

## William H. Shrank, M.D., M.S.H.S.

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### **PART I: General Information**

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### **Education:**

1993	B.A.	Brown University, Providence, RI.
1998	M.D.	Cornell University Medical College, New York, NY.
2004	M.S.H.S.	University of California, Los Angeles, CA

### **Postdoctoral Training:**

1999	Internship/Internal Medicine Georgetown University Hospital, Washington D.C.
2001	Residency/Internal Medicine Georgetown University Hospital, Washington D.C.
2005	Veterans Affairs Ambulatory Care/Health Services Research Fellowship University of California, Los Angeles.

### **Licensure and Certification:**

1998	National Board of Medical Examiners Parts I, II, and III
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2001 Diplomat, American Board of Internal Medicine  
2002 Medical License: California  
2005 Medical License: Massachusetts

**Academic Appointments:**

1994 Instructor, Department of English  
Zhejiang Normal University, Jinhua, China  
2001-2 Instructor, Division of General Internal Medicine  
University of Colorado Health Sciences Center, Denver, CO.  
2005-present Instructor, Harvard Medical School, Boston, MA.

**Hospital or Affiliated Institution Appointments:**

2002-05 Staff Physician, West Los Angeles Veterans Affairs Healthcare System  
2005-present Associate Physician, Department of Medicine  
Brigham and Women's Hospital, Boston, MA

**Hospital and Health Care Organization Service Responsibilities:**

2005-present Attending Physician, Brigham Internal Medicine Associates, Brigham and  
Women's Hospital. Boston, MA  
2006-present Attending Physician, Internal Medicine Ward Service, Brigham and  
Women's Hospital. Boston, MA

**Major Committee Appointments:**

2007-current Society of General Internal Medicine Member, Committee on Medicare  
Part D Policy, Committee Member  
2007-current Society of General Internal Medicine Member, Committee on Evidence-  
Based Formularys, Committee Member  
2007-current American College of Physicians Foundation, Prescription Drug Labeling  
Task Force, Task Force Member  
2007-current Food and Drug Association, Advisory Committee on Nonprescription  
Drugs, Advisory Committee Member

**Professional Societies:**

2002-current Society of General Internal Medicine, Associate Member  
2007 Clinical Epidemiology/Healthcare Effectiveness Scientific Abstract.  
Review Committee. 2007 SGIM Annual Meeting.

- 2008 Co-chair, Clinical Epidemiology/Healthcare Effectiveness Scientific Abstract Subcommittee. 2008 SGIM Annual Meeting.
- 2003-2006 Academy Health, Member
- 2005-current International Society of Pharmacoepidemiology, Associate Member

**Community Service Related to Professional Work:**

- 1998 Vice President, Cornell University Medical College.  
Coordinator of community service program.
- 2000-01 Arlington Free Clinic, Volunteer physician. Arlington, VA.

**Editorial Boards:**

- 2004-current Journal of the American Board of Family Practice – ad hoc reviewer
- 2005-current Medical Care – ad hoc reviewer
- 2005-current American Journal of Managed Care – ad hoc reviewer
- 2006-current Archives of Internal Medicine - ad hoc reviewer
- 2006-current Journal of the American Geriatric Society- ad hoc reviewer
- 2006-current Clinical Drug Investigation - ad hoc reviewer
- 2007-current Society of General Internal Medicine – Reviewer of submissions for annual meeting
- 2007-current Canadian Medical Association Journal – ad hoc reviewer
- 2007-current Annals of Internal Medicine – ad hoc reviewer

**Awards and Honors:**

- 1993 Howard Swearer Public Service Award for outstanding community leadership at Brown University.
- 1993 Member of the Sigma Xi honorary science society, Brown University.
- 2001 C. Everett Koop Research Fellow, C. Everett Koop Institute for Medical Education. Dartmouth Medical School, Hanover, NH.
- 2005 Mack Lipkin Sr. Research Award Nominee from the Society of General Internal Medicine for the abstract, “The Implications of Choice: Prescribing Generic or Preferred Formulary Medications Improves Adherence to Chronic Medications.”
- 2005 Mack Lipkin Sr. Research Award Nominee from the Society of General Internal Medicine for the abstract, “The Quality of Pharmacologic Care for Adults in the United States.”
- 2006 Hamolsky Research Award Nominee from the Society of General Internal Medicine for the abstract, “Patient, Physician, Pharmacy and Pharmacy Benefit Design Factors Related to Generic Medication Use.”
- 2006 Top 5% of Reviewers Award, from the journal Medical Care
- 2007 Top 5% of Reviewers Award, from the journal Medical Care

