March 12, 2008

Report

Cost-Effectiveness of Prescriber Education ("Academic Detailing") Programs

Reducing the Impact of Pharmaceutical Marketing to Physicians and Promoting Appropriate Prescribing and Drug Safety

The pharmaceutical industry spends nearly $30 billion annually on marketing. The majority (including samples) is spent on direct marketing to physicians (Donohue, NEJM, 2007).

Nationwide, prescription drug spending rose 500% (from $40.3 billion to 200.7 billion) between 2000 and 2005 (Kaiser Family Foundation, 2007).

This report was created in collaboration with

Community Catalyst

Individual prescriber education programs – often called "academic detailing" provide physicians with unbiased information, encouraging the use of the safest, most effective and – other things being equal – least costly drugs.

Such programs have been in use for more than 20 years, and have been consistently shown to change prescribing behavior.[i] And individual educational outreach is demonstrably more effective than static practice guidelines or didactic presentations or group educational visits.[ii,iii]

This paper reviews published studies and formal economic evaluations of academic detailing programs in a number of settings.

Arkansas, New Hampshire, Vermont, D.C. Medicaid Study

By one estimate, every dollar spent on an academic detailing program, returns two dollars in reduced drug costs. This number is from an economic model developed by researchers at Harvard Medical School and the Brigham and Women's Hospital.[iv]

It was based on a randomized controlled trial published in the *New England Journal of Medicine,*[v] which compared the prescribing of doctors who were offered education visits with those who were not. These were doctors in the Medicaid programs of Arkansas, New Hampshire, Vermont or the District of Columbia, and the study showed that educational visits substantially and significantly reduced the number of

prescriptions for three often over-used drugs.[1]

That change in prescribing equated with a decrease in costs of about 20 thousand dollars for 141 doctors, more than enough to offset the cost of running the program.[2] And those are savings were only for the first year of the program, and only to Medicaid, even though doctors also saw patients with other types of coverage. The real savings were almost certainly higher.

The researchers then modeled an expansion to a full-scale program involving ten thousand doctors a year, making projections for staffing and duration of effects. They concluded, as I've said, a most-likely benefit-to-cost ratio of 1.8 to 1.[3]

It is important to note that the cost of prescription drugs has increased much more rapidly than the costs of labor since this early 1980s study. Medications that seemed expensive then would now be considered a bargain. That suggests even greater potential for present-day savings.

Pennsylvania PACE Analysis

The Pennsylvania Department of Aging, through its Pharmaceutical Assistance Contract for the Elderly (PACE) program provides academic detailing to physicians in a number of counties.[4] The service is run by the Independent Drug Information Service, which is affiliated with Harvard Medical School. The program presents information on several classes of drugs, but a preliminary economic analysis focuses on just one class – the so-called "little purple pill" for acid-reflux and its cheaper, equally effective cousins. [vi]

The analysis shows reduced drug costs of about $120 per doctor per month.[5] Among the heaviest prescribers, the reduction was $378 per doctor per month. If these changes in prescribing persist for a year, they would equate to cost savings of $572 thousand, against total program costs of about $1 million.

[1] n = 435; intention-to-treat analysis; reduction in units prescribed after education visit: cephalexin (p = 0.0006), propoxyphene (p = 0.04), papaverine (p = 0.02), all three drugs (p = 0.0001).

[2] Savings of $105 per prescriber over the 9-mo study. Estimated year one savings = $19,740. Cost per physician visit about $100.

[3] Based on the projections that detailers would see average 5.4 physicians per day in the field and that behavior change effects decay to zero in year 2.

[4] As of mid-2007, drug information consultants in this program had met with 716 physicians.

[5] Comparing the seven months before and after the educational intervention, reductions were $122 per doctor per month compared with "control" doctors in the same county who did not receive educational visits (p = 0.05). Compared controls in other counties, the reduction was $124 (p = 0.09).

It is important to point out that these are savings only for a single class of drugs, and only for patients in the PACE program, who make up just a fraction of the caseload for any physician. In all likelihood, savings in other drug classes and savings to other programs, including Medicaid, Medicare Part D, state employees and private plans, would more than offset the cost of running the program.

Australian Experience

Academic detailing programs are extensively used in other countries, particularly in Australia and Canada.[vii] While there are important differences between those healthcare systems and that of the United States, it is important to note that U.S. prescription drugs are generally considerably more costly. That may suggest the potential for even greater savings here.

In Australia, the National Prescribing Service program generated net savings of 300 million Australian dollars over ten years. [viii] This is largest, longest running program in the world, involved 11,500 individual prescribers in 2006-2007 (a steady increase from 2,500 participants in 1998–99. Over a nearly ten-year period (1997-2005), estimated savings have consistently been greater than budgeted.

