

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

Coaching patients On Achieving Cardiovascular Health

A proven method of training patients to achieve & maintain target levels for specific modifiable risk factors and thereby reduce readmissions to hospital

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THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

From Research to Roll-out

- Treatment Gap
- The COACH Program
- The evidence
 - RCT 1
 - RCT 2
- 4-year follow-up of RCT 2
- Victorian rollout
 - HARP
 - Evaluation
- Other disease management programs
- Transferability to other chronic conditions

There is a 'Treatment Gap' in CHD

Surveys globally

ASPIRE Heart 1996; 75: 334-42

EUROASPIRE I Eur Heart J 1997; 18: 1569-82

EUROASPIRE II Eur Heart J 2001; 22: 554-72

L-TAP Arch Intern Med 2000; 160: 459-67

Vale, Jelinek & Best MJA 2002; 176: 211-5

indicate that there is a gap between
what is known from published evidence
and what is actually practised

The Treatment Gap:

Proportion of 348 Victorians with CHD achieving risk factor targets 6 months post hospitalisation (1999-2000)

Vale, Jelinek, Best MJA 2002;176: 211-215

- TC < 4.0 mmol/L (155 mg/dL) : 26%
- Blood pressure < 140/90 mmHg : 60%
- Body mass index < 25 kg/m² : 25%
- Not smoking : 85%
- Saturated fat intake ≤ 8% total E : 19%
- Walking for exercise : 74%

Why is there a treatment gap?

3 possibilities:

1. The patient may not attend the doctor.
2. Patients attend the doctor but do not adhere to the treatment.
3. Doctors may not make the appropriate checks or tests, may not initiate the treatment or titrate therapy to the dose required to achieve the target level.

Adherence to treatment regimens

Even if patients are managed appropriately, many patients will discontinue their own treatment.

Sackett *et al.* Compliance in Health Care. Baltimore: Johns Hopkins University Press, 1979.

“Typical adherence rates for prescribed medications are about 50% with a range of 0% to 100%”

Adherence to treatment regimens

The major work done on adherence to statin therapy in Australian patients has been performed by Leon Simons.

Metro Sydney 1994-95: 610 patients newly prescribed lipid-modifying drugs
(Simons *et al.* MJA 1996; 164:208-11).

Duration: 12 months

Results: 60% stopped taking their medication.

50% within 3 months, 25% within one month of starting.

Reasons for discontinuation:

patient unconvinced re need for treatment (32%)

poor efficacy (32%)

adverse events (7%)

Australia-wide survey (1999) assessed discontinuation rates in patients newly prescribed lipid-modifying drugs (Simons *et al.* BMJ 2000; 321: 1084)

32384 patients commenced lipid-lowering drugs. (92% statins), 30% stopped taking the drug by 6-7 months.

Adherence to lifestyle measures is even poorer...

1/3rd of patients adhere to dietary regimens at 1 year (Glanz 1980).

50% of patients who exercise stop within 6 months (Oldridge 1991).

Resumption of smoking among former smokers has been shown to be as high as 40-50% at 6 to 12 months after an acute cardiac event (Burling *et al.* 1984).

Strategies to address the treatment gap

- Physician targeted strategies
- Patient targeted strategies

Physician targeted strategies

Bero *et al.* BMJ 1998

- Consistently effective interventions
 - **Educational outreach visits** (academic detailing)
 - **Reminders** (manual e.g. chart or computerised)
 - **Multifaceted interventions** - a combination that includes two or more of:
 - » audit & feedback,
 - » reminders,
 - » local consensus processes or marketing
 - **Interactive educational meetings**
 - » health care providers in workshops that include discussion or practice

Physician targeted strategies

Bero *et al.* BMJ 1998

- Interventions of variable effectiveness
 - **Audit & feedback**
 - » any summary of clinical performance
 - **The use of local opinion leaders**
 - » practitioners identified by their colleagues as influential
 - **Local consensus processes**
 - » inclusion of participating practitioners in discussions to ensure that they agree that chosen clinical problem is important and the approach to managing the problem is appropriate

Physician targeted strategies

Bero *et al.* BMJ 1998

- Interventions that have little or no effect
 - **Education materials**
 - » distribution of recommendations for clinical care including clinical practice guidelines
 - **Didactic educational meetings**
 - » such as lectures

Strategies to address the treatment gap

- Physician targeted strategies
- **Patient targeted strategies**
 - Permit prescribing of medication by allied health professionals
(i.e. 'competitive' with usual care)
 - Do not permit prescribing by allied health professionals (i.e. 'cooperative' with usual care)

Patient targeted strategies where dietitians & nurses prescribe drugs 'Competitive' with usual care

ALL POSITIVE - all improved coronary risk factor profile in patients with CHD

- MULTIFIT 1994 (RCT): telephone & mailout intervention, nurse conducted
- Stagmo *et al.* 2001 (RCT): clinic-based intervention, nurse conducted
- Robinson *et al.* 2000 (Prospective cohort): telephone & mailout intervention, dietitian delivered
- Senaratne *et al.* 2001 (Quasi-experiment): clinic-based intervention, cardiac rehab nurse conducted

Patient targeted strategies where dietitians & nurses do not have prescribing rights 'Cooperative' with usual care

ALL NEGATIVE – none were effective in improving the coronary risk factor profile in patients with CHD

- Heller *et al.* 1993 (RCT): mailout intervention
- Kirkman *et al.* 1994 (RCT): telephone intervention, research nurse delivered
- Cupples & McKnight 1994-99 (RCT): clinic-based intervention, nurse conducted
- Tooth *et al.* 1998 (Quasi-experiment): clinic-based intervention, occupational therapist conducted
- Jolly *et al.* 1999 (RCT): postal prompt intervention, specialist cardiac liaison nurse delivered
- Holt *et al.* 1999 (Prospective cohort): mailout
- Lear *et al.* 2003 (RCT): group and telephone, case-manager delivered.
- Lichtman *et al.* 2004 (RCT): telephone delivered.

