

# Telephone coaching models to support chronic disease management in multi-morbid and vulnerable populations: a rapid review

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An **Evidence Check** review brokered by the Sax Institute for the NSW Ministry of Health

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# EXECUTIVE SUMMARY

## *Policy context*

This rapid systematic review was commissioned by NSW Ministry of Health, working with the Sax Institute. The review will inform thinking about a possible state-wide telephone coaching service for people who are, or at risk of becoming, high users of the hospital system for the management of their chronic conditions.

The review examines the effectiveness of telephonic based coaching services for the management of patients with one of the following chronic diseases: type 2 diabetes, congestive cardiac failure, coronary artery disease, chronic obstructive lung disease (COPD) or hypertension. In the review there is a particular focus on those with multi-morbidities, single morbidities and vulnerable populations.

## *Key findings*

The evidence for the effectiveness of telephone coaching for people with chronic conditions suggests that coaching can improve health behaviour, self-efficacy and health status but there is less evidence for improvements in quality of life (QoL) and patient satisfaction with the service. The evidence for improvements in health service use was limited.

Telephone coaching interventions were effective for vulnerable people with chronic disease. Often the vulnerable populations had worse control of their chronic condition at baseline and demonstrated the greatest improvement compared to those with better control at baseline. Planned (i.e. weekly or monthly telephone calls to support the patients with chronic disease) and unscripted telephone coaching interventions appear to be most effective for improving self-management skills in people from vulnerable groups. The planned telephone coaching services had the advantage of regular contact and helping people progress skills over time. The unscripted aspect allowed the coach to tailor support to the patient individuals needs and appears to be appropriate for people from vulnerable populations. In most studies the telephone coaching intervention lasted 12 months.

Evidence was not found in the published literature for effectiveness of telephone coaching for people with chronic disease from the following groups:

- First Nation or Aboriginal or Torres Strait Islander people
- People in remote areas
- Refugees
- People with low levels of health literacy
- People with intellectual or physical disabilities and an index chronic condition.

The studies were analysed according to the level of risk of patients targeted. This risk was classified according the levels of risk in the Kaiser Permanente Risk Pyramid. For patients at level 1 (moderate risk) most studies evaluated planned interventions. Reactive coaching (responding to data uploaded by participants) tended to focus more on patients with complex care needs who were engaged in active disease management, rather than secondary prevention. More studies involving scripted interventions reported significant improvements in physiological measures of disease and changes in health behaviours than those using unscripted interventions.

For studies involving patients at level 2 (high risk), more scripted interventions were evaluated, some of which were associated with improvements in health behaviour and health status. The benefits of reactive telephone coaching were less clear for the highest risk patients at level 3. Telephone coaching overall did not improve patient adherence to treatment. There was insufficient data to explore the effectiveness of telephone coaching for people with multi-morbidity.

### *Policy options*

The findings of this review support the use of telephone coaching for vulnerable groups and in those people with poor control of their chronic conditions. Telephone coaching can thus potentially bridge the treatment gap for disadvantaged patients if there are adequate levels of referral and uptake.

This review suggests that a variety of approaches may be required depending on level of risk. Patients with fewer co-morbidities or less complex disease, where the focus is on behavioural risk factor modification, may benefit from planned scripted coaching. Those at higher risk may benefit from more tailored unscripted interventions that support more active self-management skills and more intensive coaching for a longer duration.

The uptake and outcomes of coaching programs need to be monitored. This may involve a variety of measures including physiological markers (such as glycosylated haemoglobin (HbA1c)), medication management, lifestyle behaviours and health service use. Innovative ways of collecting this information from clients and from health services need to be developed.

Good linkages with the patient's GP are important. This might be a regular report, updates via the patient e-health record, provision for contact if a problem is identified or linking to the patient electronic health record.

# 1 Purpose

This report reviews the evidence about the effectiveness of telephone based health coaching services for people with chronic disease, with a focus on three particular groups:

- Those with multi-morbidities
- Those with single morbidities
- Vulnerable populations, including Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse backgrounds and people living in rural and remote areas.

Health coaching is a form of self-management support that includes behaviour change, goal setting and empowerment. Other forms of self-management support include: information leaflets, online peer support, one to one counselling, group education sessions, monitoring symptoms with technology and psychological behaviour change interventions.

Health coaching supports patients by:

- Increasing their knowledge of their conditions
- Helping to address barriers to making lifestyle changes
- Helping people to take control of symptoms by monitoring them and responding appropriately
- Encouraging people to actively share in decision making with their health professionals
- Encouraging people to better manage the physical, social and emotional impact of the condition on their lives<sup>1</sup>.

## 2 Research questions

- How effective are telephonic based coaching services for care management for patients with multiple morbidities? For patients with one chronic disease? For patients from vulnerable groups?
- Which models of telephonic based coaching services have been most effective for each of these groups? And why?
- What are the barriers and facilitators of the successful implementation of these models for each of these groups? And why?

### 3 Methods

We conducted a rapid systematic review of published peer reviewed literature, using Medline, Embase, CINAHL, PsychNet and Scopus. We used scoping searches to identify key MESH terms relating to telephone coaching, and adapted terms for research design from previous systematic reviews.<sup>2-4</sup> Table 1 shows the terms used in Medline which were modified for use in the other databases.

**Table 1 Key MESH terms for Medline search strategy**

Telephone coaching MESH terms	Study design terms
Telemedicine	Randomised controlled trial
Telephone	Controlled clinical trial
Patient education as a topic	Intervention studies
Self care	Random allocation
Motivation	Evaluation studies
Health behaviour	Comparative studies
Social support	

#### *Inclusion criteria and definitions*

We included studies involving people aged 18 years or over and living in the community, with one or more of the following indexed chronic conditions:

1. Type 2 diabetes
2. Congestive cardiac failure
3. Coronary artery disease
4. COPD
5. Hypertension.

Patients were identified as having multi-morbidity if they had more than one index condition or one of these plus another chronic condition, for example frailty, mental health or geriatric syndromes.

Vulnerable populations included Aboriginal and Torres Strait Island people, those from culturally and linguistically diverse backgrounds, low socioeconomic status and those living in rural and remote areas.

To be included in this review, the telephone coaching had to involve two-way conversations by telephone or video phone (e.g. Skype) between a patient and a provider (including trained lay people). Behaviour change, goal setting and empowerment were essential features of coaching. We adopted Linder's definition of coaching<sup>5</sup>:

*"A method of patient education that guides and prompts a patient to be an active participant in behaviour change. Coaching involves an interactive approach with the patient that helps to identify impediments to behaviour change, and methods of teaching and modelling behaviour that empower the patient to achieve and maintain improved health status.<sup>6</sup> Goal setting and empowerment are important features."<sup>7,8</sup>*

There was no minimum number of sessions required for the coaching to be included.

We included papers:

- Where the research was from Australia, New Zealand, Canada, Europe and the United States (USA)
- That were written in English and were published in 2001 or later
- Where the research involved the carers of people with chronic disease as a proxy for the person with chronic disease rather than for their own needs as carers.

We excluded papers where:

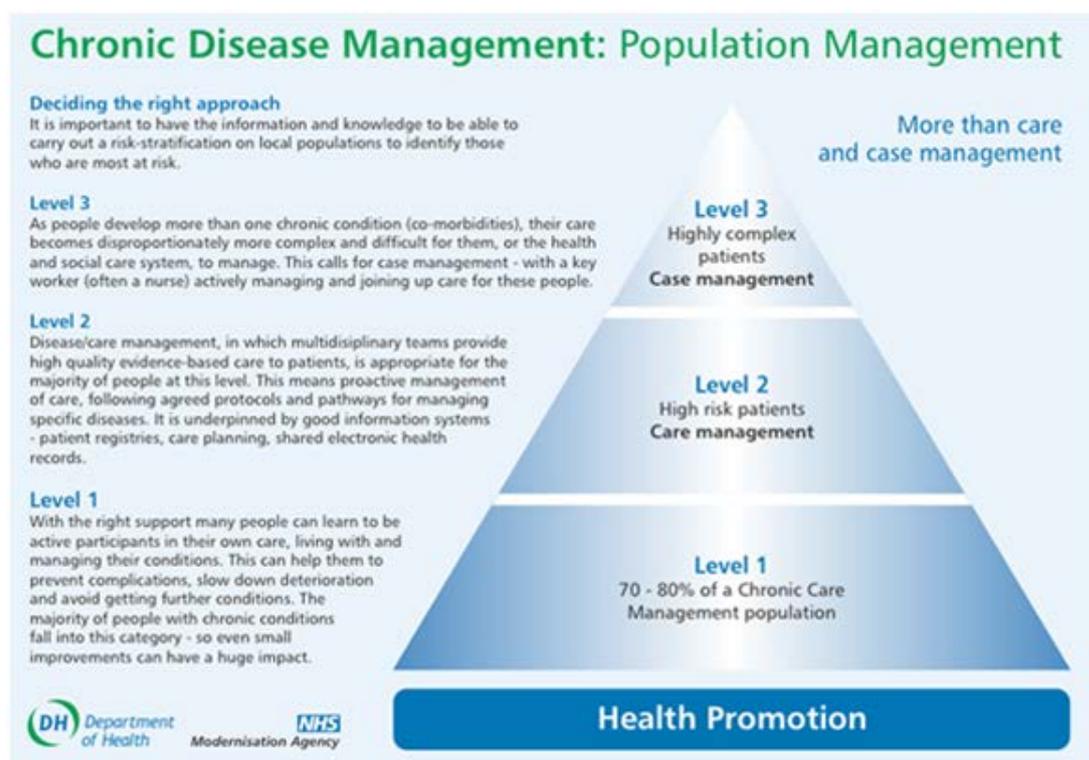
- Coaching was for primary prevention (for people at risk of a chronic disease but without a diagnosis)
- The telephone coaching was a relatively minor adjunct to a face to face intervention such as a non-coaching self-management program or home visit program
- The telephone intervention did not involve a two-way conversation between a patient and a provider such as SMS or automated services
- The intervention was internet or web-based only
- The intervention involved telemedicine or remote disease monitoring only.