## **PART II: Research, Teaching, and Clinical Contributions**

### **A. Narrative report of Research, Teaching, and Clinical Contributions.**

Within the Division Pharmacoepidemiology and Pharmacoeconomics at the Brigham and Women's Hospital, my research interests are concentrated on improving the quality of prescribing behavior and improving patient adherence to essential chronic medications. In order to improve physician prescribing, I am working with a private company [REDACTED] to develop, implement, and evaluate an electronic quality improvement tool that uses [REDACTED] to provide physicians with feedback on the quality of care they provide and offers suggestions for improvement. This project builds on my work at RAND as fellow, measuring the quality of healthcare.

I am currently conducting a randomized trial of an intervention to stimulate more cost-effective prescribing for cardiovascular disease. I am providing a random sample of physicians in Pennsylvania with free samples of highly effective but inexpensive generic medications. I will evaluate how this intervention affects prescribing behavior, medication costs, and patient adherence to essential chronic medications. This work is supported by a K23 career development award from the NHLBI.

I am also testing several interventions to improve patient adherence to chronic medications. I have developed an intervention in New York City in collaboration with the Department of Health to provide uninsured New Yorkers with feedback and assistance when they are non-adherent to medications to treat hypertension and diabetes. I am drawing on my prior work about the effect of medication costs and communication about costs to inform this intervention.

I am also collaborating with colleagues on a project to develop a value-based approach to formulary development. We are performing a randomized controlled trial with a large insurer, and eliminating copayments for a random sample of patients after a heart attack. We are evaluating the effect of eliminating financial barriers to highly effective cardiovascular medications on adherence and health outcomes, and whether the improved outcomes can actually lead to reduced overall healthcare costs.

After completing a project evaluating the quality of prescription drug labeling in this country, I secured funding from the Robert Wood Johnson Foundation to evaluate the effects of improving labels at a particularly innovative pharmacy, [REDACTED], on patient adherence and medication safety. I have acquired administrative claims data from two large insurers to conduct this research.

I practice clinically in Brigham Internal Medicine Associates at the Brigham and Women's Hospital. In the outpatient setting, I manage patients with acute and chronic problems in both a continuity primary care clinic and in an urgent care setting. I precept internal medicine residents in the outpatient setting on a regular basis, and frequently lead journal clubs for internal medicine residents in the outpatient setting. I also serve as an inpatient attending on the wards for the General Medicine Service and am responsible for overseeing a team of residents in the care of acutely ill hospitalized patients.

### **B. Funding Information (for research projects)**

**Past:**

- 2001-02 Division of General Internal Medicine Grant, University of Colorado Health Sciences Center; PI; Cultural differences in perceptions about end-of-life care
- 2003-04 Institute for American Cultures, University of California at Los Angeles; Co-PI; Cultural differences in perceptions about end-of-life care
- 2003-04 Veterans Affairs Healthcare System, Center for the Study of Provider Behavior; Co-PI; Does generic drug use affect chronic medication adherence?
- 2004-05 California Healthcare Foundation; PI of sub-contract; Physician perceptions about patient's medication costs
- 2005-06 American College of Physician Foundation; PI; The Prescription Drug Labeling Project
- 2006-07 Robert Wood Johnson, Health Care Financing Organization; Investigator; The effect of the Medicare Modernization Act on Medication Use and Costs
- 2006-07 Health Resources and Services Association; PI of sub-contract; NYCares Rx: Improving adherence to medications for hypertension and diabetes
- 2006-07 Attorney's General of the United States; Investigator; Educational Outreach to Improve Prescribing
- 2007-08 [REDACTED]; PI; Patient perceptions about generic drug use