Patient empowerment in secondary prevention of coronary heart disease

Holt *et al.* Lancet 2000; 356: 314

- **Prospective cohort study.**
- **359 patients admitted to hospital with an AMI or for elective PTCA, or CABG.**
- **If a cholesterol check had not been made by 3 months after discharge, patients were sent a letter suggesting they visit their GP and get this done.**
- **Patients were interviewed by telephone to assess their subsequent action.**
- **The number of patients who required a letter was 150 (42%).**

Patient empowerment in secondary prevention of coronary heart disease

Holt *et al.* Lancet 2000; 356: 314

- Overall, 88% of the 359 patients were checked for cholesterol level.

RESULTS

- Although 69% of patients had a total cholesterol level of ≥ 5.2 mmol/L, no action was taken in 79% of these cases.
- Only 10 patients (12%) of those with total cholesterol of ≥ 5.2 mmol/L commenced lipid-lowering drug therapy (all of these had cholesterol level > 6.0 mmol/L).

Patient empowerment in secondary prevention of coronary heart disease

Holt *et al.* Lancet 2000; 356: 314

CONCLUSION

Although patient empowerment led to an increase in cholesterol checks, the action taken by health-care professionals as a result of these checks was poor.

CONCLUSION

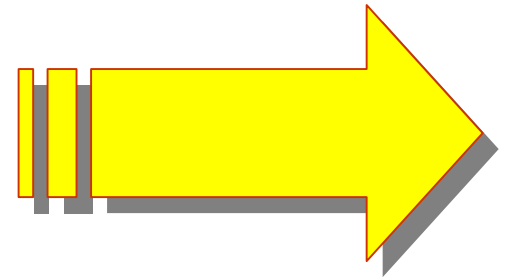
- Until The COACH Program, the only strategies directed at the patient for reducing the treatment gap which were effective allowed the direct prescription of medications.
- Those programs based in behavioural change and health promotion did not reduce the treatment gap.

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

- Training program for patients with CHD
- A hospital-based dietitian or nurse 'coach' trains patients to aggressively pursue the target levels for their particular coronary risk factors while working with their usual doctor(s).
- Coaching emphasises both lifestyle measures and drug treatment.
- Uses the telephone and mailouts (web-based COACH software) to provide regular coaching sessions to patients after discharge from hospital.

**Each coaching session consists
of 4 stages**



1. Education

- finding out what the patient knows
- telling the patient what they should know

- risk factors
- targets
- treatment

2. Empowerment

Patients are persuaded to ask their own doctor(s) for

- a blood test for cholesterol, BP, weight
- the results of their blood tests, BP, weight
- appropriate prescription of medication
- to alter doses if appropriate
- to change a drug if necessary

3. Action Plan

- Negotiating a plan of action with the patient to be achieved by the next coach session.

4. Monitoring at the next coaching session

- Checking if action has taken place since the previous coaching session and then using this information as the basis for the next coaching session.
- Iteration of process (Stages 1 - 4) towards target.

Closing the loop is essential

Patients trained to self-manage their health

Coaching trains patients to
'drive'

the process of achieving and maintaining the target levels for their risk factors while working in association with their usual doctor(s).

THE EVIDENCE

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

Validated by 2 RCTs

1

Vale, Jelinek, Best et al. J Clin Epidemiol 2002; 55: 245-52

Single centre RCT. Primary outcome: TC at 6 months.

Primary result: TC 5.00 mmol/L coached patients vs 5.54 mmol/L usual care patients (P<0.0001)

2

Vale, Jelinek, Best et al. Arch Intern Med 2003; 163: 2775-83

Multicentre RCT. Primary outcome: TC at 6 months

Secondary endpoints: Other modifiable risk factors

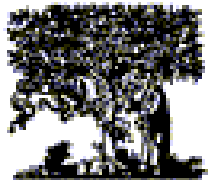


THE EVIDENCE

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

1st RCT of coaching



ELSEVIER

**Journal of
Clinical
Epidemiology**

Journal of Clinical Epidemiology 55 (2002) 245–252

Coaching patients with coronary heart disease to achieve
the target cholesterol:

A method to bridge the gap between evidence-based medicine and the
“real world”—randomized controlled trial

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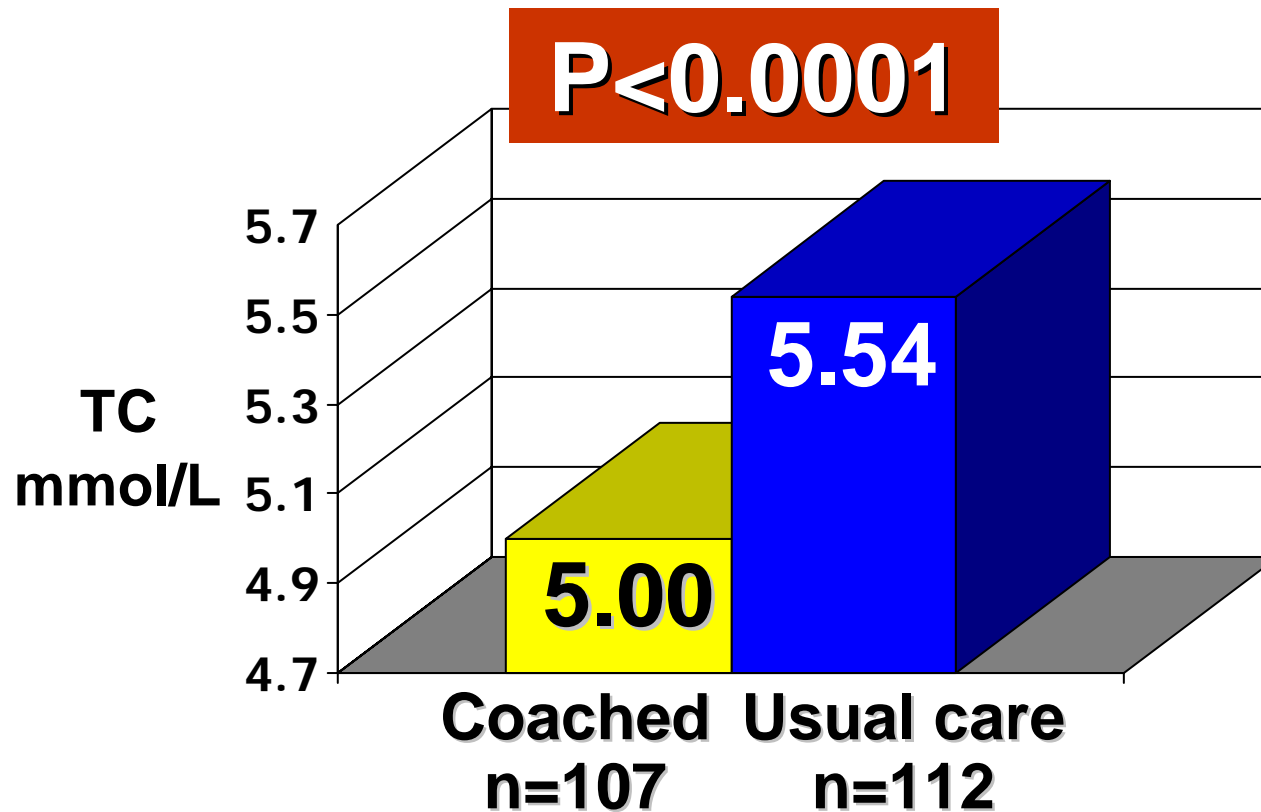
^a*Department of Cardiology, St. Vincent's Hospital, Melbourne, Australia*