The searches identified 1756 papers, which reduced to 1026 after duplicates and papers not relevant to the research questions were removed. Two people reviewed approximately half the papers each (SD, NF) and a 20% overlapping sample of the papers excluded was reviewed by a third reviewer (JL) There were 164 papers remaining after this stage.

Further duplicates and a conference abstract were removed, and full copies of the papers obtained for 162 papers. There was one paper where the full copy could not be obtained by the verification cut off date of 2 Nov 2011. Papers were verified (approximately 27 per team member) using a checklist (Appendix 1), leaving 73 papers for data extraction. A further 29 papers were excluded during data extraction, leaving 44 papers reporting on 30 interventions.

## Synthesis

The Kaiser Permanente Risk Pyramid was used to group the included papers according to the description of the included study populations and the level of care they required. The risk levels were modified to provide guidelines for the reviewers to categorise the study (see Table 3). The inclusion criteria for this review selected patients who were at level 1 and above.



**Figure 1 Kaiser Permanente model for chronic disease management**

In the process of the review we developed a classification of telephone coaching services, based on an analysis of the studies rather than an a priori theoretical framework. The classification has two dimensions: scripted vs. unscripted and planned vs. reactive, as shown in the following table.

**Table 2 Classification for telephone coaching**

Model of telephone coaching	Description
Scripted	Coaching is part of proactive management that follows a structured script or computer algorithm (agreed protocols and pathways for managing specific disease)
Unscripted	Coaching takes a patient centred approach that is not scripted but may still be informed by disease guidelines or protocol allowing for clinical judgement and participant goals
Planned	Coaching services where regular telephone calls are scheduled
Reactive	The person delivering the telephone coaching has been prompted to do so in response to clinical monitoring data, e.g. blood pressure (BP) readings or blood sugar readings from a patient uploaded to the service or transmitted automatically

We also identified common components of coaching interventions. These were:

- Information and education
- Motivation and goal setting
- Monitoring
- Self-management skills
- Duration of the coaching relationship (including number of calls)
- Referral to usual health care provider.

We found that the people receiving coaching could be mapped broadly to the levels of the Kaiser Permanente Risk Pyramid as shown in Table 3. The levels of risk and associated descriptions were used to categorise the studies according to the complexity of the patients included and not the descriptions of the telephone coaching interventions. For example, many of the studies which included heart failure patients were categorised as level 3 because patients were recruited into the study following an index hospital admission.

**Table 3 Kaiser levels of risk**

Kaiser level of risk	Description of characteristics of patients at this level
Level 3 Very high risk	People with complex or multi conditions recruited following hospital or emergency (ED) discharge.  The intervention is often intensive and designed to prevent hospital readmission. There may be a case manager for the patients
Level 2 High risk	People with a chronic condition(s) where the focus of the intervention is on active management of the condition. This may involve a multi-disciplinary team. Participants are usually recruited from primary care or the community
Level 1 Moderate risk	People with chronic condition(s) where the focus of the intervention is mainly secondary prevention such as lifestyle risk factor management. Participants are recruited from primary care or the community

We used a vote counting system to determine the effectiveness of the interventions for the model of coaching and level of care. The numerator is the number of studies reporting a significant change in favour of the intervention and the denominator is the number of studies reporting that particular outcome. Any significant change that is not in favour of the coaching intervention was noted and reported.

## 4 Results

We included 44 papers reporting on 30 studies. Most (24/30) of the studies were undertaken in USA, followed by Australia (2/30) and the United Kingdom (UK) (2/30) and one each from Norway and Canada. Chronic diseases were type 2 diabetes (10/30), heart failure (8/30), coronary artery disease (6/30) and hypertension (5/30). Only one study directly targeted patients with multi-morbidity. There were four studies where many of the patients had an index chronic condition and a number of co-morbidities, but the coaching intervention only targeted the index chronic condition.

### *Patients with one or more chronic disease*

Most coaching was planned coaching (i.e. weekly or monthly telephone calls to support the patients with chronic disease; n=25) and only five studies described reactive coaching. Reactive coaching (responding to data uploaded by participants) tended to focus on patients categorised as being at level 2 who were engaged in active disease management such as symptom monitoring and self-management. The majority of the telephone coaching interventions (n=23) targeted patients categorised as being at level 2 or level 3 of the Kaiser Risk Pyramid i.e. more complex patients with one or more chronic disease.

**Table 4 Models of telephone coaching according to level of disease management (study counts)**

	Scripted		Unscripted		Total
	Planned	Reactive	Planned	Reactive	
Level 1	3	0	4		7
Level 2	6	2*	3	2	13
Level 3	5	0	4	1	10
<b>Total</b>	<b>14</b>	<b>2</b>	<b>11</b>	<b>3</b>	<b>30</b>

\* 1 was reactive and planned

The components of the telephone coaching intervention and linkages between the coaching and the patients' usual providers were explored using the extracted data. Patients categorised as being at level 1 were more likely to be offered self-management skills (7/7) and assistance with motivation and goal setting (4/7) than standard information and monitoring (4/7), and this was less likely to be scripted, see Box 1 for example of scripted intervention. Patients at level 2 were as likely to receive information and education (11/13) as they were to receive coaching skills in self-management (11/13) and this was more likely to be scripted. This suggests that in addition to a patient centred approach there is also a need for standard education and information about their condition(s). The complex patients at level 3 were more likely to receive education, self-management support and disease monitoring as part of the intervention.

**Box 1 Example of a scripted telephone coaching intervention**

The Pro-Active Call-Centre Treatment Support (PACCTS) Trial<sup>9,10</sup> randomised patients into two arms: 1) usual care (the control); 2) proactive call centre support in addition to usual care (the intervention). PACCTS involved a stepped call approach. Patients received calls, scheduled for 20 minutes at a pre-arranged date and time, related to their level of blood glucose control: 1) those with poor control (HbA1c more than 9%) received one proactive call per month; 2) those with moderate control (HbA1c 7.1–9%) received one proactive call every 7 weeks; 3) those with good control (HbA1c 7% or less) received one proactive call every 3 months. Each scheduled call comprised protocol-based and computer software supported sections about knowledge of diabetes, readiness to make changes, medication adherence, and measurement of glucose control. Interim follow-up calls were arranged if required. Following referral from the telecarers, calls were made by the supervisory diabetes specialist nurse for urgent issues or for routine supplementary counselling and medication change. Patients were also required to keep self-management logs of blood glucose levels and relay these back to the telecare staff during the calls.

There were few linkages to usual primary care providers, overall 14 studies reported some linkage with primary care providers, mostly for patients at level 2 (8/13) and level 3 (4/10) rather than level 1 (2/7). The types of linkages included regular reports to the patient's usual GP<sup>11-15</sup> and contacting the usual primary health care provider medical problems required intervention such as medication changes.<sup>15-19</sup>

The outcomes for all studies are reported in Table 5. Overall the majority of studies measuring these outcomes reported statistically significant improvements in health behaviour, self-efficacy, health status and satisfaction with the service. The evidence for improvements in health service use was limited and in one study the coaching increased use of services. There was also little evidence of improvement in QoL. Health behaviours were more likely to improve in patients receiving planned and/or scripted coaching. Only one of eight studies using planned coaching reported improvements in adherence (compared to 4/4 using reactive coaching).

The next sections explore the effectiveness of health coaching by level of the Kaiser Triangle.

**Table 5 Effectiveness of the telephone coaching models for all models of care**

	Scripted		Unscripted		Total (n=30)
	Planned (n=15)	Reactive (n=1)	Planned (n=11)	Reactive (n=3)	
Physiological measures of disease	4/7	2/2	1/5	1/1	8/15
Health behaviour	7/8	1/2	3/5	0/1	11/16
Quality of life	1/5	1/1	0/1	0	2/7
Adherence	1/7	2/2	0	2/2	5/11
Self efficacy	1/1	1/1	1/2	0	3/4
Health status (including depression)	1/2	1/1	3/6	0	5/9
Functional status	0/1	0	1/1	0	1/2
Satisfaction with telephone coaching	1/2	1/2	2/2	1/1	5/7
Health service use	0/6	0/1*	1/1	1/1	2/9

\*Health service use higher with intervention

## Level 1

For patients at level 1 the scripted interventions were more likely to be associated with significant improvements in physiological measures of disease and changes in health behaviours than the unscripted interventions, see Table 6.

**Table 6 Effectiveness of the telephone coaching models for level 1 model of care**

	Scripted	Unscripted	Total (n=7)
	Planned (n=3)	Planned (n=4)	
Physiological measures of disease	3/3	1/3	4/6
Health behaviour	2/2	0	2/2
Quality of life	0	0/1	0/1
Medication use	1/2		1/2
Self efficacy	0		0
Health status	0	1/1	1/1
Satisfaction	0	1/1	1/1
Health service use	0/2	0	0/2
<b>Total</b>	<b>6/9</b>	<b>3/6</b>	<b>9/15</b>

Brennan<sup>11</sup> provided a culturally competent hypertension management program for insured African Americans with nurses providing scripted telephone coaching monthly for 12 months. The dropout rate was 24% and reports of BP and individual goals were sent to the patient's physician.

