

Appendix 1
Published reviews related to the
impact of feedback on physician performance

January 31, 2003

1. Soumerai SB, McLaughlin TJ, Avorn J. Improving drug prescribing in primary care: a critical analysis of the experimental literature. *Milbank Q* 1990;**67**:268-317.
Ref ID: 1271
2. Mugford M, Banfield P, O'Hanlon M. Effects of feedback of information on clinical practice: a review. *BMJ* 1991;**303**:398-402.
Ref ID: 1270
3. Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME. *JAMA* 1992;**268**:1111-7.
Ref ID: 737
4. Oxman AD, Thomson MA, Davis DA, Haynes RB. No magic bullets: a systematic review of 102 trials of interventions to improve professional practice. *Can Med Assoc J* 1995;**153**:1423-31.
Ref ID: 538
5. Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *JAMA* 1995;**274**:700-5.
Ref ID: 1112
6. Balas EA, Boren SA, Brown GD, Ewigman BG, Mitchell JA, Perkoff GT. Effect of physician profiling on utilization: meta-analysis of randomized clinical trials. *JGIM* 1996;**11**:584-90.
Ref ID: 1269
7. Beilby JJ, Silagy CA. Trials of providing costing information to general practitioners: a systematic review. *MJA* 1997;**167**:89-92.
Ref ID: 1268
8. Davis DA, Thomson-O'Brian MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education. Do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA* 1999;**282**:867-74.
Ref ID: 368

9. Grimshaw JM, Shirran L, Thomas R, Mowatt G, Fraser C, Bero L *et al.* Changing provider behavior. an overview of systematic reviews of interventions. *Med Care* 2001;**39**:II-2-II-45. Ref ID: 1164
10. Tu K, Davis D. Can we alter physician behavior by educational methods? Lessons learned from studies of the management and follow-up of hypertension. *Journal of Continuing Education in the Health Professions* 2002;**22**:11-22.
Ref ID: 1231
11. Dranove, D., Kessler, D., McClellan, M., and Satterthwaite, M. Is more information better? The effects of 'report cards' on health care providers. National Bureau of Economic Research NBER Working Paper No. 8697. 2002.
Ref Type: Report
Ref ID: 1232
12. O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey E. Audit and feedback: effects on professional practice and health care outcomes. *The Cochrane Library* 2002;1-31.
Ref ID: 1266
13. Mazmanian P, Davis DA. Continuing medical education and the physician as a learner: guide to the evidence. *JAMA* 2002;**288**:1057-60.
Ref ID: 1267

Appendix 2: Coding Form **11/20/03**
Systematic Review of the Literature:
**Physician Assessment,
Feedback, and Performance**

**A. CITATION,
REVIEW TRACKING**

A1. **Reference Mgr ID** _____

A2. **1st Author**, last name _____

A3. Date data entry ____/____/2003

A4. Initials data entry

A5. (*Reference Manager* cover sheet)

A6. Source of citation (*check one*)

- = 1 MEDLINE
- = 2 CHID
- = 3 CINAHL
- = 4 Cochrane Central Register
- = 5 Dissertation Abstracts
- = 6 EMBASE
- = 7 ERIC
- = 8 HealthSTAR
- = 9 PsycINFO
- = 10 Science Citatn Indx Exp.
- = 11 TIMELIT
- = 20 Cited, article, electronic
- = 30 Manual search
- = 40 Cited, article, manual
- = 80 Other _____

A7. **Primary reviewer**

- = 1 JJV
- = 2 MGrasberger
- = 3 JRBoex
- = 4 BBarzansky
- = 5 JMSargeant
- = 6 AEvans
- = 7 JAShea
- = 8 Other _____

A8. **Date** of review ____/____/2003

A9. **Status**

- = 1 Include in review
- = 2 Uncertain (*STOP explain in notes*)
- = 3 Exclude (*STOP explain in notes*)

A10. **Type of study** (*check one*)

- = 1 Opinion or commentary (only)
- = 2 Program description only (no data)
- = 3 Non-systematic review of literature
- = 4 Systematic review of literature
- = 5 Meta analysis
- = 6 Empirical (*code next field also*)
- = 8 Other _____

A11. **Scope** (empirical studies only) (*check one*)

- = 1 One site (department) limited sample
- = 2 One organization, multi-site one year
- = 3 One organization, multi-site multi-year
- = 4 Multiple organizations
- = 5 National/international, limited
- = 6 National/interntnl, multi-site, -year
- = 8 Other _____

A12. **Global rating of study's quality**

- = 1 Low. Biased or confounded Explain in A14
- = 2 Average.
- = 3 High. Few, or no threats to validity.

