no cost sharing ($ millions)	***$17***	***$1***	$16
Total medical durables expenditures after increased utilization	$355	$15	$340
Total increased medical durables expenditures for uninsured and for elimination of cost sharing	$32		

D Increased use of other personal health care

	Total	Uninsured	Insured
Study year personal health care expenditures before increase for uninsured ($ millions)	$1,011	$5	$1,006
Personal health care services as percent of total personal health expenditures	2.8%		
Personal health care expenditures after increased utilization for uninsured at average cost ($ millions)	$1,057	$51	$1,006
Increased personal health care expenditures for formerly uninsured before marginal cost calculation (used in note 3) ($ millions)		$46	
Marginal cost discount		0%	
Increased personal health care expenditures for formerly uninsured ($ millions)		$46	
Personal health care Services Expenditures after increased utilization for uninsured at marginal cost ($ millions)	$1,057		
Increased personal health care utilization resulting from elimination of cost sharing	5%	5%	
Increased personal health care at average cost ($ millions)	$53	$3	$50
Marginal cost of increased personal health care with no cost sharing ($ millions)	***$53***	***$3***	$50
Total personal health care expenditures after increased utilization	$1,110	$48	$1,062
Total increased personal health care expenditures for uninsured and for elimination of cost sharing	$99		

Notes

9 Reduction in workers comp medical payments under single payer reform

Under the single payer financing, workers comp medical charges would be paid at the same rate as all other services. Massachusetts already uses a fee schedule to determine workers compensation payments. This fee schedule is not mandatory, but it does reduce payments below charges. We assume an additional 5% savings by folding workers comp medical into single payer coverage.

Projected workers comp medical expenditures in 1999	$221

Reduction in workers comp medical payments under single payer reform	
Default variable	5%
User chosen variable	User Choice
Select estimate of percent reduction in workers comp medical payment rates. Choose an percentage greater than 0.	10%
Note: workers comp payment rates will be reduced by whatever percent is entered. For example, to reduce current spending by half, enter 0.5 (50%).	
Use user variable? (Y or N)	N

Savings percent resulting from paying for workers comp medical at single-payer rates	5%
Workers Comp Savings in 1999	***$11***

10 Universal access savings from ambulatory sensitive diagnoses

Research on savings from ambulatory sensitive care done by Codman Research Group, New Hampshire:
Codman research suggests that for the under-65 age group with income under $15,000, savings on hospitalizations for ASD's could amount to 77% of current cost of hospitalizations. For all income groups under age 65, Codman suggests that an average admission rate of 6 to 8 per thousand for ASD's is possible. When the entire population is included, Codman research estimates that an admission rate of 9 per thousand is achievable. This is the rate currently achieved in areas around the country with excellent access to primary care through clinics (La Jolla, CA, Palo Alto, CA, and Hanover, NH).

Source of ASD data: Mass Hospital Discharge Abstracts, 1986, 1991, 1996. 1986 and 1991 data are for 5 quarters, and have been adjusted by reducing by 20%.

Ambulatory Sensitive Conditions using ICD-9 codes	1996	1991	1986
Massachusetts Population	6,099,000	6,001,640	5,902,682
Total discharges for all Conditions	798,803	936,842	914,363
ICD-9 ambulatory sensitive condition total discharges	118,477	154,889	145,849
ASD discharges per thousand population	19.4	25.8	24.7
Total charges for ICD-9 asd discharges	$862,423,090	$1,000,103,250	$610,658,629
Total hospital charges	$7,452,494,482	$8,314,067,361	$5,212,630,547
Percent ICD-9 ASD hospital charges	11.57%	12.03%	11.71%
Estimated payments for ICD-9 ASDs in analysis year	$1,381	$1,021	$664

Ambulatory Sensitive Conditions using DRGs			
Total Discharges for all conditions	798,803	936,842	914,363
DRG ambulatory sensitive condition total discharges	106,794	129,420	121,248
ASD discharges per thousand population	17.5	21.6	20.5
Total charges for DRG asd discharges	$665,532,902	$659,482,846	$460,734,562
Total hospital charges	$7,452,494,482	$8,314,067,361	$5,212,630,547
Percent DRG ASD hospital charges	8.93%	7.93%	8.84%
Estimated payments for DRG ASDs in year	$1,066	$673	$501

Notes

Savings for ASDs when delivery system reform is introduced

Savings for ASDs when delivery system reform is introduced	
Default variable	9.0
User chosen variable	User Choice
Select estimate for rate of ASD hospitalizations per thousand population after universal access and outreach programs are introduced. Choose a number between 6 and the current rate of such hospitalizations.	9.0
Note: hospitalizations per thousand population for ASDs will be changed to the rate selected. If the rate selected is lower than 17.5 per thousand, savings from reduced hospital spending will appear. It is believed that hospitalizations for ASDs can not be reduced below the rate of 6 per thousand.	
Use user variable? (Y or N)	N

