

Translating Evidence into Practice - an Australian perspective

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1. Evidence speaking for itself

- Passive diffusion
 - Journals
 - Conferences
 - Public notices
- Gradient strongest
 - Strength of evidence
 - Magnitude of treatment effect
- CAST
- HERS/WHI

4

EBM notebook

The evolving science of translating research evidence into clinical practice

Scott IA Evidence-based Medicine 2007; 12: 4-7

Does passive diffusion work in general?

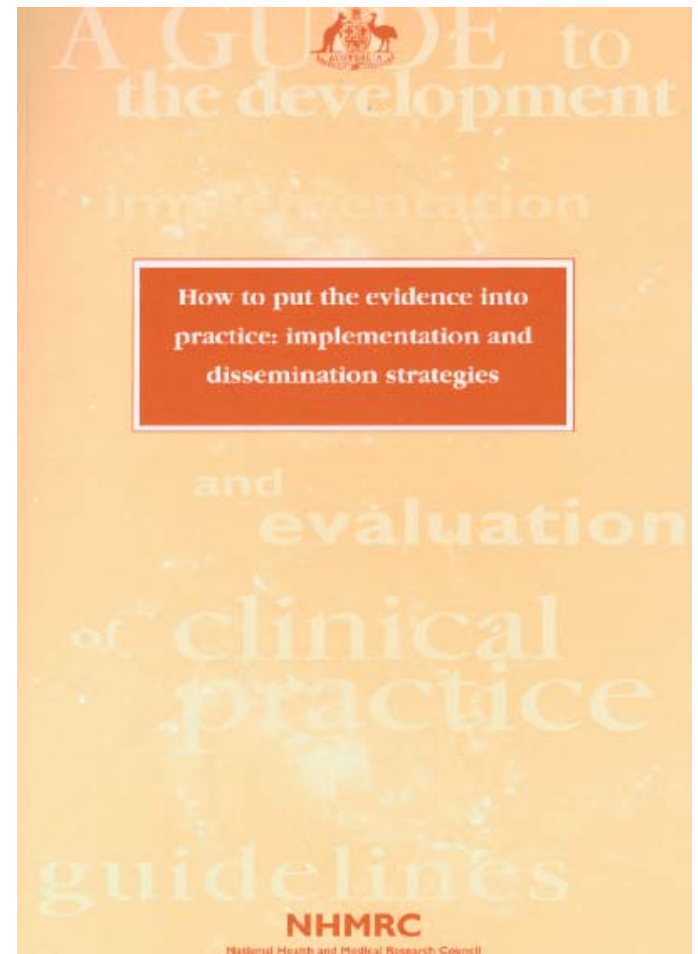
The screenshot shows the Cochrane Library interface. The top navigation bar includes 'CLEAR', 'TOPICS', 'RECORDS', 'MeSH', 'HISTORY', 'HELP', 'BACK', 'FORWARD', 'OUTLINE', 'FIND', 'ABOUT', and 'EXIT'. The left sidebar displays a 'Topic lists' menu with categories such as 'Reviews of specific types of interventions (39)', 'Continuing education and quality assurance (15)', 'Distribution of educational materials (2)', 'Educational meetings (including lectures, workshops and traineeships) (1)', 'Local consensus processes (1)', 'Educational outreach visits (1)', 'Local opinion leaders (1)', 'Patient mediated interventions (0)', 'Audit and feedback (2)', 'Reminders (including computerised decision support systems) (3)', 'Marketing (1)', 'Mass media (1)', 'Other (2)', 'Financial interventions (6)', 'Organisational interventions (18)', and 'Provider oriented (10)'. The main content area features a search bar, a 'Send a comment about this review' link, and a 'Comments' section. The title of the review is 'CONTINUING EDUCATION MEETINGS AND WORKSHOPS: EFFECTS ON PROFESSIONAL PRACTICE AND HEALTH CARE OUTCOMES' by Thomson O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J. The date of the most recent amendment is 26 February 2001. The review should be cited as: Thomson O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J. Continuing education meetings and workshops: effects on professional practice and health care outcomes (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2003. Oxford: Update Software. The 'ABSTRACT' section includes: **Background**: Continuing education meetings and printed educational materials are the two most common types of continuing education for health professionals. An important aim of continuing education is to improve professional practice so that patients can receive improved health care. **Objectives**: To assess the effects of educational meetings on professional practice and health care outcomes. **Search Strategy**: We searched the Cochrane Effective Practice and Organisation of Care Group specialised register, MEDLINE (from 1966), the Research and Development Resource Base in Continuing Medical Education in January 1999 and reference lists of articles. **Selection Criteria**: Randomised trials or well designed quasi-experimental studies examining the effects of continuing education on the clinical practice of health professionals or health care outcomes. **Data collection and analysis**: Two reviewers independently applied inclusion criteria, assessed the quality of the studies, and extracted the data. We conducted both qualitative and quantitative analyses. **Main Results**: Thirty-two studies were included with a total of 36 comparisons. The quality of the studies was moderate to high, although methods were generally poorly reported. For comparisons of interactive workshops, there were moderate or moderate to high quality, although methods were generally poorly reported. For comparisons of printed educational materials, there were moderate or moderate to high quality, although methods were generally poorly reported. For comparisons of on-screen computer reminders, there were moderate or moderate to high quality, although methods were generally poorly reported. For comparisons of manual paper reminders, there were moderate or moderate to high quality, although methods were generally poorly reported. For comparisons of didactic presentations, there were no statistically significant differences. **Reviewers' conclusions**: Interactive workshops can result in moderately large changes in professional practice. **This review should be cited as:** Thomson O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J. Continuing education meetings and workshops: effects on professional practice and health care outcomes (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2003. Oxford: Update Software. A large blue speech bubble overlay on the right side of the abstract contains the text: '32 studies; n=2995 Implications for practice Interactive workshops can improve professional practice. Lectures alone are unlikely to change professional practice'. The word 'BACKGROUND' is visible at the bottom of the page.

2. Evidence as pre-packaged 'ready to go' knowledge

What's important, makes a difference and is reasonably affordable?

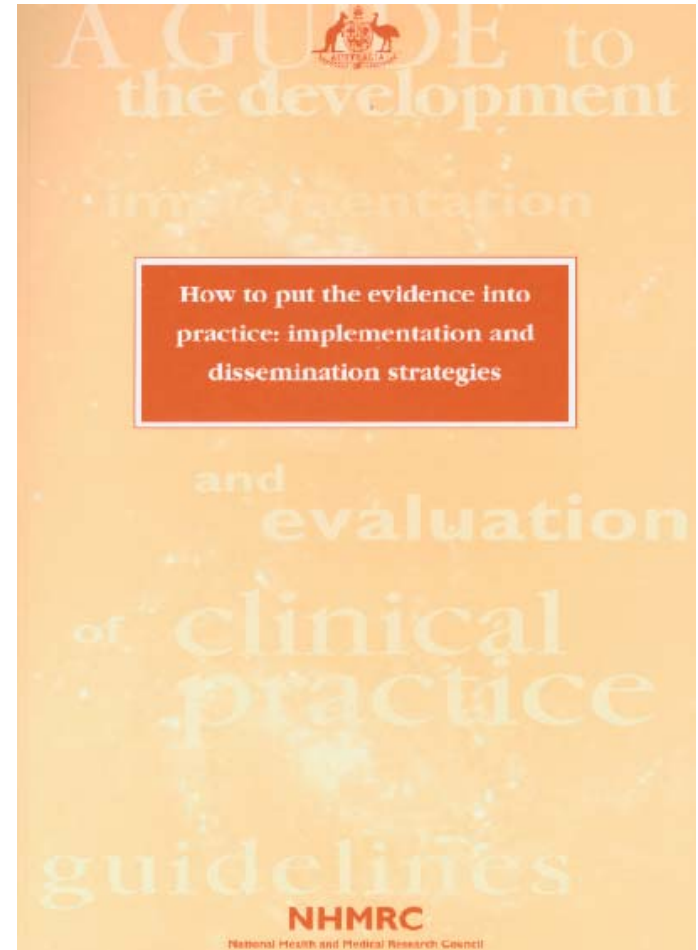
- Clinical guidelines
- Systematic reviews
- Meta-analyses
- Decision analyses
- Cost-effectiveness analyses

- NHMRC Clinical Guidelines program
- Professional society guidelines
- Australasian Cochrane Centre
- Evidence-Based Medicine initiatives



How to make guidelines effective?

