
The Collaboration for Estimating the Cost of Chronic Disease

****Chronic Disease Directors General Member Call****

On Thursday, July 28, 3:00 to 4:00 p.m. Eastern, the Chronic Disease Directors held their regular General Members Call and were briefed about "Estimating State Medicaid Expenditures for Chronic Disease." The facilitator was Christopher Maylahn, MPH, Program Research Specialist, Division of Chronic Disease Prevention & Adult Health, New York State Department of Health and Chair, CDD Science & Epidemiology Committee. The following summarizes the briefing.

Welcome and Brief Overview of Briefing

This call described a collaboration of four major organizations that began in 2003 around the mutual interest of CDD, CDC and the NPC to identify areas of common ground and pursue projects that would be of mutual benefit. The AHRQ joined the collaboration in 2004. The discussion that followed served as an example of a multi-partner collaboration about chronic disease; how it can benefit CDD; and how members can become involved in different aspects of the project.

Purpose

The two purposes of the CDD-CDC-NPC-AHRQ Collaboration are 1) to develop econometric models for states to estimate and discuss the economic impact of chronic diseases; and 2) to better understand the ways state chronic disease and Medicaid programs can collaborate.

For both purposes, the Collaboration has decided to focus on the state perspective.

Background

- Most studies of the economic burden of disease or aggregate estimates of cost of illness use a prevalence-based approach for estimating costs. There are two prevalence-based approaches for attributing direct or medical costs to specific diseases or to underlying risk factors: 1) an econometric approach using national expenditures databases; and 2) a secondary analysis of health insurance claims or utilization databases.
- The econometric method correlates current health care (or direct) costs with the disease of interest while controlling, to the extent possible, for other observable characteristics that are likely to affect cost (demographics, risk factors).
- The claims based method sums the charges for all events with the disease of interest listed as a diagnosis in a claims database.
- The estimates in the literature or in reports such as those of advocacy organizations do not always use the same approach or apply similar methods. Hence, it is often difficult to assess the quality of the estimates or to make comparisons.

- For this project, CDC worked with the Research Triangle Institute to produce a ‘white paper’ to identify options, issues and recommendations for what might be the best approach to make chronic disease cost estimates at the national and state level. Eric Finkelstein, PhD, and Amanda Honeycutt, PhD, at RTI prepared this white paper for the Collaboration team.
- In 2003 Dr. Finkelstein published a paper in *Health Affairs* entitled, “National medical expenditures attributable to overweight and obesity: how much and who’s paying?” In the paper, the national estimates for expenditures for obesity totaled \$93 billion, with half being paid by Medicare/Medicaid.
- In response to state policy makers and the need to focus on state level estimates, Dr. Finkelstein published a second paper in 2004 looking at state-level estimates of annual medical expenditures attributable to obesity.
- A one-day public meeting was held in Atlanta last November that included members of the collaboration team and invited experts from relevant field – economists, Medicaid officials, CDC experts – to consider the recommendations in this white paper and decide what next steps to take.
- There was consensus about value in producing national and state-level estimates of chronic disease costs.
- State-policy makers are interested in tools or a set of tools that allow them to measure the public cost of chronic diseases for their specific state.
 - Data tool needed that has credibility and includes data from their state.
 - Data need to be timely.
 - Data have to be accessible.
 - Important to know how much of this cost could be avoided if the states took the appropriate intervention.
- Some of the questions that came up during this meeting included:
 - What do Medicaid officials want to know and what are they using now?
 - What percent of costs are due to chronic disease and its burden, and percent that could have been averted through interventions?
 - What is the share of costs from high-cost users of state health care systems?

Methodological and Other Issues

- Estimates need to be reliable, accurate and delivered in a timely manner, including estimates of confidence levels or standard errors.
- Gaps in current data which are used to estimate chronic disease costs need to be identified, with a goal of filling those gaps and improving data collection.

- The Collaboration will seek the help of additional partners, (e.g., business organizations, health organizations, universities) while giving priority to seeking input from the audience of Medicaid officials and state-policy makers.
- CDC, CDD, NPC and AHRQ will support an analysis of MEPS and MAX data sets to produce national estimates for selected states.
- A Steering Committee guides the research agenda with three task forces established to steer the pilot study, select the diseases, and facilitate dialogue with partners.
- The Collaboration understand that, although the scope of this initial effort is to calculate the medical expenditures or direct medical costs, the estimation of total costs includes also calculating indirect costs or productivity losses. Depending on the chronic disease under consideration, these costs can be as significant, and even larger, than direct medical costs.

Pilot Study

A pilot study has been designed and will begin soon. Dr. Diane Orenstein, from the newly-established Division for Heart Disease and Stroke Prevention, described this study. It will be conducted by the Research Triangle Institute.

Background: Heart disease and stroke are responsible for the majority of death and disability in America. Nationally the economic burden of heart disease, stroke, hypertension, and congestive heart failure is estimated at \$165 billion just in direct costs (American Heart Association, 2004). Much of the health and cost burden for these diseases also burden State budgets, through costs borne by their Medicaid program. The economic burden of these diseases on the Medicaid program is unknown, but it is likely to be substantial. In an effort to better understand this impact, CDC funded a task order to RTI in 2004 entitled “State and Local Medicaid Costs for Heart Disease, Stroke, Hypertension, and Congestive Heart Failure.”