They reported a small but significant improvement in systolic BP and patients were more likely to have their BP under control and more likely to measure their BP weekly. There were no differences in medication classes used or health service use.

A further two papers reported outcomes for scripted interventions to improve hypertension management.<sup>20,21</sup> Nurses used a computer program to tailor the questions and information to the patient. Patients received telephone calls every 2 months for 2 years and the dropout rate was 25%. There was no difference in BP between the two groups but those patients with diabetes had a 0.46% reduction in HbA1c (95% CI 0.04%–0.89%,  $p=0.03$ ). There was no difference in health service use, however when the costs of providing the intervention were calculated the intervention groups cost between US\$626–US\$947 more than usual care.

A scripted intervention to improve hypertension in Korean speaking Americans<sup>22</sup> demonstrated significant improvements in some behaviours such as the percentage of patients on medication (65% to 71.5%  $p=0.05$ ), exercising (55.6% to 84.6%  $p<0.001$ ) and a reduction in alcohol consumption ( $p=0.01$ ). The telephone counselling was a structured psycho-behavioural intervention provided by bilingual nurses and patients received an average of 18 calls in 12 months. Those receiving more calls had a greater reduction in risky behaviours.

Of the four unscripted coaching interventions, two<sup>23,24</sup> reported no significant difference with the intervention. In both studies the coaching was for people with type 2 diabetes. In one study<sup>23</sup> telephone support following randomisation to groups session or wait list and the other study compared telephone coaching provided by peers or nurses with usual care.<sup>24</sup> The frequency of calls in both studies was tailored to risk and the interventions focused on empowerment or self-efficacy.

The two unscripted coaching interventions reporting significant results again targeted people with type 2 diabetes.<sup>25,26</sup> Both interventions focused on behaviour change and self-management through increasing self-efficacy and empowerment and this was reflected in the findings. The Australian study reported improvements in self-rated health over 12 months.<sup>25</sup> At 12 months, HbA1c was significantly reduced (0.4% lower in intervention group 95% CI 0.1–0.7%  $p=0.009$ ) in the USA study and there was a dose response effect, the greatest effect was seen in those receiving six or more calls. The participants were low paid workers from a union and they were satisfied with the intervention because they received help to manage their condition without having to take time off work.

## Level 2

There were 13 studies identified for people at level 2 of the Kaiser Risk pyramid and more than half of the interventions were scripted. Both scripted and unscripted interventions tended to improve health behaviour, QoL, self-efficacy and health status although the number of studies reporting each outcome was small.

The scripted interventions targeted heart failure<sup>12,16,27</sup>, coronary artery disease<sup>13,28</sup>, hypertension<sup>29</sup> and type 2 diabetes.<sup>9,10,14,18,19,30-34</sup> There were improvements in health behaviour and health status, see Table 7.

Nine papers reported results from one study, the Informatics for Diabetes Education and Telemedicine (IDEATel) study in the USA.<sup>14,18,36,37,39,41-44</sup> The coaching was scripted and reactive and comprised of a home telemedicine unit which enabled patients to upload blood glucose and BP readings. Patients had a webcam so that they could take part in video televisits with the nurse. The telephone coaching followed a case management protocol and the calls lasted between 30 to 60 minutes. Overall, at 12 months and 5 years there was a significant reduction in HbA1c of 0.18% ( $p=0.006$ ) and 0.29% (95% CI 0.12–0.46) respectively. The effect was greater in

patients who uploaded more blood glucose readings. There was no difference between the two groups in terms of QoL or depression scores. Health service use was higher in the intervention group with significantly more patients accessing podiatry services, diabetes clinics and undergoing foot checks and blood tests. The nurses providing the intervention were in regular contact with the patients' GPs providing them with updates, reminders and information.

**Table 7 Effectiveness of the telephone coaching models for level 2 model of care**

	Scripted		Unscripted		Total (n=13)
	Planned (n=6)	Reactive (n=2)	Planned (n=3)	Reactive (n=2)	
Physiological measures of disease	1/4	2/2	0/2	1/1	4/9
Health behaviour	3/3	1/2	2/3	0	6/8
Quality of life	1/2	1/1	0	0	2/3
Adherence	0/4	2/2	0	1/1	3/7
Self efficacy	1/1	1/1	0	0	2/2
Health status (including depression)	1/2	1/1	1/2	0	3/4
Satisfaction	1/2	1/2			2/4
Health service use	0/2	0/1*			0/3
<b>Total</b>	<b>8/20</b>	<b>10/12</b>	<b>3/7</b>	<b>2/2</b>	<b>22/40</b>

\*Health service use higher with intervention

A similar scripted reactive telephone coaching intervention for type 2 diabetes was tested in the UK, the PACCTS Trial.<sup>9,10</sup> The intervention was a combination of planned calls and additional calls were scheduled in response to blood glucose readings from their electronic health records. As with IDEATeL, those with poorer HbA1c at baseline benefitted more from the intervention. The intervention was scripted and provided by trained call centre workers supported by nurses. The PACCTS intervention resulted in a 0.3% decrease in HbA1c (95% CI 0.11–0.52) at 12 months and a significant increase in score for the Diabetes Satisfaction and Treatment Questionnaire. Overall, retention was good with only 7.5% withdrawal rate from each group however a further 8.2% withdrew from the intervention group because they could not cope with the intervention. The PACCTS coaches had access to the blood results from the patients' electronic health records and additional calls were provided if the results were poor.

There were six papers reporting the results from five studies that were planned and scripted interventions to improve the self-management of type 2 diabetes<sup>30,31</sup>, heart failure<sup>12,16</sup>, hypertension and coronary artery disease.<sup>13</sup> Amoako reported on four-week scripted intervention to reduce uncertainty for African American women with type 2 diabetes.<sup>30,31</sup> The telephone coaching resulted in significantly reduced uncertainty around the management of their diabetes and increased participation in exercise. There were non-significant improvements in process outcomes such as foot care and blood sugar testing. Two studies tested coaching interventions for heart failure<sup>12,16</sup> but only one reported significant improvements in behaviour but no overall improvement in survival.<sup>16</sup> The successful intervention was intensive and graded according to the severity of the patient, high risk patients were called every 3 to 4 weeks compared to low risk patients who only received calls every 6 months. After each call updates were sent electronically to the physician through the Veterans Affairs (VA) electronic record system. Hypertension was the focus of another VA telephone coaching intervention.<sup>29</sup> This was a tailored behavioural intervention to improve hypertension self-management using computerised algorithms. The intervention group had significant improvements in their BP at 12 months and this improvement

was greater for those with worse BP at baseline. In another study pharmacists delivered the telephone coaching intervention to improve adherence to lipid lowering medications for patients with coronary artery disease.<sup>13</sup> The pharmacists used a patient centred counselling algorithm but it resulted in no difference in low-density lipoprotein cholesterol (LDL-C) (65% in intervention and 60% usual care) or use of statins.

An unscripted reactive coaching intervention targeted type 2 diabetes<sup>40</sup> where the telephone coaching was provided for 6 months in response to either very high or very low blood sugar readings in addition to monthly calls by the study nurse. There was a significant reduction in HbA1c (0.7%) and BP medication changes with the intervention compared to the control group. Another unscripted reactive study described a coaching service for patients with heart failure with the aim of assessing the safety of the intervention.<sup>27</sup> It demonstrated improvements in the medication management. Patients had a home BP monitor and called the nurse with their readings.

There were three planned and unscripted interventions, two for type 2 diabetes<sup>32-35,38</sup> and one for coronary artery disease<sup>28</sup> with mixed results. The Australian coaching intervention for type 2 diabetes was provided by people with a public health or health promotion background and consisted of a mailed physical activity and healthy eating workbook, a pedometer which was supplemented by telephone calls and motivational interviewing.<sup>33,34</sup> The telephone calls were intensive for the first four months (10 calls) and then less intensive for the remaining eight months. There were significant improvements in physical activity and significant improvements in fruit and vegetable intake. The physical activity improvements were sustained at 18 months but vegetable intake decreased over this non-contact period. The improvements seemed to be associated with the frequency of telephone contact in the lower intensity maintenance phase of the project. An unscripted planned intervention for type 2 diabetes was undertaken in the USA and the participants were mainly African American or Hispanic.<sup>32</sup> The patients received telephone coaching for lifestyle risk factor modification and disease management for 12 months from nurses however there were no improvements in HbA1c or behavioural outcomes. Both studies had similar dropout rates of 27 and 29% respectively.

Patients with coronary artery disease who had completed a cardiac rehabilitation program were recruited to telephone coaching where they were encouraged and supported to continue to be physically active.<sup>28</sup> At 12 months there were significant difference between those in the intervention group in terms of self reported physical activity and the physical activity sub-scales of the SF-36.

### Level 3

Overall there were fewer studies reporting positive outcome for patients with more complex chronic conditions. The more complex the patient care needs, the less likely the studies were to report physiological outcomes. Scripted interventions tended to improve behavioural outcomes and unscripted interventions improved health service use and satisfaction.