- Evidence-based recommendations graded according to strength and consistency of evidence
 - Use of flow diagrams and visual formats
- Measures of benefit and risk
- Feasible and applicable to target popn^s
- Accessible
- Endorsed by 'opinion leaders'
- Embedded in reminders, prompts, tools
- Revised according to new evidence



Quality of guidelines

- **OBJECTIVE:** To appraise the quality of clinical practice guidelines (CPGs) produced in Australia.
- **DESIGN:** Cross-sectional survey.
- **PARTICIPANTS AND SETTING:** 76 organisations, comprising all clinical colleges and faculties, federal and state health departments and national and state non-government agencies involved in health policy in Australia in October 1993.
- **RESULTS:** Response rate was 87%, with 32 organisations submitting 42 documents; 34 of these were classified as CPGs.

- 75% fully met all criteria for applicability, flexibility, multidisciplinary input and documentation, and two out of three criteria for clarity

- None fully stated costings or described processes for retrieving and synthesising evidence

- 18% explicitly stated the expected health outcomes

- 18% described the method to reach consensus

- 21% fully stated controversies and potential conflict with other guidelines

Quality of guidelines

Standard	No. (%) of Guidelines Satisfying Standard (N = 279)
1. Purpose of the guideline is specified	210 (75.3)
2. Rationale and importance of the guideline are explained	244 (87.5)
3. The participants in the guideline development process and their areas of expertise are specified	72 (25.8)
4. Targeted health problem or technology is clearly defined	170 (60.9)
5. Targeted patient population is specified	128 (45.9)
6. Intended audience or users of the guideline are specified	142 (50.9)
7. The principal preventive, diagnostic, or therapeutic options available to clinicians and patients are specified	229 (82.1)
8. The health outcomes are specified	111 (39.8)
9. The method by which the guideline underwent external review is specified	90 (32.3)
10. An expiration date or date of scheduled review is specified	30 (10.8)
Mean (SD) overall adherence, %	51.1 (25.3)

Clinicians' attitudes to guidelines

- **OBJECTIVE:** To determine Australian general practitioners' (GPs') views about and recall of clinical practice guidelines.
- **DESIGN:** Self-administered questionnaire survey.
- **SUBJECTS:** Randomly selected Australian GPs.
- **RESULTS:** 77% response rate (286/373 GPs)
- GPs' recall of each of nine guidelines ranged from 52% to 94%
- 49% changed practice as a result of a guideline
- 92% agreed guidelines were "good educational tools"
- 85% indicated guidelines were "developed by experts who don't understand general practice".
- The dissemination of specific guidelines is patchy and there is little evidence of systematic implementation

Clinicians' attitudes to guidelines

SYSTEMATIC REVIEW

Clinicians' attitudes to clinical practice guidelines: a systematic review

Cynthia M Farquhar, Emma W Kofa and Jean R Sluts

ABSTRACT

Objective: To systematically review surveys of clinicians' attitudes to clinical practice guidelines.

Data sources: MEDLINE, HealthStar, Embase and CINAHL were searched electronically for English-only surveys published from 1990 to 2000.

Study selection: We included surveys with responses to one or more of seven propositions (see below). Studies were excluded if they had fewer than 100 respondents or if the response rate was less than 60%.

Results: Thirty studies included responses to one or more of the seven items, giving a total of 11 611 responses. The response rate for the included studies was 72% (95% confidence interval [CI], 69%–75%). Clinicians agreed that guidelines were helpful sources of advice (weighted mean, 75%; 66%–83%), good educational tools (71%; 63%–79%) and intended to improve quality (70%; 60%–80%). However, clinicians also considered guidelines impractical and too rigid to apply to individual patients (30%; 23%–36%), that they reduced physician autonomy and oversimplified medicine (34%; 22%–47%), would increase litigation (41%; 32%–49%) and were intended to cut healthcare costs (52.8%; 39%–66%).

Conclusions: Surveys of healthcare providers consistently report high satisfaction with clinical practice guidelines and a belief that they will improve quality, but there are concerns about the practicality of guidelines, their role in cost-cutting and their potential for increasing litigation.

Australian use of guidelines

Evidence-based Medicine

Clinical practice guidelines: reality bites

Geoffrey H L Hirst and Jeanette E Ward

MJA 2000; 172: 287-291

Australian urologists

"...the guidelines it recommends are not supported by appropriate evidence and are unsustainable.

We do not feel this represents best practice."

"I think they do inevitably suggest that part of the reason for the guidelines themselves is financial, and this heightens the concern that at some stage they will be used in a prescriptive way".

Australian general practitioner organisations

"Very useful".

"...perhaps the use of more flow charts and tables would aid in this process [as] few GPs will be willing to read through a document of this size".

International expert

"I congratulate you and your colleagues for producing a superb document.

Clinical practice guidelines: time to move the debate from the *how* to the *who*

Openness about all potential conflicts of interest, as well as the degree of agreement among members about the final guidelines, is the least we should expect

MJA 2002; 176: 304-5

3. Evidence as an industrial commodity

- Implementation research
 - Educational outreach
 - Audit and feedback
 - Reminder systems
 - Patient-mediated prompts
 - Decision aids
 - Case-based, interactive small group discussion
- Clinical Services Evaluation Units
- Clinical Effectiveness Centres
- National Institute for Clinical Studies
- Clinical Excellence Commission

Bero et al EPOC Review Group 1998

Effects of QI interventions

<i>Intervention</i>	<i>No. trials</i>	<i>% increase (95%CI) in absolute improvement in proportion of patients receiving guideline-concordant care</i>	<i>NNT</i>
Passive dissemination of educational materials	4	8.1%	12
Educational outreach	13	6.0%	17
Reminders	14	13.1%	8
Audit/feedback	5	7.0%	14
Multifaceted	13	6.0%	17