**Current:**

- 2006-08 Robert Wood Johnson Foundation, Pioneer Award; PI; Studying the effect of improved prescription drug label design on medication adherence and patient safety
- 2006-9 Aetna; Investigator; A randomized study of full drug coverage for patients after myocardial infraction: The Post-MI FREEE (Free Rx Economic and Event Evaluation) Trial.
- 2007-08 [REDACTED]; PI; Evaluating the Effectiveness of an Electronic Quality Improvement Tool in a Managed Care Setting

- 2007-12 NHLBI K23; PI; An intervention to improve rational prescribing in cardiovascular disease
- 2008-11 AHRQ R01; PI of subcontract; A randomized controlled trial of improving medication labels on readability, understanding, safety and adherence.

### **C. Report of Current Research Activities**

The effect of the transition to Medicare Part D in dual eligibles. Co-investigator.

The cost-effectiveness of providing full coverage for medications to treat congestive heart failure. Principal Investigator.

Drug-company sponsored pharmacy assistance programs: benefit or burden for patients with inadequate prescription drug insurance. Co-Investigator.

Eliminating cost-sharing for essential chronic medications: a time-series evaluation of the [REDACTED] experience. Co-Investigator.

Academic Detailing Project in Pennsylvania. Co-Investigator.

An evaluation of the Healthy-User effect. Co-Investigator.

A systematic review of interventions to improve medication adherence. Principal Investigator.

A systematic review of the comparative efficacy of branded and generic medications. Co-Investigator.

### **D. Report of Teaching**

#### 1. Local Contributions

##### c. Local Invited Teaching Presentations:

2007 Lecturer. "Class effects for antihypertensive drugs," Division of Pharmacoepidemiology and Pharmacoeconomics. 12 nurses and pharmacists. Contact time: 1.5 hours. Preparation time: 10 hours

2007 Lecturer. "Amyotrophic Lateral Sclerosis," Brigham Internal Medicine Associates. 15 Brigham and Women's Internal Medicine Residents. Contact time: 1 hour. Preparation time: 4 hours

2007 Lecturer. "The management of hypercholesterolemia," Division of Pharmacoepidemiology and Pharmacoeconomics. 12 nurses and pharmacists. Contact time: 1.5 hours. Preparation time: 10 hours

2007 Lecturer. "Efficacy, safety and costs of oral hypoglycemic agents," Division of Pharmacoepidemiology and Pharmacoeconomics. 12 nurses and pharmacists. Contact time: 1.5 hours. Preparation time: 10 hours

2008 Lecturer. "Herpes Zoster Ophthalmicus," Brigham Internal Medicine Associates. 15 Brigham and Women's Internal Medicine Residents. Contact time: 1 hour. Preparation time: 4 hours

2008 Lecturer. "The management of depression in primary care," Division of Pharmacoepidemiology and Pharmacoeconomics. 12 nurses and pharmacists. Contact time: 1.5 hours. Preparation time: 10 hours

f. Teaching Leadership

2006- Journal Club Moderator for Brigham and Women's Internal Medicine residency Program. 15 residents per meeting, approximately 6 meetings a year. Contact time: 1 hour per session. Preparation time: 1 hour per session.

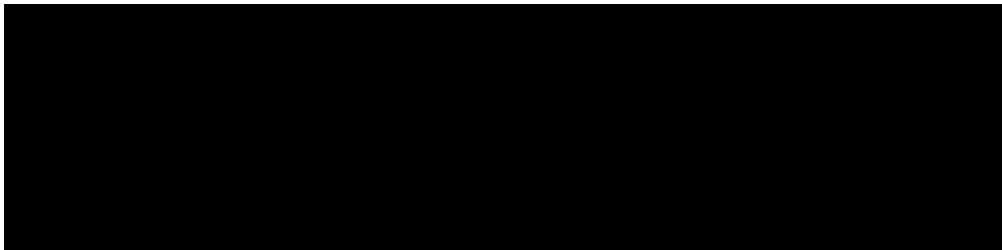
g. Advisees and Trainees:

2006-

2006-2007

2007-

2007-



2. Regional, national, or international contributions

a. Invited presentations:

National:

2002 Invited Presentation: "Medicare Revised? Consumer Choice, Industry, Economic and Policy Consequences." Renaissance Weekend, Charleston S.C.