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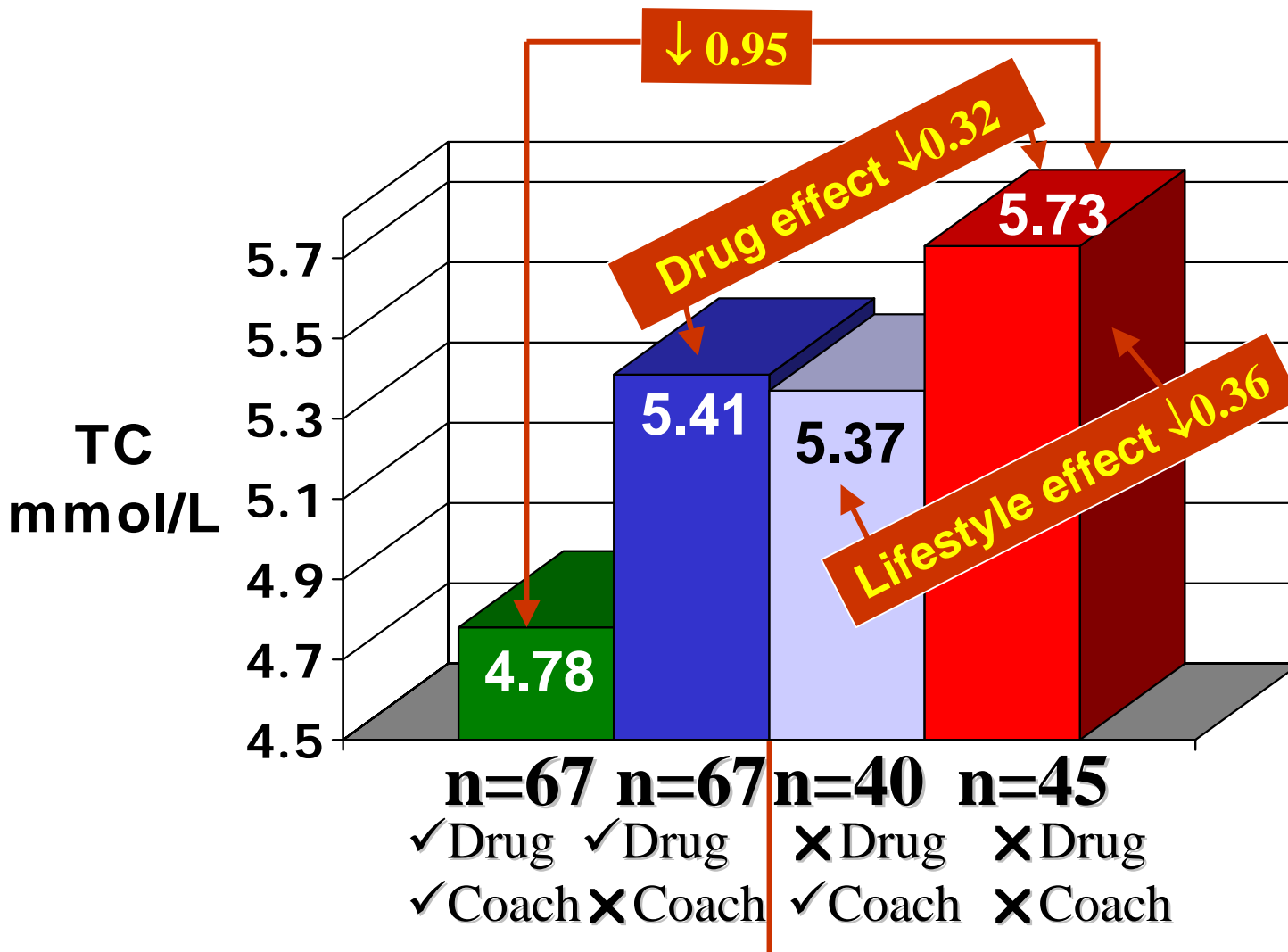
^c*Intensive Care Unit, St. Vincent's Hospital, Melbourne, Australia*

Received 7 March 2001; received in revised form 20 June 2001; accepted 13 August 2001

First 'pilot' study of coaching - single centre RCT
Primary outcome: mean TC at 6 months
***THE COACH NEVER MET THE PATIENTS
FACE TO FACE**



Impact of The COACH Program on Total Cholesterol in both Lipid Drug Therapy & Non-Drug Treated Groups



Next Study: Would coaching work with other health professionals in the role of 'coach' ??