A13. **Effect of feedback on performance**

- = 1 No effect. No impact.
- = 2 Moderate to large effect (was 2-3).
- = 9 Unclear, unable to determine.

A14. **Reviewer's notes**

B. DESIGN and ANALYSIS

B1. Type of empirical study (check one)

Observational

- = 11 Descriptive, case series, case study
- = 12 Cross-sectional (studies, surveys)
- = 13 Case-control (retrospective)
- = 14 Cohort (prospective or retrospective)

Experimental/intervention

- = 21 Randomized (parallel controls)
- = 22 Parallel controls (not randomized)
- = 23 Sequential, self (x-over, time series)
- = 24 External controls (incl historical)

Qualitative

- = 31 Ethnographic
- = 32 Grounded theory
- = 33 Narrative

- = 80 Other design or mixture in one study, describe:

- = 90 Unclear (STOP explain in notes A14)

B2. Data Collection and Analysis

- = 1 Unacceptable (serious gaps in documentation or fatal flaws in data or analysis)
(STOP explain in notes A14)
- = 2 Acceptable, meets standards
- = 3 Exceeds professional standards

C. SAMPLE

C1. Unit of reporting in feedback (check one)

- = 1 Micro (individual performance only)
- = 2 Macro (group performance only)
- = 3 Both

C2. Size of intervention (feedback) group

- = 1 Less than 30 physicians
- = 2 30 to 100
- = 3 More than 100
- = 9 Unclear (STOP explain in notes A14)

C3. Specialty (check one)

- = 1 Primary care (FP,GIM,PD)
- = 2 Medical subspecialties
- = 3 Surg gen/subspec/specialties
- = 8 Other _____

C4. Employment status (check one)

- = 1 Salaried physicians
- = 2 House staff
- = 8 Other _____

C5. Nation (check one)

- = 1 USA
- = 2 Canada
- = 3 UK
- = 4 Australia/New Zealand
- = 5 France
- = 6 Germany
- = 7 Scandinavia
- = 8 Other _____

D. DEPENDENT VARIABLE(S)
DEFINITION OF PERFORMANCE AND
METHOD OF ASSESSMENT

D1. Content (Value Compass) (check one)

- = 1 Clinical processes
- = 2 Costs, charges
- = 3 Clinical outcomes
- = 4 Patient satisfaction
- = 5 Clinical processes + costs
- = 6 Clinical processes + outcomes
- = 7 Clinical processes + satisfaction
- = 8 Other _____

D2. Type of health care assessed (check one)

- = 1 Ambulatory
- = 2 Inpatient
- = 3 Mixed

D3. Source of data (check one)

- = 10 Chart review, paper, manual, request forms
- = 11 Computerized medical records
- = 20 Insurance claims, billing records
- = 30 Supervisor rating forms
- = 40 Peers (e.g. rating forms)
- = 41 Multi-source rating forms: (peers, etc.)
- = 50 Reports of patients
- = 51 Reports of standardized patients
(unannounced, physician-blinded)
- = 60 Other observers (e.g. other health professionals)
- = 70 Self-assessment

Other sources outside clinical setting:

- = 81 clinical case study vignettes
- = 82 computer simulations
- = 83 standardized patients (outside clinical setting, not physician-blinded)
- = 84 multiple-choice exams

= 85 other paper-and-pencil tasks

= 89 Other _____

D4. Reliability evidence (check ALL that apply)

- = NONE
- = a. internal consistency
- = b. inter-rater
- = c. test-retest
- = d. other _____

D5. Validity evidence (check ALL that apply)

- = NONE
- = a. content
- = b. construct
- = c. criterion: concurrent
- = d. predictive

D6. Context (primary aim, IOM quality) (check one)

- = 1 Safety
- = 2 Effectiveness
- = 3 Patient-centeredness
- = 4 Timeliness
- = 5 Efficiency
- = 6 Equity
- = 9 Unclear

E. INDEPENDENT VARIABLE(S)
CHARACTERISTICS OF FEEDBACK,
TIMING OF FOLLOW-UP AND
OTHER VARIABLES

E1. Who communicated feedback? (check one)