- 2002 Invited Presentation: "Patient's Bill of Rights."  
Renaissance Weekend, Charleston S.C.
- 2003 Invited Presentation: "Bitter Medicine: Advances and Costs of Treating Pain."  
Renaissance Weekend, Charleston S.C.
- 2005 Keynote presentation: "The Evidence-Based Prescription Drug Label." Institute of Medicine/American College of Physicians Annual Health Literacy Conference. National Academy of Sciences.
- 2005 Invited Lecture: "The Implications of Choice: Does Prescribing Generic Medications Impact Adherence to Chronic Medications?"  
University of California, Los Angeles, Division of General Internal Medicine. Los Angeles, CA.
- 2005 Invited Lecture: "The Implications of Choice: Does Prescribing Generic Medications Impact Adherence to Chronic Medications?"  
Mount Sinai Hospital, NY, Division of General Internal Medicine. New York, NY.
- 2005 Invited Lecture: "The Implications of Choice: Does Prescribing Generic Medications Impact Adherence to Chronic Medications?"  
Cornell University, Department of Public Health. New York, NY.
- 2005 Invited lecture: "The Implications of Choice: Does Prescribing Generic Medications Impact Adherence to Chronic Medications?"  
Division of Pharmacoepidemiology and Pharmacoeconomics, Brigham and Women's Hospital. Boston, MA
- 2005 Invited Lecture: "Market Failures in Steering Patients Towards Cost-Effective Drugs." Pharmacy Benefits Management Institute, National Meeting. Scottsdale, AZ.
- 2005 Invited Lecture "The Implications of Choice: Does Prescribing Generic Medications Impact Adherence to Chronic Medications?"  
RAND Health, Santa Monica, CA.
- 2006 Invited presentation and panel discussant. The prescription drug label project. North Carolina Institute of Medicine. Raleigh, NC.
- 2006 Plenary presentation and panel discussant. The prescription drug label project. Institute of Medicine/American College of Physicians Annual Health Literacy Conference. National Academy of Sciences, Washington D.C.
- 2006 Invited presentation. The prescription drug label project. Pfizer Health Literacy Conference, Washington D.C.



- 2006 Invited testimony. Generic drug use in the Medicare prescription drug benefit. United States Senate, Special Committee on Aging. Washington, D.C.
- 2006 Invited presentation. The Prescription Drug Marketplace and Medicare Part D: Policy Disconnected with Practice. AARP PolicyLive! Ask the Experts series. American Association of Retired Persons, Washington D.C.
- 2006 Invited presentation: Improving prescription drug labels. What the evidence tells us. American College of Physicians Foundation Industry Summit Meeting. Washington D.C.
- 2007 Invited presentation and panel discussant. Prescription drug labels – a critical review. American Society of Health Systems Pharmacy, annual meeting, San Francisco, CA.
- 2007 Invited presentation. Prescription drug labeling and health literacy. Institute of Healthcare Advancement annual Health Literacy conference. Orange Country, CA.
- 2008 Invited plenary presentation. Increasing value in pharmacy benefit design: A new paradigm for benefits managers. Pharmacy Benefits Management Institute annual meeting, Scottsdale, AZ.

International:

- 2006 Invited symposium presentation. Measuring the quality of prescription drug care, The United States perspective. International Society of Pharmacoepidemiology Meeting, Lisbon, Portugal.
- 2006 Invited presentation. Factors that Influence Generic Medication Use. International Society of Pharmacoepidemiology Meeting, Lisbon, Portugal.

**3. Teaching awards:**

- 2001 “String of Pearls,” Resident Teaching Award, Georgetown University. Washington, D.C.