Multicentre randomised trial

Coaching patients On Achieving Cardiovascular Health
- *The 'COACH' Study*

St Vincent's Hospital Melbourne (MJ Vale , MV Jelinek, JD Best)
The Alfred Hospital (AM Dart)
Austin & Repatriation Medical Centre, Heidelberg (D Hare)
Monash Medical Centre, Clayton (B Ho)
Royal Melbourne Hospital, Parkville (LE Grigg)
Western Hospital, Footscray (R Newman)

Dept of Epidemiology & Preventive Medicine, Alfred Hospital (JJ McNeil)

Vale, Jelinek & Best et al. Arch Intern Med 2003; 163: 2775-2783

THE EVIDENCE

THE COACH PROGRAM FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

2nd RCT of coaching

ORIGINAL INVESTIGATION

Coaching patients On Achieving Cardiovascular Health (COACH)

A Multicenter Randomized Trial in Patients With Coronary Heart Disease

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Michael V. Jelinek, MD, FRACP, FACC; James D. Best, MD, FRACP, FRCPath; Anthony M. Dart, DPhil, FRCP(UK);
Leeanne E. Grigg, MBBS, FRACP; David L. Hare, MBBS, DPM, FRACP, FRANZCP; Betty P. Ho, MBBS, FRACP;
Robert W. Newman, MBBS, FRACP; John J. McNeil, PhD(Melb), MSc, FRACP, FAFPHM; for The COACH Study Group

Arch Intern Med. 2003;163:2775-2783

Study Design

792 patients randomised

398 Patients
Usual Care +

**The COACH Program
Intervention**

4 phone coaching sessions
4 written progress reports
6 week intervals

394 Patients
Usual Care
alone

Contacted at 24 weeks
post discharge to arrange
final assessment

**Outcome measures at 6 months
Analysed by intention to treat**

Who were the coaches?

⇒ 2 Dietitians

⇒ 4 Nurses

One coach per hospital

***THE COACHES MET THE PATIENTS IN THE HOSPITAL**

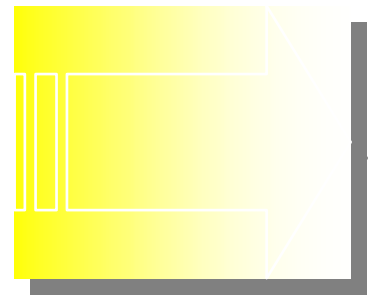
Patients were coached to achieve the following Australian target levels for risk factors

- Total cholesterol < 4.0 mmol/L (155 mg/dL)
- Blood pressure < 140/90 mmHg
- Fasting glucose < 6.1 mmol/L (110 mg/dL)
- Body mass index < 25 kg/m²
- Saturated fat intake ≤ 10% total energy intake
- 30 minutes or more of moderate-intensity activity on most or all days of the week
- Smoking cessation

RESULTS of

The COACH Program

- multicentre study



Medical characteristics at randomisation (in-hospital)- all patients

	Coached (n=398)	Usual care (n=394)	P
Male/Female	79%/21%	75%/25%	0.275
Age, mean(SD)	58.6(10.6)	58.3 (10.6)	0.9486
CARDIAC DIAGNOSIS:			
CABG	42 (11%)	36 (9%)	
PCI	158 (40%)	160 (41%)	0.926
Medical therapy	149 (38%)	150 (38%)	
Cor angio for planned revascularisation	49 (12%)	48 (12%)	

⇒ **All variables equally distributed between the coaching intervention & the usual care groups**

Lipids at randomisation (in-hospital)

Mean (SD)	Coached (n=398)	Usual care (n=394)	P
TC, mean (95%CI)	5.02 (1.18) (n=397)	4.90 (1.13)	0.1356
TG, median (range)	1.6 (0.4-15.0) (n=397)	1.6 (0.4-14.1)	0.8580
HDL, mean (95%CI)	1.10 (0.33) (n=395)	1.11 (0.33) (n=389)	0.8290
LDL, mean (95%CI)	3.09 (0.97) (n=379)	2.95 (0.98) (n=376)	0.0496

Primary outcome (by intention to treat)

Impact of The COACH Program on the *change in total cholesterol level* from baseline to 6 months post-randomisation

Coached (n=398)

↓0.54 mmol/L (21 mg/dL)

Diff ↓0.36 mmol/L

(14 mg/dL)

Usual care (n=394)

↓0.18 mmol/L (7 mg/dL)

P<0.0001

Secondary Outcomes

Impact of Coaching

Positive Impact (P <0.05)	
Δ LDL-C (mmol/L)	↓0.33
Δ Systolic BP (mmHg)	↓4.36
Δ Diastolic BP (mmHg)	↓2.36
Δ Body Wt (kg)	↓0.97
Δ Total Fat (g)	↓4.8
Δ Sat Fat (g)	↓3.1
Δ Cholesterol (mg)	↓15.8
Δ Fibre (g)	↑1.2
Δ STAI (Anxiety)	↓1.1
Δ Taken up walking	↑25%
Δ Chest Pain	↓9%
Δ Dyspnoea	↓10%
Δ Excellent health	↑14%
Δ Excellent mood	↑16%

No Impact	
Δ TG	↓0.02
Δ HDL-C	↓0.02
Δ Glucose	↑0.04
Smoking cessation	↓8%
Δ CDS	↓2.1

At the 6 month evaluation
all patients in the COACH study
including those in the usual care
group were given a 2 hour
information session on risk factor
goals and how to achieve them.

4-YEAR FOLLOW-UP OF THE COACH STUDY

Vale MJ, Sundararajan V, Jelinek MV, Best JD.
Oral presentation at the 77th Scientific Sessions of
the American Heart Association, November 7-10,
2004, New Orleans, Louisiana, USA. *Circulation*
2004; 110: Suppl: III-801.

