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## *The Collaboration for Estimating the Cost of Chronic Disease*

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### *Purpose*

The Centers for Disease Control and Prevention<sup>1</sup>, the Chronic Disease Directors<sup>2</sup>, the National Pharmaceutical Council<sup>3</sup> and the Agency for Healthcare Research and Quality<sup>4</sup> have formed a collaboration to enhance our understanding of the cost of chronic disease. The collaboration invites all interested parties, especially those concerned with state health policy to contribute to the efforts. The two purposes of the CDD-CDC-NPC-AHRQ Collaboration are:

1. to better understand the ways state chronic disease and Medicaid programs can cooperate with each other; and
2. to develop econometric models for states to estimate and discuss the fiscal impact of chronic diseases.

The effort stems from the current version of CDC's SAMMEC program, which is used to estimate costs attributable to smoking.<sup>5</sup> A 2003 study of the estimated national costs for obesity<sup>6</sup> prompted individual states to request similar estimates of the cost of obesity and overweight for their own populations. The original nationwide estimates for obesity from 2003 recently were extended to states using synthetic estimation – that is, national cost estimates were allocated to states based on state characteristics.<sup>7</sup> The collaboration is investigating what can be learned from these two efforts in estimating costs due to chronic diseases at the state level.

### *Estimating The Direct Costs Of Chronic Disease And Risk Factors*<sup>8</sup>

During a November 2004 meeting in Atlanta, the collaboration decided that an econometric approach could be used with the Medical Expenditure Panel Survey (MEPS) dataset, supplemented with other data to estimate annual medical expenditures attributable to selected diseases. Variables related to specific risk factors (obesity, smoking, alcohol consumption), in addition to indicators for most diseases, are included in the data and can be modeled. Prevalence-based cost estimates can be generated for the population with a disease or risk factor over a given time period, usually a year. This approach includes costs for newly diagnosed cases and for those in the advanced stage of disease. Another advantage of the econometric approach is that it allows for flexibility in the modeling and stratification by covariates to determine, for example, the percentage of costs financed by the public sector.

### *Recommendations for Methods of Estimating Chronic Diseases Cost*

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<sup>1</sup> <http://www.cdc.gov/nccdphp/>

<sup>2</sup> <http://www.chronicdisease.org/>

<sup>3</sup> <http://www.npcnow.org/>

<sup>4</sup> <http://www.ahrq.gov/>

<sup>5</sup> <http://apps.nccd.cdc.gov/sammec/>

<sup>6</sup> Finkelstein EA, Fiebelkorn IC, Wang G. National medical spending attributable to overweight and obesity: how much, and who's paying? *Health Affairs* 2003 Jan-Jun: Supplement Web Exclusives: W3-219-26

<sup>7</sup> Finkelstein EQ, Fiebelkorn IC, Wang O. State-level estimates of annual medical expenditures attributable to obesity. *Obesity Research*. 2004 Jan; 12(1): 18-24.

<sup>8</sup> Abstracted from: Calculation of Attributable Fractions, Attributable Mortality, and Attributable Economic Costs for Risk Factors Associated with Chronic Diseases; A Feasibility Study. Atlanta: RTI unpublished report. June 18, 2004.

The Collaboration has recommended expanding a project currently being undertaken by the Cardio Vascular Health (CVH) Branch of the CDC entitled “**State and Local Medicaid Costs for Heart Disease, Stroke, Hypertension, and Congestive Heart Failure**” to include diabetes in the first year of the project. Other chronic diseases should be incorporated in year 2. The CVH project uses publicly available and nationally representative MEPS data and standard econometric methods to predict annual unit and total Medicaid costs for coronary heart disease, congestive heart failure, hypertension, and stroke. These estimates will be compared to those generated from Medicaid claims data.

For the expanded effort, the CVH project will use the same data and methods to predict annual unit and total costs for diabetes, cancer and other chronic conditions while controlling for socio-demographic and other costly and prevalent health conditions, including HIV, mental health, lower respiratory conditions, and injuries. The inclusion of these conditions will improve the overall accuracy of the model’s cost estimates.

Because chronic conditions often occur jointly (e.g., diabetes and hypertension), it is important that the model is specified correctly and controls for joint costs to the extent possible. Controlling for multiple conditions within the same model will decrease the likelihood that expenditures are erroneously attributed to an unrelated condition. Costs will be calculated not only for the Medicaid population, but also for Medicare and private sector payers. Standard errors will be quantified around the unit and total cost estimates.

MEPS-NHIS enables the use of one dataset to access disease information and utilization cost data. The combined 1999 and 2000 MEPS samples consisted of 11,000 families, and the combined 2001 MEPS sample consists of 13,500 families. All conditions and medical events of the survey year are recorded verbatim from respondents on the survey form. Disease diagnoses are coded to fully specified ICD-9 codes, including medical condition and V codes. However, diagnoses are collapsed to 3-digit ICD-9 codes on public use files due to Privacy Act compliance.

### ***Status and Contacts***

The CDC-CDD-NPC-AHRQ Collaboration is beginning to analyze the MEPS-NHIS data for the analysis described above to estimate the cost of chronic disease beginning with the 10 largest states: California, Texas, New York, Florida, Illinois, Pennsylvania, Ohio, Michigan, New Jersey, Georgia.<sup>9</sup>

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<sup>9</sup> AHRQ, Estimates of Health Care Expenditures for the 10 Largest States, 2002, Statistical Brief #690, February 2005. Also [http://www.meps.ahrq.gov/PrintProducts/PrintProd\\_Detail.asp?1D676](http://www.meps.ahrq.gov/PrintProducts/PrintProd_Detail.asp?1D676) (Accessed 3/21/2005).

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