Translating Evidence into Practice
A Workshop on Heart Failure

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National Institute of Clinical Studies & New Zealand Guidelines Group
Workshop objectives

- Increase your understanding of the science (and art) of evidence implementation
- Practice developing an implementation plan - using heart failure as an example
Overview of workshop

1. Identify gaps in practice
   – Look at known gaps in heart failure

2. Understand barriers to best practice
   – Identify barriers in heart failure practice (breakout)

3. Understand implementation strategies
   – What works well & what doesn’t

4. Tailor interventions to overcome barriers
   – Design heart failure implementation plan (breakout)
Identifying gaps in practice

• Look at the evidence about best practice
• Look at the evidence about current practice
• Characterise the gaps
Look at the evidence about best practice

- Strength of the evidence
- Aspect of care studied:
  - Assessment/diagnosis
  - Therapeutic management
  - Secondary prevention
- Patient group studied
- Clinician group studied
- Setting studied
a guideline for the management of heart failure

health professionals guide
december 2001
A Grade evidence for effective therapy

- **ACEIs**
  - reduce morality 31% NNT=7-20
  - reduce hospital admissions 10%

- **BETA-BLOCKERS**
  - reduce mortality by further 35%
  - NNT15-25 1yr
  - reduce hospital admissions

- **Spironolactone**
  - reduces death and hospital admission by 20%( 2 yrs)
  - NNT=11
Balance sheet for using ACEIs 4yrs:
86% of avoided admissions occur yr 1

<table>
<thead>
<tr>
<th>End Point</th>
<th>Per 100 individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Months of life gained</td>
<td>190</td>
</tr>
<tr>
<td>Deaths Avoided</td>
<td>30</td>
</tr>
<tr>
<td>Hospitalisations avoided</td>
<td>34.65</td>
</tr>
<tr>
<td>Hospital costs other medical costs avoided</td>
<td>$171616</td>
</tr>
<tr>
<td>Additional drug, dispensing and medical practitioner costs with use ACEIs</td>
<td>$106451</td>
</tr>
<tr>
<td><strong>Nett Savings</strong></td>
<td><strong>$65165</strong></td>
</tr>
</tbody>
</table>

Note: using 1993 dollar figures
Look at the evidence about current practice

• Look for published studies on current practice

• Analyse the data:
  • sample size
  • clinical setting
  • country/health care system
  • year of publication
  • aspect of care studied
Characterise the type of gaps

- Under/over use of drugs
- Under/over use of tests/procedures
- Underuse of assessments
- Underuse of education/advice
- Underuse of preventive measures
- Suboptimal use of drugs
Gaps identified in HF practice

- Under use of echocardiography
- Under use of ACEI
- Suboptimal doses of ACEI
- Under use of beta-blockers
- Other gaps not covered – lack of data on current practice
Under use of echocardiography

• All patients suspected of having heart failure should have an echocardiogram
  – NHFA/CSANZ HF Guidelines 2001; Level of Evidence: EO

• In previously diagnosed HF, 64% had had echos, but only 22% of possible HF had echos requested by GPs
  – CASE study, MJA 2001; 174: 439

• Echos were used to diagnose HF in 69% of HF patients; GPs ordered 19% of echo tests
  – SAND abstract No.38 from BEACH program 2002-2003
Under use of ACEI

• ACE inhibitors are recommended for all severities of systolic heart failure
  – NHFA/CSANZ HF Guidelines 2001; Level I Evidence

• 58% of heart failure patients were receiving ACE inhibitors
  – CASE study, MJA 2001; 174: 439

• 32% of heart failure patients were receiving ACE inhibitors
  – SANDS study, Abstract 38 from the BEACH program 2002-2003
Suboptimal doses of ACEI

• All heart failure patients should be on highest tolerated doses of ACE inhibitors
  – NHFA/CSANZ HF Guidelines 2001; Level II Evidence

• ACE inhibitor dosage was optimised in 9% of heart failure patients
  – CASE study, MJA 2001; 174: 439 (Study conducted in 1998)
Under use of beta-blockers

• All systolic heart failure patients on ACE who remain symptomatic should be on beta-blockers
  – NHFA/CSANZ HF Guidelines 2001; Level I Evidence

• 6% of heart failure patients were found to be on beta-blockers approved for heart failure*
  – CASE study, MJA 2001; 174: 439

*these were restricted to specialists at the time of the study
Audit of General practitioners in Auckland 1999

Percent of patients receiving medication in 1999

- ACE inhibitor
- Loop diuretic
- Spironolactone
- Cardiac glycoside
- Beta-blocker
Baseline Case Study: Target doses cilazapril

- 5mg: 35%
- 2.5mg: 5%
- 5-10mg: 5%
- 10mg: 5%
Under use of beta-blockers

- All systolic heart failure patients on ACE who remain symptomatic should be on beta-blockers
  - NHFA/CSANZ HF Guidelines 2001; Level I Evidence

- 6% of heart failure patients were found to be on beta-blockers approved for heart failure*
  - CASE study, MJA 2001; 174: 439
  - * these were restricted to specialists at the time of the study
Case Study
Describe dose schedule for Beta-blockers

![Bar chart showing dose schedule for Beta-blockers](chart.png)
Understand barriers

Barriers at different levels:

• Consumers
• Clinicians
• Systems
How do you find out about barriers?

