Use of Niacin in the United States and Canada

The failure of recent trials of extended-release niacin has focused attention on the use of niacin in practice.1,2 Prior studies have shown that niacin can modify lipid levels but have not consistently shown improved patient outcomes, with a particular absence of evidence in the statin era.3,4 We sought to examine recent trends in niacin use and expenditures in the United States and Canada, which have health systems with different approaches to pharmacy benefits and formularies.

We conducted a population-level, observational cohort study from 2002 to 2009 using IMS Health National Prescription Audit for the United States and IMS Brogan CompuScript Audit for Canada, which both use pharmacy audits to measure the number of dispensed prescriptions and expenditures in both countries. The IMS databases and methods have been described previously.5,6 We calculated rates of dispensed niacin and statin prescriptions overall and by product and by country and compared the rates of change from January 2002 through December 2009. We calculated standardized medication use and expenditures per 100 000 population using the 2001 census data (Statistics Canada Census7; US Census Bureau8). We converted Canadian costs to US costs using yearly purchasing power parity values.8 We estimated rates of niacin and statin use and compared slopes using ordinary least-squares linear regression and t tests.

We compared use per country with a hierarchical linear regression model, adjusting for time. The institutional review board of Western University of Health Sciences approved this study.

Results. Between 2002 and 2009, niacin use increased by 191.2% relative to baseline, to reach 696 000 prescriptions per month in the United States in December 2009, while statin use increased 71.9% to reach 16 781 000 prescriptions per month (P < .001). In Canada, from 2005 to 2009 (when Niaspan [Abbott Laboratories] was introduced), niacin use increased 7-fold relative to baseline to reach 13 876 prescriptions per month, while statin use increased 164.1% (P < .001). Of all US niacin prescriptions in 2009, 81.6% were for Niaspan, and Advicor (niacin plus lovastatin; Abbvie Inc) and Simcor (niacin plus simvastatin; Abbvie Inc) represented 18.4% of the US niacin market. In Canada, in 2009, 85.5% of niacin prescriptions were for Niaspan, but only 1.7% were for Advicor (Simcor was unavailable). Niacin prescriptions increased in both countries over the 8-year period, but the rate of increase in niacin use was higher in Canada (P < .001). However, the rate of increase relative to baseline use in each country was higher in the United States compared with Canada (P < .001) and in 2009, niacin prescriptions per 100 000 population were approximately 6-fold higher in the United States (P < .001) (Figure). In 2009, prescription niacin expenditures in the United States totaled $881 239 000, of which $732 194 000 were for Niaspan, while in Canada, the expenditures were only $12 927 523 and $12 377 867. Niacin expenditures per 100 000 population in 2009 were nearly 7-fold higher in the United States compared with Canada (eFigures and eTables; http://www.jamainternalmed.com).

![Figure](https://example.com/figure.png)
Niacin use has rapidly increased in the United States and Canada, even relative to statin use. Per capita niacin use in the United States far exceeded that in Canada, by nearly 6-fold, with Niaspan comprising most of the prescriptions in both countries, resulting in the United States spending nearly 7 times more than Canada on niacin in 2009, heading toward $1 billion in annual niacin expenditures. Over the last 5 years of our study, a total of $3.4 billion was spent on prescription niacin in the United States.

The AIM-HIGH and HPS-2-THRIVE studies were conducted owing to uncertainty of the benefit of niacin in reducing clinical outcomes in the contemporary statin era. With the recent attention on 2 negative large clinical trials with niacin, it is an opportune time to reflect on how niacin is currently being used in practice and whether evidence justifies this level of use.

Even though relative rates of increase in niacin use are similar between countries, niacin is used about 6 times more frequently in the United States than in Canada. Factors that may play a role in its differential use include guidelines, product availability, and marketing. More active emphasis in the US guidelines on reaching non-high-density lipoprotein cholesterol targets may have contributed to more accepted use of nonstatin lipid-lowering agents, like niacin10 (eFigures and eTables). The statin-niacin combination products, Advicor and Simcor, comprised 1 in 5 niacin prescriptions in the United States, yet less than 2% in Canada. The brand-name products Niaspan and Advicor received delayed approval in 2005 in Canada. This delay, along with varying formulary coverage across Canada, may have tempered niacin use in Canada. Direct-to-consumer advertising may have helped escalate niacin use, specifically Niaspan in the United States, with its prominent “intervention-style” ads.11

Our study is limited in that we did not have access to patient-level data to determine whether niacin prescribing was clinically appropriate. Our study only evaluated the prescription niacin market; niacin use likely exceeds our estimates since some niacin products can be purchased over the counter.

In conclusion, our study shows that prescription niacin sales are substantial and growing, even in the absence of contemporary supportive trial evidence. The discordance between sales and evidence should be a focus of professional dialogue about the role of this medication in the medical armamentarium.

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2. O’Riordan M. HPS-2 THRIVE misses primary end point: no benefit of niacin/}