Target discharge rate per thousand population, achievable with single payer system (which includes outreach programs to target people who could benefit from early treatment)	9.0
Estimated savings over current ASD discharge rate	48.6%
Estimated savings in year of analysis	$323,455,945
Non DRG ASD Charges	$196,890,188
Estimated savings for additional ASDconditions (one-third of overall ASD savings potential)	16.2%
Estimated savings in year of analysis	$31,896,896
ASD single payer savings before marginal rate calcualtion	$355,352,841
Marginal rate for hospital spending	60%
Total ASD single-payer savings ($ millions)	***$142***
ASD savings under single payer with copayments	
Increased utilization by uninsured	$974
Total increased utilization under single payer without copayments excluding long term care increased utilization	$2,397
Uninsured increased utilization as percent of total increased hospital, physician and pharmaceutical utilization with no copayments	41%
Estimated ASD savings for uninsured only	***$58***

ASD savings under universal access with no financing or delivery system reform

Notes

11 Savings from early detection, preventive services and practice pattern changes

We conservatively estimate the reduction in clinical waste at five percent of hospital spending. This estimate reflects the following factors:

a. A considerable number of studies estimate savings at levels between 12 and 20 percent.

b. These studies seem to ignore the average cost/marginal cost issue considered throughout this report.

c. We therefore assume that 10 percent of the volume of current care could be eliminated without imposing clinical harm on patients.

d. Our five percent net savings estimate values the 10 percent volume drop at one-half, reflecting a marginal cost to average cost ratio of 50 percent.

e. Most of the estimates of 12-20 percent savings were done before the insinuation of managed care and capitation techniques into health care. Still, we build on their foundation because we do not find credible evidence that managed care and capitation have reduced hospital spending substantially. Some cuts would have been won without managed care and capitation because they rest on cost-reducing technologies like less-invasive surgery and body scanning.

Many of the techniques lauded loudly today do not really save money, we argue. These include ambulatory surgery, cuts in hospital length-of-stay, closing of hospitals, and increased substitution of sub-acute, home health, and observation days for in-hospital days. Most of these changes signal increased payments through unbundling, ducking of hospital fixed costs, and one-time savings that will probably cause higher spending in the future.

Source: "A Literature Review of studies demonstrating savings from early detection, preventive services and practice pattern review utilization changes," unpublished paper by Solutions for Progress, Inc. Spring 1993, updated in Fall, 1997)

These savings are based on studies estimating the potential expenditure reductions that retrospective, concurrent and prospective review, mandated second surgical opinions, reduction in unnecessary surgery, practice pattern analysis, alternatives to hospital care and case management of complex and expensive treatments will realize.

Reduction in hospitalizations resulting from changes in utilization review techniques	
Default variable	5%
User chosen variable	User Choice
Select estimate of percent reduction in hospitalizations. Choose an percentage greater than 0.	4%
Note: hospital spending will be reduced by whatever percent is entered. For example, to reduce current spending by 20%, enter 0.2. Our research suggests that a 20% savings is the maximum that could be achieved.	
Use user variable? (Y or N)	N

Hospital services, after increased utilization	$12,636
Savings from changes in practice patterns	5%
Savings without copayments	***$632***
Uninsured increased utilization as percent of total increased hospital, physician and pharmaceutical utilization with no copayments (from previous note)	41%
Estimated savings for uninsured only (i.e., with copayments)	***$257***

Notes

12 Capital Planning

Under strict capital planning made possible by a single-payer system, the single payer authority will place a cap on capital spending. The goal of this cap is to reduce capital spending by 10% annually over current spending. Additional savings might arise from obtaining the lower interest rates available to the public sector.

Hospital capital spending as percent of hospital spending (from Medicare Cost Reports for MA)	9.8%
Non-hospital capital spending as percent of non-hospital spending (estimated at 5%)	5.0%
Estimated hospital capital spending for year of analysis	$1,167
Estimated other capital spending for year of analysis	$1,206
Total estimated capital spending	$2,373

Capital planning savings goal	
Default variable	10%
User chosen variable	User Choice
Select goal for percent reduction in capital spending. Choose an percentage greater than 0.	5%
Note: health related capital spending will be reduced by whatever percent is entered. For example, to reduce current spending by 5%, enter 0.05.	
Use user variable? (Y or N)	N

Capital planning savings goal	10%
Capital planning savings in year of analysis	***$237***

13 Negotiated Discounts

A Prescription drug bulk purchasing

Sources: Prescription Drugs: Companies Typically Charge More in the United States Than in Canada GAO/HRD-92-110, and Access and Affordability Monitoring Project, "Why Should Americans Pay More? Cutting Prescription Drug Prices to Foreign Levels Will Save Lives and Money," Boston University School of Public Health, February, 1996 (drafts).