AIM OF THE FOLLOW-UP STUDY

To study the impact of The COACH Program on:

- * Deaths
- * Subsequent readmissions to hospital with cardiac illness
- * Subsequent beddays in hospital due to
 - cardiac illness or procedures
 - any cause

4-YEAR FOLLOW UP OF THE COACH STUDY

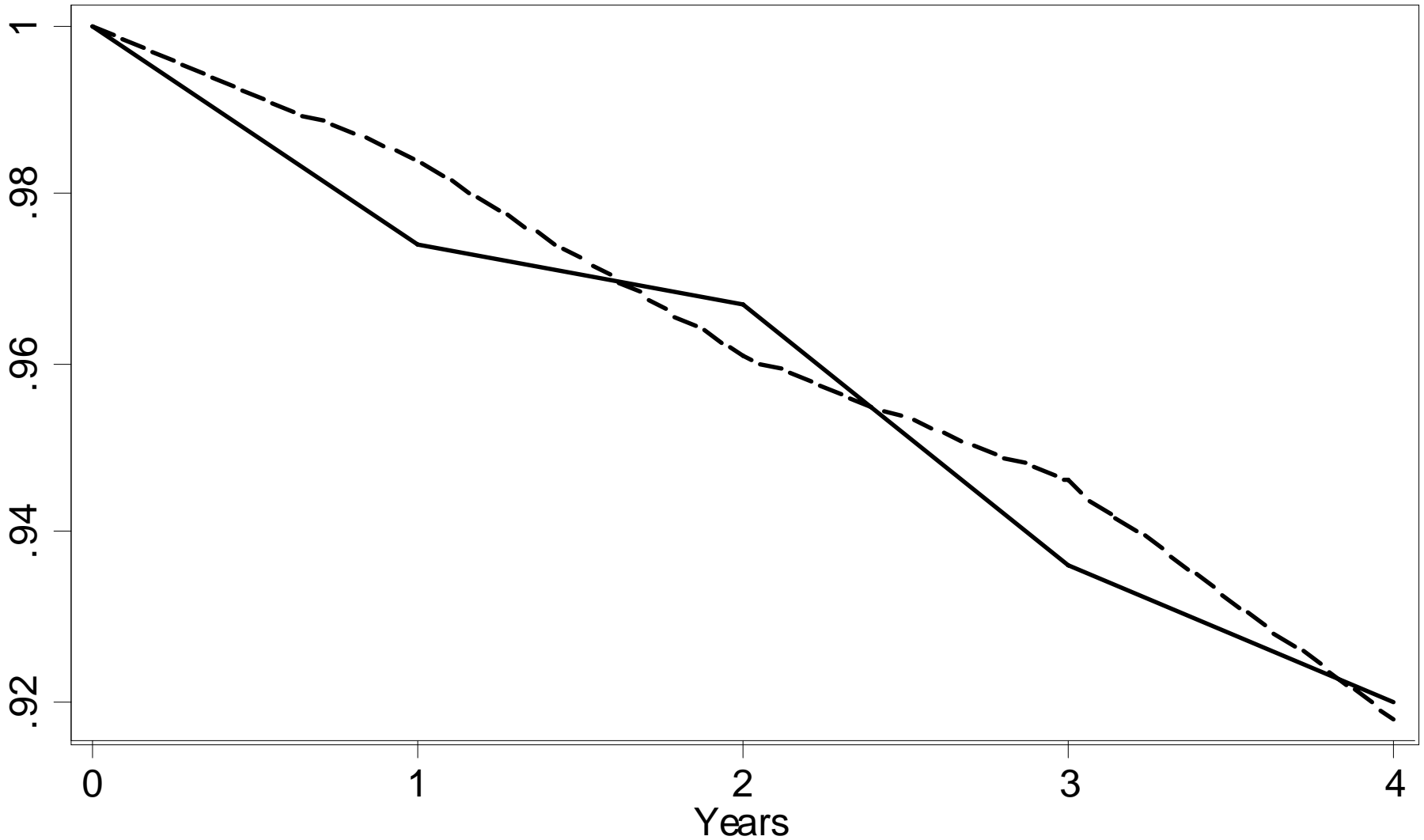
METHODS

- The Epidemiology Unit of the Victorian Department of Health linked the 792 patients in the COACH multicentre RCT to readmissions, beddays and deaths.
- The number of admissions and bed-days were measured from the patient randomisation in 1999-2000 until 30 June 2003 (3.8 years follow-up).
- Survival calculated from randomisation to 31 December 2003.

The definition of cardiac admissions was made by **ICD-10-AM** criteria for cardiac diagnoses
cardiac procedures

DRGs were not used because some cardiac diagnoses and/or procedures were coded under more lucrative non-cardiac diagnoses