• Look at published literature on barriers
• Look at factors at different levels
• Do a needs assessment:
  – Assess people’s perceptions
  – Assess people’s knowledge
  – Look at/commission performance data
  – Look at patient outcomes
# Force field Analysis

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**Driving Forces**: Forces that are pushing the system in one direction.

**Restrainting Forces**: Forces that are holding the system back from moving forward.
### Force field Analysis

**Driving Forces**
- Improved Survival
- Evidence based and cutting edge

**Restrainting Forces**
- More pills!
- More side effects.
- Can I manage this safely?
- Time consuming
- Counter to previous training. What do I do?

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Breakout on barriers

- Three groups to identify HF barriers:
  - Group 1: barriers for patients & their families and carers
  - Group 2: barriers for clinicians (in hospitals or in general practice)
  - Group 3: health care system barriers
Report back from groups

• Summarise main issues from:
  – Group 1: patients/consumers
  – Group 2: clinicians
  – Group 3: systems
GP barriers identified*

- **Diagnosis:**
  - Patients in the early stages
  - Patients with co-morbidities
  - Lack of specificity of HF symptoms

- **Use of echos:**
  - Not convinced of the benefits
  - Access to services/patient mobility
  - Not warranted in obvious cases

*Phillips SM et al MJA 2004; 181: 78-81
GP barriers identified (cont’d)

• Use & dose of ACEI:
  – Concerns about side effects
  – Not convinced of the benefits of higher doses
  – Reliance on other forms of treatment

• Use of beta-blockers:
  – Concerns about side effects & contra-indications
  – Difficulties with co-morbidities
  – Initiating use in community setting
  – Previously contra-indicated
What do we know about implementation strategies?

There is **no single** strategy that will work for all behaviours, individuals, settings, systems or organisations.
Methods and models for change

- CPD
- Problem based learning
- Opinion leaders
- Educational outreach
- E.B. Guidelines
- Audit & feedback
- Decision support
- Patient mediated
- Mass media marketing

- Business Process redesign
- Total Quality Management
- Accreditation & certification
- Public reporting, physician profiling
- Financial incentives/sanctions
- Etc etc etc
## Observed effect of cluster randomised trials of implementation

<table>
<thead>
<tr>
<th>Intervention</th>
<th>No of Cluster randomised Trials</th>
<th>Median effect size</th>
<th>Range of effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed educational materials</td>
<td>5</td>
<td>+8.1%</td>
<td>+3.6%, +17%</td>
</tr>
<tr>
<td>Audit and feedback</td>
<td>5</td>
<td>+7.0%</td>
<td>+1.3%, +16%</td>
</tr>
<tr>
<td>Reminders</td>
<td>14</td>
<td>+14%</td>
<td>-1.0%, +34%</td>
</tr>
<tr>
<td>Multifaceted incl outreach</td>
<td>13</td>
<td>+8.6%</td>
<td>-4%, +17%</td>
</tr>
</tbody>
</table>
Tailor interventions to identified barriers

- Lack of knowledge:
  - Interactive education
  - Guidelines/Decision aids

- Perception/reality mismatch:
  - Audit & feedback
  - Reminders

- Lack of motivation:
  - Incentives/sanctions
  - Leadership

- Beliefs/attitudes:
  - Peer influence
  - Opinion leaders

- Systems of care:
  - Process redesign
Breakout on strategies for overcoming barriers

• Three groups to design strategies for overcoming barriers at the level of:
  – Group 1: patients
  – Group 2: clinicians (hospitals or GPce)
  – Group 3: systems
Report back from groups

• Summarise strategies from:
  – Group 1: patients/consumers
  – Group 2: clinicians
  – Group 3: systems
Examples of HF implementation strategies

- HeartCare program-ProCare
- NICS HF program
Strategies Used in “Heart Care” Project

- Clinical (opinion) Leadership
- Decision support
  - GPs – guideline and algorithm
  - Patient resources:
    - information on lifestyle, medication and “action plan” for day to day and emergency actions
- Training: small groups doctors and nurses
“Heart Care” Strategies 2.