The GAO study found that manufacturers charged 32% more in the US than in Canada for the 121 most used drugs that they sold in the same form in both countries. Prices wer much lower in Sweden, Britain and other developed countries. Assuming that bulk purchasing for prescription drugs is implemented in Massachusetts but that the bulk purchasing agent negotiates prices only as low as those in Canada, the 32% premium can be eliminated, resulting in a 24% savings in Massachusetts.

Prescription Drug Costs after increased utilization in year of analysis	$2,826
Manufacturer's share of prescription drug spending	74%
Source: National Association of Chain Drug Stores, "The Facts About Prescription Drug Pricing,"	
Total Manufacturer spending for prescription drugs	$2,091
Premium paid for purchasing drugs in US.	32%

Prescription drug savings potential	
Default variable	24%
User chosen variable	User Choice
Select percentage discount expected for prescription drug purchases. Choose an percentage greater than 0.	30%
Note: cost of prescription drugs will be reduced by whatever percent is entered. For example, to reduce current spending by 30%, enter 0.3.	
Use user variable? (Y or N)	N

Savings as a percent of projected prescription drug costs	18%
Cost of manufacturer spending after discount	$1,584
Cost of same drugs if purchased at a discount	$2,319
Savings before marginal cost calculation	$507
Marginal cost discount*	0%
Savings if bulk purchasing can purchase drugs at same cost as in Canada	***$507***
Prescription Drug Costs after increased utilization with cost-sharing	*$2,600*
Estimated savings for reform with cost-sharing	***$466***
Estimated savings for uninsured only	

* We assume no marginal cost adjustment for prescription drugs, since drug manufacturers charge administered near-monopoly prices on drugs under patent.

Notes

B Durable Medical Equipment

A 1998 NEJM editorial said prices for stents are about 60% less in Canada than in US. We believe that bulk purchasing arrangements for durable medical equipment could realistically achieve a minimum discount of 10% on average for all durable medical equipment used by Massachusetts beneficiaries.

Source: http://www.nejm.org/content/1998/0339/0023/1702.asp

Durable Medical Equipment Costs after increased utilization in year of analysis	$340
Discount for bulk purchasing of durable medical equipment	10%
Estimated savings	$34

Durable Medical equipment savings potential

Default variable	10%
User chosen variable	User Choice
Select percentage discount expected for durable medical equipment purchases. Choose an percentage greater than 0.	15%
Note: cost of durable medical equipment will be reduced by whatever percent is entered. For example, to reduce current spending by 30%, enter 0.3.	
Use user variable? (Y or N)	N

Savings as a percent of projected durable medical equipment costs	10%
Cost of same durable medical equipment if purchased at a discount	$306
Savings before marginal cost calculation	$34
Marginal cost discount*	0%
Savings if bulk purchasing gains discount	***$34***

Durable medical equipment costs after increased utilization with cost-sharing	***$340***
Estimated savings for reform with cost-sharing	***$34***
Estimated savings for uninsured only	

Notes

14 Private health insurance overhead savings

A: Private insurance overhead

Private insurance overhead is based on Phase C spending by source for residents projection methodology

Year of analysis	1999
Estimated private insurance costs	$13,018
Estimate of percent of private insurance for overhead	11.0%
Private insurance overhead for year of estimate	$1,437
Public health program administrative costs	$533
Projected total administrative costs	$1,970

B: Savings in private insurance overhead costs

Based on estimates in chapter 5 of the GAO Publication: "Canadian Health Insurance: Lessons for the United States" GAO/HRD-91-90, p. 65; and "Canadian Health Insurance: Estimating Costs and Savings for the United States", GAO/HRD-92-83, p. 8)

Private insurance overhead savings	
Default variable	79%
User chosen variable	User Choice
Select estimate of percent reduction in private insurance overhead. Choose an percentage greater than 0.	50%
Note: private insurance overhead will be reduced by whatever percent is entered. For example, to reduce current spending by 50%, enter 0.5.	
Use user variable? (Y or N)	N

Insurance overhead savings (from GAO analysis below)	78.7%
Estimated insurance overhead savings	***$1,131***
Remaining administrative expenditures under single-payer	$306

Savings with copayments

Increased utilization by insured with copayments (for long term care services)	$446
Total increased utilization with copayments	$1,420
Insured increase as percent of total	31%
Estimated insurance overhead savings with copayments	***$355***

GAO estimate of savings in private insurance overhead, 1991 Based on HCFA's estimated 1991 data

GAO estimate of total health expenditures in 1991	$737,000,000,000
GAO Estimate of insurance overhead costs in 1991	$43,100,000,000
Insurance overhead as percent of total	5.8%
GAO estimated savings in 1991 for insurance overhead	$33,900,000,000
Insurance overhead savings as percent of insurance overhead	**78.7%**

Some forces have tended to increase insurance overhead costs since 1991, and others may have reduced them. We make the neutral assumption that the share representing potential savings has not changed.