- = 1 Department, local unit
- = 2 Private health plan or insurer
- = 3 Professional society, organization
- = 4 Government, Medicare, Medicaid
- = 5 Social (media, patient/consumer group)
- = 6 Employers/business group
- = 7 Research team, unit
- = 8 Other _____

- E2. **Level of individual physician's involvement** in design and implementation of feedback process
(check one)
- = 1 Very low, passive, or not specified
 - = 2 Moderate
 - = 3 High (eg, design, data coll. or interpretation)

- E3. **Standards** used in framing feedback
(check one)
- = 1 Local standards, criteria
 - = 2 National standards, criteria
 - = 3 Local/internal statistical norms
 - = 4 National/external statistical norms
 - = 5 No standard or norm
 - = 8 Other _____
 - = 9 Unclear

- E4. **Dosage, amount of feedback** (number of performance dimensions and parameters reported)
(check one)
- = 1 Limited, very specific
 - = 2 Moderate
 - = 3 Multiple areas, comprehensive profile
 - = 9 Unclear (STOP explain in notes A14)

- E5. **How was feedback communicated?**
(check one)
- = 1 Impersonal – print only
 - = 2 Personal meeting – print & verbal
 - = 3 Group presentation - print & verbal
 - = 4 Personal meeting – verbal only
 - = 5 Group presentation – verbal only
 - = 6 Both personal and group with print and verbal review in each meeting
 - = 9 Unclear

- E6. **Moderating Variables Mentioned, but not necessarily controlled**
(check any that apply)

= NONE

Yes

- = a. Academic/teaching setting
- = b. Continuous, linked w/CQI
- = c. Feedback described as physician profiles or report cards
- = d. Public disclosure (of results)
- = x. Other _____

- E7. **Other Interventions Studied and Controlled**
(check any that apply)

= NONE

Yes

- = a. Conferences (CME)
- = b. Educational materials-print
- = c. Educational outreach visits
- = d. Financial incentives
- = e. Local consensus process
- = f. Local opinion leaders
- = g. Marketing (CME)
- = h. Patient-mediated intervention
- = i. Reminders (to physicians)
- = x. Other _____

- E8. **Timing of follow-up assessment** after feedback

- = 1 < 1 month
- = 2 1 month – 1 year
- = 3 > 1 year
- = 8 Other _____

Appendix 3: Citations of studies of the impact of feedback on physician performance that met all selection criteria

1. Anderson JF, McEwan KL, Hrudey WP. Effectiveness of notification and group education in modifying prescribing of regulated analgesics.[comment]. *CMAJ Canadian Medical Association Journal*. 1996; 154:31-9.
2. Braham RL, Ruchlin HS. Physician practice profiles: a case study of the use of audit and feedback in an ambulatory care group practice. *Health Care Management Review*. 1987;12:11-6.
3. Buntinx F, Knottnerus JA, Crebolder HF, et al. H. Does feedback improve the quality of cervical smears? A randomized controlled trial.[comment]. *British Journal of General Practice* 1993;43:194-8.
4. Eccles M, Steen N, Grimshaw J, et al. Effect of audit and feedback, and reminder messages on primary-care radiology referrals: a randomised trial. *Lancet*. 2001;357:1406-9.
5. Fidler H, Lockyer JM, Toews J, et al. Changing physicians' practices: the effect of individual feedback. *Academic Medicine*. 1999; 74:702-14.
6. Gama R, Nightingale PG, Broughton PM, et al. Feedback of laboratory usage and cost data to clinicians: does it alter requesting behaviour? *Annals of Clinical Biochemistry*. 1991;28:143-9.
7. Gama R, Nightingale PG, Broughton PM, et al. Modifying the request behaviour of clinicians.[comment]. *Journal of Clinical Pathology*. 1992;45:248-9.
8. Gortmaker SL, Bickford AF, Mathewson HO, et al. A successful experiment to reduce unnecessary laboratory use in a community hospital. *Medical Care*. 1988;26:631-42.
9. Grivell AR, Forgie HJ, Fraser CG, et al. Effect of feedback to clinical staff of information on clinical biochemistry requesting patterns. *Clinical Chemistry*. 1981;27:1717-20.
10. Grivell AR, Forgie HJ, Fraser CG, et al. League tables of biochemical laboratory costs. An attempt to modify requesting patterns. *Medical Journal of Australia*. 1982;2:326-8.
11. Keller RB, Soule DN, Wennberg JE, et al. Dealing with geographic variations in the use of hospitals. The experience of the Maine Medical Assessment Foundation Orthopaedic Study Group. *Journal of Bone & Joint Surgery - American Volume*. 1990;72:1286-93.
12. Kendall D, Lunt H, Moore MP, McSweeney WP. Diabetes complication screening in general practice: a two pass audit with benchmarking.[comment]. *New Zealand Medical Journal*. 1999;112:141-4.
13. Lassen LC, Kristensen FB. Peer comparison feedback to achieve rational and economical drug therapy in general practice: a controlled intervention study. *Scandinavian Journal of Primary Health Care*. 1992;10:76-80.