**Table 8 Effectiveness of the telephone coaching models for level 3 model of care**

	Scripted	Unscripted		Total (10)
	Planned (n=5)	Planned (n=4)	Reactive (n=1)	
Physiological measures of disease	0	0	0	0
Health behaviour	2/3	1/2	0/1	3/6
Quality of life	0/3	0	0	0/3
Adherence	0/1	0	1/1	1/2
Self efficacy / self-management	0	1/2	0	1/2
Health status (including depression)	0	1/3	0	1/3
Satisfaction	0	1/1	1/1	2/2
Functional status	0/1	1/1	0	1/2
Health service use	0/2	1/1	1/1	2/4
<b>Total</b>	<b>2/10</b>	<b>6/10</b>	<b>3/4</b>	<b>11/24</b>

\*Health service use higher with intervention

Of the five scripted interventions, three targeted patients with heart failure<sup>15,17,45</sup> and two focused on patients with coronary artery disease.<sup>46,47</sup> All patients were identified following hospital admission for the condition of interest. None of the three studies on heart failure reported any significant difference between the telephone coaching by nurses, or in one study student nurses.<sup>45</sup> The telephone coaching interventions focused on the monitoring and self-management of their heart failure such as symptom monitoring, diet and medication control using algorithms and protocols. In two studies there were clear links to the primary care provider who was informed if the nurse identified that the patient's medication needed to be changed.<sup>15-17</sup> One study demonstrated an early reduction in acute care use but the within group variability was so great that this did not reach significance.<sup>15</sup> Two studies reported on interventions to improve behaviour change, exercise in for people with coronary artery disease.<sup>46,47</sup> One study also included the partners of the patient and they also received the telephone coaching intervention.<sup>46</sup> Anxiety levels were significantly reduced for patients and their partners following the program and this was evident early in the program. Physical activity was significantly improved in the study by Holmes-Rovner<sup>47</sup> but there were no differences in medication use, smoking cessation or weight loss, QoL and functional status. The duration of the coaching programs in both studies was relatively short at 6 to 7 weeks.

There were five studies describing unscripted telephone coaching interventions, two focused on patients with heart failure<sup>48,49</sup>, two on coronary heart disease<sup>50,51</sup> and one study focused on patients with a number of chronic conditions who had been using ED.<sup>52</sup> The unscripted interventions were designed to monitor and promote self-management. Nurses provided the telephone coaching except one study where there were also peer supports (graduates of the program).<sup>50</sup> People discharged from hospital following admission for heart failure received twice weekly telephone calls for the first two weeks and then weekly for four weeks thereafter monthly for 12 months.<sup>48</sup> There was a reduction in hospital admission for the intervention group compared to the control group. The results for patients with coronary artery disease were mixed with one study reporting little change in behaviour or self-efficacy<sup>50</sup> and one reporting significant behaviour changes such as increase in exercise and smoking cessation and a significant improvement in QoL.<sup>51</sup> In this last study patients received weekly calls for the first month and then the frequency was reduced to weeks 6, 8 and 12.

There was one study where the telephone coaching also included a reactive component where patients reported their vital signs and symptoms weekly.<sup>52</sup> The patients taking part in this study had a number of chronic diseases and the coaching was to support self-management, goal setting and aimed to support them to communicate more effectively with their health providers. At 18 months there were no differences in process of care or medication use apart from statin use which use was higher with the intervention. There was a significant difference in ED use but the actual difference was only 1% so the effect size was small.

## Patients from vulnerable groups

The review team examined how many interventions focused on vulnerable populations (i.e. from Aboriginal and Torres Strait Islander communities, from culturally and linguistically diverse communities, low socioeconomic status or living in rural and remote areas).

Of the 30 interventions included in the rapid review, more than a third (n=12) targeted vulnerable groups. The majority of studies (n=9) were from the USA, two were from Australia and one was from the UK.

## Approach to synthesis

The studies used two main ways of identifying vulnerability: 1) through vulnerable sub-populations such as older African American women or Hispanics of Mexican origin; and 2) through vulnerability related to locations for example conducting the research in a socioeconomic disadvantaged community where there are a greater percentage of single-parent families, unemployment and foreign born residents.

They also varied in how they adapted their interventions to the needs of vulnerable groups. Many conducted separate analyses of the impact of the intervention on vulnerable participants, but did not change the intervention to meet their needs. Others were designed around the needs of vulnerable groups, for example by ensuring the coaches were from a similar cultural background or participated in cross cultural training.

We therefore categorised studies that included vulnerable groups in two ways:

- Whether they identified vulnerability by location or by sub-population
- Whether they tailored their interventions to the needs of the vulnerable groups or simply conducted separated analyses.

The analysis has been organised into five sections. The first describes how vulnerable groups have been targeted in the literature, the second outlines the different designs of the telephone coaching services, the third examines the effectiveness of the interventions for vulnerable groups and the fourth section highlights the vulnerable groups that were absent in the literature.

## How were vulnerable groups targeted?

Table 9 shows the distribution of studies by how they identified vulnerable groups and whether they tailored their intervention to meet the group's needs. Examples of each of these types of interventions are described in Box 2.

**Table 9 Vulnerable populations and telephone interventions**

Vulnerable	Visible	Targeted intervention	Total
Locations	5	0	5
Sub-population	2	5	7
<b>Total</b>	<b>7</b>	<b>5</b>	<b>12</b>

**Box 2 Examples of telephone coaching interventions focusing on vulnerable groups***Targeted intervention focusing on a sub-population:*

Amoako (2007) reported on the efficacy of a telephone intervention targeting older African American women, with type 2 diabetes and on average five co-morbidities. An African American nurse was employed to conduct the telephone coaching. The intervention involved motivational interviewing and focused on a holistic approach to diabetes management. The intervention included: diagnosis and prognosis, treatment concerns, economic, social and family aspects, and self care. The type of motivational interview and the focus of the conversation was driven by the women's needs. This was a brief intervention that was carried out over four weeks and involved 68 patients. It was well received with participants finding the coaching convenient and helping to improve their problem solving skills.<sup>30</sup> Physiological measures of disease were not collected.

*Mainstream intervention focusing on a low socioeconomic area:*

A randomised control trial conducted in Logan Queensland (QLD) focused on trying to change health behaviours over 12 months in a challenging patient population. This included patients in a socioeconomically disadvantaged community where there were a greater percentage of single-parent families, higher rates of unemployment and foreign born residents. The intervention itself did not specifically employ residents from this region or design the intervention to target the particular needs of these disadvantaged groups. Changes to the intervention were limited to making patient education material available in multiple languages rather than changing the form in which information was provided, or encouraging the workforce to participate in cross cultural or low literacy training. There were significant improvements in physical activity and dietary outcomes but there were no comparisons of outcomes between advantaged and disadvantaged populations.<sup>34</sup>

In the IDEATel trial in the USA, a nurse or dietician care manager conducted home video visits to help the patient with diabetes self-management techniques and problem solving strategies. The study population was elderly and ethnically diverse adults living in rural underserved areas spanning over 30,000 square miles. Televisits were 30 to 60 minutes long and occurred every four to six weeks for 12 months. Discussions included diabetes education, nutrition and activity counselling, and collaborative goal setting. In the five year follow-up, HbA1c decreased by 0.29 across the population. However, among the Hispanic sub-population where the baseline HbA1c was higher, the improvement in HbA1c was greater at 0.5 (95% CI 0.22–0.78)  $p < 0.05$ . This research suggests that mainstream telephone coaching interventions can help reduce racial/ethnic disparities in diabetes management.<sup>43</sup>

Of the 12 interventions that targeted vulnerable groups almost all (n=11) of the telephone calls were planned rather than reactive. In addition the majority of these planned calls (n=8) involved unscripted conversations. It seems plausible that interventions that focus on vulnerable groups would need a greater degree of flexibility in order to focus on the patients' priorities and motivations, their readiness for change and improving self-management skills. Scripted calls would be more likely to simply provide information and education.

**Table 10 Design of the telephone coaching service scripted versus unscripted, and planned versus reactive**

	Scripted	Unscripted	Total
Planned	3	8	11
Reactive	1	0	1
<b>Total</b>	<b>4</b>	<b>8</b>	<b>12</b>

In the UK, the PACCTS used a combination of planned and unplanned calls by trained non-medical telephonists to improve blood glucose control in patients with type 2 diabetes. The trial involved a stepped call approach over 12 months. Patients received calls for 20 minutes at a pre-arranged date and time related to their level of blood glucose control. Those with poor control received one proactive call per month; those with moderate control received one proactive call every 3 months. Patients were randomised from 47 practices in a deprived urban area in northwest England. There were no comparisons between the advantaged and disadvantaged populations and the intervention was not specifically designed to target disadvantaged groups.<sup>9,10</sup>

It is not clear what the appropriate number of telephone calls is in a telephone coaching intervention, the duration of the intervention and whether a maintenance phase is required. In the PACCTS trial in the UK, acceptability was measured by a purposely designed questionnaire and was administered to the intervention group after the patient had received at least three proactive calls. Ninety percent of participants agreed that PACCTS was an acceptable intervention. Factors that made the service acceptable related to friendliness, helpfulness, convenient call scheduling and duration, knowledgeable staff, personally relevant call content and useful personally tailored advice. However it is also important to note that in the same study 8.2% of the patients in the intervention arm of the trial left the study, their stated reasons were that they could not cope with the number of telephone calls. However this may reflect deeper issues such as having other more pressing priorities or the intervention not addressing the participants' needs, rather than simply the number of telephone calls.

### What was the effectiveness of telephone coaching for vulnerable groups?

Telephone coaching proved to be effective for vulnerable groups, see table 10 below. The effectiveness may reflect the 'inverse care law' where those with the greatest need are less likely to receive services. If telephone coaching provides greater access to services to a group with high needs then improvements in health outcomes and behaviour are likely to result.