Notes

15 Hospital administrative savings

Hospital Administrative costs can be reduced from the current level to that of comparable hospital administrative costs under a single-payer system such as in Canada. Hospital administrative costs for Massachusetts hospitals were based on an analysis of Massachusetts hospital Medicare Cost Reports using Himmelstein's methodology for calculating administrative costs.

Source: S. Woolhandler,et. al., M.D. "Administrative Costs in US Hospitals", NEJM, Aug. 5, 1993, p. 402.) As corrected in a letter to the NEJM, dated June 8, 1994, published Aug. 4, 1994.

Total hospital expenditures (before increased utilization)*	$11,934
Current estimated level of hospital administrative costs	28.7%
Estimated hospital administrative costs	$3,558

Hospital administration savings	
Default variable	14%
User chosen variable	User Choice
Select estimate for percent of total hospital spending attributed to administration after reform. Choose an percentage greater than 0.	20%
Note: savings on hospital administration will be equal to the difference between current hospital administrative spending and hospital administrative spending after reform. Current administration is between 25 and 30% of total hospital spending.	
Use user variable? (Y or N)	n

Estimated level of hospital administrative costs under single payer (Canadian Public Hospitals) (FY 93-94)	14.3%
Estimated hospital administrative costs under single payer	$1,703
Estimated hospital administrative savings under single payer	***$1,854***

Savings under single payer with cost sharing

Increased utilization of all types of care due to insuring the uninsured	$974
Total increased utilization resulting from universal coverage and elimination of cost sharing	$3,760
Uninsured use (with cost sharing) as percent of total increased use	26%
Estimated hospital administrative savings under single payer with copayments	***$481***

* Administrative savings are based on administrative costs before increased utilization because the single payer would cause both the increased utilization and the administrative savings. Therefore savings should be based on administrative costs before the effect of single-payer reform.

Canadian administrative level in year of GAO study	10.4%

Canadian Health Insurance: Lessons for the United States" GAO/HRD-91-90, p. 65; and "Canadian Health Insurance: Estimating Costs and Savings for the United States", GAO/HRD-92-83, p. 8)

Notes

16 Physicians administrative savings

Source GAO/HRD-92-83, p. 12.

The GAO report compares physicians' administrative costs in the United States and in Ontario, Canada, and concludes that under a Canadian style system, physicians' administrative costs could be reduced by 10.3% of total physicians services expenditures.

Total Physician expenditures	$5,387
Estimated administrative expenses	$1,356
Estimated administrative expenses percent (based on MGMA analysis below)	25.2%

Physician services administration savings	
Default variable	10.3%
User chosen variable	User Choice
Select estimate for percent of total physicians service spending attributed to administration after reform. Choose an percentage greater than 0.	20%
Note: savings on physician services administration will be equal to the difference between current physician services administrative spending and physician services administrative spending after reform. Current administration is between 25 and 30% of total physician services spending.	
Use user variable? (Y or N)	N

Estimated savings in physician administration as percent of total physician spending (from GAO)	10.3%
Physician administration percent after simplification	14.9%
Reduction in physician administrative costs	40.9%
Estimated Physicians administrative savings	***$555***

Physicians administrative savings with cost sharing

Uninsured use (with cost sharing) as percent of total increased use	26%
Estimated Physicians administrative savings with cost sharing	***$144***

Physician administrative costs in Group Practices

Based on Medical Group Management Association "Cost Survey: 1993 Report based on 1992 data," Englewood, Colorado, December, 1993.

From Table 1G, page 21: Nonphysician Expenses as a Percent of Total Tent Medical Revenue for Multispecialty Groups

Nonprovider salaries	22.5%
Admin related salaries	
Administrative	2.45%
Business Office	3.3%
Information Services	0.85%
Other administrative support	0.92%
Medical receptionists	2.66%
Medical secretaries/transcribers	1.45%
Medical records	1.24%
Total Administrative salaries	12.87%
Admin salaries as percent of nonprovider salaries	57.20%
Associated costs	
Nonprovider benefits	5.48%
Information services expenses	2.05%
Building/occupancy expenses	6.17%
Furniture/equipment expenses	1.73%
Administrative supplies/service expenses	1.9%
Insurance premiums	2.59%
Total associated costs	19.92%
Percent of associated costs for admin	11.39%
Total administrative percent of total net medical revenue	24.26%

Notes

17 Administrative Savings in Nursing Homes

Source: Woolhandler S, Himmelstein DU, "Deteriorating administrative efficiency of the U.S. health care system", 324 (18):1253 - Special Articles

Woolhandler and Himmelstein compare nursing home administrative costs in California and Canada, and conclude that if nursing home administrative costs were brought down to the level of Canadian nursing home administrative costs, a savings of 2.1% of total nursing home expenditures would be achieved. However, under the limited benefit proposal, nursing home care would not be included in the single-payer reform, and these savings would not occur.