THE COACH STUDY: 4-YEAR SURVIVAL



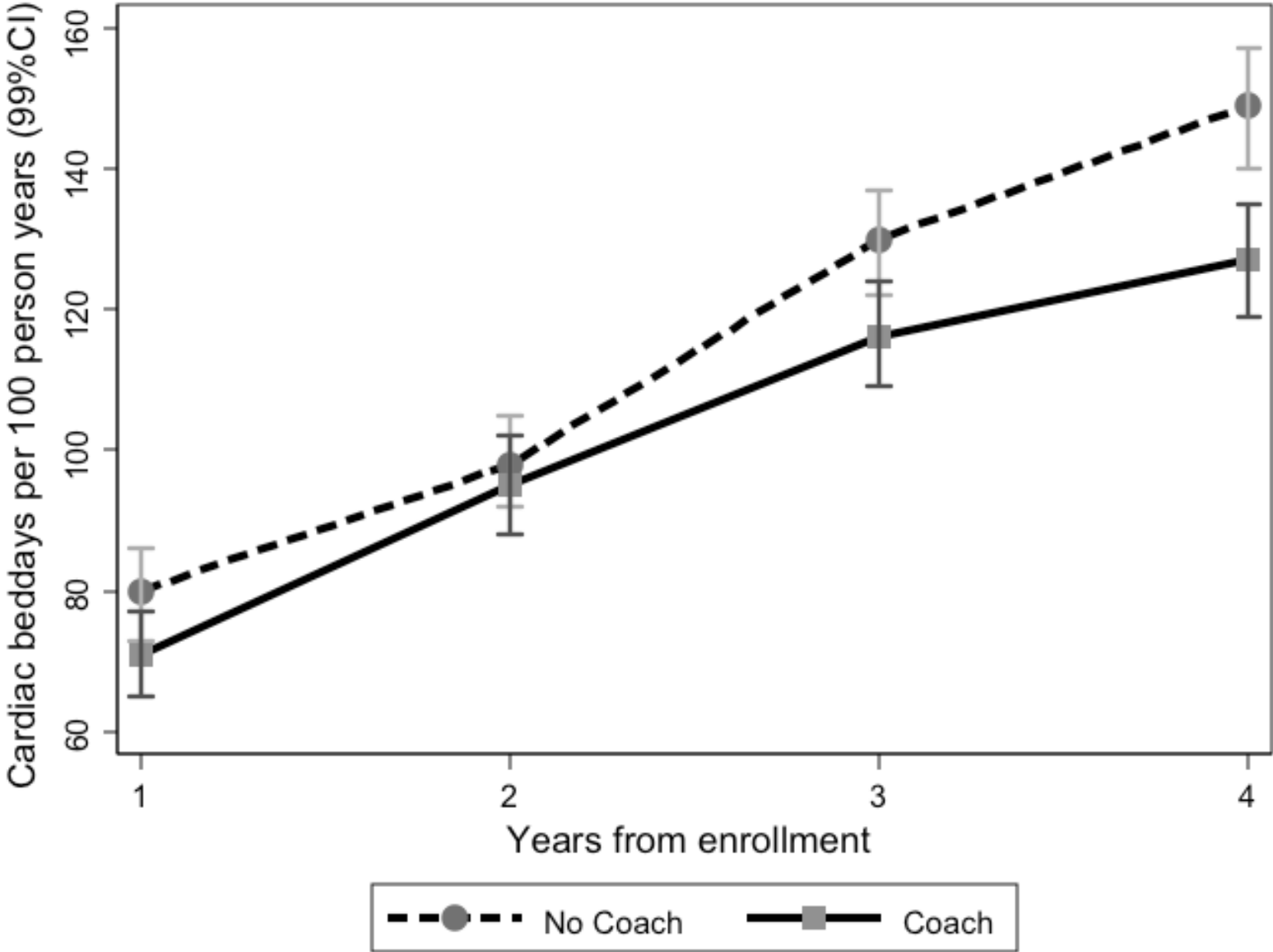
— coach_survival - - - - no_coach_survival

RATE OF EVENTS AT 4-YEAR FOLLOW-UP

Rate per 100 person year (99.99% CI)

	Coached	Usual Care	% Reduction	P
<u>CARDIAC ADMISSIONS</u>				
Cardiac hospitalisations	37(32,41)	42(38,47)	↓12%	NS
Cardiac beddays	127(119,135)	149(140,157)	↓ 15%	<0.01
<u>ALL CAUSE ADMISSIONS</u>				
All hospitalisations	105(98,112)	125(117,133)	↓ 16%	<0.01
All beddays	359(346,373)	448(433,463)	↓ 20%	<0.001

CARDIAC BEDDAYS: Coached vs Usual Care



From Research to Practice

Funded by State Health Departments

The COACH Program Centres

- » St. Vincent's Hospital Melbourne (Jan 2003)
- » Austin Health (Jan 2003)
- » The Royal Melbourne Hospital (Jan 2003)
- » The Alfred (Jan 2004)
- » Melbourne Division of General Practice (Jan 2004)
- » Flinders Medical Centre, SA (August 2005)
- » Repatriation General Hospital, SA (August 2005)
- » Noarlunga Hospital, SA (August 2005)

PROGRAM STRUCTURE

Protocol for the hospital-based COACH Program

Intensive phase of The COACH Program **(usually 6 months)**

- A new position, the 'cardiac coach' exists within the cardiology departments of each hospital.
- Coaches identify patients for enrolment into The COACH Program using cardiology/cardiac surgery admission summaries/ward rounds.
- Coaches recruit patients at the bedside and obtain baseline measurement of coronary risk factor levels and medications.
- The coach initiates contact with the patient within 1-2 weeks post-discharge for the first phone delivered coaching session.

Protocol for the hospital-based COACH Program

Intensive phase of The COACH Program

(usually 6 months)

- Thereafter, the coach contacts patients on a regular basis until the target levels for their risk factors are achieved.
- Maximum time between contacts is 2 months.
- Coaching sessions are documented using web-based COACH software (www.thecoachprogram.com.au).

Patients are sent all documentation with copy to patient's usual doctor(s) and hospital medical record.

- Patients are coached to achieve the target levels for their risk factors as recommended by the NHFA.
- Patients are invited to contact their coach b/w coaching sessions for questions/further information as required.

Protocol for the hospital-based COACH Program

Maintenance phase of The COACH Program

(every 6 months after intensive phase)

- After patients have achieved the target levels for their coronary risk factors, ongoing monitoring and coaching is provided by a maintenance cardiac coach.
- Objective: To maintain the patient's risk factor status achieved at 6 months for the rest of the patient's life.
- Monitoring occurs every 6 months, ongoing.
- If there is relapse of risk factor levels, patients are coached back to the target levels by the maintenance cardiac coach.

Protocol for the community-based COACH Program

- Patients with CHD (secondary prevention) are recruited by:
 - GP referral
 - Medical record search by cardiac coach
 - Patient self-referral.
- New patients contact the coach for an initial assessment.
- There is a one off face-to-face meeting in which the coach obtains baseline measurements of risk factors and details of cardiovascular medications.
- Thereafter, the coach contacts the patients as required via telephone and mailouts as in the hospital-based COACH program.

COACH Program Reports generated by web-based COACH software:

https://www.thecoachprogram.com.au/login.aspx?ReturnUrl=/default.aspx - Microsoft Internet Explorer provided by St Vincent's He

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Recycle Bin Mail Print Send To

Address <https://www.thecoachprogram.com.au/login.aspx?ReturnUrl=%2fdefault.aspx> Go Links

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

Log in to The Coach Program

Username

Password

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Done Internet

COACH Program Reports generated by web-based COACH software: Purpose

For the patient: Reference & reinforcement of coaching.

For the coach: Record for the Coach (CQI).

For the organisation:

- Allows independent audit to assess
 - 1) whether coaching has occurred
 - 2) the effectiveness of coaching
- Allows someone else to 'take over' coaching if necessary.