- Additional Resources
  - Echocardiograms
  - Extra time with patient
  - Patient resources (information/action plan)
  - Rapid access to a cardiology consultant advice
  - Funding for beta blocker titration
  - Cardiac nurse specialist
  - 24 hour Telephone triage

- Feedback
Results:
Follow-up Case Study: Target dose of cilazapril

Diagram: Target dose 5mg cilazapril
F/U Case Study: Beta-blocker initiation

- 23mg, doubling dose every 2 weeks
- 1/2 23mg, double every two weeks
- Refer for gradual uptitration of dose

% response
Prescribing data

Prescrib

Prescription data

1999 87 84 7 43 9
2003 81 82 24 13 35
# ACEI Dosing

<table>
<thead>
<tr>
<th>DRUG</th>
<th>Number</th>
<th>Percent</th>
<th>Total Mg</th>
<th>Average</th>
<th>Optimal</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cilazapril</td>
<td>130</td>
<td>32%</td>
<td>426.5</td>
<td>3.28</td>
<td>5</td>
<td>66%</td>
</tr>
<tr>
<td>Captopril</td>
<td>25</td>
<td>6.50%</td>
<td>1150</td>
<td>46.00</td>
<td>100</td>
<td>46%</td>
</tr>
<tr>
<td>Quinapril</td>
<td>50</td>
<td>14%</td>
<td>735</td>
<td>14.70</td>
<td>20</td>
<td>74%</td>
</tr>
<tr>
<td>Enalapril</td>
<td>55</td>
<td>13.50%</td>
<td>445</td>
<td>8.09</td>
<td>20</td>
<td>40%</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>10</td>
<td>4%</td>
<td>155</td>
<td>15.50</td>
<td>20</td>
<td>78%</td>
</tr>
</tbody>
</table>
Patients enrolled 2004

![Bar chart showing the percentage of patients on ACEIs and Beta-blockers in 2004. The chart indicates a higher percentage of patients on ACEIs compared to Beta-blockers.]
CMDHB : one year

- % ACE
- % Beta-blocker
- % Spironolactone
NICS heart failure program

A multifaceted program aimed at improving:

– assessment & diagnosis
– pharmacological management, and
– patient self-management

through multiple interventions aimed at overcoming barriers to best practice at the level of:

clinicians and policy makers
What are the barriers?

• Consumers:
  – Access to quality patient health information
  – Support for improved patient self-management, particularly post-discharge

• Clinicians:
  – Diagnosis in the early stages & appropriate use of echos
  – Initiation and up titration of ACE Inhibitors & beta-blockers
  – Avoidance of NSAIDs

• Policy makers:
  – Awareness of heart failure as a priority
  – Heart failure prevalence study & minimum dataset
  – Mechanism for funding comprehensive care programs
NICS HF Program initiatives

• Improving access to quality patient health information:
  – NICS Online directory of quality HF patient information

• Engaging funders and policy makers
  – Heart Failure Forum 2004: Improving Outcomes in Chronic Care
    • Go to [www.nicsl.com.au](http://www.nicsl.com.au) Projects Heart Failure Program

• Enhancing clinician knowledge and decision making in the diagnosis and management of heart failure patients in primary care
  – Joint Heart Failure Initiative
The Joint Heart Failure initiative

• A unique partnership between the National Prescribing Service, the Heart Foundation of Australia, and the National Institute of Clinical Studies
• Over 40 Divisions of General Practice participating
• CSANZ & IMSANZ support
• Materials developed with NHFA/CSANZ HF Guidelines Writing Group
• Program runs from Oct 2004-Dec 2005
Mix of tailored interventions

• Targeted print materials on key messages
  – HF Newsletter
  – HF Prescribing Practice Review
  – Quality HF patient education materials
• Academic detailing
• Interactive small group discussions on HF diagnosis
• Case study meetings on HF drug
treatment of local specialists
Joint program key messages/1

- Confirm diagnosis and exclude other correctable causes (e.g. aortic stenosis)
- Review initial drug treatment once you have confirmed diagnosis
- Ensure patient understanding of condition and treatment goals
- ACE inhibitors are still underutilised – use ACE inhibitors in all grades of systolic heart failure
- Reserve angiotensin II receptor as an alternative where ACEI intolerant (e.g. cough)
• Use selected beta-blockers in stabilised systolic heart failure (as an add-on to ACEI and diuretic) (carvedilol, bisoprolol or metoprolol SR)

• Titrate ACE inhibitors and selected beta-blockers carefully and slowly to the highest tolerated dose for maximal survival benefit and symptom improvement.

• Avoid commonly used drugs which exacerbate heart failure (e.g., NSAIDS).
Summary

• Introducing evidence into routine daily practice is difficult
• No one approach for transferring evidence to practice is superior
• Understand attributes of evidence and barriers
• Tailor interventions at overcoming specific barriers at different levels
• Monitor progress and measure success
National Institute of Clinical Studies &
New Zealand Guidelines Group

Helping close important gaps between evidence & practice

Thank you