

Results of Three Randomised Controlled Trials of Telephone Self-management

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Agenda

1. Chronic Disease and Self Care
2. A Solution via Health Call Centre and Online
3. What does the Data Reveal – Evaluation

Why do we manage Chronic Disease so poorly?

- 50% of people with Chronic Disease have not been told about treatment options¹
- 25% do not have Care Plan¹ (Australia > 60%)²
- 50% do not have a Self-Care Plan¹ (Australia > 75%)²
- 50% Medicines are not taken as intended¹

1 Source: NHS 2008

2 Source: McK internal data

What is Self-Care?

- A decision-making process involving...
 - the choice of behaviours that maintain physiological stability (*self-care maintenance*) and
 - the response to symptoms when they occur (*self-care management*)

Riegel, Carlson, Moser, et al 2004

Poor Self-Care: Worldwide Issue

Germany *(Micahelson et al, 1998)*

- Most common factor associated with readmission
 - 41.9% non-adherent with medicines or diet

India *(Joshi et al, 1999)*

- Most common cause of hospitalization (49%)

Italy *(Opasich, et al, 2001)*

- Most common cause of decompensation (60%)

Switzerland *(Wagdi, 1993)*

- Common cause of decompensation (47%)
 - 31% non-adherence with medicines, 9% with sodium, 7% with fluid restriction

Medical Training not Chronic or Self-Care Focused

- Physician preparation (feel unsure or not prepared):
 - Co-ordinate in-home and community services (66%)
 - Educate patients with chronic conditions (66%)
 - Manage the psychological and social aspects of chronic care (64%)
 - Provide effective nutritional guidance (63%)
 - Manage chronic pain (63%)

Source: Johns Hopkins University, Partnership for Solutions, National Public Engagement Campaign on Chronic Illness -- Physician Survey. Conducted by Mathematica Policy Research, Inc., 2001

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Nurse coaching model in Health Call Centre

Members identified through hospital claims data (+ HRA / GP / self)



Written offer to join program (Opt in / Opt out model)



Member details transferred to health call centre



Phone based Enrollment and Assessment (RN)



Risk stratification > Determines intervention level



12 month intervention
Review at 6 and 12 months

Linking in with GPs

- Pre-enrolment provider mailing to inform GP of program capabilities, engage in process
- Patient collaboration with GP / action plan and further enhance goal setting and awareness of risk factors
- Post-enrolment mailings are patient-specific reports to keep the GP informed of the patient's progress (collaboration)



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Medibank Private RCT #1: Methods: Intention to Treat

- **Evaluation and study design by Monash University**
- Strength of randomised design is that 2 groups are comparable
- Subject and controls had had a previous admission in 12 months prior with index condition
- Drop outs or voluntary cross over do not occur at random
- The only fair comparison is to compare the two groups as they were randomised – also called “intention to treat”

Medibank Private RCT #1: Methods: Statistical Analysis

- T-test comparison between intervention and control groups of benefits paid, charges and costs
- Matched odds ratio for self-management over time by disease (6-12 months)
- Regression analysis with total cost as dependent variable across disease groups

RCT #1: Medibank Private – Cohort Characteristics

- Not randomised by age and sex but by ID number by individual to intervention group over the same time period

	Intervention	Control
CHF	973	968
COPD	504	504
CAD	3882	3875
Total	5359	5347

Participant satisfaction survey initial results

- Members were highly satisfied with staff, usefulness of calls, frequency of calls and ability to ring 24 hour advice line
- 70% found written action plans useful
- Influence on the program on lifestyle changes was varied
 - 30% felt it helped them improve their diet
 - 57% felt it helped them take medications as prescribed
 - 63% said they had increased confidence to talk with GP
 - 70% said it increased their sense of well being
 - 77% of members wished to remain in the program

Medibank Private RCT #1: CHF – Change in self-management at 12 months – Not controlled

Self-management practice	Direction of change	Odds ratio	Lower 95% CI	Upper 95% CI	p-value
Influenza vaccination	↑	1.9	0.9	3.9	0.08
Pneumonia vaccination	↑	-	12.8	-	<0.005
Own weight scale	=	1.1	0.4	3.7	1.0
Weight record	↑	3.8	1.8	9	<0.005
Have written action plan	↑	22.3	8.4	83.4	<0.005
Exercise days per week	↓	0.5	-	-	0.2

Medibank Private RCT #1: COPD –

Change in self-management at 12 months – not controlled

Self-management practice	Direction of change	Odds ratio	Lower 95% CI	Upper 95% CI	p-value
Influenza Vaccination	↑	3.3	1.4	9.1	<0.005
Pneumonia shot	↑	3.1	1.2	9.7	0.015
Written action plan	↑	7.5	4	15.7	<0.005
Passive smoking exposure	↑	0.5	0.1	1.9	0.388
Exercise days per week	=	1.3	-	-	0.277

Medibank Private RCT #1: CAD – MCKESSON Change in self-management at 12 months – not controlled

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Empowering Healthcare

Self-management practice	Direction of change	Odds ratio	Lower 95% CI	Upper 95% CI	p-value
Influenza vaccination	↑	3.63	2.35	5.78	<0.01
Own weight scale	↓	0.75	0.21	2.47	0.791
Have written action plan	↑	14.66	10.06	22.15	<0.001
Low salt diet	↑	4.29	2.88	6.56	<0.001
Tobacco use	=	0.93	0.61	1.42	>0.05
Cholesterol check last 12 months	=	1.06	0.77	1.47	0.753
Know cholesterol results	↓	0.66	0.5	0.87	<0.005
Know blood pressure results	↑	1.36	1.03	1.82	0.031
Exercise days per week	↑	1.25	0.98	1.6	0.088