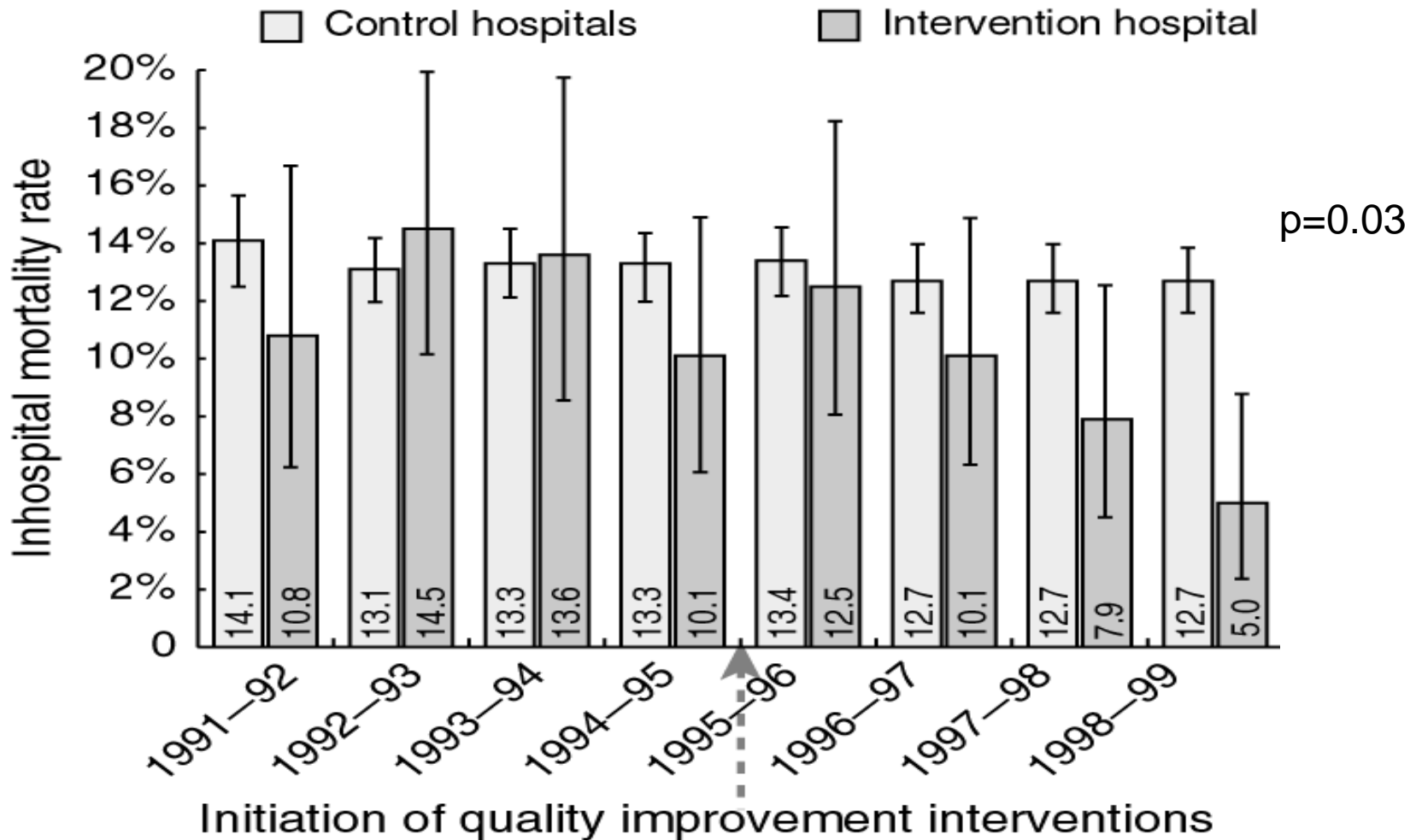
Single site QI in AMI care

Indicator n (%)	Mar–Aug 1996 (n = 120)	Jul 1997–Jun 1998 (n = 215)	Jan–Jun 2000 (n = 98)
<i>Process indicator</i>			
Thrombolysis	60 (100%)	79 (97%)	40 (94%)
Lysis door-to-needle time < 1 h	20 (33%)	44 (56%)†	23 (57%)†
β-blockers	72 (60%)	130 (60%)	71 (73%)†
Aspirin	91 (76%)	174 (81%)	81 (83%)
ACE inhibitors	53 (44%)	103 (48%)	58 (59%)†
<i>Outcome indicator</i>			
Inhospital deaths	20 (16.7%)	20 (9.3%)†	4 (4.0%)†
Reinfarction	3 (2.5%)	8 (3.7%)	3 (3.1%)
Postinfarct angina	39 (32%)	33 (15%)†	11 (11%)†
Length of stay in days – mean (SD)	7.6 (5.0)	6.9 (4.5)	6.2 (4.1)†

† P≤0.05 for comparisons to Mar-Aug 1996

Scott et al MJA 2002

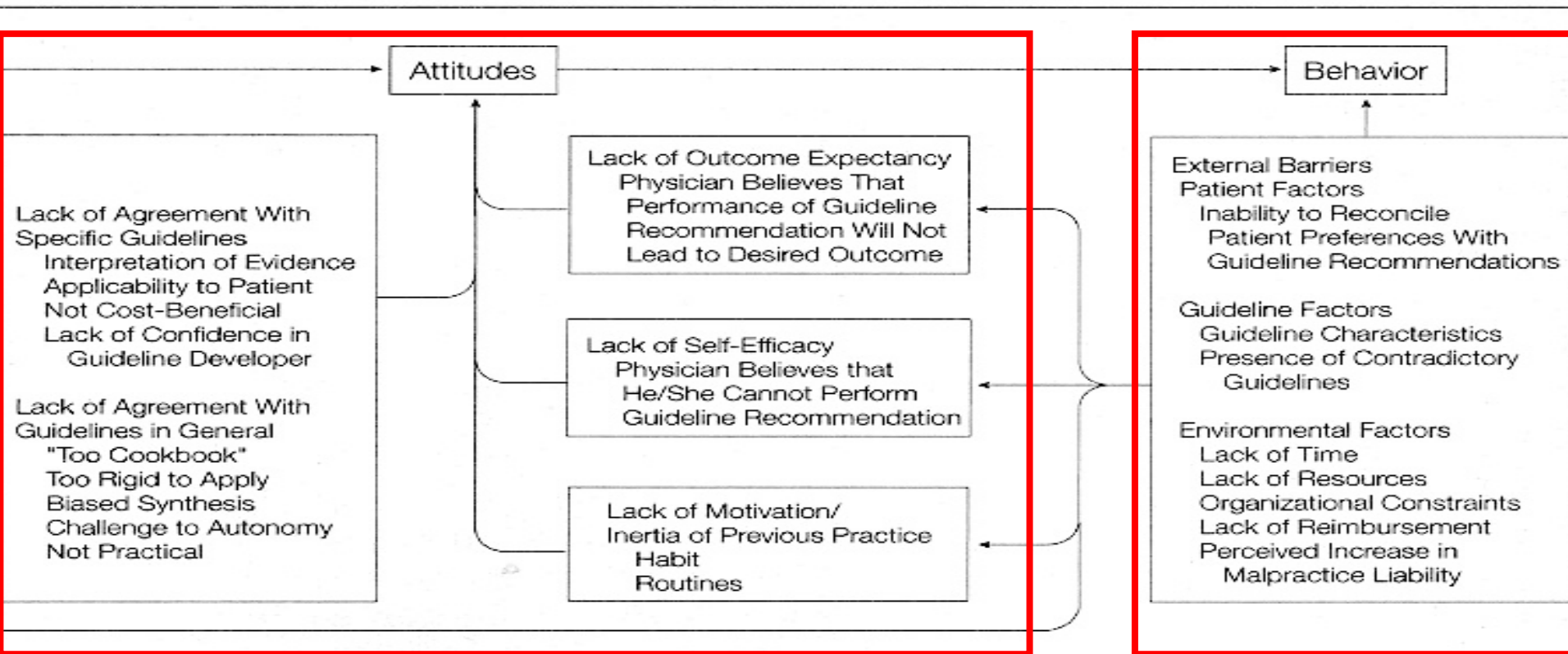
Single site QI in AMI care



But are guidelines enough?

Why Don't Physicians Follow Clinical Practice Guidelines? A Framework for Improvement

Cabana et al JAMA 1999



4. Evidence within a framework of systems engineering

- EBM and QI methods combined with:
 - Computerised clinical decision support
 - Quality improvement/TQM systems
 - Funding mechanisms for practice improvement
 - Policy and bureaucratic incentives
 - Redesign of work practice
 - Social networking
 - Consumer input and advocacy
- RACP Clinical Support Systems Program
- National Hospital Demonstration Projects
- QI Collaboratives (NICS, Primary Care, QH CPIC, TASC, Medication Safety, Emergency Medicine)
- Australian Council of Safety and Quality in Healthcare

QI cycle

Initiate group/
collaborative

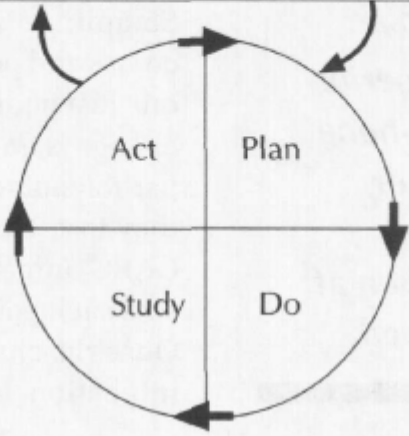
Service
improvement

Problem
definition

- 1. What are we trying to accomplish?
- 2. How will we know that a change is an improvement?
- 3. What changes can we make that will result in an improvement?