Massachusetts nursing home care costs estimate ($ millions)	$4,264
California nursing home administrative %	15.8%
Estimated Massachusetts nursing home administrative costs (15.8%)	$674
Nursing home administration savings	
Default variable	13.7%
User chosen variable	User Choice
Select estimate for percent of total nursing home spending attributed to administration after reform. Choose an percentage greater than 0.	13%
Note: savings on nursing home administration will be equal to the difference between current nursing home administrative spending and nursing home administrative spending after reform. Current administration is between 15 and 20% of total nursing home spending.	
Use user variable? (Y or N)	N
Canadian nursing home administrative percent (W&H, p. 1255)	13.7%
Estimated achievable administrative savings	2.1%
Nursing home care savings	$90
Nursing home administrative savings with copayments	
Uninsured use (with cost sharing) as percent of total increased use	26%
Estimated nursing home administrative savings with copayments	***$23***

B Administrative Savings for Dental Care

Current dental care spending	$1,227
Estimated share that is administration	
Physicians administration percent	24%
Estimate of dental administration percent (1/3rd size of physician administration perc	8%
Estimate of dental administration	$99
Estimated savings of dental administration if one-third of savings in phyisician administration	14%
Total savings on dental administration with no cost-sharing	**$14**
Total savings on dental administration with cost-sharing	**$4**

Notes

18 Federal share of increased utilization and payments on behalf of Medicaid beneficiaries

A. Increased Federal funds resulting from expanding benefits, maximizing payment rates, and expanding eligibility

We assume that the Massachusetts Medicaid program has already negotiated a waiver with the Federal government under which the Federal payment share is as high as is politically possible. If additional federal funding does become possible, that would simply reduce the revenues to be raised within the state.

Federal share of increased spending for Medicaid eligibles	
Default variable	0.0%
User chosen variable	User Choice
Select estimate for increased spending for Medicaid eligibles. Choose an percentage greater than 0.	5%
Note: The Federal government may be willing to contribute matching funds for additional Medicaid spending, but this contribution will have to be negotiated. Since Massachusetts has already negotiated a waiver regarding Medicaid, it seems unlikely that additional funds will be forthcoming from the Federal government.	
Use user variable? (Y or N)	N

Projected Medicaid spending before universal access reform	$5,112
Increased Medicaid spending in Massachusetts that is eligible for Federal matching funds	$0
Federal share of above increase	50.0%
Increased Federal funds for health care in Massachusetts	$0

Cost-sharing

Increased Federal funds for health care in Massachusetts under reform with cost-sharing

B. Increased Federal payments resulting from elimination of cost sharing

Medicaid beneficiaries will account for a portion of increased utilization resulting from of expansion of benefits and the elimination of copayments. The negotiation for the waiver to include Medicaid in the single-payer system will include this data.

Federal share of increased utilization by Medicaid eligibles resulting from elimination of cost-sharing	
Default variable	14.2%
User chosen variable	User Choice
Select estimate for increased utilization by Medicaid eligibles. Choose an percentage greater than 0.	10.0%
Note: This is increased utilization by the currently insured that results from elimination of cost-sharing. Select an estimate for the portion of the increased utilization by the insured that can be attributed to Medicaid eligibles. The default estimate is based on Medicaid eligibles share of total health spending.	
Use user variable? (Y or N)	N

Portion of increased utilization that accrues to Medicaid beneficiaries (from source of expenditure projections)	14.2%
Total increased utilization for currently insured (covered benefits)	$2,608
Medicaid share of increased utilization for covered benefits	$370
Federal share of increased Medicaid Utilization *	50.0%
Federal share of increased Medicaid utilization	***$185***

*Based on 1994 Medicaid Federal Match from HCFA

Notes

19 Medicare portion of increased utilization and increased Federal share

As out-of-pocket expenditures are eliminated as barriers to access, the utilization by Medicare beneficiaries will increase.