14. Lobach DF. Electronically distributed, computer-generated, individualized feedback enhances the use of a computerized practice guideline. *Proceedings/AMIA Annual Fall Symposium*. 1996;493-7.
15. Lockyer J, Violato C, Fidler H. Likelihood of change: a study assessing surgeon use of multisource feedback data. *Teaching & Learning in Medicine*. 2003;15:168-74.
16. Lomas J, Enkin M, Anderson GM, et al. Opinion leaders vs audit and feedback to implement practice guidelines. Delivery after previous cesarean section.[comment]. *JAMA*. 1991;265:2202-7.
17. Main EK. Reducing cesarean birth rates with data-driven quality improvement activities. *Pediatrics*. 1999;103:Suppl-83.
18. Mainous AG, III, Hueston WJ, Love MM, et al. An evaluation of statewide strategies to reduce antibiotic overuse. *Family Medicine*. 2000;32:22-9.
19. Manning PR, Lee PV, Clintworth WA, et al. Changing prescribing practices through individual continuing education. *JAMA*. 1986;256:230-2.
20. Norton PG, Dempsey LJ. Self-audit: its effect on quality of care. *Journal of Family Practice*. 1985;21:289-91.
21. Norton PG, Shaw PA, Murray MA. Quality improvement in family practice. Program for Pap smears. *Canadian Family Physician*. 1997;43:503-8.
22. O'Connell DL, Henry D, Tomlins R. Randomised controlled trial of effect of feedback on general practitioners' prescribing in Australia. *BMJ*. 1999;318:507-11.
23. Palmer RH, Louis TA, Peterson HF, et al. What makes quality assurance effective? Results from a randomized, controlled trial in 16 primary care group practices. *Medical Care*. 1996;34:Suppl-39.
24. Raasch BA, Hays R, Buettner PG. An educational intervention to improve diagnosis and management of suspicious skin lesions. *Journal of Continuing Education in the Health Professions*. 2000;20:39-51.
25. Raisch DW, Sleath BL. Using feedback letters to influence the use of antiulcer agents in a Medicaid program. *Journal of General Internal Medicine*. 1999;14:145-50.
26. Ramoska EA. Information sharing can reduce laboratory use by emergency physicians. *American Journal of Emergency Medicine*. 1998;16:34-6.
27. Sandbaek A, Kragstrup J. Randomized controlled trial of the effect of medical audit on AIDS prevention in general practice. *Family Practice*. 1999;16:510-4.