**E. Report of Clinical Activities**

Each week, I serve as an attending physician for two sessions of general internal medicine in the Brigham Internal Medicine Associates clinic. One session is a continuity clinic and the other is urgent care. I take weekend call for the Brigham and Faulkner Internal Medicine Divisions as scheduled. I regularly precept of the general internal medicine residents in the Brigham Internal Medicine Associates outpatient clinic. In

addition, I have served as an inpatient attending on the General Medicine Service for two weeks a year. I have also created evidence-based prescribing materials that are used by a statewide education outreach program that our division operates in Pennsylvania.

## 2. Patient load

Two half-days of clinical work per week.

## **PART III: Bibliography**

### **Original Articles**

1. **Shrank WH**, Ettner SL, Glassman P, Asch S. A Bitter Pill: Formulary Variability and the Challenge for Prescribing Physicians. *J Am Board Fam Pract.* 2004; 17: 401-407.
2. **Shrank WH**, Young HN, Ettner SL, Glassman P, Asch SM; Kravitz RL. Do the Incentives in 3-tier Pharmaceutical Benefit Plans Operate as Intended? Results from a Physician Leadership Survey. *Am J Manag Care.* 2005;11(1):16-22.
3. **Shrank WH**, Kutner JS, Richardson T, Mularski RA, Fischer SL, Kagawa-Singer M. Focus Group Findings about the Influence of Culture on Communication Preferences in End-of-Life Care. *Journal of General Internal Medicine.* 2005 Aug;20(8):703-9.
4. **Shrank WH**, Ettner SL, Slavin P, Kaplan H. The Effect of Physician Reimbursement Methodology on the Rate and Cost of Cataract Surgery. *Arch Ophthalmol.* 2005 Dec;123(12):1733-8.
5. **Shrank WH**, Hoang T, Ettner SL, Glassman PA, Nair K, DeLapp D, Dirstine J, Avorn J, Asch SM. The implications of choice: prescribing generic or preferred pharmaceuticals improves medication adherence for chronic conditions. *Archives of Internal Medicine.* 2006 Feb;166:332-7.
6. **Shrank WH**, Fox SA, Kirk A, Ettner SL, Cantrell CH, Glassman P, Asch SM. The Effect of Pharmacy Benefit Design on Patient-Physician Communication about Costs. *Journal of General Internal Medicine.* 2006 Apr;21(4):334-9.
7. Wolf MS, Davis TC, **Shrank WH**, Neuberger M, Parker RM. A Critical Review of FDA-Approved Medication Guides. *Patient Educ Couns.* 2006 Sep;62(3):316-22.
8. **Shrank WH**, Young H, Ettner SL, Kholodenko Y, Glassman P, Asch SM, Kravitz R. Physician Familiarity with Patients' Formularies and Out-of-Pocket Costs for Prescription Drugs. *Ann Pharmacother.* 2006 Sep;40(9):1534-40. Epub 2006 Aug 15.
9. **Shrank WH**, Joseph GJ, Choudhry NK, Young HN, Ettner SL, Glassman P, Asch SM, Kravitz RL. Physicians' Perceptions of Relevant Prescription

Drug Costs: Do costs to the individual patient or the population matter most? *Am J Manag Care*. 2006 Sep;12(9):545-51.

10. **Shrank WH**, Asch SM, Adams J, Setodji C, Kerr EA, Keeseey J, Malik S, McGlynn EA. The Quality of Pharmacologic Care for Adults in the United States. *Medical Care*. 2006; 44(10):936-945.

11. Mularski RA, Asch SM, **Shrank WH**, Kerr EA, Setodji C, Adams J, Keeseey J, McGlynn EA. The quality of obstructive lung disease care for adults in the United States: Adherence to recommended processes. *Chest*. 2006;130:1844-1850.

12. Choudhry NK, Avorn J, Schneeweiss S, Antman E, **Shrank WH**. Should post-MI patients receive secondary prevention medications for free? An empirical policy analysis. *Health Affairs*. 2007 Jan-Feb;26(1):186-94.

13. **Shrank W**, Avorn J, Rolón C, Shekelle P. The Effect of the Content and Format of Prescription Drug Labels on Readability, Understanding and Medication Use: A Systematic Review. *Annals of Pharmacotherapy*. 2007 May;41(5):783-801.