Federal share of increased utilization by Medicare eligibles resulting from elimination of cost-sharing	
Default variable	**20.7%**
User chosen variable	**User Choice**
Select estimate for increased utilization by Medicare eligibles. Choose an percentage greater than 0.	**10.0%**
Note: This is increased utilization by the currently insured that results from elimination of cost-sharing. Select an estimate for the portion of the increased utilization by the insured that can be attributed to Medicaire eligibles. The default estimate is based on Medicare eligibles share of total health spending.	
Use user variable? (Y or N)	**N**

Portion of increased utilization that accrues to Medicare beneficiaries	20.7%
Total increased utilization for currently insured (covered benefits)	$2,608
Medicare share of increased utilization for covered benefits	$540
Total increased federal funds generated in year	1999
Increased federal funds generated	***$725***

Notes

20 Cost of meeting additional need for attendant care, rehabilitation therapies, and assistive technology

Part A: Attendant Care

Estimation of population that needs attendant care services

Attendant care services are characterized as follows: services provided to people who need assistance with ADLs, and can work or attend school and otherwise stay out of institutional settings if they receive these services.

Estimate of people with unmet need

Source of population estimates: U.S. Bureau of the Census, Population Paper Listing #47, "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," October 1996, Series A (Preferred series), Table 4.

	Population	Percent of Total Pop.
Year of actual data	1996	
Total Massachusetts population	6,099,000	
Massachusetts population between ages 18-64	3,811,218	62.5%
Massachusetts population ages 0-64	5,233,147	85.8%
Year of analysis	1999	
Massachusetts population for 1999	6,174,000	
Massachusetts population between ages 18-64	3,848,984	62.3%
Massachusetts population ages 0-64	5,322,057	86.2%

Percent of population requiring personal assistance services

Sources: National Institute on Disability and Rehabilitation Research, "Disability Statistics Report: State Estimates of Disability in America," Report 3, March 1993, US. Department of Education Office of Special Education and Rehabilitative Services.

The Pepper Commission, "Final Report: A Call for Action," Govt. Printing Office, Washington, DC, Sept. 1990, Figure 3-6, p. 97.

Population under age 65 that could benefit from attendant care

Rate per thousand of population 16-64 requiring assistance (those with "mobility" difficulties) (Disability Statistics Abstract)	19.8
Estimate of those age 16-64 requiring assistance	76,210
Assumption of portion using formal care (Pepper Commission: 70-80% use informal care)	25%
Estimate of those using formal care	19,052
People currently receiving attendant care in Mass (non-Medicaid)	44
People currently receiving attendant care in Mass (Medicaid)	
Total people currently receiving attendant care in Massachusetts	44
Subtotal A: Maximum number of people aged 18-65 that could benefit from attendant care	**19,008**

Estimate of savings of people substituting attendant care for nursing home care

We have no data on which to base our estimate of the number of people who would choose to leave nursing homes. We do not believe all people would choose to leave nursing homes, although some would. We are attempting to be conservative by suggesting that only 20% of the nursing home population in Massachusetts under the age of 65 would choose to leave nursing homes. We assume that 10% of nursing home residents ages 75-85 would choose to leave for the purposes of this analysis)

Source of Medicaid nh population: Massachusetts Rate Setting Commission, "Nursing Facilities in Massachusetts: 1994 Update," February, 1996, Table 3.1. Source of nh daily charges: Division of Health Care Finance and Policy, "Massachusetts Nursing Homes: Payment Sources (1994), Sept. 1996.

Nursing home population under age 65 in Massachusetts (1994 Medicaid only)	2,088
Nursing home population under age 65 in Massachusetts (non Medicaid)	
Total nursing home population under age 65 in Massachusetts	2,088
Estimate of percent of people who would choose to leave an institutional setting of care	20%
Estimated persons who will no longer need nursing home care	418
Average Medicaid nursing charge per day	$103.23
Average non-Medicaid nursing charge per day	$212.45
Estimated savings in nursing home care	$15,737,782

Notes

Population over age 65 that can benefit from attendant care

Total Massachusetts residents in nursing homes age 65-74 (Medicaid only) (Mass RSC)	4,215
Percent that will choose to shift to attendant care services (SFP estimate)	20%
Subtotal B: Estimate of those choosing to shift to attendant care	**843**
Total Massachusetts residents in nursing homes age 75 and over (Medicaid Only) (Mass. RSC)	31,668
Percent that will choose to shift to attendant care services (SFP estimate)	10%
Subtotal C: Estimate of those choosing to shift to attendant care	**3,167**
Total persons over age 65 who might choose to shift to attendant care	4,010
Savings for over-65 Medicaid population leaving nursing homes	$151,082,703
Total Savings for Medicaid population leaving nursing homes	$166,820,484
Total savings at marginal rate cost calculation	$141,797,411

Based upon the shift from nursing home care to attendant care, there may be substantial savings, as much as $142 million, which represents half the cost of nursing home beds for these 4010 consumers. The other half of the nursing home expenditure would be shifted to pay for augmented attendant care and rehabilitative services. We do not show these savings because they depend upon a change in consumer behavior that is particularly hard to predict.

