General Practice & Primary Health Care Research Conference

Evaluation of Primary Care Interventions Maximising Learnings from New Initiatives

Dr Leonie Segal*
Deputy Director
Centre for Health Economics
Monash University

Brisbane June 2004

*leonie.segal@buseco.monash.edu.au

1

Condundrum

Increasing expenditure on health care

But

- **Health care not best practice**
- **Health service mix sub-optimal**
- **Clinical practice and resource allocation not responsive to evidence?**
- **Behaviours influenced by marketing of companies and professional bias**

Example - Management of CHF

- **Ace inhibiters in CHF → sign. ↓ in deaths (1987)**
- **Also C-E @ <$10,000/LY saved.**

But Management in 2002:

- **33 - 58% patients with CHF on ACE inhibitors**
- **42% referred to cardiologist within last 3 years**

Source: * BEACH data. SAND abstract 38, AIHW GP Stats & Classification Unit, 2003; CASE

2

Other issues

- **Substantial inequalities in access to health care and in health outcomes**

→ **Substantial unrealised opportunities to improve health of the community**

If **Redirect $1m from services cost $100,000/QALY to $10,000/QALY gain 9 LYs**

Given limited resources for evaluation resources

- **How ensure research contributes to improved health ?**

3

How to maximise learnings

1. **Ask the right questions**
2. **Conduct quality evaluation**
3. **Conduct quality analysis**
4. **Distribute findings**
5. **Pursue Mechanism for change**

Example of functional system: US VHA

4

I Ask the right questions

Role for pure research

But also Policy relevant research

- **not as highly regarded?**
- **constrained by**
  - **political agendas**
  - **sources of funding**
  - **whether Q easy to answer**

→ **Establish research program as part of implementation and evaluation feedback loop**

5

Ask right questions

- ❑ **Ensure scope valid does not constrain type of answer**
- ❑ **Consider cost-effectiveness as well as effectiveness**
- ❑ **Research issues of implementation, and mainstreaming as well as efficacy**

6

Example 'wrong?' question→ distort outcomes

Too narrow scope: Eg PBAC mandate

Drugs only evaluated against other drugs

+ Open-ended funding

→ Supports new drugs on PBS

→ ↑ drug use and costs

But

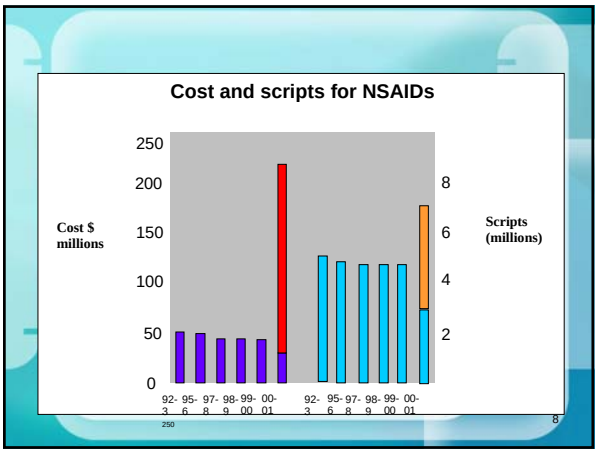
- What of other approaches to management or prevention?

Alternative approach: Priority setting across modalities and disease stages.

Eg OA - consider

- Exercise/strength training,
- Hip replacement
- Education
- Prescription drugs
- Natural therapies

7



8

II Conduct Quality evaluation

- To enable research Q to be answered.

Select suitable evaluation model

- RCT
- Matched control, random selection
- Before/after – 'own control' random selection
- Before/after – naturalistic
- Clinician judgement
- Theory driven evaluation

9

I RCT – doubled blinded

Gold standard to establish program performance

Controls for:

- Other influences on outcomes
- Self selection bias
- Placebo effect – if no control wrongly attribute all change to the program.

But:

RCT often not used. Why?

1. 'know' intervention works
   - But evidence or marketing, professional bias ?
   - context transferable ?

10

Why not use RCT?