INTENSIVE PHASE PROGRAM RESULTS

Evaluation criteria

- 1) The number of patients recruited in each centre.
- 2) Proportion of coached patients achieving National Heart Foundation of Australia risk factor targets.
- 3) Proportion of coached patients taking recommended cardiovascular medications.
- 4) The number of coaching sessions conducted within the required timeframe.
- 5) Comparison of the deaths and hospital readmission rate of the coached patients compared with the eligible patients not coached, using data linkage via the Victorian Department of Human Services.

Criteria 1-4 are obtained from The COACH Program software.

Criteria 5 obtained in collaboration with the Health Surveillance and Evaluation Section of the Victorian DHS.

EVALUATION

Enrolment of patients with CHD in 4 hospitals

13 Jan 03 to 31 Dec 05

Eligible patients

Recruited	:	2591 (32%)
Not recruited	:	5608 (68%)
TOTAL	:	8199

Ineligible patients

Too sick	:	1434 (48%)
Poor English	:	1146 (38%)
Others	:	423 (14%)
TOTAL	:	3003/11202 (27%)

EVALUATION: Medical characteristics

13 Jan 03 to 31 Dec 05

(n=2591)

TOTAL

Male	79%
Age (median)	59 yrs

Procedures/Treatments

CABGS	36%
PCI	53%
Post AMI/UAP medical	9%
Post CA for planned elective revascularisation	2%

EVALUATION: Achievement of targets

Patients recruited from 13 Jan 03 & 30 June 05
& followed for 6 months (n = 2360)

In-hospital **6 months**

• TC < 4.0 mmol/L	22%	46%
• TC < 4.5 mmol/L	40%	68%
• BP <140/90 mmHg	58%	65%
• Body mass index <25 kg/m ²	17%	21%
• Waist ≤94 cm M, ≤80 cm F	25%	38%
• Fasting glucose <6.1 mmol/L	62%	77%
• Not smoking	66%	85%
• Walking for exercise	65%	90%

EVALUATION: Percentage of patients taking recommended cardiovascular medications
Patients recruited from 13 Jan 03 & 30 June 05
& followed for 6 months (n=2360)

In-hospital

6 months

• Antiplatelet agents	96%	96%
• Statins	89%	95%
• Beta blockers	70%	68%
• ACE inhibitors/AIIB	64%	75%

Time and cohort effect

- No important deterioration in risk factor status or medications taken from 6 months to 30 months.
- No important differences in 6 month outcomes in 6 monthly cohorts from Jan 1st 2003 to Jan 1st 2005

MAINTENANCE PHASE PROGRAM RESULTS

Maintenance Phase

RISK FACTORS

At
recruit-
ment

End of
intensive
phase

6 mo
after
intensive
phase

12 mo
after
intensive
phase

18 mo
after
intensive
phase

TC < 4.0 mmol/L	27%	59%	53%	51%	53%
TC < 4.5 mmol/L	46%	91%	78%	80%	81%
BP < 140/90 mmHg	71%	95%	90%	88%	88%
BMI < 25 kg/m ²	19%	25%	24%	25%	25%
Waist at target	19%	37%	43%	44%	53%
FBG < 6.1 mmol/L	64%	80%	76%	78%	77%
Not smoking	71%	93%	95%	96%	98%
Walking	68%	94%	91%	89%	90%

Maintenance Phase

MEDICATIONS	At recruitment	End of intensive phase	6 mo after intensive phase	12 mo after intensive phase	18 mo after intensive phase
Antiplatelet	95%	97%	96%	95%	93%
Statins	89%	97%	96%	96%	93%
Beta-blockers	69%	63%	62%	59%	56%
ACE/AIIb	65%	76%	77%	75%	76%

**OTHER DISEASE
MANAGEMENT
PROGRAMS**

DISEASE MANAGEMENT PROGRAMS: (NO PUBLISHED EVIDENCE)

 **THE WEEKEND AUSTRALIAN**

Date: Saturday, 04 March 2006
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Edition: FIRST
Supplement: Health

Market: National
Circulation: 300,531
Published: WEEKLY
Editorial: [email the editor](#)
Item No: P9523214

Prevention works like a charm in cutting costs

Health funds are exploring ways to keep members fitter, and attract them younger, writes **Clara Pirani**

COMMERCIALY AVAILABLE DISEASE MANAGEMENT PROGRAMS

Not supported by published evidence

NHMRC Levels of evidence for clinical interventions and grades of recommendation

Level of evidence	Study design	Grades of recommendation	
I	Evidence obtained from a systematic review of all relevant randomised controlled trials.	A	Rich body of high-quality RCT data
II	Evidence obtained from at least one properly designed randomised controlled trial.	B	Limited body of RCT data or high-quality non-RCT data
III-1	Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).	B	
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group.	B	
III-3	Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series with a parallel control group.	C	
IV	Evidence obtained from case series, either post-test or pre-test and post-test.	C	Limited Evidence
		D	No evidence available –panel consensus judgment*

EVIDENCE-BASED HEALTHCARE

BEFORE & AFTER
STUDIES

(LEVEL IV,
RECOMMENDATION
LEVEL C)

NHMRC Levels of evidence for clinical interventions and grades of recommendation

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III-1	Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).	B	Limited body of RCT data or high-quality non-RCT data
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group.	B	
III-3	Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series with a parallel control group.	C	
IV	Evidence obtained from case series, either post-test or pre-test and post-test.	C	Limited Evidence
		D	No evidence available –panel consensus judgment*

Effects of a medical emergency team on reduction of incidence of and mortality from unexpected cardiac arrests in hospital: preliminary study

Buist *et al.* BMJ 2002; 324: 1-6

- **Design:** Non-randomised, population based study before (1996) and after (1999) introduction of the medical emergency team (MET)
- **Setting:** 300 bed tertiary referral teaching hospital
- **Participants:** All patients admitted to the hospital in 1996 (n=19,317) and 1999 (n=22,847)
- **Interventions:** MET attended clinically unstable patients immediately.
- **Main outcome measures:** Incidence and outcome of unexpected cardiac arrest.