**Table 11 Effectiveness of interventions that target vulnerable groups**

Measures of effectiveness	Studies reporting significant improvements	Examples
Physiological measures of disease	4/7	Improvements in HbA1c
Health behaviour	5/6	Improvement in diet and exercise
Compliance	4/5	Medication use increase More uploads resulted in greater reduction in HbA1c
Satisfaction	4/4	Found it convenient and improvement their problem solving skills
Access	2/2	Acceptability
Quality of life	2/2	
Health service use	1/1	Higher Medicare claims
Self efficacy	0/1	
Health status	0/1	

### What vulnerable groups were included in the literature on telephone coaching?

The preliminary analysis has revealed some variations in the way vulnerability is approached across countries. The interventions in the USA tended to focus on particular population sub groups such as older African American women, Hispanics of Mexican origin, or monolingual Korean Americans. There was also a focus on 'medically underserved populations' or the uninsured. In Australia one of the interventions recruited patients from low socioeconomic locations in QLD, the other intervention ensured that 10% of these participants were Chinese speaking. In the UK the relevant intervention randomised patients from deprived urban areas in northwest England. In the USA the focus on vulnerable groups tends to concentrate on peoples cultural background or their access to health care, in Australia and the UK the tendency is to focus on areas of socioeconomic disadvantage.

None of the following groups were included in the literature on the effectiveness of telephone coaching on chronic disease management:

- First Nation or Aboriginal or Torres Strait Islander Populations. This is particularly surprising given the higher rates and earlier onset of chronic disease
- Remote
- Refugees
- People with low levels of health literacy
- People with intellectual or physical disabilities and an index chronic condition.

### What are the implications for access to chronic disease management?

Barriers to accessing health care can include problems of *availability, affordability, acceptability and appropriateness*. The availability of services can be compromised in low socioeconomic urban areas where there is a shortage of services or in rural areas where there are great distances to travel and telephone coaching may be seen as a viable alternative to bridge the gap. Affordability is an issue for those from lower socioeconomic status and in areas where there are substantial out of pocket costs in accessing care. The acceptability of services can be

compromised by the poor organisation and coordination of care or a lack of cultural security and respect in mainstream interventions. The appropriateness of care can be limited by the poor performance of the health care system in meeting the needs of people with complex and multiple health conditions. Telephone coaching appears to offer some promise in improving equitable access to chronic disease management. Walker (2011) for example found that a tailored telephone intervention was effective at improving HbA1c among people living in lower socioeconomic areas where there were high numbers of immigrants. The research found that the greater the intensity of the calls the greater the change in HbA1c. One of the reasons why this intervention may have increased access was because patients did not need to go to the medical centre to have their HbA1c tested. Instead a dry blot sample was collected and mailed. This enabled patients to receive support who would ordinarily be excluded because of other commitments.<sup>26</sup>

In another example, the randomised control trial in Logan QLD found that telephone coaching was a feasible means of delivering lifestyle interventions to primary health care patients with chronic disease. Many of these patients needs for ongoing support were seen as beyond the capacity of primary health care practitioners.<sup>33</sup> This suggests where there is a shortage of GPs, additional supplementary services such as telephone coaching, may be of additional benefit because it addresses an unmet need in the system.

Unpacking access to health care in this way raises questions about the aims and objectives of telephone coaching for vulnerable groups. Telephone coaching can seek to address a gap in the affordability and availability of services for vulnerable groups. Alternatively they can aim to address problems of the acceptability and appropriateness of mainstream services for vulnerable groups. If the latter, we still need to know in what ways the telephone coaching interventions need to be targeted to better meet the cultural and social needs of vulnerable populations.

### **What have been the barriers and facilitators of the successful implementation of these models for each of these groups, and why?**

The barriers and facilitators to telephone coaching were extracted from the 44 papers identified in the rapid review and there was very little information available in the papers. Only 10 of the papers included reported details of facilitators and barriers. Facilitators for the telephone coaching included access to health records for those providing the telephone coaching<sup>18</sup> and this may also be reinforced by good linkages between the telephone coaching services and the patients' usual providers. This was highlighted in the additional paper added to the review which reported on the findings of several commercial disease management programs.<sup>53</sup> One of the key findings from this paper was that the health coaches were not integrated with the patients' primary care providers and this prevented them from fully supporting the patient to meet their goals.<sup>53</sup> For one study, the blood sugar testing was done using special paper test kits which meant that the patients did not need to take a day off work to attend a clinic visit and this was thought to have improved adherence.<sup>26</sup> Adequate training of the health coaches is important<sup>19</sup> as is ensuring that the intervention has been designed to properly take into account the needs and requirements of the target population<sup>47</sup> and this is particularly important when designing interventions for vulnerable groups.

## 5 Conclusion

Most of the studies identified described telephone coaching for one particular chronic condition and only one study included people with multi-morbidity. Because of this we have chosen to use the levels of risk in the Kaiser Permanente pyramid to frame our results and to highlight differences in the interventions as patients become more complex in their healthcare needs. Planned and scripted telephone coaching models seem to be more effective for patients at moderate risk (level 1). The planned and scripted calls had a focus on self-management and motivational interviewing and there were improvements in physiological measures of disease and health behaviour. Scripted models of telephone coaching services are more effective in providing health education i.e. increasing knowledge but not necessarily changing behaviour. This is presumably as the scripted nature increases the likelihood that the intended content will be delivered. This model is appropriate where the aim is primarily to provide information and increase knowledge and education. For patients at level 2 and 3 the emphasis of the coaching models seems to shift more to self-management and monitoring of chronic disease. Reactive telephone coaching tended to be targeted at the more complex patients and seems to be effective for level 2 patients to improve their physiological measures of diseases, such as BP or HbA1c. The benefits of reactive telephone coaching are less clear for more complex patients at level 3. Telephone coaching overall did not improve patient adherence to treatment. There was insufficient data to explore the effectiveness of telephone coaching for people with multi-morbidity.

Telephone coaching interventions seemed to be more effective for vulnerable people with chronic conditions. Often the vulnerable populations had worse control of their chronic condition at baseline and demonstrated the greatest improvement compared to those with better control at baseline. Planned and unscripted telephone coaching interventions appear to be most effective for improving self-management skills in people from vulnerable groups. The planned telephone coaching services have the advantage of regular contact and helping people progress skills over time. The unscripted aspect allows the coach to tailor support to the patient individual's needs and appears to be appropriate for people from vulnerable populations. Telephone coaching services can be designed to address problems of access in vulnerable populations and/or problems of capacity or suitability of available services such as primary care services. To be successful such telephone coaching models need to clearly identify the nature of the need in the target population and design services to address these needs. This at times requires providing services that go beyond telephone coaching alone, reinforcing the need for an unscripted approach.

The impact of telephone coaching on health service use is unclear. Overall, telephone coaching did not significantly reduce health service use<sup>11,15,21,52</sup> and in some health services use was increased with the intervention.<sup>18,39</sup> Both papers report on the results of IDEATel where there were higher Medicare claims and more referrals to other health providers for those in the intervention group. Some of this increase in health service use may be related to improved quality of care because the patient's usual primary care provider was notified about scheduled tasks such as HbA1c or podiatry and approximately 23% of nurse calls resulted in a need to contact the patients' providers.<sup>18</sup> When the cost of providing the intervention is included the costs can be greater for the intervention group.<sup>16,21</sup> These findings are reinforced by the results of the Medicare Health Support Pilot program where there was no reduction in health service use with telephone coaching.<sup>53</sup> The programs in this study recruited patients whose Medicare claims were 35% greater than the population average and the companies providing the coaching were aiming to off-set the costs of providing the coaching with the cost savings from a reduction in hospital admission. Only one of the companies managed to significantly reduce hospital admissions. A review of the literature of the cost-effectiveness of telephone disease management programs in the USA found that only those targeting heart failure seemed to offer cost savings<sup>54</sup> although

most of these involved structured remote monitoring, telemonitoring as opposed to coaching of people with heart failure. A Cochrane review of telemonitoring and telephone support reported a modest reduction in all cause hospital admission (OR 0.92 95% CI 0.85, 0.99) and heart failure related admission (OR 0.77 95% CI 0.68, 0.87) although the included studies tended to offer telephone support as opposed to coaching.<sup>55</sup>

Most of the telephone coaching models identified had a focus on the management of one chronic condition. Further research is needed to determine the effectiveness of a more generic telephone coaching service for patients trying to manage a number of conditions and what model of telephone coaching would be most appropriate. Further research is required to identify the effectiveness of telephone coaching for Aboriginal and Torres Strait Islander Australians, people with low levels of health literacy, refugees, people living in rural and remote areas, and people with intellectual or physical and chronic index diseases.

There were 13 studies that described linkages with the patients' primary care providers such as information sharing, alerts that further medical attention may be required or regular reports on progress. There was not enough information to determine whether the presence of these linkages was associated with better outcomes for the patients, although nine of the studies did report an improvement in at least one outcome measure. Only one of the studies which described linkages between primary care providers and the telephone coaching reported an improvement in hospital admission for heart failure.<sup>48</sup> The linkages included guidelines for the nurses and the patients telling them when to contact their physician. There was an example of a negative impact of linkages, the PACCTS study used information from the patients' electronic health records to trigger telephone calls.<sup>10</sup> Patients would visit their GP and have HbA1c tests and if the results were above 9% they received a monthly call and this reduced to three monthly if HbA1c was 7%. Patients may not have been aware that this information had triggered the telephone calls and 8.2% withdrew because they could not cope with the calls. Reactive coaching may be less bothersome if patients upload their own data and then they are aware that if they have a high reading it will trigger a call as was the case in the IDEATel study. McCall<sup>53</sup> suggested that poor linkages had had a negative impact on the success of the programs in the USA. Further research is needed to determine the importance of good linkages between the program and primary care providers.

