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**The Excess Costs of Low Vision and
Blindness: Medical Care, Informal Care,
and Quality of Life**

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June 20, 2012

Focus on Eye Health: A National Summit



Outline

- **Definition of the burden of disease**



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- **Data used to produce the estimate**



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- **What comes next?**



Burden of Disease

- The economic impact from a condition in a year



Economic Impact

- Medical care
- Informal care
- Quality of life



Condition

- Low vision
- Blindness

Data for Per Person Estimates—Medical Expenditure Panel Survey

- Overlapping panel, each person in for two years
- Use as pooled cross-sectional, time series data
- Weighted to be nationally representative
- Allows for the estimation of medical care costs, informal care costs, and aspects of quality of life

Longitudinal Data to Obtain a Sufficient Sample of Blind Individuals

- Seven years
 - Previous work used 1996-2002 data
 - Current work used 2003-2009 data
 - Costs inflation adjusted to 2011



Data for National Estimate

- Prevalence figures
- Since the last update of the national burden estimates has been updated for population and any new data on prevalence

Methods—Regression analysis

- Same as method use in previous work
- Linear regression
- Survey methodology
 - MEPS uses a complex survey approach
 - Regression analysis used techniques to obtain regression results that are nationally representative
 - Account for the weighting of observations
 - Account for the manner in which having multiple observations per strata affects variance



Methods—Dependent Variables

- **Total medical care expenditures**

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- **Subsets of medical care expenditures**
 - By category of expenditures
 - By who is paying

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- Total medical care expenditures
- Subsets of medical care expenditures
 - By category of expenditures
 - By who is paying
- *Value of days of informal care* provided by individuals who list outside the household
- **Quality of life measure translated into *quality adjusted life years* and the associated dollar value**



Methods—Categories of Expenditures and Who is Paying

- **Home health care agency costs**



Methods—Categories of Expenditures and Who is Paying

- Home health care agency costs
- **Prescriptions**



Methods—Categories of Expenditures and Who is Paying

- Home health care agency costs
- Prescriptions
- **Out of pocket expenses**

Methods—Value of Informal Care

- **Apply the average wage of a home health worker reported by the Bureau of Labor Statistics**
 - \$9.70

Methods—Value of Informal Care

- Apply the average wage of a home health worker reported by the Bureau of Labor Statistics
 - \$9.70
- **Assume that each day of informal care is 8 hours**

Methods—Quality Adjusted Life Years

- Combines any type of morbidity (through health utility) and mortality into a single metric
- Frequently used in cost-effectiveness
 - As a decision tool, often assume it is worth paying \$50,000 to gain a QALY in the population
 - Other figures are sometimes used
 - No governmental agency uses to implement policy
 - Use it as we did last time
- MEPS used the SF-12 which can be converted into QALYs and then converted into dollars



Independent Variables—The Condition

- **Low vision and blindness identified by self-report**

Independent Variables—The Condition

- Low vision and blindness identified by self-report
- **Response to vision question has 5 categories**
 - No problem seeing
 - Problem seeing newsprint
 - Problem seeing faces across the street
 - Both problems listed above but not legally blind
 - Legally blind

Independent Variables—The Condition

- Low vision and blindness identified by self-report
- Response to vision question has 5 categories
 - No problem seeing
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 - Legally blind
- **Middle three are grouped as low vision**



Other Potential Confounders

- Health insurance
- High blood pressure & Diabetes
- Sex
- Age
- Self-reported health status
- White/Non-White
- Education
- Income
- Marital status
- Family size

Results—Per Person Excess Total Medical Care Expenditures

- **Without regression adjustment**
 - Low Vision—\$3800
 - Blindness—\$8171

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- **With regression adjustment**
 - Low Vision—\$633
 - Blindness—\$2803



Results—Per Person Excess Pharmaceutical Costs

- Low Vision—\$148
- Blindness—\$577 (not statistically significant in the regression analysis)



Results—Per Person Excess Home Health Care Agency Costs

- Low Vision—\$143 (not statistically significant in the regression analysis)
- Blindness—\$623

Results—Per Person Excess Out-of-Pocket Costs for Medical Care

- Low Vision—\$152
- Blindness—\$46 (not statistically significant in the regression analysis)

Results—Per Person Excess Days of Informal Care

- Low Vision—1.0
- Blindness—1.2
- In this analysis, neither was statistically significant in the regression analysis



Results—Health Utility Loss

- Low Vision—-0.046 units
- Blindness—-0.068 units

Cumulative Results Applied to National Prevalence Figures

Summary

	Low Vision	Blindness	Total
Excess Medical Care	\$1,840,568,423	\$3,611,033,562	\$5,451,601,986
Informal Care	\$225,636,824	\$119,964,126	\$345,600,950
Direct + Indirect	\$2,066,205,247	\$3,730,997,688	\$5,797,202,936
Quality of Life	\$6,687,689,374	\$4,380,133,468	\$11,067,822,842
Total Including Intangible	\$8,753,894,621	\$8,111,131,157	\$16,865,025,778



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