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Cost sharing and hospitalizations for ambulatory care sensitive conditions

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ABSTRACT

During the last decade, Chile's private health sector has experienced a dramatic increase in hospitalization rates, growing at four times the rate of ambulatory visits. Such evolution has raised concern among policy-makers. We studied the effect of ambulatory and hospital co-insurance rates on hospitalizations for ambulatory care sensitive conditions (ACSC) among individuals with private insurance in Chile. We used a large administrative dataset of private insurance claims for the period 2007–8 and a final sample of 2,792,662 individuals to estimate a structural model of two equations. The first equation was for ambulatory visits and the second for future hospitalizations for ACSC. We estimated the system by Two Stage Least Squares (2SLS) corrected by heteroskedasticity via Generalized Method of Moments (GMM) estimation. Results show that increased ambulatory visits reduced the probability of future hospitalizations, and increased ambulatory co-insurance decreased ambulatory visits for the adult population (19–65 years-old). Both findings indicate the need to reduce ambulatory co-insurance as a way to reduce hospitalizations for ACSC. Results also showed that increasing hospital co-insurance does have a statistically significant reduction on hospitalizations for the adult group, while it does not seem to have a significant effect on hospitalizations for the children (1–18 years-old) group. This paper's contribution is twofold: first, it shows how the level of co-insurance can be a determinant in avoiding unnecessary hospitalizations for certain conditions; second, it highlights the relevance for policy-making of using data on ACSC to improve the efficiency of health systems by promoting ambulatory care as well as population health.

1. Introduction

It is well known that lack of timely, appropriate ambulatory care may lead to complications that require hospitalization, creating unnecessary costs in economic and human terms. There is considerable international evidence which shows that better ambulatory care can decrease the need for hospitalization (Starfield, 1991; Fleming, 1995; Caminal et al., 2004; Macinko et al., 2010). This is especially true in the case of ambulatory care sensitive conditions (ACSC). These conditions can be easily managed with timely and effective outpatient care (Rizza et al., 2007). Rates of avoidable hospitalizations have been used as a tracer to assess access, quality, and performance of the primary care delivery system (Bindman et al., 1995; Ansari et al., 2006). Most research on ACSC has focused on determining the socioeconomic and medical conditions associated with hospitalized ACSC (Prospective Studies Collaboration, et al., 2007; Roos et al., 2005; Bliziotis et al., 2012). Such studies have found that potential avoidable hospitalizations vary by socioeconomic status. Middle and lower income population are less likely to receive preventive services, more likely to experience delays in healthcare, and less likely to have a regular source of care. The access to health insurance is another factor that can affect rates of avoidable hospitalizations, a relationship which has been studied in the U.S. through the Medicaid program (Kaestner et al., 2001; Bermudez and Baker, 2005; Dafny and Gruber, 2005). Kaestner et al. (2001) and Dafny and Gruber (2005) estimated the impact of Medicaid eligibility expansions on child hospitalizations. While Kaester et al. found that Medicaid eligibility expansions moderately improved the health of low-income children and reduced hospitalizations, Dafny and Gruber showed that the number of hospitalizations increased, but there was a much smaller increase in avoidable hospitalizations. Aizer (2007) estimated the

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impact of Medicaid take-up rather than insurance eligibility expansion. She estimated the impact of early Medicaid take-up on access to primary care and avoidable hospitalizations, finding that a 15% increase in Medicaid enrollment would lead to a 2.7% decline in avoidable hospitalizations. Little is known, however, about the impact of insurance cost-sharing (through co-insurance or deductibles) on hospitalizations for ACSC.

In this paper, we studied the effect of ambulatory and hospital co-insurance rates on ACSC among individuals with private insurance in Chile. During the last decade, Chile's private health sector has experienced a dramatic increase in its hospitalization rates, growing at four times the rate of ambulatory visits (*see* Fig. 1). Such evolution has raised concern among policy-makers interested in promoting more preventive services and higher use of ambulatory care. The increased prevalence of chronic diseases has also raised alarm. A study made in 2007 shows that 84% of the total diseases in Chile were non-communicable diseases (Ministerio de Salud, 2007). The 2003 National Health Survey showed that only a small fraction of those affected by a chronic disease had their condition under control (Bitrán et al., 2010). In this context, co-insurance can be a valuable tool for dealing with cost-escalating problems in the health system while promoting more ambulatory visits and preventive services and less ACSC.