### *Limitations of the review*

The initial timescale and deadline for delivery of literature search meant that the list of search terms was truncated so that the number of hits was manageable. The search terms combined three groups: telephone interventions, health coaching and motivational interviewing and terms for study design. The reference lists of the included studies were not searched to identify further studies. This inevitably means that some papers will have been missed. For example the Cochrane review of telephone support for patients with heart failure<sup>55</sup> did not list MESH terms for patient education, self care or terms related to motivational interviewing and was not identified in the search strategy. This review, for example, identified more than 8000 papers which would have been impossible for the team to have screened in one week. A decision was made during the early scoping of the literature to exclude some of the text word searches to increase the specificity of the search.

The experimental literature contained few details of barriers and facilitators to effective telephone coaching or detailed information about implementation and reach. This type of information may be available in descriptive or qualitative research papers or evaluation reports and would require a different database and website literature search.

More research is needed to understand to inform the most appropriate approach for people with multi-morbidities. More research is needed to understand whether telephone coaching might be effective for Aboriginal and Torres Strait Island people and what model of coaching might be most appropriate.

## *How is this relevant to New South Wales Health?*

New South Wales Health has introduced a number of programs to support people with chronic conditions. The Get Healthy telephone coaching service targets those at risk of developing a chronic condition and supports them to make lifestyle changes. The Connecting Care program is aimed at those with more severe chronic conditions who are high users of hospitals. This rapid review provides an overview of the evidence for people with one chronic condition (level 1) through to those with more complex needs at level 3.

Scripted interventions may be more effective for those patients with fewer co-morbidities or less complex disease such as those at level 1 where the focus is on behavioural risk factor modification. For disease management, consider some monitoring of key physiological measures of chronic disease such as blood sugar or BP readings. For conditions such as coronary artery disease and COPD it may be less useful to monitor signs and symptoms but a record of hospital admission may be useful.

Good linkages with the patient's GP are important. This might be a regular report, updates via the patient e-health record, or provision for contact if a problem is identified or linking to the patient electronic health record.

## **Who should be targeted?**

The evidence for the review suggests that telephone coaching is more effective in those people with poor control of their chronic disease as the greatest benefit was found in those with worse baseline BP or HbA1c levels. Vulnerable people were more likely to have poor control of their diabetes or hypertension at baseline. The evidence would support a telephone coaching intervention that targeted people with poor control of their chronic condition.

Programs targeting vulnerable groups such as those living in rural areas or from culturally and linguistically diverse backgrounds were more effective. In developing programs to support those from culturally and linguistically diverse backgrounds it is important to consider the needs of the population group. The evidence for effectiveness in patients from rural areas did not include people from remote areas although it would seem reasonable for it to be beneficial.

Telephone coaching for people from vulnerable groups can be planned to help build the relationship and the person's skills but should have an unscripted element so that it can be tailored to individual need and address individual barriers. Scripted interventions may be less suitable in these populations as it may not be flexible enough to respond to the patient's needs. The intensity of telephone coaching required will vary according to the level of care with more frequent calls for those patients at level 3 who may have been discharged from hospital with conditions such as heart failure.

## **What is reasonable to expect from a telephone coaching service?**

For people with type 2 diabetes a reduction of approximately 0.5% in HbA1c is possible with telephone coaching, especially for those with an HbA1c at baseline of 8–9%. Research indicates that patients are more likely to perform foot checks and test their blood sugar as recommended.

For a reactive coaching service where a patient uploads data then improvements would be seen in those patients that upload more results. For hypertension and coronary artery disease, a reduction in BP and lipids is possible and an improvement in medication compliance. Self-efficacy and QoL would be improved and overall patients would be satisfied with the telephone coaching they receive. Many of the studies achieved these outcomes over 6 or 12 months. Whilst telephone coaching may improve health measures or behaviour, there may not be a reduction in health service use and associated health care costs as revealed by this review.

### **How might the success of a telephone coaching service be measured?**

The evidence presented suggests that there may not be a reduction in health service use and associated health care costs with telephone coaching. It might be useful to separate these costs out when evaluating a telephone coaching service to see what impact it has on proactive health services use such as podiatry and unscheduled health services use.

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## Appendix 1. Telephone coaching rapid review—Verification checklist

Endnote record number  
 Author and year  
 Reviewer

**Please tick the appropriate box(es) to determine paper relevance:**

Published in English: Yes  No  →Do not continue  
 Published in 2001 or later: Yes  No  →Do not continue

Research conducted in:

Australia	<input type="checkbox"/>	}	You should answer “Yes” to one of these. If not, please do not continue
New Zealand	<input type="checkbox"/>		
USA	<input type="checkbox"/>		
Canada	<input type="checkbox"/>		
A European country	<input type="checkbox"/>		

**Patients:**

Aged 18 years or over	Yes <input type="checkbox"/>	No <input type="checkbox"/>	→Do not continue
At least one of the following chronic diseases:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	→Do not continue
Type 2 diabetes	<input type="checkbox"/>		
Congestive cardiac failure	<input type="checkbox"/>		
Coronary artery disease	<input type="checkbox"/>		
COPD	<input type="checkbox"/>		
Hypertension	<input type="checkbox"/>		
Vulnerable	<input type="checkbox"/>		

Telephone coaching service as defined below:

2-way telephone/video conversation between a patient and a provider	Yes <input type="checkbox"/> No <input type="checkbox"/> →Do not continue
Patient education that guides and prompts a patient to be an active participant in behaviour change. Coaching involves an interactive approach with the patient that helps to identify impediments to behaviour change, and methods of teaching and modelling behaviour that empower the patient to achieve & maintain improved health status. Goal setting & empowerment are features.	Yes <input type="checkbox"/> No <input type="checkbox"/> →Do not continue

**NHMRC Level of Evidence:**

Level I – Systematic review	<input type="checkbox"/>	}	If none of these do not continue
Level II – Randomised Controlled Trial	<input type="checkbox"/>		
Level II-I – Pseudo-randomised Controlled Trial	<input type="checkbox"/>		
Level III-2 - Comparative study with concurrent controls	<input type="checkbox"/>		
Level III-3 - Comparative study without concurrent controls	<input type="checkbox"/>		
Level IV - Case series with either post-test or pre-test/post-test outcomes	<input type="checkbox"/>		
Qualitative / descriptive study	<input type="checkbox"/>		



## Appendix 2

Table 1: Summary of papers of telephone coaching targeting people at level 1

<p><b>Reference:</b> Kelly 2005<sup>25</sup> Linked paper(s):</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> Type 2 Diabetes Mellitus (T2DM) Vulnerable: 10% Chinese speaking</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: III</p> <p><b>Patients recruited from:</b> PHC</p> <p><b>Duration of study:</b> 18 months</p> <p><b>Number of patients:</b> 343</p> <p><b>% Male:</b> 0.43</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The Good Life Club project was a three year demonstration project funded by the Commonwealth Department of Health and Ageing (DoHA). The project utilised a number of interventions to support people with diabetes to improve self-management of their condition and more effectively utilise existing local health services</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Individual telephone coaching by practice nurses and allied health professionals to support behaviour change of participants. Clients were telephoned monthly by the coach to review progress toward their goal, and to support their self efficacy through enhancing positive behavioural strategies</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Care plan from GP was plan but occurred at time when not common. SM plan developed and patient encouraged to discuss this with their GP. In addition 3 monthly reports provided for GP</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Functional/health status</b> Self rated health improved after taking part in the program—pain, fearfulness, worry, frustration</p> <p><b>Satisfaction</b> <b>Health service use</b> <b>Economic outcomes</b></p>
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<p><b>Reference:</b> Walker 2011<sup>26</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target Population:</b> T2DM Vulnerable: Lower SES and immigrants – members of health care worker fund</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b> Members of health care worker fund</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 526</p> <p><b>% Male:</b> 36.9</p> <p><b>Mean age:</b> 55.5 years (7.3)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b> Patients did not even need to go to medical centre for HbA1c test – dry blot and mailed</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To compare the effectiveness of a telephonic and print intervention over 1 year to improve diabetes control</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Trained health educators provided telephone intervention with focus on medication adherence and lifestyle changes. Program was patient centred and involved goal setting, empowerment and self-efficacy</p> <p><b>Delivered by:</b> Trained health educators</p> <p><b>Number of telephone calls:</b> 7.9 +/- 2.1</p> <p><b>Duration of calls:</b> 14.1 +/- 4.6 minutes (mins)</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Printed materials</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c 0.4% lower in intervention compared to control (95% CI 0.1–0.7 p=0.009). The greater the intensity (&gt;= 6 calls) the greater the change in HbA1c</p> <p><b>Adherence</b> Medication use change of =&gt;20% in those not on insulin was improved with intervention (p=0.005)</p>
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## Summary of papers of telephone coaching targeting people at level 1