- Can't deny care that works?
- Can't set up randomised control that represents usual care. Management protocol, participants contrived
- Can't blind participant or clinician → source of bias.
- How randomise system wide/population-based interventions?
- Capacity for long term follow-up? High cost, drop out, retain distinction between arms

11

2. Matched control random selection

Eg by geographic area

- reduce possible contamination of service provider offering treatment to control patients,
- Increases number intervention patients with provider

But

- client groups not match on important parametres → confounding
- Other factors differ; eg access to services

12

RCT cf matched control

Sign. diff. control & intervention groups

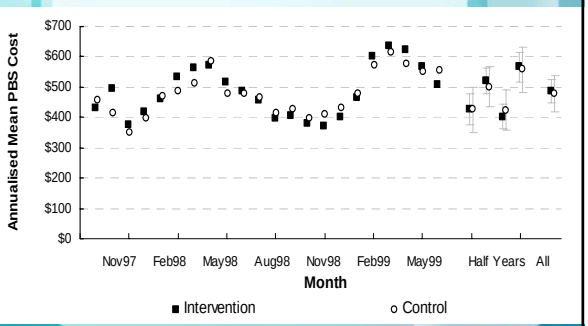
Example: National CCTs

Attribute	RCT n=6	Area control n=6
age		***
gender		**
Australian born		***
ATSI		*
English spoken at home		**
marital status	*	****
needs a carer		*****
employment status		**
living arrangements		**
health care card holder		***
receives a pension		***
no private health insurance		**
SF -36 PCS		***
SF-36 MCS		**

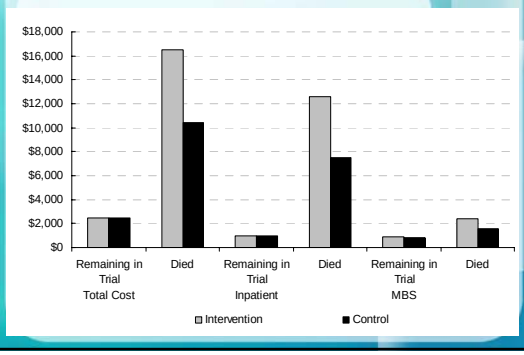
* Sign. Diff. in populations at baseline x n of trials

13

SHCN CCT: PBS admissions - mean cost $ per intervention & control group participant



SHCN CCT: Mean cost per equiv. participant year. Intervention & control



3. Before/after ie 'own control' random selection

Confounders – How attribute change

But:

- **Combine with qualitative research,**
- **Good understanding of theory**
- **Knowledge of natural history**

4. Clinician judgement

- **Unreliable**
- **Lack of quantitative evidence**
- **Subject to professional bias**

16

5. Before after (matched control?) – naturalistic

- **Major problem with self selection.**

But

- Can achieve extensive follow-up
- Can seek matched control
- Can make conservative assumptions

Example: Helman et al; diabetes 'trial' 14 year follow-up. Found 20-40% redn in all-cause mortality with Comprehensive care cf usual care.

Extend opportunity for naturalistic experiments with LT follow-up through single patient identifier

17

6. Theory driven evaluation:

Tasks

- **How is the program meant to work – What is the underlying theory?**
- **Does the trial design reflect the theory?**
- **Was the trial implemented as intended?**
- **What outcomes were achieved – process and final?**
- **How did outcomes relate to expectations?**
- **If program worked/didn't work Why?**

18

Suitable for complex interventions with system wide impacts

Also formative evaluation/action research to improve the intervention

Can be combined with RCT

19

Use of Theory driven evaluation SHCN CCT Was the Trial Implemented as intended?