Potential savings

The potential to generate savings by improving prescribing is immense. By one estimate, increased use of generics[6] would alone produce national savings of about $8.8 billion dollars per year.[ix]

Looking only at a single condition, hypertension (high blood pressure), the evidence shows that for most patients the first choice drug should be an inexpensive thiazide diuretic instead of one of several new, expensive and heavily marketed drugs. The potential US saving from appropriate use of thiazides is estimated at $433 million a year.[x] And published evidence shows that academic detailing drive this shift in a cost-effective way.[xi]

Non-drug Savings

Beyond direct savings to the drug budget is an area of even greater potential cost savings – the potential to prevent disease. A change in prescribing that prevents a heart attack cuts costs across the entire healthcare system.

[6] Based on data from a nationwide representative survey of the US population, generics account for 56% of all prescriptions – far lower than the 75-80% rate achieved in many of the best programs. The $8.8b is in year 2000 dollars.

One study of academic detailing showed enormous savings by preventing gastrointestinal bleeds.[xii,7] Another, in heart failure,[xiii] estimated a net cost of about twenty-five hundred dollars per year of life gained.[8] That is a low price to pay to give someone an extra year of life.

Other published studies

Appendix A summarizes other published studies, which generally reflect the potential for savings. However, assessing the cost impact of educational outreach programs is challenging. [xiv,xv] Experienced practitioners attest that the success of a program depends on the program focus and the training and skill level of the clinical educators. Longer running programs, where physicians and educators develop trusting relationships may be expected to increase the effectiveness of the intervention. However, most academic studies are short-term initiatives. Limited conclusions may be drawn from studies where failure to demonstrate a cost impact was secondary to failure to change behavior.

Conclusion

Much evidence supports the potential savings from appropriately applying information on the comparative effectiveness of drugs. But as the Congressional Budget Office recently noted,[xvi] savings are realized only when the information is translated into changes in clinical practice. That is what academic detailing helps to achieve.

[7] For more detail, see appended table.

[8] $2602/life-year gained

Appendix

Table: Published studies evaluating the economic impact of academic detailing.

Study	Setting	Design/ Intervention	Change in prescribing/ clinical care	Cost impact	Comments
Randomized controlled trials					
Freemantle et al.[xvii] Mason J et al.[xviii]	UK General practice	Educational visits by community pharmacists on 4 disease/drug topics *vs.* no visit	Educational outreach produced 5.2% increase in patients treated within recommendations	Cost-effectiveness: ACE inhibitor for CHF $2602 / YLG Tricyclic antidepressant instead of SSRI: cost of outreach exceeds savings ($82 v $75)	As anticipated, encouraging the use of an ACE inhibitor increased drug costs. However, such therapy is life-prolonging and the authors conclude that the educational intervention is cost-effective.
Franzini et al.[xix]	Houston, TX Pediatrics, family medicine private practices	Education on immunization or control (n = 186)	3-5% increase in immunization rates *vs.* control (NS)	Intervention cost $424-550 per 1% increase in immunization	Authors conclude this cost is higher than potential societal savings.
Freithiem et al.[xx]	Norway, General practice	Practices received educational outreach visit on hypertension treatment (n = 70) or control (n = 69)	Thiazides prescribed to 17% *vs.* 11% in intervention, control group, respectively	Cost per additional patient started on thiazides = $454	Authors conclude intervention is cost effective. Net annual savings of a national program estimated at $761,998.
Ofman et al.[xxi]	Orlando, FL Managed care org.	Disease management program for acid-related diseases, including academic detailing (n = 83)	Use of recommended regimen 96% *vs.* 10% (p = 0.001); discontinuation of PPI therapy: 70% *vs.* 26% (p = 0.04)	No difference in total costs over 6 mos	Cost savings on pharmaceuticals offset by increased testing for H. pylori bacteria, a clinically appropriate outcome. Authors report improved process measures and some outcomes through a cost-neutral intervention.
Simon et al.[xxii]	Harvard Community Health	Retrospective cost analysis of	Both individual and group detailing	Estimated net yearly cost reduction per	Individual detailing more cost effective

	Plan (New England) HMO	education about blood pressure treatment: mailed information (control) *vs.* individual *vs.* group academic detailing (n = 9 practices)	improved prescribing of desired drugs (individual more than group)	*vs.* mailed info: Individual outreach $20.37 Group outreach = no change	than mail or group visits, despite higher intervention costs. Extrapolated to plan level, estimated potential net savings of $155,000 for antihypertensive therapy.
Quasi-experimental studies					
Coopers & Lybrand [xxiii]	Australia General practitioners/ specialist	Educational visits with focus on NSAID use (n=210)	28% reduction in dispensing compared with control group (see[xxiv]) 70% reduction in hospital admissions for GI disorders compared with controls	Net direct benefit, including hospitalizations avoided = $745,000 to $1,028,000 (Discounted value $675,000 to $932,000)	Improved health outcomes (gi bleeds avoided) had a greater economic impact than reduced drug costs, but drug savings alone approx equal to project costs.
Hill et al.[xxv]	Major Midwestern HMO	Peer-to-peer education visits focus on antihistamines, lipid lowering and antibiotic use (n = 254 physicians *vs.* 409 in control group)	Assessed total cost of prescribing	Total pharmaceutical costs increased 0.9% *vs.* 2.9% in controls, corresponding to $232,218 savings over 6 mos	Authors estimate a return on investment of 14.4% to 281% for a large-scale program.