14. Brookhart MA, Patrick AR, Schneeweiss S, Avorn J, Dormuth CR, **Shrank WH**, van Wijk BLG, Cadarette SM, Canning CF, Solomon DH. Physician follow-up and provider continuity are associated with long-term medication adherence: a study of the dynamics of statin use. *Arch Intern Med*, 2007 Apr 23;167(8):847-52.

15. **Shrank WH**, Avorn J. Educating patients about their medications: The limitations and potential of written drug information. *Health Affairs*. 2007 May-Jun;26(3):731-40.

16. Brookhart MA, Patrick AR, Avorn J, Dormuth C, **Shrank W**, Cadarette SM, Solomon DH. Adherence to lipid-lowering therapy and the use of preventive health care services: an investigation of the healthy user effect. *American Journal of Epidemiology*. 2007 Aug 1;166(3):348-54.

17. Wolf MS, Davis TC, **Shrank W**, Rapp DN, Bass PF, Connor UM, Clayman M, Parker RM. To Err is Human: Patient Misinterpretations of Prescription Drug Label Instructions. *Patient Education and Counseling*, 2007 Aug;67(3):293-300. Epub 2007 Jun 22.

18. **Shrank WH**, Stedman M, Ettner SL, DeLapp D, Dirstine J, Brookhart MA, Fischer MA, Avorn J, Asch SM. Patient, Physician, Pharmacy and Pharmacy Benefit Design Factors Related to Generic Medication Use. *Journal of General Internal Medicine*, 2007 Sep;22(9):1298-304.

19. **Shrank WH**, Agnew-Blais J, Choudhry NK, Wolf MS, Kesselheim A, Avorn J, Shekelle P. The variability and quality of medication container labels. *Archives of Internal Medicine*, 2007 Sep 10;167(16):1760-5.
20. **Shrank WH**, Polinski J, Avorn J. Quality indicators for appropriate medication use in the vulnerable elderly. *Journal of the American Geriatrics Society*. 2007 Oct 55(s2): s373-382.
21. van Wijk BLG, **Shrank WH**, Klungel OH, Schneeweiss S, Brookhart MA, Avorn J. Persistence of use of antihypertensive medications: a cross-national study. *Journal of Hypertension*. 2008 Jan;26(1):145-153.
22. Choudhry NK, Patrick AR, Antman EM, Avorn J, **Shrank WH**. The cost-effectiveness of providing full drug coverage to increase medication adherence in post-myocardial infarction Medicare beneficiaries. *Circulation*. 2008 Mar 11;117(10):1261-8.
23. Choudhry NK, Brennan T, Toscano M, Spettell C, Glynn, RJ, Rubino M, Schneeweiss S, Brookhart MA, Fernandes J, Mathew S, Christiansen B, Antman EM, MD, Avorn J, **Shrank WH**. Rationale and design of the Post-MI FREEE trial: A randomized evaluation of first-dollar drug coverage for post-myocardial infarction secondary preventive therapies. *American Heart Journal*. 2008 Jul;156(1):31-6.
24. Cutrona SL, Woolhandler S, Lasser KE, Bor DH, McCormick D, Himmelstein DU, **Shrank WH**, LeLeiko NS. Free Drug Samples in the United States: Characteristics of Pediatric Recipients and Safety Concerns. In press, *Pediatrics*.
25. **Shrank WH**, Cadarette SM, Cox E, Fischer MA, Mehta J, Brookhart MA, Avorn J, Choudhry NK. Is there a relationship between patient beliefs or communication about generic drugs and medication utilization? In press, *Medical Care*.
26. Wolf MS, **Shrank WH**, Choudhry NK, Agnew-Blais J, Parker RM, Shekelle P. Variability in Pharmacy Interpretations of Physician Prescriptions. In press, *Medical Care*.
27. **Shrank WH**, Cox E, Fischer MA, Mehta J, Choudhry NK. Patient perceptions of generic medications. In press, *Health Affairs*.

## **Reviews, Chapters, and Editorials**

1. **Shrank W**, Taylor S, Caines K. "The Green Paper: Our Healthier Nation. Response from the Institute of Health Services Management," Prepared for the Parliament, London, England, March 1998 on behalf of the Institute for Health Services Management.