28. Sicotte C, Pineault R, Tilquin C, et al. The diluting effect of medical work groups on feedback efficacy in changing physician's practice. *Journal of Behavioral Medicine*. 1996;19:367-83.
29. Sommers LS, Sholtz R, Shepherd RM, Starkweather DB. Physician involvement in quality assurance. *Medical Care*. 1984;22:1115-38.
30. Sondergaard J, Andersen M, Vach K, et al. Detailed postal feedback about prescribing to asthma patients combined with a guideline statement showed no impact: a randomised controlled trial. *European Journal of Clinical Pharmacology*. 2002;58:127-32.
31. Studnicki J, Stevens CE. Cybernetic appropriateness review. Does it change physician hospital utilization patterns? *Evaluation & Program Planning*. 1985;8:195-205.
32. Vingerhoets E, Wensing M, Grol R. Feedback of patients' evaluations of general practice care: a randomised trial. *Quality in Health Care*. 2001;10:224-8.
33. Wennberg JE, Blowers L, Parker R, Gittelsohn AM. Changes in tonsillectomy rates associated with feedback and review. *Pediatrics*. 1977;59:821-6.
34. White P, Atherton A, Hewett G, Howells K. Using information from asthma patients: a trial of information feedback in primary care. *BMJ*. 1995;311:1065-9.
35. Wigder HN, Cohan Ballis SF, Lazar L, et al. Successful implementation of a guideline by peer comparisons, education, and positive physician feedback. *Journal of Emergency Medicine*. 1999;17:807-10.
36. Winickoff RN, Coltin KL, Morgan MM, et al. Improving physician performance through peer comparison feedback. *Medical Care*. 1984;22:527-34.
37. Winkens RA, Pop P, Grol RP, et al. Effect of feedback on test ordering behaviour of general practitioners. *BMJ*. 1992;304:1093-6.
38. Winkens RA, Grol RP, Beusmans GH, et al. Does a reduction in general practitioners' use of diagnostic tests lead to more hospital referrals? *British Journal of General Practice*. 1995;45:289-92.
39. Winkens RA, Pop P, Bugter-Maessen AM, et al. Randomised controlled trial of routine individual feedback to improve rationality and reduce numbers of test requests. *Lancet*. 1995;345:498-502.
40. Winkens RA, Pop P, Grol RP, et al. Effects of routine individual feedback over nine years on general practitioners' requests for tests.[comment]. *BMJ*. 1996;312:490.
41. Winkens RA, Ament AJ, Pop P, et al. Routine individual feedback on requests for diagnostic tests: an economic evaluation.[comment]. *Medical Decision Making*. 1996;16:309-14.

Appendix 4: Citations of articles that involved feedback with other interventions

1. Abramowitz PW, Nold, EG, and Hatfield, SM. Use of clinical pharmacists to reduce cefamandole, cefoxitin, and ticarcillin costs. *American Journal of Hospital Pharmacy*. 1982;39:1176-80.
2. Anderson FA, Jr., Wheeler, HB, Goldberg, RJ, Hosmer, DW, Forcier, A, and Patwardhan, NA. Changing clinical practice. Prospective study of the impact of continuing medical education and quality assurance programs on use of prophylaxis for venous thromboembolism. *Archives of Internal Medicine*. 1994;154:669-77.
3. Avorn J and Soumerai, SB. Use of a computer-based Medicaid drug data to analyze and correct inappropriate medication use. *Journal of Medical Systems*. 1982;6:377-86.
4. Bareford D and Hayling, A. Inappropriate use of laboratory services: long term combined approach to modify request patterns. *BMJ*. 1990;301:1305-7.
5. Baskerville NB, Hogg, W, and Lemelin, J. Process evaluation of a tailored multifaceted approach to changing family physician practice patterns improving preventive care. *Journal of Family Practice*. 2001;50:W242-W249.
6. Bell CM, Ma, M, Campbell, S, Basnett, I, Pollock, A, and Taylor, I. Methodological issues in the use of guidelines and audit to improve clinical effectiveness in breast cancer in one United Kingdom health region. *European Journal of Surgical Oncology*. 2000;26:130-6.
7. Bingham RL, Plante, DA, Bronson, DL, Tufo, HM, and McKnight, K. Establishing a quality improvement process for identification of psychosocial problems in a primary care practice. *Journal of General Internal Medicine*. 1990;5:342-6.
8. Bischoff WE, Reynolds, TM, Sessler, CN, Edmond, MB, and Wenzel, RP. Handwashing compliance by health care workers: The impact of introducing an accessible, alcohol-based hand antiseptic. *Archives of Internal Medicine*. 2000;160:1017-21.
9. Blumberg ML, Joseph, AM, and Freeman, JR. A strategy for improving the supervision and performance of moonlighting residents. *Academic Medicine*. 1995;70:155-7.
10. Borgiel AE, Williams, JI, Davis, DA, Dunn, EV, Hobbs, N, Hutchison, B, Wilson, CR, Jensen, J, O'Neil, JJ, and Bass, MJ. Evaluating the effectiveness of 2 educational interventions in family practice. *CMAJ Canadian Medical Association Journal*. 1999;161:965-70.
11. Braybrook S and Walker, R. Influencing prescribing in primary care: a comparison of two different prescribing feedback methods. *Journal of Clinical Pharmacy & Therapeutics*. 1996;21:247-54.