Medibank Private RCT #1: Results for Total Benefits Paid (Bootstrap method)

Does not include McKesson charges

	Control mean	Intervention mean	Effect	p-value
CAD	5362.60	4842.17	-520.43	0.11
CHF	9303.90	9077.86	-226.04	0.79
COPD	7877.53	7183.77	-693.77	0.39
All (adjusted)			-483.37	0.04

HCF RCT #2: Methods

Internal analysis by HCF

The members were randomised into two cohorts using the following variables:

- Age: 30-64 years; age 65-84 years and age 75-85 years
- Sex: Male and Female
- Condition: Cardiovascular, respiratory, diabetes, two of these conditions, three or more of these conditions
- Severity: High = more admissions & days in the previous year
Low = fewer or equal admissions & days in the previous year.

Subjects were free to refuse to participate, and in the end 440 subjects were enrolled, 199 members in the McKesson cohort and 241 in the control cohort.

Paired t-tests for data involving continuous variables, and chi-square tests for data involving all categorical variables (such as responses in the cohorts, and satisfaction surveys).

HCF RCT #2: Age and sex of the sample

	Age 30-64 years		Age 65-74 years		Age 75-85 years	
	M	F	M	F	M	F
Cardiovascular	202	44	119	54	81	72
Respiratory	19	22	13	20	19	29
Diabetes	39	29	31	17	22	15
2 conditions	42	43	56	35	52	66
3 or more conditions	2				1	2
Total	304	138	219	126	175	184

HCF RCT #2: Statistical Methods –

Cardiac subgroup: admission and benefit data

	Control	McKesson
Number of subjects in subgroup	123	137
Percent of subjects admitted during	37	34
Percent of subjects admitted before	55	61
Mean no. admitted per subject before	1.29	1.29
Mean no. of days per subject before	5.50	5.74
ALOS before	4.25	4.45
Mean benefits paid per subject before	\$8229	\$8868
Mean no. admitted per subject during	0.83	0.82
Mean no. of days per subject during	3.27	3.87
ALOS during	3.94	4.69
Mean benefits paid per subject during	\$3592	\$2664
Percent benefit reduction	56	70
Improvement cf. control subgroup		24

Thus the McKesson cohort showed a greater (24%) decrease in benefits (70% cf 56%) than the control cohort. The improvement was not sustained in subjects with multiple conditions, though remained significant overall (p=0.00).

Satisfaction Levels

- 90% felt program addressed health needs
- 90% found the program useful
- 70% felt they knew more about illness and health
- 95% found information easy to understand
- 85% followed the advice and information

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- Statistically significant improvement in Intervention versus Control at 12 months

DVA RCT #3 – Study Design

- Evaluation by University of Queensland
- Veterans with Congestive Heart Failure
- Combination of T – Test and Chi Squared analysis

DVA RCT #3 – Participants

	Intervention	Control
Baseline	N = 214	N = 195
Per cent males	71.6	64.6
Mean age	82.3	82.5
Surveyed at 12 months	N = 112	N = 181

- Reduction of \$100,000 (\$283,887 to \$188,641) in hospital charges in treatment group
- Marginal reductions in control group of \$354,783 to \$337,260
- There are very large standard deviations which makes the likelihood of being certain of statistical significance
- Mortality rate:
 - 14 deaths out of 159 in intervention group (8.8%)
 - 36 deaths out of 217 in control group (16.6%)

$p < 0.05$ = highly clinically relevant

DVA RCT #3: Annual Results

Congestive Heart Failure

CHF Clinical Behaviour	N=	Initial Assessment	12 Month Assessment	Change
Ace Inhibitor / ARB Rx	106	73%	76%	↑3
Annual Flu Vaccine	106	83%	92%	↑9
Weight Scale Availability	106	96%	93%	-3
Daily Weights	99	32%	72%	↑40
Maintain Weight Log	99	15%	36%	↑21
Beta Blocker Rx	106	54%	54%	-
Knows Blood Pressure	106	49%	57%	↑8
Has Action Plan	106	3%	53%	↑50
Not a Current Smoker	106	92%	97%	↑5
Low Sodium Diet	106	56%	86%	↑30
Read Labels for Na Content	106	35%	75%	↑40
Ever had Pneumonia Vaccine	106	84%	97%	↑13

DVA RCT #3: Chronic Heart Failure Study

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Dept Veteran's Affairs

- A high level of **client satisfaction** and LMO acceptance
 - Some valuable **changes** in **patient behaviour** with respect to diet, self monitoring and medications
 - An apparent **lower rate of mortality** for treatment subjects (8.8% vs 16%)
 - A possible **reduction in hospital – related costs** for services related to cardiovascular disease (28% reduction vs 8%)
- > 1/3 study cohort aged more than 85 years

- Three randomised, controlled independently conducted evaluations to date
- **Financial Outcomes**
 - Evidence of reduced hospital costs / benefit outlay
- **Utilisation Outcomes**
 - Reduced number of admissions and length of stay
- **Patient Outcomes**
 - Improved condition self management eg diet, self monitoring and medications
 - Reduced mortality
 - High levels of satisfaction

McKesson US Outcomes show positive results

- Financial Outcomes
 - Cumulative ROI of 2.22
 - Cumulative Gross Savings: \$298M
 - Cumulative Net Savings: \$164M
- Utilization Outcomes
 - ED visit rate decreased 25%
 - IP Admit rate decreased 21%
 - Rx utilization decreased 14%
- Patient Outcomes
 - Over 60% members have changed the way they manage their condition as a direct result of McKesson's DM program