Evaluate
performance

Indicator
development



Data
feedback

Data
collection

Data analysis

Australian experience

Pre-post comparison 17 Victorian ED 2000-01

\$40,000 per site

Bartlett et al Int J Qual Health Care 2002

Core project	Target achieved	Significant improvement	No/little change	Planned or in progress
↓ lysis time	7	1	-	-
↓ antibiotic time pneumonia	1	1	-	2
↓ antibiotic time neutropenia	3	1	-	3
↓ analgesia time	10	7	-	1
TIA pathway <12 hrs	-	-	-	1
Ottawa ankle rules	-	1	1	2
Total	21	11	1	14*

*Includes 5 other projects not listed

Australian experience

Pre-post comparison, 9 Queensland hospitals, 2000-02

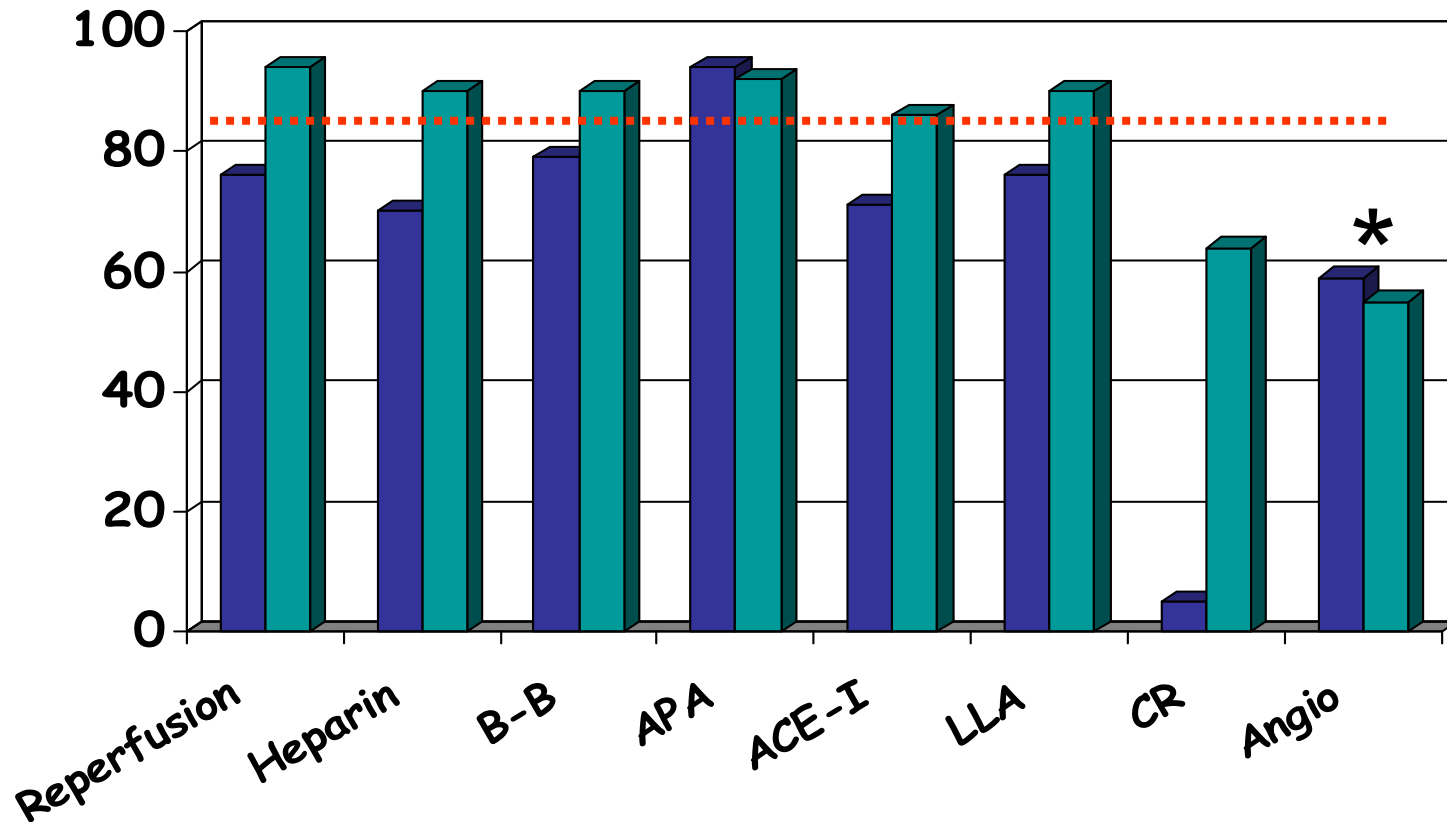
Scott et al MJA 2004

ACS	Baseline n=807	Post-QI n=717	p*
<i>Process indicators</i>	%	%	
Heparin	72	84	<0.001
ACE inhibitors	56	64	0.02
Lipid-lowering agents	62	72	<0.001
In-hospital cardiac counselling	43	65	<0.001
Cardiac rehabilitation	5	15	<0.001
Coronary angiography	59	72	<0.001

CHF	Baseline n=357	Post-QI n=220	p*
<i>Process indicators</i>	%	%	
Second-line vasodilator	7	16	0.01
β -blocker	34	52	<0.001
Digoxin	34	52	<0.001
Deleterious agents	23	13	0.04