Effects of a medical emergency team on reduction of incidence of and mortality from unexpected cardiac arrests in hospital: preliminary study

Buist *et al.* BMJ 2002; 324: 1-6

- **Results:**

Incidence of unexpected cardiac arrest was 3.77/1000 hospital admissions before intervention and 2.05/1000 admission after intervention ($P < 0.001$)

Mortality was 77% before intervention and 55% after intervention ($P < 0.001$)

Intervention was associated with a 50% reduction in incidence of unexpected cardiac arrest

- **Conclusions:** Early intervention by MET significantly reduces the incidence of and mortality from unexpected cardiac arrest in hospital

EVIDENCE-BASED HEALTHCARE

CLUSTER RCT
(LEVEL III-I,
RECOMMENDATION
LEVEL B)

NHMRC Levels of evidence for clinical interventions and grades of recommendation

Level of evidence	Study design	Grades of recommendation	
I	Evidence obtained from a systematic review of all relevant randomised controlled trials.	A	Rich body of high-quality RCT data
II	Evidence obtained from at least one properly designed randomised controlled trial.	B	
III-1	Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).	B	Limited body of RCT data or high-quality non-RCT data
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group.	B	
III-3	Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series with a parallel control group.	C	
IV	Evidence obtained from case series, either post-test or pre-test and post-test.	C	Limited Evidence
		D	
			No evidence available –panel consensus judgment*

Introduction of the medical emergency team (MET) system: a cluster-randomised controlled trial

MERIT study investigators Lancet 2005; 365: 2091-97

- **Design:** Randomised 23 hospitals in Australia to continue functioning as usual (n=11) or to introduce a MET system (n=12). The primary outcome was composite of cardiac arrest, unexpected death, or unplanned ICU admission during the 6 month study period after MET activation.
- **Findings:**
 - Introduction of the MET increased the overall calling incidence for an emergency team (3.1 vs 8.7 per 1000 admissions, $P=0.0001$).
 - Similar incidence of composite primary outcome in control and MET hospitals (5.86 vs 5.31 per 1000 admissions, $P=0.640$), as well as of the individual secondary outcomes. A reduction in the rate of cardiac arrests ($P=0.003$) and unexpected deaths ($P=0.01$) was seen from baseline to the study period for both groups combined.
- **Conclusion:** The MET system greatly increases emergency team calling, but does not substantially affect the incidence of cardiac arrest, unplanned ICU admissions, or unexpected death.

Stanford Self-Management Programs

Kate Lorig, R.N., Dr.P.H.

Professor, Department of Medicine

Director, Patient Education Research Center

- All of the programs are designed to help people gain self-confidence in their ability to control their symptoms and how their health problems affect their lives;
- Small-group workshops are generally 6 weeks long, meeting once a week for about 2 hours, which are led by a pair of lay leaders with health problems of their own. The meetings are highly interactive, focusing on building skills, sharing experiences and support.

Stanford Self-Management Programs

Kate Lorig, R.N., Dr.P.H.

PROGRAM CONTENT

- Exercise
- Use of cognitive symptom management techniques;
- Use of medications;
- Dealing with fear, anger and depression;
- Communication with others including health professionals;
- Problem solving and decision making

Stanford Self-Management Programs

Kate Lorig, R.N., Dr.P.H.

MAJOR ASSUMPTIONS

- Patients with different chronic diseases have similar self-management problems and disease-related tasks;
- Patients can learn to take responsibility for the day-to-day management of their disease(s);
- Confident knowledgeable patients practising self management will experience improved health status and will utilise fewer health care resources
- Patient self-management education should be cheap and widely available;
- Trained lay persons with chronic conditions could effectively deliver a structured education program;
- Such lay instructors would be acceptable to patients and health professionals

Lorig has attempted to validate her program in 1 RCT – claims reduced hospitalisation

Medical Care 1999; 37: 5-14

- **RCT** of 1140 patients with various chronic disease of whom 952(83%) completed the 6 month study.
- **Entry criteria:** Non terminal chronic conditions;
- **Randomisation:** “Serial” with 6:4 treated to control subjects;
- **Outcomes:** Health behaviours, status, and service utilisation – 19 endpoints;
- **Blinding:** Data collection by people unaware of treatment status

Stanford Self-Management Programs:

Lorig *et al.* *Medical Care* 1999; 37: 5-14

RESULTS

- **Health behaviours**

All 7 behaviours improved at $P < 0.005$

- **Health status**

4/9 measures improved at $P < 0.005$

- **Health service utilisation**

MD and ED visits $P = 0.11$

Hospital admissions $P = 0.047$

Nights in hospital $P = 0.01$

Stanford Self-Management Programs: Lorig *et al.* *Medical Care* 1999; 37: 5-14 **CRITIQUE**

- For a RCT the primary endpoint should determine the sample size.
- Lorig presented 19 endpoints, none of which was a primary endpoint and none of which determined the sample size of the study. Therefore, any one endpoint is not statistically significant unless it occurs with $P < 0.003$ [$0.05/19 = 0.003$]
- By these criteria, self-management did not impact significantly on any health services utilisation.

The COACH Program

- Transferability to
other disease groups

THE COACH PROGRAM

FOR THE SECONDARY PREVENTION OF CORONARY HEART DISEASE

The COACH Program represents an attractive adjunct to the management of other related chronic conditions in addition to CHD:

Chronic conditions

Cerebrovascular disease (stroke)

Peripheral vascular disease

Heart failure

Diabetes

COPD

Surrogate targets

NHFA risk factor targets

NHFA risk factor targets

Daily weight, fluid intake, medications

Random glucose,
3 monthly HbA1c measures

Regular measurements of
exercise tolerance

The COACH Program can be applied to any chronic condition which can be monitored for its progression using simple surrogate disease markers.

These chronic conditions above can be monitored by means of the achievement of specific targets for disease indices.

Distinguishing features

- First published program of coaching for the prevention of chronic disease in the world
- Evidence-based with two published RCTs- 10 years of research
- The coach initiates contact with the patient/client
 - non-attendance is not an issue
- Inexpensive at **\$A150** per patient.