Cost sharing is a common feature of insurance contracts. It is useful to reduce patient moral hazard, and, therefore, overconsumption of medical care. By raising co-insurance rates, insurers can reduce unnecessary care and control costs. However, high co-insurance rates may also produce losses due to reduced financial risk protection. The search for an optimal co-insurance rate that balances this trade-off has been broadly studied both theoretically and empirically (Newhouse, 2006; Ellis and Manning, 2007; Pauly and Blavin, 2008). We analyzed cost sharing in the context of an inter-temporal relationship between primary care visits and avoidable hospitalizations. Such relationship presents an additional feature that increases the losses of an un-optimally high co-insurance rate: a high ambulatory co-insurance rate could reduce consumption of effective care, and, as a result, lead to a potential increase of hospitalizations for ACSC in the future. What is the most appropriate co-insurance that would help to reduce hospital admissions for ACSC? What are the effects of different co-insurance levels on hospital and ambulatory visits for ACSC? Our response to these questions is a structural model that describes the inter-temporal correlation between ambulatory visits and hospital admissions for ACSC. We used a large administrative dataset of private insurance claims in Chile to examine the effects of ambulatory and hospital co-insurance rates on both ambulatory and hospital visits. Since hospitalizations for ACSC are avoidable through timely outpatient treatment, policy-makers must ensure that co-insurance for hospital and ambulatory care promotes adequate primary care coverage.

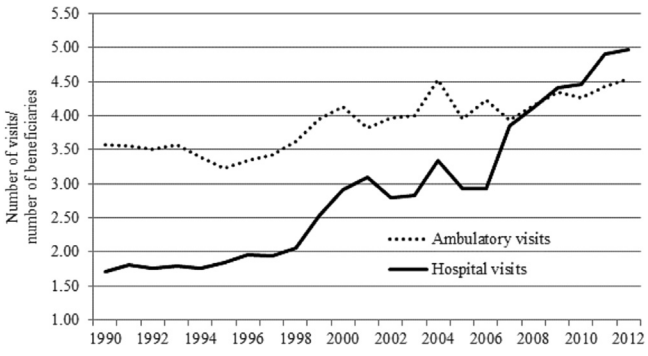

Fig. 1. Evolution of ambulatory versus hospital visits in the Chilean private sector.

Our results show that increasing ambulatory visits reduced the probability of future hospitalizations. For adults, we also found that increasing ambulatory co-insurance decreased ambulatory visits. Both findings indicate the need to reduce ambulatory co-insurance as a way to reduce hospitalizations for ACSC. This paper highlights the need to introduce co-insurance rates that are differentiated according to type of diseases (ACSC) so as to promote more ambulatory care and reduce health costs. It also focuses attention on an area that has been barely researched in less developed countries.

2. The data

Data was provided by the health regulator, the *Superintendencia de Salud*, which validates and consolidates information provided on a quarterly basis[1] by all the private insurers (ISAPREs or *Instituciones de Salud Provisional*) operating in Chile. Health insurance in Chile is dual; *i.e.*, employed individuals must purchase insurance for a minimum of 7% of their taxable income up to a specified threshold in order to enroll in the public insurer (Public Health Fund, PHF) or purchase a health plan from a private insurer (ISAPRE). A total of 2.8 million individuals, or 16.8% of the population, were covered by a contract in one of the 14 ISAPREs that operated in the market by the end of 2007. Our data cover the period from January 1 to December 31, 2007. The administrative data used in this study was exempt from ethical review. All claim records were de-identified by the owner of the data, the *Superintendencia de Salud*.

Information provided by the ISAPRES includes characteristics of plan holders, as well as all the beneficiaries, including sex, age, income, and earnings. We also have extensive information on all claims made by these individuals, including ambulatory visits, recording diagnoses using the *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10), codes for hospitalizations, and plan characteristics including co-insurance rates. A health plan from ISAPRES typically specifies co-insurance rates for both outpatient and hospital services, together with caps on coverage by unit of service. Deductibles are not used in insurance plans.

Data collected for 2007 include a total of 3,004,102 observations on the insured and their beneficiaries. From this dataset, we excluded two groups – infants (up to 1 year-old) and people over age 65 – for the following reasons: first, both clearly show different patterns of disease and behavior compared to other groups; second, the population over 65 years old represents only about 5% of the total population covered by the ISAPRES, third, prices for the seniors increase more than for others, so that many end up moving to FONASA after retirement. As a result of these exclusions, the sample was reduced to a total of 2,792,662 individuals. For each individual, we constructed indicators for ambulatory visits and subsequent hospital visits within a 30-day window. To check the robustness of the results, we also considered 60- and 90-day windows. We classified hospitalizations as ACSC, using ICD-10 codes, and following the definitions of Alfradique et al. (2009) for Brazil. The list of ACSC inclusions is reported in the Appendix. We chose the Brazilian ACSC list because Brazil is the only country in Latin America that has made a systematic effort to adapt the ACSC lists from the US, Canada and Spain to its own circumstances. Like most Latin American countries, Chile does not have its own ACSC list, and so we decided to use the Brazilian ACSC list as the closest available approximation for a Latin American context. However, it is important to note that there is no international consensus on how best to compose ACSC lists and that several alternative lists are used among and within different countries (Ansari et al., 2006).

[1] Starting in 2008, ISAPRES are required to provide information on a monthly basis.