*Adjusted for multiple comparisons

Sustainability of the collaborative model ACS



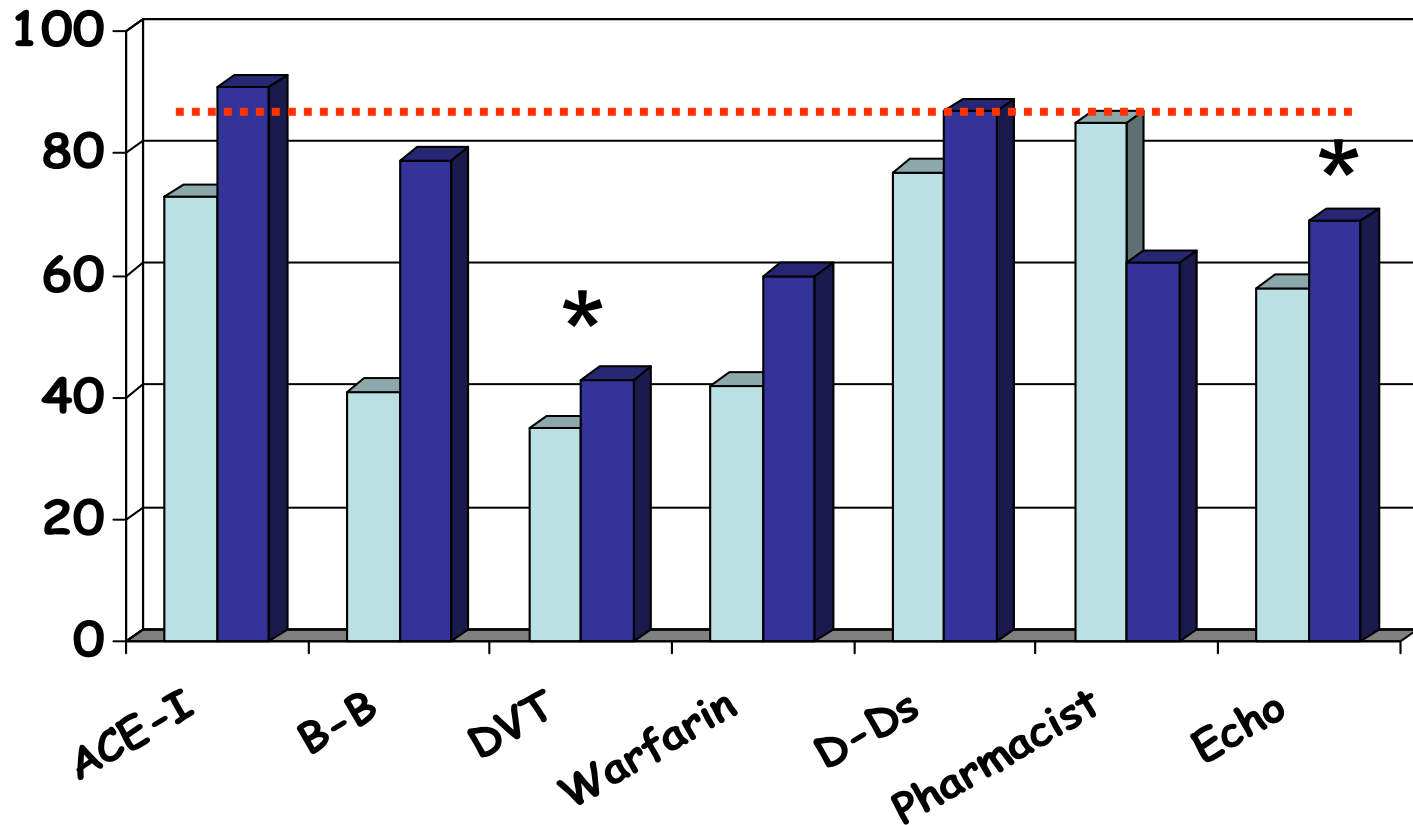
In-hospital mortality
8.3% to 3.2%

9 hospitals 06/01-1/02
21 hospitals Jan-Jun 06

n=809
n=454

*NS

Sustainability of the collaborative model CHF



In-hospital mortality
6.6% to 4.8%

9 hospitals 06/01-1/02
18 hospitals Jan-Dec 06

n=357
n=532

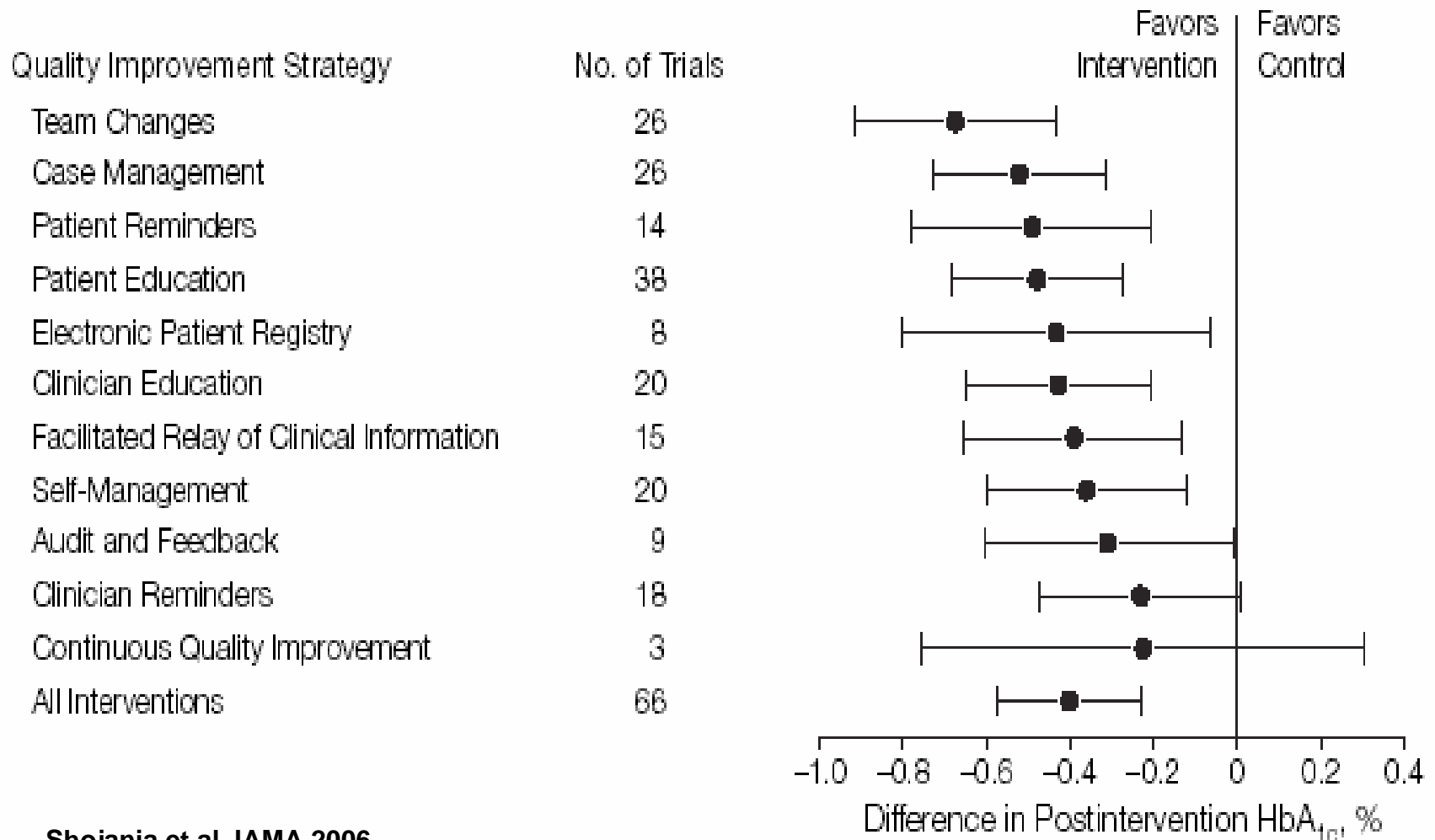
* NS

Decision support systems

Kawamoto et al BMJ 2005

- SR 70 RCTs of high quality
- Significant practice improvements in 68%
- **Independent features critical to success**
 - Provision of decision support at the time and locale of decision making
 - Automatic provision of decision support as part of clinician workflow
 - Provision of recommendations rather than just evidence tables or assessments
 - Computerised decision support
- If all 4 features present, 94% success rate