Time GPs spent developing care plan and implementing risk assessment tool

	High & medium-risk patients (n=177)	Low-risk patients (n=236)
Less than 15 minutes	3%	46%
15 minutes and up to 30	46%	41%
30 minutes and up to one hour	47%	12%
One hour or more	4%	1%
Total	100%	100%

20

Comment re Evaluation models

Adopt RCT where-ever possible

Ensure sufficient time for planning, Implementation and follow-up

21

Information Collection

Consider Cost-Effectiveness

Health end points

- Major health events: stroke, AMI, amputation
- Quality of life: utility score, SF-36
- Death: life years

Intermediate outcomes: relate to final health endpoints - eg behaviours, clinical parametres

22

Information collection

Costs

- of intervention
- potential cost savings through disease modification
- of side effect profile
- on others – eg family members

Extend follow-up

23

Key principles:

- Ensure data collection can answer research question
- Collect data as close to final health end points as possible
- Maximise follow-up period
- Maximise numbers, minimise drop-out.
- Consider direct patient/participant recruitment – be aware of selection bias

24

III/IV Analysis/Input findings to policy process

- Consider efficacy, cost-effectiveness, implementation issues, embedding successful experiments

Concerns:

- Independence of research?
- Constraints on publishing trial results?
- Access to data?
- Sufficient funding for analysis?

25

Support research policy interface

Through

- Engage stake holders at start – but limit scope?
- Ensure address current policy question – but impose unrealistic time constraints
- Ensure rights to publish results – but constituency make want control?
- Report relevant information Eg ARR

26

Report ARR not simply OR

Absolute risk reduction = Δ end point/100

	Scenario A	B
Deaths		
• placebo	5%	20%
• intervention	2%	15%
OR	0.4	0.75
ARR	↓3%	↓5%
Number treat to avert 1 death	33 (100/3)	20 (100/5)

27

IV Mechanisms for change

Financing reform:

Make system more responsive & equitable

- Single fund holder + allocate health funds to populations
- Strengthen universal cover
- Adjust MBS to support certain services Eg EPC
- Expand scope of core services
- Adjust means to pay for health care
  - Salaried
  - Capitation via enrolled clients

28

How to achieve change

Information

- Inform and empower citizens and patients
- Inform providers, encourage referral, extend use of IT
- etc.
- Support lobby for change

29

Mechanisms for change

Health services planning

- Economic evaluation to determine optimal health service mix
- Priority setting at regional level
- Manpower planning
- Determine allied health requirement to deliver best practice care for chronic diseases

30

Example: USA VHA System

Policy driven research that incorporates all elements for success

Ref Kizer et al 2000

31

US VHA – how to maximise learnings from research

key elements:

1. **Detailed accountability system** – regions responsible to meet performance targets
2. **Comprehensive IT system** – for patient care, accountability, research
3. **Involvement of stakeholders**
4. **Single fundholder & LT responsibility**
5. **Capacity to implement change**; via
   - Direct service delivery (Eg fund '00s of Ambulatory Care, Drug & alcohol Centres)
   - Control clinician training

32

6. quality assurance program supported by research outcomes

Disease based quality assurance program

- **Set up disease expert working parties**
- **Define best practice care**
- **Establish departures from best practice**
- **Determine how best to modify practice**
- **Implement changes**
- **Monitor impact on health**

If don't have answers fund research to get them.

33

National Surgical Quality Improvement Program (NSQIP)

Actions

- **Develop quality indicators/benchmarks,**
- **Collect prospective data on surgical procedures and risk adjusted outcomes**
- **Monitor/feedback on performance to VA hospitals**
- **Develop programs to improve outcomes in facilities that perform poorly.**
- **Collaboration of heath policy makers, health services researchers, surgeons at VA facilities.**

Results 1994-5 to 1997-8

- **30%↓ 30-day post-surgical morbidity,**
- **9% ↓ 30-day post-surgical mortality**

34

1 year risk adjusted death rates. VA patient cohorts

Disease group	1992-3	1998-9	% change
Renal failure	25.6%	18.6%	- 27.3%
CHF	23.3%	16.9%	- 27.5%
chronic obstructive pulmonary disease	15.0%	11.5%	- 23.3%
Pneumonia	17.8%	10.7%	-39.9
diabetes	5.3%	5.2%	no change
angina	4.0%	3.2%	- 20%
major depression	1.9%	1.7%	- 10%
schizophrenia	1.8%	1.8%	no change
bipolar disorder	2.0%	1.5%	-25%

35

Substantial gains achievable

- **If take role of research seriously**
- **Invest heavily in data collection, analysis & evaluation**
- **Accountability/monitoring processes to support adoption of best practice**

36