12. Buffington J, Bell, KM, and LaForce, FM. A target-based model for increasing influenza immunizations in private practice. Genesee Hospital Medical Staff.[comment]. Journal of General Internal Medicine. 1991;6:204-9.
13. Burstin HR, Conn, A, Setnik, G, Rucker, DW, Cleary, PD, O'Neil, AC, Orav, EJ, Sox, CM, and Brennan, TA. Benchmarking and quality improvement: the Harvard Emergency Department Quality Study. American Journal of Medicine. 1999;107:437-49.
14. Calkins E, Katz, LA, Karuza, J, and Wagner, A. The small group consensus process for changing physician practices: influenza vaccination. Hmo Practice. 1995;9:107-10.
15. Capdenat Saint-Martin E, Michel, P, Raymond, JM, Iskandar, H, Chevalier, C, Petitpierre, MN, Daubech, L, Amouretti, M, and Maurette, P. Description of local adaptation of national guidelines and of active feedback for rationalising preoperative screening in patients at low risk from anaesthetics in a French university hospital. Quality in Health Care. 1998;7:5-11.
16. Carey TS, Levis, D, Pickard, CG, and Bernstein, J. Development of a model quality-of-care assessment program for adult preventive care in rural medical practices. Qrb.Quality Review Bulletin. 1991;17:54-9.
17. Carney PA, Dietrich, AJ, Keller, A, Landgraf, J, and O'Connor, GT. Tools, teamwork, and tenacity: an office system for cancer prevention.[comment]. Journal of Family Practice. 1992;35:388-94.
18. Civitarese LA and DeGregorio, N. Congestive heart failure clinical outcomes study in a private community medical group.[comment]. Journal of the American Board of Family Practice. 1999;12:467-72.
19. Cockburn J, Pit, S, Zorbas, H, and Redman, S. Investigating breast symptoms in primary care: enhancing concordance with current best advice. Cancer Detection & Prevention. 2001;25:407-13.
20. Cohen MM, Rose, DK, and Yee, DA. Changing anesthesiologists' practice patterns. Can it be done? Anesthesiology. 1996;85:260-9.
21. Cohen MM and Ammon, AA. A solution to the problem of undictated operative reports by residents. American Journal of Surgery. 1998;176:475-80.
22. Cohran J, Larson, E, Roach, H, Blane, C, and Pierce, P. Effect of intravascular surveillance and education program on rates of nosocomial bloodstream infections. Heart & Lung: Journal of Acute & Critical Care. 1996;25:161-4.
23. Cranney M, Barton, S, and Walley, T. Addressing barriers to change: an RCT of practice-based education to improve the management of hypertension in the elderly. British Journal of General Practice. 1999;49:522-6.

24. de Grauw WJ, van Gerwen, WH, van de Lisdonk, EH, van den Hoogen, HJ, van den Bosch, WJ, and van Weel, C. Outcomes of audit-enhanced monitoring of patients with type 2 diabetes. *Journal of Family Practice*. 2002;51:459-64.
25. Deeb LC, Pettijohn, FP, Shirah, JK, and Freeman, G. Interventions among primary-care practitioners to improve care for preventable complications of diabetes. *Diabetes Care*. 1988;11:275-80.
26. DeLong JF, Allman, RM, Sherrill, RG, and Schiesz, N. A congestive heart failure project with measured improvements in care. *Evaluation & the Health Professions*. 1998;21:472-86.
27. DeNeef P, Ellsworth, A, and Schneeweiss, R. A system for drug utilization review in ambulatory care. *Journal of Family Practice*. 1991;32:607-12.
28. Denton GD, Smith, J, Faust, J, and Holmboe, E. Comparing the efficacy of staff versus housestaff instruction in an intervention to improve hypertension management. *Academic Medicine*. 2001;76:1257-60.
29. Dranitsaris G, Leung, P, and Warr, D. Implementing evidence based antiemetic guidelines in the oncology setting: results of a 4-month prospective intervention study. *Supportive Care in Cancer*. 2001;9:611-8.
30. Fairbrother G, Siegel, MJ, Friedman, S, Kory, PD, and Butts, GC. Impact of financial incentives on documented immunization rates in the inner city: results of a randomized controlled trial. *Ambulatory Pediatrics*. 2001;1:206-12.
31. Feinberg AN, Lowry, M, and Koelsch, R. Early newborn discharge: A tale of two hospitals. *Clinical Pediatrics*. 2002;41:99-104.
32. Findlay JM, Nykolyn, L, Lubkey, TB, Wong, JH, Mouradian, M, and Senthilselvan, A. Auditing carotid endarterectomy: a regional experience.[comment]. *Canadian Journal of Neurological Sciences*. 2002;29:326-32.
33. Finkelstein JA, Davis, RL, Dowell, SF, Metlay, JP, Soumerai, SB, Rifas-Shiman, SL, Higham, M, Miller, Z, Miroshnik, I, Pedan, A, and Platt, R. Reducing antibiotic use in children: a randomized trial in 12 practices. *Pediatrics*. 2001;108:1-7.
34. Fowkes FG, Hall, R, Jones, JH, Scanlon, MF, Elder, GH, Hobbs, DR, Jacobs, A, Cavill, IA, and Kay, S. Trial of strategy for reducing the use of laboratory tests. *British Medical Journal Clinical Research Ed.*. 1986;292:883-5.
35. Francois P, Bertrand, D, Labarere, J, Fourny, M, and Calop, J. Evaluation of a program to improve the prescription-writing quality in hospital. *International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services*. 2001;14:268-74.