Total number of people ages 18 and over who could benefit from attendant care (Sum of subtotals A, B, and C)	**23,018**

Sources: Egley, Lance, "Estimating the Cost of A National System of Personal Assistance Services," Oakland, RTEPPIL, World Institute on Disability, forthcoming.

Average hours of personal assistance services per year, in 1987 (Egley)	509.3
Estimated hourly rate in 1999	$15.00
Total estimated cost per year of assistive services	$7,640
Cost times maximum number of people	$175,847,589

Notes

Part B: Rehabilitative Therapies

This estimate is based on the national estimate of the cost of rehabilitative therapies from Larry Lane, Sr. Vice President of Novacare. Mr. Lane has been involved in most government advisory and advocate studies of rehabilitative care. The national estimate was expressed as a percent of national expenditures for other professional care, and then applied to Massachusetts other professional care expenditures. We assumed a doubling of rehabilitative therapy expenditures under single-payer.

Source: Table entitled "Rehabilitation Sector: Market Size Estimate, 1994" provided by Larry Lane, Novacare, based on compiled data from NARF, Lek Associates, Rand, and Investment Industry Data.

	($ Millions)
Other Professional services estimate, US, 1994 (from HCFA)	$49,140
Rehab services in 1994	$15,015
Percent that goes to PT, OT, and Speech therapy on outpatient basis	34.8%
Estimated outpatient PT, OT and Speech Therapy	$5,225
Percent of Other Professional services that is outpatient PT, OT, and Speech Therapy	10.6%
Total Massachusetts Other Professional health expenditures in 1999	$2,622
Estimate of Massachusetts outpatient rehabilitative therapy expenditures	$279
Estimated increased utilization if utilization doubles	$279

Part C: Assistive Technology

The estimate for the cost of the unmet need for assistive technology is based on the current cost of such technology for children age 3-5, financed through Education Department programs. This cost per person is then multiplied by the estimated number of people who need such technology in Massachusetts.

Assistive technology is defined as any item, piece of equipment, or product system, whether acquired commercially, off the shelf, modified or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities. (PA Initiative on Assistive Technology). For example, canes, wheel chairs, computers, durable medical equipment.

Source of expenditure data: DE Dept. of Education, Vaughn Lawer, State Supervisor, 302-739-4667

Current Funding streams

	Expenditure	Beneficiaries	Cost/Beneficiary
Medicaid	N/A	N/A	
Education			
State	N/A	N/A	
Federal for children age 3-5	$855,037	1,913	$447
Federal for Children ages 0-20	$3,875,040	12,420	$312
Local	N/A	N/A	
Total	$4,730,077		
Bureau of Vocational Rehabilitation	N/A	N/A	
Charity	N/A	N/A	
Total	$4,730,077		
Average cost for assistive technology (Ron Sibert)	$489		

Notes

Estimate of unmet need

Laplante, Mitchell, Gerry Hendershot, and Abigail Moss, "Assistive Technology Devices and Home Accessibility Features: Prevalence, Payment, Need, and Trends," Advance Data, No. 217, Sept.. 15, 1992, National Center for Health Statistics.
Sibert, Ronald I., "Assistive Technology Cost Estimate for the Part H Program of Delaware," University of Delaware, Center for Applied Science & Engineering in Rehabilitation,1993, (302) 651-6830. Roger Williams, Delaware Health and Social Services (302) 577-4900, for Medicaid PT, OT, and ST rate caps.

Total population (1994)	259,626,000
Total US population using assistive technology (Laplante)	17,270,000
Percent of population that currently uses assistive technology	6.7%
Estimate of Massachusetts residents that use assistive technology	410,687
Unmet need in US (Laplante)	2,508,000
Unmet need as percent of total population	1.0%
Massachusetts estimate of unmet need	59,641
Average cost /child age 3-5 (Federal Education Dept. Expenditures)	$489
Estimated cost of unmet need, based on average cost per child age 3-5	$26,657,285
Clinicians services needed in training to use assistive tech	
Average hours of service per person (Sibert)	50
Average cost per hour (75% of highest Medicaid rate for Home Health Therapies)	$70
Total estimated cost of rehabilitative services for unmet need for assistive technology	$208,744,009
Unduplicated need (less amount in note 17B)	$0

Net increased utilization of assistive technology, rehabilitation therapy and attendant care resulting from full coverage of needed services

This is a very rough estimate because of the unavailability of data. The only verifiable data is for Federal payments for children via the Education Department budget. As more information becomes available, this estimate is likely to change considerably.

