AGING BABY BOOMERS AND THE RISING COST OF CHRONIC BACK PAIN: SECULAR TREND ANALYSIS OF LONGITUDINAL MEDICAL EXPENDITURES PANEL SURVEY DATA FOR YEARS 2000 TO 2007

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ABSTRACT

Objectives: The purposes of this study were to analyze data from the longitudinal Medical Expenditures Panel Survey (MEPS) to evaluate the impact of an aging population on secular trends in back pain and chronicity and to provide estimates of treatment costs for patients who used only ambulatory services.

Methods: Using the MEPS 2-year longitudinal data for years 2000 to 2007, we analyzed data from all adult respondents. Of the total number of MEPS respondent records analyzed (N = 71 838), we identified 12 104 respondents with back pain and further categorized 3842 as *chronic* cases and 8262 as *nonchronic* cases.

Results: Secular trends from the MEPS data indicate that the prevalence of back pain has increased by 29%, whereas chronic back pain increased by 64%. The average age among all adults with back pain increased from 45.9 to 48.2 years; the average age among adults with chronic back pain increased from 48.5 to 52.2 years. Inflation-adjusted (to 2010 dollars) biennial expenditures on ambulatory services for chronic back pain increased by 129% over the same period, from $15.6 billion in 2000 to 2001 to $35.7 billion in 2006 to 2007.

Conclusion: The prevalence of back pain, especially chronic back pain, is increasing. To the extent that the growth in chronic back pain is caused, in part, by an aging population, the growth will likely continue or accelerate. With relatively high cost per adult with chronic back pain, total expenditures associated with back pain will correspondingly accelerate under existing treatment patterns. This carries implications for prioritizing health policy, clinical practice, and research efforts to improve care outcomes, costs, and cost-effectiveness and for health workforce planning.

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Key Indexing Terms: *Back pain; Costs and cost analysis; Aging; Spine; Economics; Chronic disease*

The "Baby Boomer Generation" is a demographic bulge in the US population considered by the US Census Bureau to encompass those individuals born during the demographic birth boom between 1946 and 1964 (Fig 1).[1] A "pig in a python" metaphor aptly describes the effect of this birth cohort on society,[2] as entire social infrastructures have adapted over time, first expanding and then contracting to meet the changing needs of the boomers. For example, municipal school systems were first overbuilt and then later dismantled or repurposed, to accommodate the boomers as they passed through the educational system. With boomers now approaching retirement age, the US health care system must prepare for the coming shockwave of their increasing health care needs, which will likely include a greater and more costly burden of musculoskeletal conditions such as back pain.

In the general population, back pain is extremely common and associated with considerable costs.[3–5] Back pain is the second most common reason adults consult a primary care provider (second only to upper respiratory infections),[6,7] and in recent years, the prevalence and

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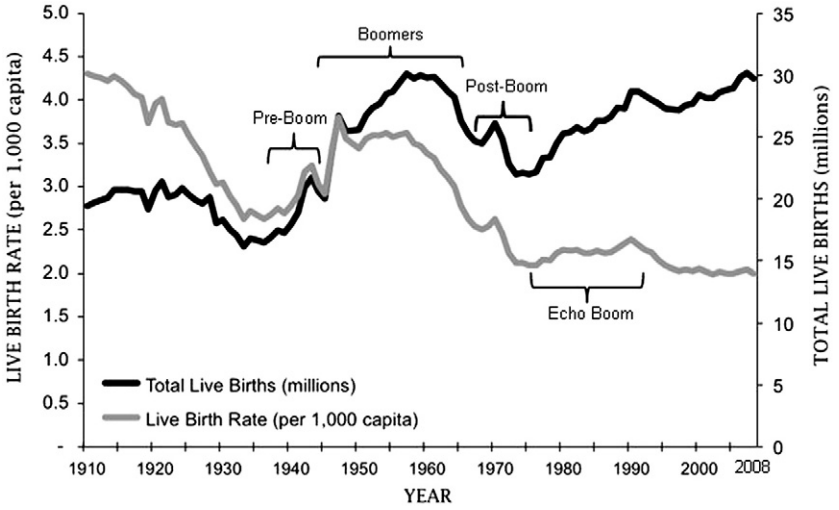

Fig 1. *Long-term US live birth trends from 1910 to 2008. Live birth trends in 1910 to 1959 are based on adjusted values for underregistration, whereas 1960 to 2008 trends are based on US registered live births. Source of data: Population Profile of the United States.*[1]

expenditures on conditions related to the spine in the United States have significantly increased.[4,8] A 2006 study found an epidemic rise in the prevalence of nonspecific low back pain among Medicare beneficiaries and dramatic increases in charges.[5] It has been estimated that 75% of direct health services expenditures for back pain can be attributed to only 25% of the back pain population,[9] which includes many who have chronic back pain.

It is unclear to what extent the aging of the population accounts for the increased prevalence of back pain generally or chronic back pain in particular. The potential impact of aging boomers on the prevalence and chronicity of back pain threatens to strain the US health care system. It is important for policymakers, payers, and other stakeholders to understand the effects of the growing back pain population and its impending demands.

Therefore, the purpose of this study was to analyze data from the longitudinal Medical Expenditures Panel Survey (MEPS) to evaluate the impact of an aging population, in particular the aging of boomers, on secular trends in back pain. This study provides a model of the impacts of aging on back pain and chronicity and provides estimates of treatment costs for patients who used only ambulatory services.

Methods

Data Source and Sampling

The Palmer College institutional review board authorized an exemption from review for this study because it used publicly available and de-identified data from the MEPS. The MEPS is a nationally representative survey of the noninstitutionalized US population, conducted annually by the Agency for Healthcare Research and Quality. Information is gathered on health care use, expenditures, and health behaviors. The MEPS 2-year longitudinal study design resurveys respondents during each of 5 separate interview rounds throughout the 2 years. We analyzed data from all adult (18 years or older at entry into longitudinal panel) respondents to all 5 rounds of the MEPS Longitudinal Survey, for MEPS panels 5 through 11, which spanned years 2000 to 2007. The total number of respondent records analyzed was 71 838 (Table 1).

Identification of Back Pain

Using the MEPS 2-year longitudinal data, we identified respondents with back pain reported in any interview round.[10] In response to prompts from MEPS field interviewers, MEPS respondents describe their health problems in a narrative form, and the narratives from the MEPS field interviews are then interpreted and assigned by trained expert MEPS coders into condition diagnostic codes according to the *International Classification of Diseases, Ninth Revision* (*ICD-9*) and a *Clinical Classification Category* (*CCC* code). From the MEPS Medical Conditions data file, we identified MEPS respondents with the *CCC* back pain code "205" and/or with *ICD-9* codes "846" or "847." (*CCC* code "205" encompasses 66 *ICD* codes for back conditions such as spondylosis and intervertebral disc disorders but does not include *ICD* codes "846" and "847" for sacroiliac and back sprain/strain, which are categorized as sprain/strain under *CCC* code "232.") Pooled across MEPS panels 5 through 11, we identified 12 104 adults with back pain.

Back Pain Chronicity

During the course of the MEPS 2-year longitudinal survey, respondents are resurveyed during 5 interview rounds, approximately every 4 to 6 months. During each round interview, MEPS respondents are asked to recall their