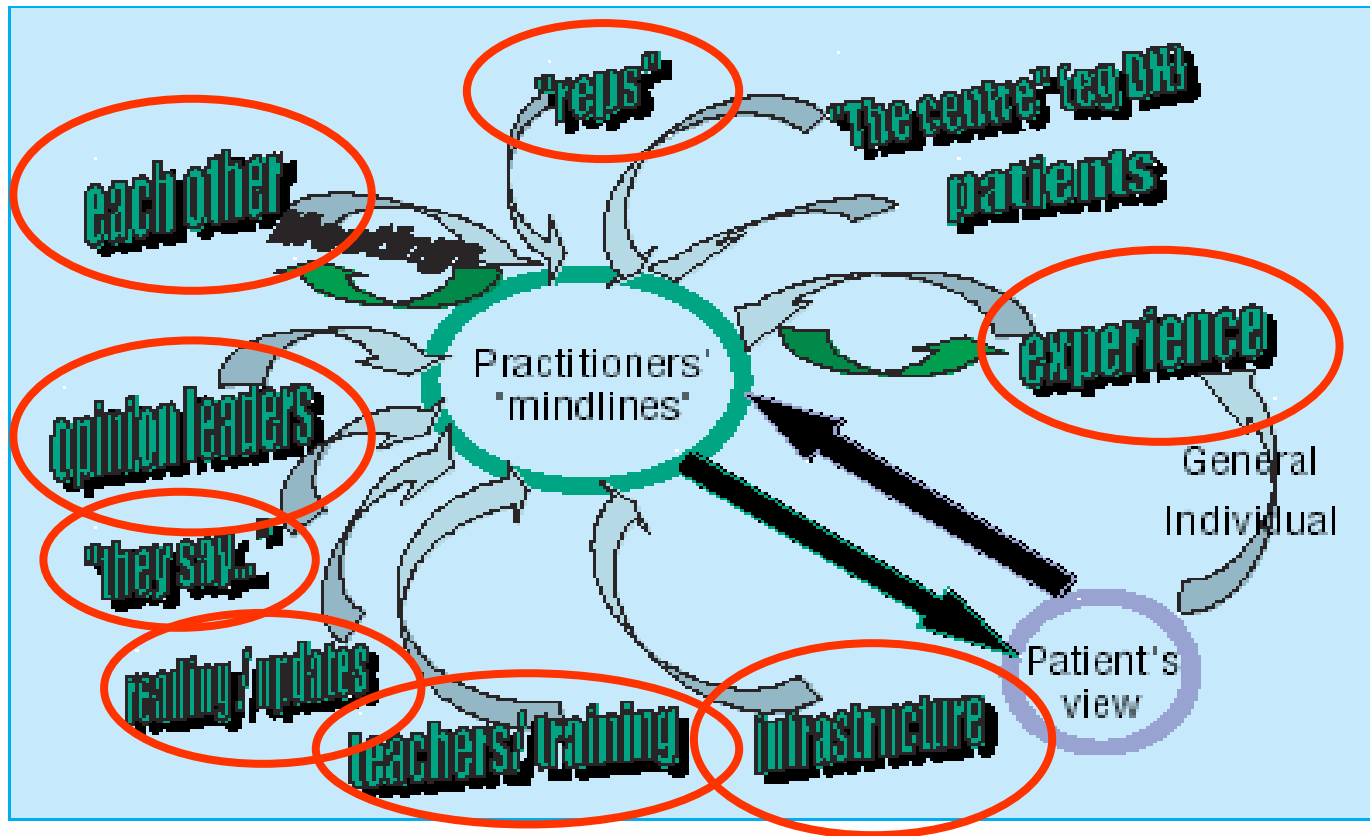
Care redesign may have most impact



5. Evidence within a framework of social innovation

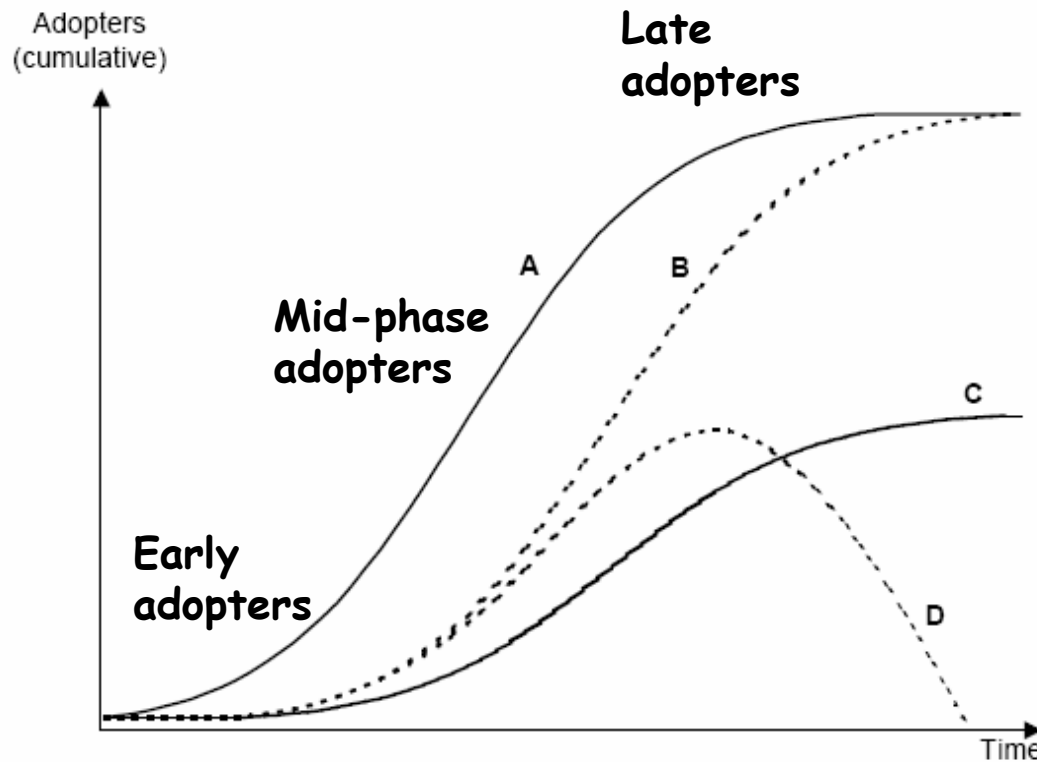
- Individual cognitive/behavioural characteristics
 - Awareness, acceptance of need to change
 - Enablers - self-efficacy
 - Reinforcers - reward/feedback/forcing functions
- Social environment
 - Peers, opinion leaders, group psychology
 - Organisational values and goals
 - Economic incentives (P4P)
 - Sociopolitical determinants
- NICS Implementing Guidelines in Practice Workshops
- Clinical Leaders program
- NSW/Qland Clinical Service Networks

Evidence and mindlines



Mindlines: Collectively reinforced, internalised, tacit guidelines
----- socially constructed 'knowledge in practice'

Diffusion of change



©
Key: A = rapid and complete adoption by a population; B = similar pattern following a lag phase; C = slower adoption and incomplete coverage; D = adoption followed by discontinuance

Figure 1-2 S-curves for different innovations and/or populations

Rogers 1965

Linking EBM with EBQI

- Systematic, evidence-based QI improves quality of care
- Pre-requisites for success:
 - Well defined target clinical problem
 - Clinical opinion leaders and “drivers”
 - Evidence base for effective care
 - Multiple QI interventions
 - Performance measurement and feedback
 - Management and clinical culture receptive to evaluation & change
 - Use of natural alliances and points of leverage
 - Perseverance combined with reasonable expectations

Emerging paradigms

- Coupling quality with safety
 - VTE prophylaxis
 - AMI care
- Participatory decision-making
- Patient self-care
- Chronic disease management
- Cost-efficiency

Emerging paradigms

EDITORIAL

Translating Evidence Into Practice

Are We Neglecting the Neediest?

