Analysis of private health services utilization, insurance claims and charges data in a randomised control trial of a chronic disease management program

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Abstract

Rationale:
In 2005, Medibank Private, an Australian-based private health insurance company, launched tailored chronic disease management (CDM) programs for chronically ill insured members with congestive heart failure, chronic obstructive pulmonary disease and coronary artery disease.

Objectives:
The primary objective of this research is to determine if a chronic disease management (CDM) program makes a difference at the disease level to health services utilization, charges and insurance claims from the perspective of the insured member and the private insurer over a 12 month period. The secondary objective is to determine factors that impact on total cost; where total cost includes total insurance claims and the the cost of the CDM program using data at the individual level.

Methodology:
Randomised groups within disease streams are compared using intention-to-treat analyses on the basis of health care utilisation (private hospital admissions and length of stay); health care charges; insurance claims; and total costs to the private insurer (inclusive of the CDM program costs). Between group differences in arithmetic mean are compared using bootstrap t-test regression and 95% confidence intervals on a range of health service utilisation, claims, and cost variables over 12 months. Health outcomes are analysed as change in health status and capacity to self-manage the disease using matched odds ratio.

As the cost data contain many true zero values, a two-part model is used to predict (1) the probability of any health care utilisation; and (2) the predicted total cost conditional on non-zero values.

Results:
The results suggest that the intervention group experienced lower mean values for charges, claims and length of stay compared to the randomised control group for all disease cohorts. These findings are also valid for comparisons of total cost when CDM program costs are included. Self management behaviors improved in all disease groups, including influenza vaccination, written disease action plans, dietary modification and increased frequency of exercise. This was despite a low uptake rate, ranging from 21% to 29% of members completing at least 6 months of the CDM program.

Pooled analyses of all participants in all disease groups found that a range of explanatory variables including age, death, admission to intensive care, and time in the CDM program have a positive and significant effect on the dependent variable total cost.

Conclusions:
From the funder's perspective it is cost effective to offer a CDM program to members with chronic disease. The data were compared during the 12 months that the program was offered using a conservative ITT method. It is not known however if the change in total cost and the effects on participant's health behaviour can be sustained over time.
Future research will focus on the analysis of factors impacting on participant uptake and program sustainability.

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