Net increased cost of assistive technology, rehabilitation therapy and attendant care resulting from full coverage of needed services	
Default variable	**$187**
User chosen variable	
Select estimate of net increased cost of assistive technology, rehabilitation therapy and attendant care resulting from full coverage of needed services. Choose a figure (in $ millions)	**$0**
Note: net increased cost of assistive technology, rehabilitation therapy and attendant care resulting from full coverage of needed services in the model will be changed to the figure entered in the cell. The figure represents millions of dollars of new spending.	
Use user variable? (Y or N)	**N**
Total existing long term care spending ($ millions)	$5,967
Cost of net additional need for assistive technology, rehabilitation therapy and attendant care as percent of current long term care spending	3.1%
Total of A, B, and C	
Total cost of additional need for assistive technology, rehabilitation therapy and attendant care ($ millions)	***$187***

Notes

21 Cost of increased data collection and management of single payer authority

The cost of increased data collection is based on internal Solutions for Progress, Inc. studies of data processing costs per record.

Cost of increased data collection and management of single payer authority	
Default variable	$213
User chosen variable	
Select estimate of cost of increased data collection and management of single payer authority. Choose a figure (in $ millions)	$300
Note: cost of increased data collection and management of single payer authority in the model will be changed to the figure entered in the cell. The figure represents millions of dollars of new spending.	
Use user variable? (Y or N)	N

Total estimated cost of increased data collection and management of single payer authority ***$213***

Schedule of medical record fees		Contacts per person per year	Cost per record	Total
Population in year of analysis	6,174,000			
Total number of inpatient admissions (based on 1992 MA utilization from State Level Data Book)	830,443	0.1	$10	$8,304,427
Total number of outpatient contacts (Health United States, 1992)	9,381,571	1.5	$4	$37,526,282
Number of physician contacts (Health United States, 1992)	34,574,400	5.6	$4	$138,297,600
Number of dental contacts (Health United States, 1992)	12,965,400	2.1	$2	$25,930,800
Number of nursing home patients (Health United States, 1992)	285,239	0.0	$10	$2,852,388
Total	58,037,052			$212,911,498

Notes

22 Paying for reform

Source: Massachusetts Statistics of Income

Year	1999
Number of personal income tax filers	
5.95% returns	2,605,802
12% returns	783,011
Total returns of all types	3,388,813
Growth rate used to estimate increase in number of returns (1995-1999)	3%
Estimates of 1999 Income	
Total taxable income	$126,823,515
Taxable income (5.95%)	$119,646,243
Taxable income (12%)	$7,177,272
Projected 5.95% per taxable return income (1999)	$45,915
Projected 12% per taxable return income (1999)	$9,166
Growth rate for per return 5.95% income 1991-1994 (used to project per return income in 1999)	4.1%
Growth rate for per return 12% income 1991-1994 (used to project per return income in 1999)	4.2%

A) Full Public funding for reform

	Single Payer without Copayments	Single Payer with Copayment
Total taxable income	$126,823,515	$126,823,515
Cost of single payer ($ thousands)	$16,955,039	$14,606,651
Single payer personal income tax rate (if PIT is used as only source of funds)	13.4%	11.5%
Income tax rate	***5.0%***	***4.0%***
Income raised at above income tax rate ($ thousands)	***$6,341,176***	***$5,072,941***
Number of returns reporting wages & salaries	2,772,638	
Income reported ($ thousands)	$109,706,249	$109,706,249
Number of employees (July BLS figure)	3,266,821	
Employment growth		
Income per employee	$33,582	
Growth in income per employee		
Remaining cost of single payer	***$10,613,863***	***$9,533,710***
Payroll tax rate to raise remaining cost	***9.7%***	***8.7%***

B) Partial Public funding for reform (public assumption of out-of-pocket costs only)

	Single Payer without Copayments	Single Payer with Copayment
Total taxable income	$126,823,515	$126,823,515
Cost of single payer ($ thousands)	$3,033,333	$684,945
Single payer personal income tax rate (if PIT is used as only source of funds)	2.4%	0.5%
Income tax rate	***1.5%***	***0.3%***
Income raised at above income tax rate ($ thousands)	***$1,902,353***	***$380,471***
Number of returns reporting wages & salaries	2,772,638	
Income reported ($ thousands)	$109,706,249	$109,706,249
Number of employees	3,266,821	
Employment growth		
Income per employee	$33,582	
Growth in income per employee		
Remaining cost of single payer	***$1,130,980***	***$304,474***
Payroll tax rate to raise remaining cost	***1.0%***	***0.3%***