<p><b>Reference:</b> Anderson 2005<sup>23</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target Population:</b> T2DM Vulnerable: African Americans</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Community People self enrolled</p> <p><b>Duration of study:</b> 1 year</p> <p><b>Number of patients:</b> 239 125: 6-session program 114: Wait-listed control group One of the two 1-year long interventions n=224</p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate the impact of a problem-based empowerment patient education program specifically tailored for urban African Americans with type 2 diabetes</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Patients were randomly assigned to either a six-week 2-hour weekly group sessions (intervention group) or a six-week wait-listed control group (this control group also had the six-week 2-hour weekly group sessions after waiting for six weeks). After completing the six sessions, All patients were invited to participate in one of two follow-up interventions. Intervention: Receive a monthly individually-scheduled phone call</p> <p><b>Delivered by:</b> Nurse</p> <p><b>Number of telephone calls:</b> 12</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 1 year</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> A monthly support group</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Assessment measures included HbA1C, lipids, BP, weight</p> <p>Both control and intervention patients showed a broad array of small-to-modest positive changes during the six-week RCT. These gains were maintained or improved upon during the one-year follow-up period. No between-group differences existed in HbA1c for the phone and support group follow-up interventions. For patients in the two follow-up interventions a positive correlation was seen between the number of follow-up contacts and their one-year HbA1C values</p>
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<p><b>Reference:</b> Dale 2009<sup>24</sup> Linked paper(s):</p> <p><b>Country:</b> UK</p> <p><b>Target population:</b> T2DM NIL Vulnerable: No</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> 40 general practices</p> <p><b>Duration of study:</b> 6 months</p> <p><b>Number of patients:</b> 231 90 (39%) were randomised to the PS group 44 (19%) to the DSN group 97 (42%) to the control group</p> <p><b>% Male</b> PS: (55.7%), DSN: (52.4%), CG: (64.0%)</p> <p><b>Mean age:</b> Majority in the 51–69 years-old group</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To test trial design issues related to measuring the effectiveness of a peer telephone intervention to enhance self-efficacy in type 2 diabetes; evaluate the impact on self-efficacy and clinical outcome; and describe patient and peer experience</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> The intervention was intended to increase self-efficacy in relationship to lifestyle behaviours and medication adherence, leading to improvements in clinical outcomes. Patients were allocated to one of three groups: telecare support provided by peer supporters (PS), telecare support provided by diabetes specialist nurses (DSNs), and control group (CG). Telecare support was intended to supplement routine care by motivating adherence to the advice provided by the general practitioner or practice nurse at the time of a change (medication and/or lifestyle) in the patient’s diabetes care. For intervention patients, the first telecare call was made 3–5 days later, and the ‘standard package’ offered subsequent contact at the following points: days 7–10, 14–18, 28–35, 56–70, 120–150. In this way more intense reinforcement of the therapeutic or behaviour change occurred during the early weeks following its initiation, with gradual tapering off of support over a period of months. The frequency of calls, however, was intended to be tailored to patients’ individual needs and telecare supporters were taught to negotiate the time of subsequent contact as part of the closure of each call</p> <p><b>Delivered by:</b> A peer supporter or a diabetes specialist nurse</p> <p><b>Number of telephone calls:</b> The frequency of calls was intended to be tailored to patients’ individual needs and telecare supporters were taught to negotiate the time of subsequent contact as part of the closure of each call. Each patient received on average 4.5 calls</p> <p><b>Duration of calls:</b> Calls lasted on average 9.5 min (range 1–37 min, S.D. = 6.3 min), with first calls lasting on average 13.3 min. The mean total contact time per patient was 54.8 min (range 9–130 mins, S.D. = 25.5)</p> <p><b>Duration of the program:</b> 150 days</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Differences in terms of HbA1c levels were generally small and not statistically significant</p> <p><b>Self-efficacy</b> The primary outcome was self-efficacy, as measured by the Diabetes Management Self-Efficacy Scale (DMSES). Self-efficacy improved for patients in the PS group. There were no significant differences between groups in self-efficacy</p> <p><b>Quality of life</b> There were no significant differences between groups in terms of diabetes</p> <p><b>Satisfaction</b> 77% of PS group respondents compared to 94% of those in the DSN group said they would recommend the telecare support to other patients (p=0.04). The qualitative data confirmed that patients generally found the telephone support to be a useful addition to routine care. While most patients acknowledged the potential benefits of such a service, especially when a person is first diagnosed with diabetes, those who felt that their diabetes was already under adequate control did not feel</p>
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## Summary of papers of telephone coaching targeting people at level 1

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	<p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Routine care alone. Patients in the control group received a single call from a researcher at day 3–5. The patients were informed that they were allocated to the routine care group and were encouraged to follow the advice of their GP or practice nurse</p>	<p>that they derived particular benefits</p>
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<p><b>Reference:</b> Brennan 2010<sup>11</sup> ) Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Vulnerable: privately insured African Americans</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Self-identified African Americans in HMO plans. Primary care physician (PCP) office</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 320 Disease Management Program (DMP) 318 Light Support Program (LSP)</p> <p><b>% Male:</b> 0.33</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b> 638 completed initial assessment, and 485 completed follow-up assessment</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To determine whether a telephonic nurse disease management (DM) program designed for African Americans is more effective than a home monitoring program alone to increase BP control among African Americans enrolled in a national health plan</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> The intervention group, consisted of a high intensity, multimodal, culturally competent DMP. The control group was a LSP. All participants received BP monitors and written and nurse-directed phone call instructions to measure their BP at home at regular intervals. DM nurses initiated monthly calls to the intervention group with the goals of improving their hypertension knowledge and supporting lifestyle changes and adherence to the DASH (Dietary Approaches to Stop Hypertension) diet</p> <p><b>Delivered by:</b> DM nurses. All DM nurses received special training in cardiac care and completed cultural competency training</p> <p><b>Number of telephone calls:</b> The median number of completed calls per participant was 3, with a range of 1 to 10</p> <p><b>Duration of calls:</b> Between 15–20 mins</p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Three quarterly reports that contained the patient’s most recent self-reported BP and DM goals were sent to each intervention group participant’s PCP office</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Systolic BP was lower in the intervention group <math>p=0.03</math>; there was no difference for diastolic BP. The intervention group was 50% more likely to have BP in control <math>p=0.052</math> and 46% more likely to monitor BP at least weekly <math>p=0.02</math> than the control group</p> <p><b>Health behaviour</b> The intervention group was 46% more likely to monitor BP at least weekly <math>p=0.02</math> than the control group</p> <p><b>Quality of life</b> Distress as measured by diabetes-related problems (PAID) at baseline and follow-up</p> <p><b>Adherence</b> There were no statistically significant differences between the groups in the use of 2 or more antihypertensive medication classes</p> <p><b>Health service use</b> There were no statistically significant differences between the groups in the mean number of PCP, cardiologist, and specialist physician visits</p>
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## Summary of papers of telephone coaching targeting people at level 1