36. Frazier LM, Brown, JT, Divine, GW, Fleming, GR, Philips, NM, Siegal, WC, and Khayrallah, MA. Can physician education lower the cost of prescription drugs? A prospective, controlled trial.[comment]. *Annals of Internal Medicine*. 1991;115:116-21.
37. Freeborn DK, Shye, D, Mullooly, JP, Eraker, S, and Romeo, J. Primary care physicians' use of lumbar spine imaging tests: effects of guidelines and practice pattern feedback.[comment]. *Journal of General Internal Medicine*. 1997;12:619-25.
38. Gandhi TK, Puopolo, AL, Dasse, P, Haas, JS, Burstin, HR, Cook, EF, and Brennan, TA. Obstacles to collaborative quality improvement: the case of ambulatory general medical care. *International Journal for Quality in Health Care*. 2000;12:115-23.
39. Gerrity MS, Cole, SA, Dietrich, AJ, and Barrett, JE. Improving the recognition and management of depression: is there a role for physician education? *Journal of Family Practice*. 1999;48:949-57.
40. Goebel LJ. A peer review feedback method of promoting compliance with preventive care guidelines in a resident ambulatory care clinic. *Joint Commission Journal on Quality Improvement*. 1997;23:196-202.
41. Goff DC, Jr., Gu, L, Cantley, LK, Parker, DG, and Cohen, SJ. Enhancing the quality of care for patients with coronary heart disease: the design and baseline results of the hastening the effective application of research through technology (HEART) trial. *American Journal of Managed Care*. 2002;8:1069-78.
42. Goldberg HI, Wagner, EH, Fihn, SD, Martin, DP, Horowitz, CR, Christensen, DB, Cheadle, AD, Diehr, P, and Simon, G. A randomized controlled trial of CQI teams and academic detailing: can they alter compliance with guidelines? *Joint Commission Journal on Quality Improvement*. 1998;24:130-42.
43. Gordon DB, Jones, HD, Goshman, LM, Foley, DK, and Bland, SE. A quality improvement approach to reducing use of meperidine. *Joint Commission Journal on Quality Improvement*. 2000;26:686-99.
44. Grady KE, Lemkau, JP, Lee, NR, and Caddell, C. Enhancing mammography referral in primary care. *Preventive Medicine*. 1997;26:791-800.
45. Gregory C, Cifaldi, M, and Tanner, LA. Targeted intervention programs: creating a customized practice model to improve the treatment of allergic rhinitis in a managed care population. *American Journal of Managed Care*. 1999;5:485-96.
46. Grover FL, Johnson, RR, Shroyer, AL, Marshall, G, and Hammermeister, KE. The Veterans Affairs Continuous Improvement in Cardiac Surgery Study. *Annals of Thoracic Surgery*. 1994;58:1845-51.
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Appendix 5: Citations of articles that involved house staff

1. Berman MF and Simon, AE. The effect of a drug and supply cost feedback system on the use of intraoperative resources by anesthesiologists. *Anesthesia & Analgesia*. 1998;86:510-5.
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Appendix 6: Citations of articles in which the unit of analysis was not physicians

1. Allard J, Hebert, R, Rioux, M, Asselin, J, and Voyer, L. Efficacy of a clinical medication review on the number of potentially inappropriate prescriptions prescribed for community-dwelling elderly people. *CMAJ Canadian Medical Association Journal*. 2001;164:1291-6.
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