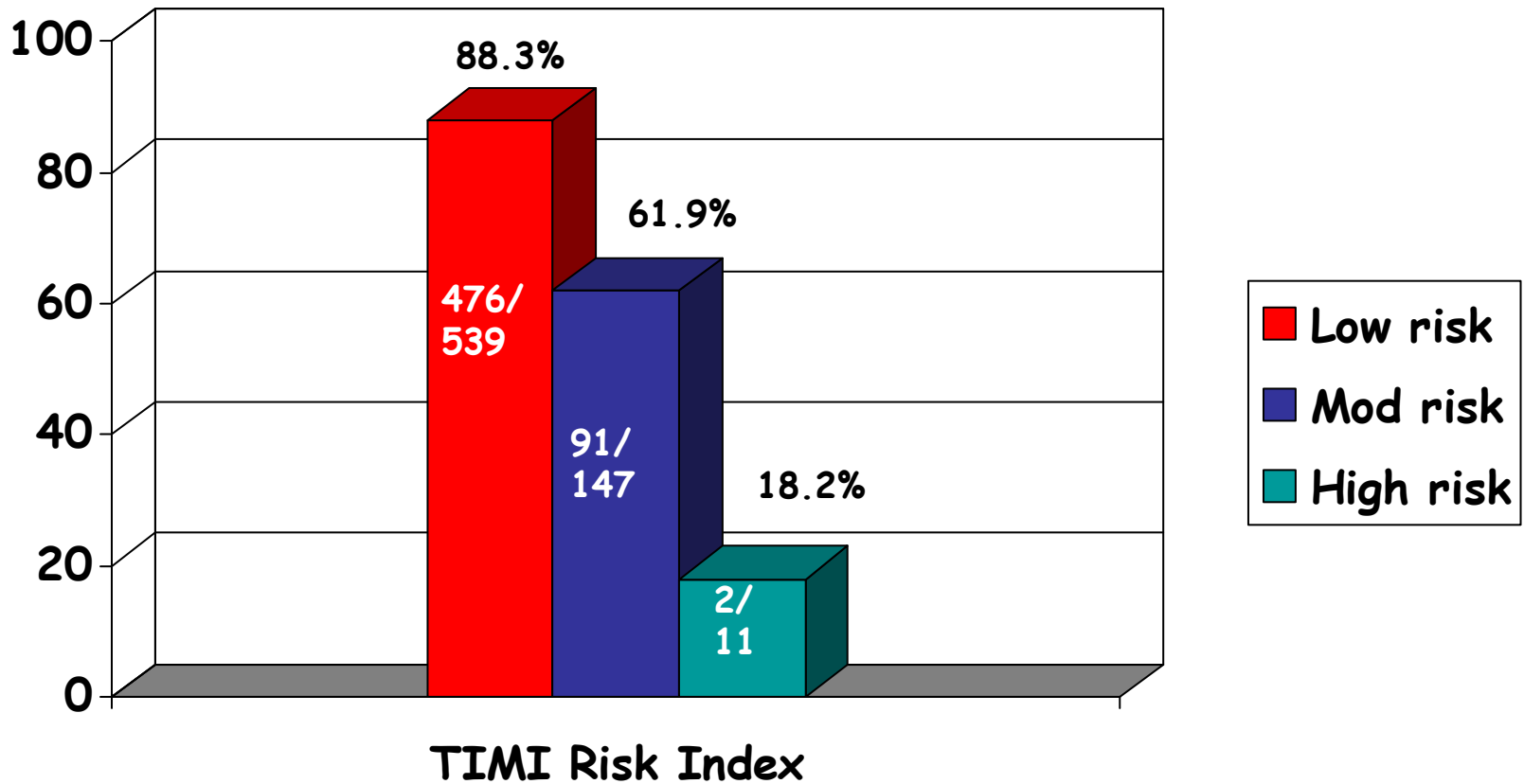
Arch Intern Med 2007; 167: 987

Risk-treatment paradox

Results

Reperfusion - STEMI

p for trend < 0.001

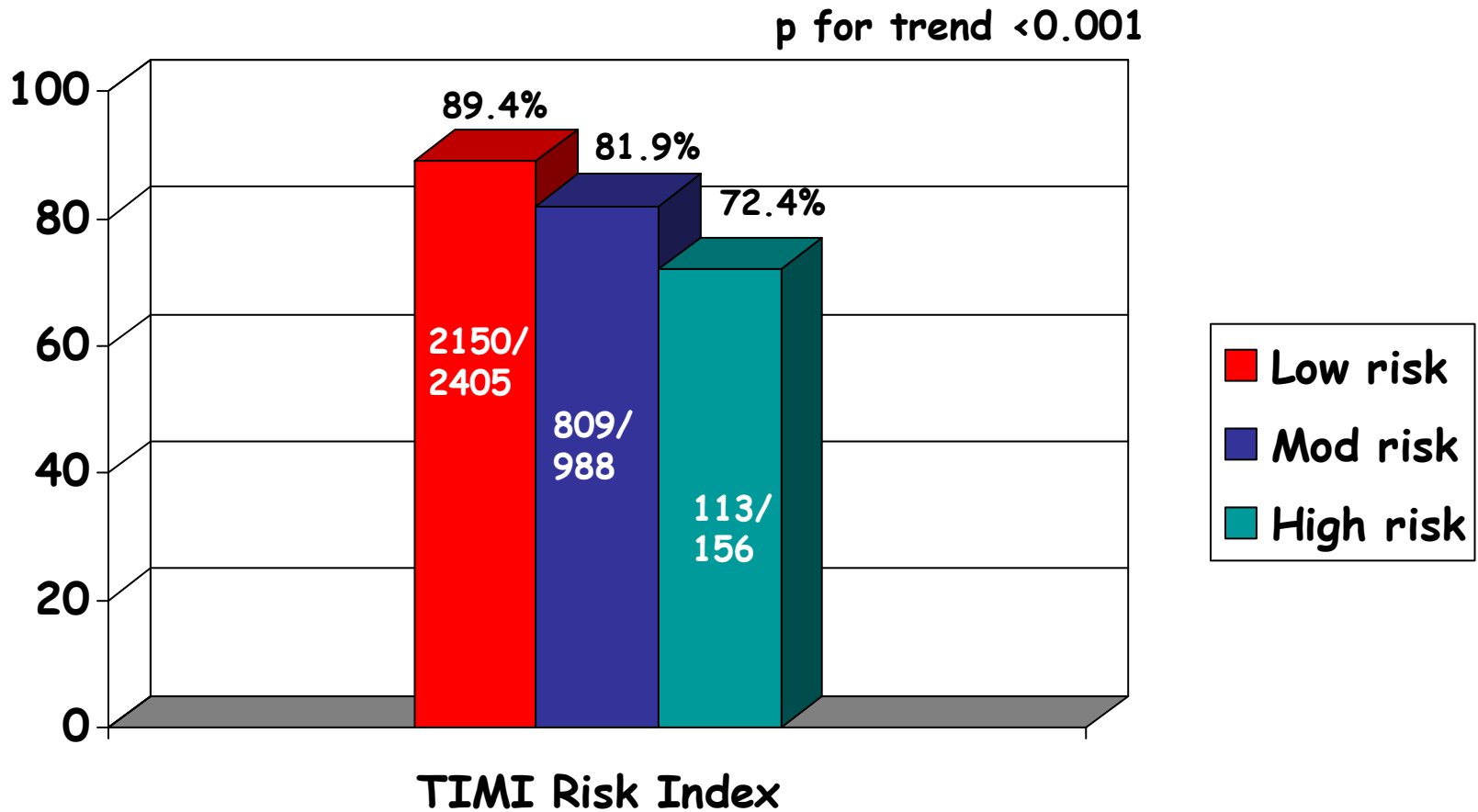


n=697

Scott et al MJA in press

Results

Heparin - STEMI/NSTEMI

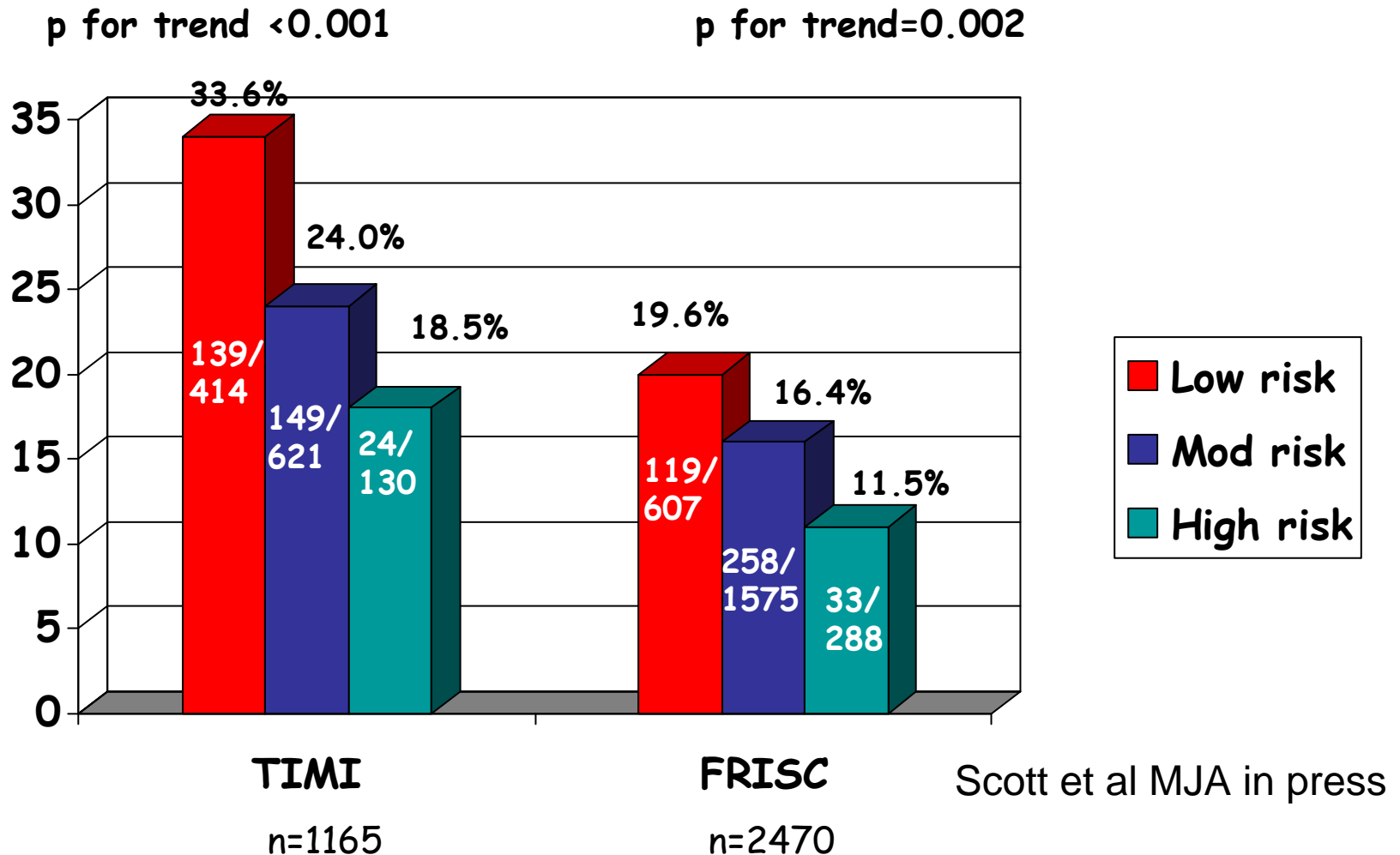


n=3549

Scott et al MJA in press

Results

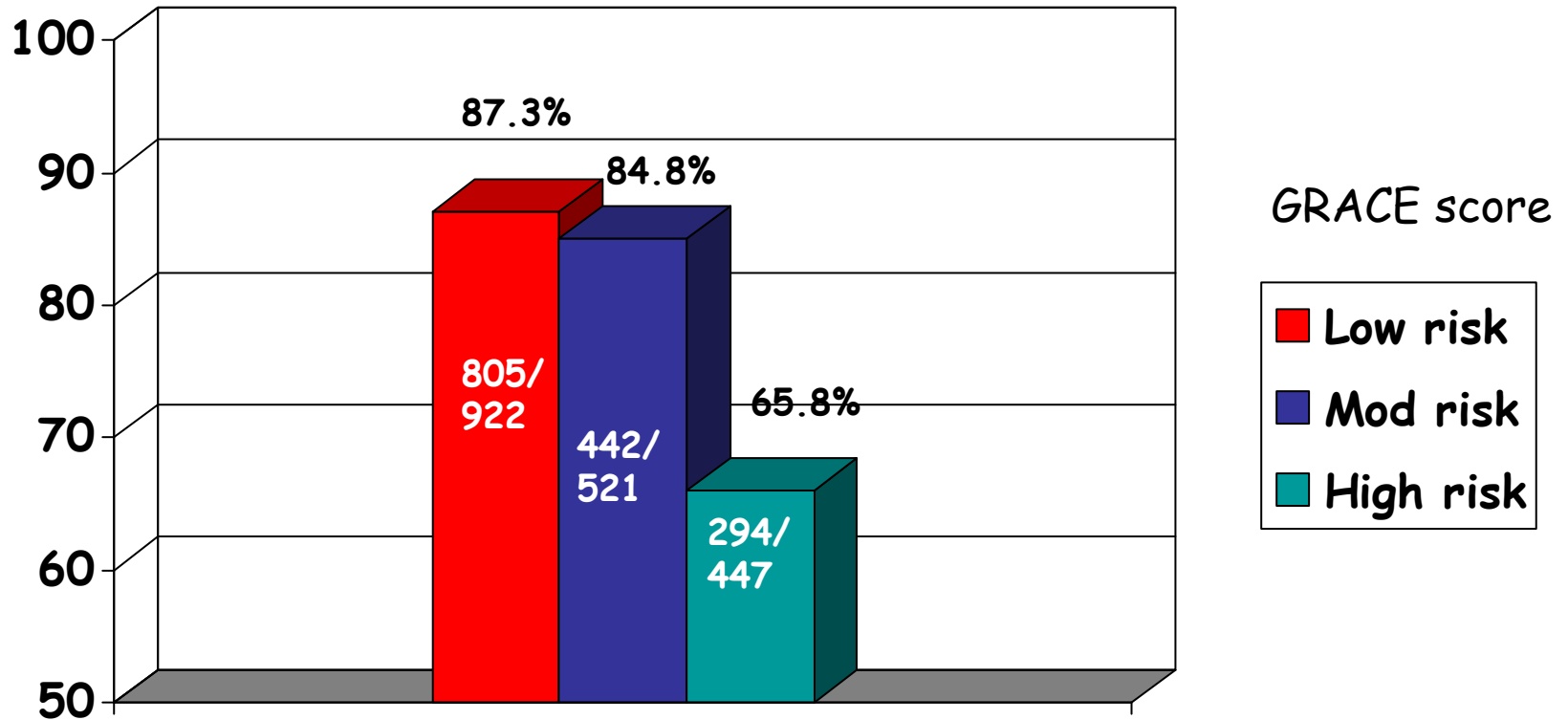
Early coronary angiography - NSTEMI/UA



Results

Lipid-lowering agents - ACS

p for trend <0.001



Lipid-lowering agents

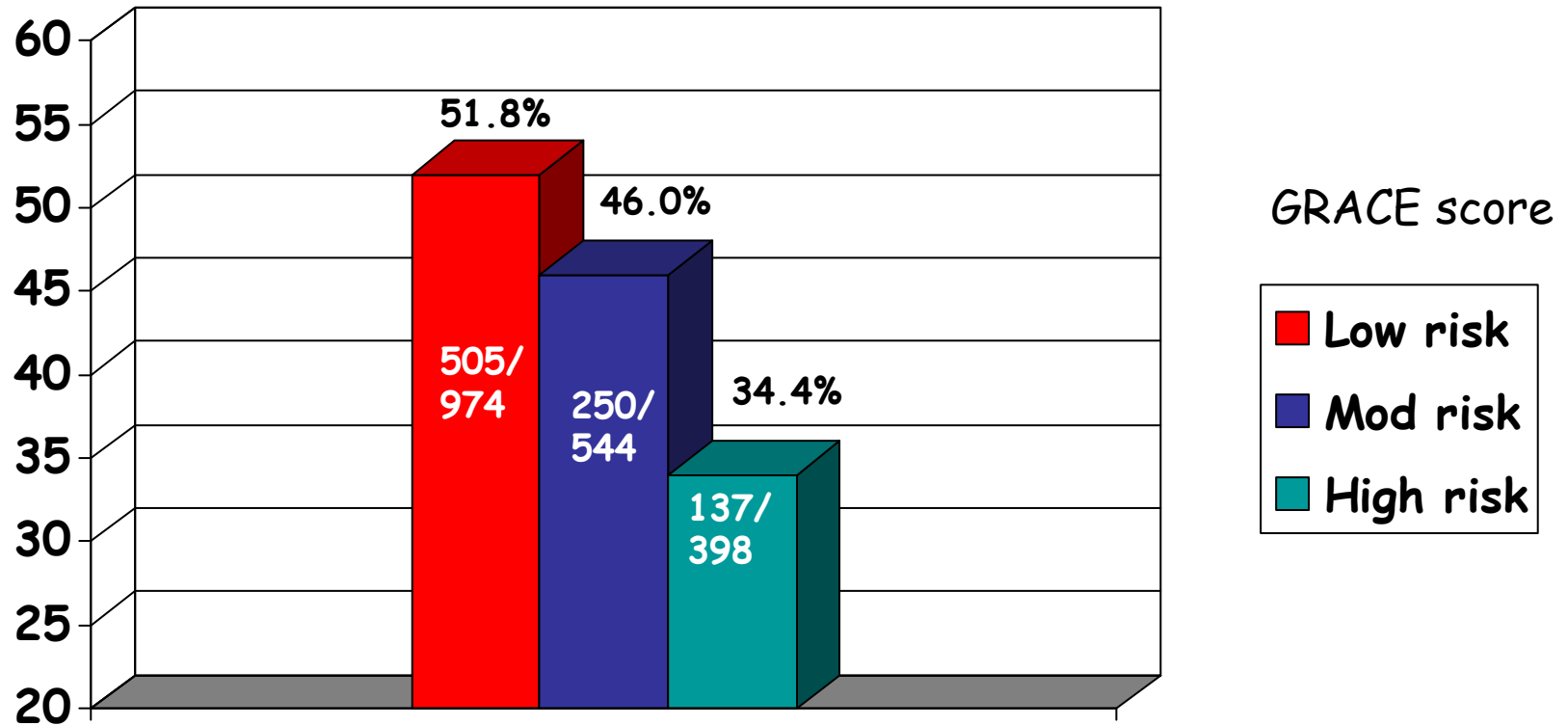
n=1890

Scott et al MJA in press

Results

Referral OCR - ACS

p for trend <0.001



Referral OCR

Scott et al MJA in press

n=1916

Levers for improving quality and safety

- Legislated quality and safety standards
 - HQCC Qland
 - Credentialing scope of practice
 - Surgical antibiotic prophylaxis
 - VTE prophylaxis
 - Post-AMI care
 - Review of all in-hospital deaths
 - Providers' duty to improve quality of care
 - Professional/service accreditation
 - Regular review of key performance indicators
- Professional education programs (UG-PG-CPD)
- Computerised health records/smart cards
- National priorities/areas of need eg CDM
- Pay for performance

Pre-requisites for quality advancement

- Increasing intrinsic motivation of healthcare workforce
- Capturing intellectual capital already developed by the workforce
- Reducing managerial overload necessary to induce managerial change
- Increasing capacity of professionally dominated organisations to do process analysis
- Creating lateral linkages across highly specialised organisational units to increase effectiveness and reduce lack of process accountability

Pre-requisites for quality advancement

- Targeting evidence-based care to those most at risk
- Auditing clinical practice and feeding back results in regards to key processes of care and clinical outcomes
 - Using whatever data sources are available, verifiable and contemporary
 - High volume, high risk, costly instances of care
 - Potentially avoidable deaths and sentinel events
- Establishing appropriately resourced evaluation frameworks and systems
- Economic penalties and service decommissioning for consistently poor care which is independent of inadequate infrastructure
- Professional preparedness to embrace alternative models of care and task substitution where proof of concept exists for improving quality of care