Phase 1:

The purpose of this original contract is:

- to calculate state specific costs for persons diagnosed and or treated for heart diseases, stroke, hypertension, and congestive heart failure in six states;
- to calculate the proportion of cost burden of these diseases by states to total state budgets;
- to develop an acceptable cost prediction model and a toolkit to calculate cost burden, prevalence and Medicaid dollars at state and local levels for the specified diseases; and
- to develop an alternative cost estimation methodology using Medical Expenditure Panel Survey (MEPS) data, which are publicly available from the Agency for Healthcare Research and Quality (AHRQ). The MEPS data are a nationally representative data set

that will allow for coming up with nationally representative unit and total costs associated with all of the diseases in question (and some others in fact that we are now including as control variables).

In this initial project, the diseases of study included: heart disease, stroke, hypertension and congestive heart failure.

Criteria for selecting pilot study states:

- i Size of the Medicaid population (we wanted to avoid states with very small Medicaid programs);
- ii Percentage of Medicaid beneficiaries enrolled in capitated managed care plans (we wanted to avoid states that enrolled most beneficiaries in managed care plans because claims data are likely to under-represent utilization);
- iii Proportion of Medicare-to-Medicaid crossover claims for dually eligible beneficiaries containing diagnostic information (since we expected that a high proportion of the beneficiaries with CVD would be elderly and would have Medicare as the primary payer, we wanted to be sure that reporting of diagnosis codes on the cross-over claims for these dual eligibles was complete so we could identify dual eligibles with CVD);
- iv Incidence of cardiovascular disease (we wanted to include some stroke-belt states);
and
- v Geographic variation

Numbers i, ii, and v would presumably be relevant regardless of the disease being examined. Number iii is relevant if the disease is expected to occur mainly among elderly or disabled people (This is less a concern for diabetes than for CVD). Number iv is only relevant to CVD.

Using the above criteria, 6 states were selected for the pilot study to develop the cost of Medicaid model: Alabama, Louisiana, South Carolina, Kansas, Massachusetts and Illinois.

The 12-month period of performance is from September 1, 2004 to August 31, 2005. To date, we have received IRB approval, and received 170 data tapes from CMS that covers years 1999 and 2000, and we expect to soon receive the 2001 data tapes. Regarding the MEPS data, RTI is in the process of using this data to create the model to estimate disease costs.

A resource kit will be completed that will provide guidance to states on how to estimate state and local costs using their own Medicaid data as well as guidance on how to examine MEPS data using their specific state variables to calculate these cost.

Phase 2:

This initial project has now been expanded for at least another year to include two more diseases: diabetes and cancer.

Statisticians and other researchers at AHRQ are currently exploring how the MEPS can be used to produce state level estimates. Some estimates for a limited number of states are feasible. The MEPS state identifiers are treated as confidential information, requiring state related analyses to be conducted within the AHRQ Data Center. Data Center applications for projects producing state estimates are reviewed for both potential disclosure issues and the statistical reliability of the estimates. Once approved, project output undergoes additional statistical and confidentiality review by AHRQ staff.

This phase of the project will include an analysis of MEPS data for the 10 largest states: Alabama, Louisiana, South Carolina, Kansas, Massachusetts, California, Texas, New York, Florida, Illinois, Pennsylvania, Ohio, Michigan, New Jersey, and Georgia. Using the 10 largest MEPS states, we can come up with state representative total and unit costs for these diseases. We can also compare whether the unit costs are statistically different from each other and from the national estimates. If they are, we will need to use these results to come up with unit costs for the remaining 40 states. We may do this by region of the country, percent of uninsured, state size, or some other metric that allows for capturing state variation in unit costs. We may also do sensitivity analysis to see how the state cost estimates in the remaining states would vary as we change our assumptions.

The nationally representative MEPS data can also provide total and unit costs for the Medicaid population. However, as this is a very small fraction of the total population, these estimates will have very large confidence intervals. Estimates can also be produced at the state level for the 10 largest states but their confidence intervals will be even larger. As a result, quantifying state level Medicaid costs using MEPS will yield unbiased but imprecise estimates. Therefore, we will use the state Medicaid databases to refine the estimates. The analysis will proceed similarly to the total state cost analysis. We will use the Medicaid data across states and over time to generate state representative total and unit disease costs specific to the Medicaid population. We will then use these estimates, along with the MEPS estimates, to impute unit costs for the remaining Medicaid programs. We will, again, need to derive a methodology to impute these costs and will likely do sensitivity analyses to gauge the accuracy of our estimates. Once we have unit costs for each disease at the state level, and for the Medicaid program within each state, we can then quantify total costs by multiplying the unit costs times disease prevalence at the state level or Medicaid within state (each state must have their own prevalence data to plug into the model) What states already collect this data? What states do not?)

After the model has been developed for states to use, they will need to use their own state data to “plug” into the model to calculate their estimates of Medicaid costs. These data include: state prevalence of diseases (heart disease, stroke, hypertension, congestive heart failure, diabetes, and cancer) stratified by age categories, gender, and insurance status (Medicare, Medicaid, other).

Other

- Lou Rossiter reported on the new website for the project:
www.chronicdiseasecollaboration.org
- Steve Cohen described the strong interest of AHRQ in this project and provided an article summarizing health expenditures for the 10 largest states: “Estimates of Health Care Expenditures for the 10 Largest States, 2002” ((Machlin and Sommers, 2005). Also see website for this and other relevant references.