[i] O'Brien MA et al. Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD000409. DOI: 10.1002/14651858.CD000409.pub2

[ii] O'Brien MA et al. Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD000409. DOI: 10.1002/14651858.CD000409.pub2

[iii] Bloom BS. Effects of continuing medical education on improving physician clinical care and patient health: a review of systematic reviews. Int J Tech Assessment 2005; 21(3): 380-385

[iv] Soumerai, S. B., & Avorn, J. (1986). Economic and policy analysis of university-based drug "detailing". *Medical Care, 24*(4), 313-331

[v] Avorn JA, Soumerai SB. Improving drug-therapy decisions through educational outreach: a

randomized controlled trial of academically based "detailing". *New Eng J Med* 1983; 308: 1457-1463

[vi] Independent Drug Information Service & Pennsylvania Department of Aging. Evaluation of the Independent Drug Information Service, the Pennsylvania Academic Detailing Program: acid-suppressing therapy module. July 2007 (Draft report)

[vii] Maclure M et al. Show me the evidence: best practices for education visits to promote evidence-based prescribing. Canadian Academic Detailing Collaboration / Drug Policy Futures (report) 2006.

[viii] National Prescribing Service. Evaluation Report No. 10. Dec 2007

ix Haas J et al. Potential Savings from Substituting Generic Drugs for Brand-Name Drugs: Medical Expenditure Panel Survey, 1997-2000. Ann Intern Med 2005; 142: 891-897

x Fretheim A, Aaserud M, Oxman AD. The potential savings of using thiazides as the first choice antihypertensive drug: cost-minimisation analysis. BMC Health Serv Res. 2003 Sep 8;3(1):18.

[xi] Simon SR, Rodriguez HP, Majumdar, SR, et al. Economic analysis of a randomized trial of academic detailing interventions to improve use of antihypertensive medications. *Journal of Clinical Hypertension (Greenwich, Conn.),* 2007; *9*(1): 15-20

[xii] Coopers & Lybrand Consultants. Drug and Therapeutics Information Service: Update of the economic evaluation of the NSAID project (report) 1996

[xiii] Mason J et al. When is cost-effective to change the behavior of health professionals? *JAMA*. 2001; 286(23): 2988-2992

[xiv] Maclure M. et al. Measuring prescribing improvements in pragmatic trials of educational tools for general practitioners. Basic and Clinical Pharmacol and Tox 2006; 98: 243-252

[xv] Gandjour A, Lauterbach KW. (2005). How much does it cost to change the behavior of health professionals? A mathematical model and an application to academic detailing. *Medical Decision Making : An International Journal of the Society for Medical Decision Making, 25*(3), 341-347

[xvi] Congressional Budget Office. Research on the comparative effectiveness of medical treatments. Dec 2007.

[xvii] Freemantle N. et al. A randomized controlled trial of the effect of education outreach by community pharmacists on prescribing in UK general practice. *Br J Gen Practice* 2002 (Apr): 290-295

[xviii] Mason (2001) ibid.

[xix] Franzini, L et al. Cost-effectiveness analysis of a practice-based immunization education intervention. *Ambulatory Pediatrics : The Official Journal of the Ambulatory Pediatric Associatio (2007); 7*(2): 167-175

[xx] Fretheim A, Aaserud M, Oxman AD. Rational Prescribing in Primary Care (RaPP): Economic Evaluation of an Intervention to Improve Professional Practice *PLoS Medicine* Vol. 3, No. 6, e216 doi:10.1371/journal.pmed.0030216

[xxi] Ofman, J. J., Segal, R., Russell, W. L., Cook, D. J., Sandhu, M., Maue, S. K., et al. (2003). A randomized trial of an acid-peptic disease management program in a managed care environment. *The American Journal of Managed Care, 9*(6), 425-433

[xxii] Simon SR ibid

[xxiii] Coopers & Lybrand Consultants. ibid

[xxiv] May FW et al. Outcomes of an educational outreach service for community medical practitioners. *MJA* 1999; 170: 471-474

[xxv] Hill, C. D., Bunn, D. N., & Hawkins, J. R. Stretching the managed care dollar in the new millennium: The practice of detailing primary care physicians. *Managed Care Quarterly, 10*(2), 18-23.