2. Spranca M, Ringel J, Asch S, Sanders D, Burton T, Elliot MN, Fung C, **Shrank W**, Shaw R, Brown J. Opportunities where Treatment Decision Support may Reduce Costs and Improve Health. Rand Health publication DRR-3386, July 2004.
3. **Shrank WH**, Reed V, Jernstedt, C. Fostering Professionalism in Medical Education: A Call for Improved Assessment and Meaningful Incentives. *Journal of General Internal Medicine*. 2004 Aug;19(8):887-92.
4. **Shrank WH**. Increasing Generic Drug use: Savings for Seniors and Medicare. Hearing before the Special Committee on Aging, United States Senate. Sept. 21, 2006. United States Congressional Record, S. HRG 109-780.
5. Avorn J, **Shrank WH**. Highlights and a hidden hazard – The FDA’s new labeling regulations. *New England Journal of Medicine* 2006;354(23):2409-11.
6. Federman AD, Alexander GC, **Shrank WH**. Simplifying the Medicare Prescription Drug Benefit for Physicians and Patients. *Mayo Clin Proc*. 2006;81:1217-1221.
7. **Shrank WH**. Physician prescribing in Medicare Part D: Closing the gaps. *Disease Management & Health Outcomes*. 2007; 15(2): 69-72.
8. Kohl H, **Shrank WH**. The role of the government in increasing generic drug use: Savings for seniors and Medicare. *Journal of the American Geriatric Society*, 2007 Jul;55(7):1106-9.
9. Avorn J, **Shrank WH**. Adverse Drug Reactions in Elderly People: A substantial cause of preventable illness. *BMJ*. 2008;336(7650):956-7.

### **Letters to the Editor**

1. **Shrank W**. “New Victims of September 11<sup>th</sup> Attacks: More Uninsured Americans,” [Editorial] *American Medical News*, Nov. 26, 2001.
2. **Shrank WH**. The Effect of Incentive-Based Formularies on Drug Utilization and Spending. *New England Journal of Medicine*. 2004;350(10):1057.

### **Educational Materials:**

1. Solomon DH, Goodman N, Shrank WH. NSAIDs and Cox-2 Inhibitors: What Now? A review of the evidence for the practicing physician. Material for Independent Drug Information Service; 2006: available at: [www.rxfacts.org](http://www.rxfacts.org).
2. Schneeweiss S, Fischer MA, Shrank WH. Proton pump inhibitors: The other side of the evidence. Material for Independent Drug Information Service; 2006: available at: [www.rxfacts.org](http://www.rxfacts.org).
3. Schneeweiss S, Fischer MA, Shrank WH. Acid-suppressing therapy: a neutral view. Material for Independent Drug Information Service; 2006: available at: [www.rxfacts.org](http://www.rxfacts.org).
4. Choudhry NK, Shrank WH. How low should you go?: a practical review of current data on lipid lowering. Independent Drug Information Service; 2006: available at: [www.rxfacts.org](http://www.rxfacts.org).
5. Choudhry NK, Fischer MA, Shrank WH. Controlling the hypertension epidemic: regimens with the best efficacy, tolerability and affordability," Independent Drug Information Service; 2007: available at: [www.rxfacts.org](http://www.rxfacts.org).
6. Choudhry NK, Fischer MA, Shrank WH. A spoon full of medicine helps the sugar go down: improving the management of Type 2 Diabetes," Independent Drug Information Service; 2007: available at: [www.rxfacts.org](http://www.rxfacts.org).
7. Choudhry NK, Fischer MA, Hoge E, Kesselheim AK, Parikh S, Shrank WH. The Pursuit of Happiness: Management of Depression in the Elderly. Independent Drug Information Service; 2008: available at: [www.rxfacts.org](http://www.rxfacts.org).

**Abstracts:**

1. Gellad WF, Choudhry NK, Haas JS, **Shrank WH**. Variation in drug prices at pharmacies: do the poor pay more? J Gen Intern Med 2007; 22 suppl 1: 163.