<p><b>Reference:</b> Han 2010<sup>22</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Vulnerable: Monolingual Korean Americans (one of the most underserved minority populations in the US)</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Ethnic churches, groceries and through ethnic media</p> <p><b>Duration of study:</b> 15 months</p> <p><b>Number of patients:</b> 445</p> <p><b>% Male:</b> ~50</p> <p><b>Mean age:</b> 52 years</p> <p><b>Uptake to program:</b> 445 vs 360 at 15 months</p> <p><b>Facilitators:</b> The success of telephone outreach was influenced by the dose of the intervention, the participant's employment status, and the number of years of residence in the US</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Nurse telephone counselling can improve the management of chronic conditions, but the effectiveness of this approach in underserved populations is unclear. This study evaluated the use of bilingual nurse-delivered telephone counselling in Korean Americans (KAs) participating in a community-based intervention trial to improve management of hypertension. Our purpose was twofold: 1) to characterise the receptivity of the telephone counselling as a function of the sociodemographic and disease-related characteristics of the sample; and 2) to compare key behavioural outcomes by the dose of counselling</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> The intervention had 3 components: 1) structured psycho-behavioural education; 2) home BP monitoring with a tele-transmission system; and 3) telephone counselling by a bilingual nurse. After a six-week in-class or mailbased hypertension education course and a six-week test period for home BP monitoring, at three months, participants were randomly assigned to two groups: Intervention: more intensive (MI) biweekly (n=203)</p> <p><b>Delivered by:</b> Bilingual nurses</p> <p><b>Number of telephone calls:</b> About 18 calls per person for the MI and about 10 calls per person for the LI groups</p> <p><b>Duration of calls:</b> The length of calls was longest for the first counselling session (18.1±7.8 min). The average length of the subsequent counselling sessions for the MI group was longer than that for the LI group (p &lt; 0.001)</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Received LI (n=194) monthly telephone counselling for 12 months. There was no 'control' group in the study and hence it is not possible to determine whether the intervention is better than usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Changes in BP outcomes reported elsewhere</p> <p><b>Health behaviour</b> Other health behaviors improved significantly, except for smoking, with a reduction in alcohol consumption and increase in exercise for both groups (p &lt; 0.01 for all within-group tests). None of these behavioral outcomes differed between the two groups. The result suggests that monthly telephone counselling for 12 months may be as effective as more frequent, biweekly counselling</p> <p><b>Adherence</b> At three months, the proportion of patients taking antihypertensive medication was similar for both groups. Over the 12-month counselling period, both groups showed a positive trend toward an increase in medication-taking. The MI group showed a slightly greater increase in the number of patients reporting medication taking (6.5%, p=0.041 for the within-group change), while the increase in the LI group was not significant (NS)</p>
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<p><b>Reference:</b> Powers 2009<sup>20</sup> Linked paper(s): Reed 2010</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Diabetes; there were only 219 patients with diabetes (117 patients in the usual care arm and 102 patients in the intervention group) Vulnerable:</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Veterans Affairs Medical Center primary care clinics (3 sites)</p> <p><b>Duration of study:</b> 24 months</p> <p><b>Number of patients:</b> 588</p> <p><b>% Male:</b> 90% Intervention, 99% Control</p> <p><b>Mean age:</b> ~63 years</p> <p><b>Uptake to program:</b> 233 Intervention, 240 Control</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate the effect of a tailored hypertension self-management intervention on the unintended targets of HbA1c and LDL-C</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Interventions occurred at 2 levels: provider and patient. Primary care providers were first randomised to receive either the computer decision support system focusing on hypertension medication management delivered at the point of care during patient visits or usual care without the decision support interface. Within each participating provider's primary care panel, patients with hypertension were then randomised to receive either a nurse telephone hypertension self-management intervention or usual primary care. The nurse telephoned patients within 1 week of randomisation and then every 2 months over 24 months to deliver the intervention for a total of 12 nurse calls. There were no face-to-face meetings between the nurse and the patient</p> <p><b>Delivered by:</b> Nurse</p> <p><b>Number of telephone calls:</b> The majority of the patients in the intervention arm received all 12 phone calls (mean number of calls 11.0; median 12; range 3–12)</p> <p><b>Duration of calls:</b> The average phone call lasted 5 mins</p> <p><b>Duration of the program:</b> 24 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Patients enrolled in both the intervention arm and usual care received routine primary care throughout the study</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> For the patients with diabetes, the hypertension self-management intervention resulted in a 0.46% reduction in HbA1c over 2 years compared with usual care (95% confidence interval, 0.04%–0.89%; P .03). For LDL-C, there was a minimal 0.9 mg/dL between-group difference (NS)</p>
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<p><b>Reference:</b> Reed 2010<sup>21</sup> Linked paper(s): Powers 2009</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Vulnerable:</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Community-based primary care clinics in a large academic health system</p> <p><b>Duration of study:</b> 24 months</p> <p><b>Number of patients:</b> 636</p> <p><b>% Male:</b> Home BP 29% Monitoring 33% Behavioural intervention 38% Combined intervention 36% Usual care</p> <p><b>Mean age:</b> ~61 years</p> <p><b>Uptake to program:</b> 475 (75%) completed 24 months of follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine direct and patient time costs associated with three interventions to reduce systolic BP and usual care: multicomponent telephonic behavioral lifestyle intervention; patient self-monitoring; and both interventions combined</p> <p><b>Telephone coaching intervention:</b> Patients with hypertension randomly assigned to the four study groups: 1) multi-component telephonic behavioral lifestyle intervention; 2) patient self-monitoring; 3) both interventions combined; 4) usual care. The behavioural intervention was administered by a nurse during 12 bimonthly telephone encounters. These encounters included a core set of survey modules that could be activated during each call (e.g. medication and side effects) plus additional modules activated at specific intervals (e.g. diet, hypertension knowledge). For each call, the nurse used a computer program designed to tailor the questions and information presented to each patient and to store patient-specific information</p> <p><b>Delivered by:</b> Nurse</p> <p><b>Number of telephone calls:</b> 12 every 2 months telephone encounter</p> <p><b>Duration of calls:</b> On average, each telephone encounter lasted 15.9 mins (SD, 7.2). Altogether, patients spent an average of 2.74 hours (SD, 0.84) on the phone across all encounters</p> <p><b>Duration of the program:</b> 24 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Patient self-monitoring group; Usual care group</p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> Mean systolic BP in the usual care group was largely unchanged between baseline and 24 months. At 24 months, compared with the usual care group, mean systolic BP decreased (NS) in the home monitoring arm, increased (NS) in the behavioural intervention arm, and decreased (p=.01) in the combined intervention</p> <p><b>Health service use</b> During 24 months of follow-up, approximately 1 in 5 patients was hospitalised with the majority (56.9%) being hospitalised once. The mean number of total inpatient days per patient was lowest in the combined intervention group, but none of the intervention groups differed significantly from usual care. Patients in the combined intervention group had a mean of 18.5 (SD, 17.4) outpatient encounters during the follow-up period (NS compared with usual care), approximately two more than patients in the home monitoring group (NS compared with usual care), the behavioral intervention group (NS compared with usual care)</p> <p><b>Economic outcomes</b> Patients incurred a mean of \$6965 (SD, \$22,054) in inpatient costs and \$8676 (SD, \$9368) in outpatient costs, with NS differences among the groups. Intervention costs were estimated at \$90 (SD, \$2) for home BP monitoring, \$345 (SD, \$64) for the behavioural intervention (\$31 per telephone encounter), and \$416 (SD, \$93) for the combined intervention. Patient time costs were estimated at \$585 (SD, \$487) for home monitoring, \$55 (SD, \$16) for the behavioural intervention, and \$741 (SD, \$529) for the combined intervention. Compared with the usual care group, mean total medical costs were \$947 higher in the home monitoring group, \$910 higher in the behavioural intervention group, and \$626 higher in the combined intervention group</p>
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**Table 2: Summary of papers of telephone coaching targeting people at level 2**

<p><b>Reference:</b> Amoako 2007<sup>30</sup> Linked paper(s): Amoako 2008</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Older African American women (OAAW)</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II-I</p> <p><b>Patients recruited from:</b> Self</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 68</p> <p><b>% Male:</b> 0</p> <p><b>Mean age:</b> 55–65 years</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this study was to test the efficacy of an individualised psychoeducational diabetes uncertainty management intervention (DM-UMI) directed at managing diabetes-related uncertainties and delivered by a nurse via telephone to OAAW</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Motivational interviewing techniques &amp; focused on four aspects of type 2 diabetes: diagnosis/prognosis, treatment concerns, economic/social/family aspect and self-care. It was driven by the women's needs</p> <p><b>Delivered by:</b> Trained African American nurse</p> <p><b>Number of telephone calls:</b> 1 per week for 4 weeks</p> <p><b>Duration of calls:</b> 10–60 mins</p> <p><b>Duration of the program:</b> 4 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Health behaviour</b> Reduced diabetes uncertainty in intervention group (<math>p &lt; 0.05</math>)</p> <p><b>Satisfaction</b> Found it convenient and improved their problem solving skills</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Amoako 2008<sup>31</sup> Linked paper(s): Amoako 2007</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Hypertension Vulnerable: Older African American women</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Clinics and physicians' offices</p> <p><b>Duration of study:</b> 6 weeks</p> <p><b>Number of patients:</b> 68 38 Intervention, 30 Control</p> <p><b>% Male:</b> 0</p> <p><b>Mean age:</b> 61 years (9.5)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate a telephone intervention to reduce uncertainty (through problem-solving strategies, information, cognitive reframing, and improved patient–provider communication)—namely, to measure its effects on diabetes self-care (diet, medicines, foot care, exercise, blood sugar test) and psychosocial adjustment</p> <p><b>Telephone coaching intervention:</b> Intervention was implemented on the phone every week for four weeks and was embedded in a semistructured clinical interview that included open-ended questions, direct exploration, and use of reflective comments</p> <p><b>Delivered by:</b> African American geriatric nurse practitioner</p> <p><b>Number of telephone calls:</b> 1 per week for 4 weeks</p> <p><b>Duration of calls:</b> 10 to 60 mins</p> <p><b>Duration of the program:</b> The experimental group received the intervention for 4 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> Exercise significantly improved in intervention group <math>p &lt; .001</math>. Intervention group showed improvement in diet, medications (NS)</p> <p><b>Quality of life</b> Psychosocial adjustment significantly improved in intervention group <math>p &lt; .001</math></p> <p><b>Adherence</b> Intervention group showed improvement foot care (NS). Minimal difference between groups on blood sugar testing</p>
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<p><b>Reference:</b> Sacco 2009<sup>19</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM</p> <p>Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> GP or a diabetes centre</p> <p><b>Duration of study:</b> 6 months</p> <p><b>Number of patients:</b> 62</p> <p><b>% Male:</b> N/A</p> <p><b>Mean age:</b> 52 years (8.6) Uptake to program: 33% attrition, patients dropped out after 3.8 calls</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b> Inexperienced facilitators may contribute to high attrition. All eligible patients recruited rather than those that volunteered and this may have led to higher attrition rate</p>	<p><b>Study aim:</b> To examine whether compared to treatment as usual, a brief, regular, telephone ‘coaching’ intervention delivered by paraprofessionals would produce improved diabetes adherence, glycemic control, diabetes-related medical symptoms, and reduced levels of depression</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Sessions were guided by Coaching checklist with structured format to address self care, blood sugar testing, medication, lifestyle, foot care etc. Blood sugar readings were reviewed and goals set</p> <p><b>Delivered by:</b> Psychology students</p> <p><b>Number of telephone calls:</b> 1 per week for 3 months and 1 per 2 weeks for 3 months</p> <p><b>Duration of calls:</b> 18 mins</p> <p><b>Duration of the program:</b> 6 months (24 weeks)</p> <p><b>Linkages with usual primary care provider:</b> Coaches conferred with health care team when necessary if something came up in the telephone session</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> Physiological measures of disease No difference in HbA1c</p> <p><b>Health behaviour</b> Summary of Diabetes Self-Care Activities significant improvement in intervention (p=0.001) Questionnaire</p> <p><b>Adherence</b> Increased exercise and self foot care with intervention</p> <p><b>Functional/health status</b> Depression significant improved with intervention</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Ma 2010<sup>13</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Coronary heart disease (CHD)</p> <p>Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Umass Memorial Medical Centre—patients who were seen for a CHD clinical event</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 689 338 Control, 351 Intervention. Only 559 had complete pharmacy records and were included in the final analysis</p> <p><b>% Male:</b> 60</p> <p><b>Mean age:</b> 60 years</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> A randomised control trial (RCT) testing a pharmacist delivered program to improve adherence to lipid lowering pharmacologic therapy in patients with known CHD. The objective of the study was to compare intervention and usual care conditions for LDL-C goal attainment and proportion of prescribed lipid-lowering medication taken by subjects over a one year period</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Seen by one of the pharmacists prior to discharge. This allowed the pharmacist to establish a relationship with the patient, explain the pharmacists role in the study, provide education about all discharge medications and set the framework for the follow-up telephone calls. The calls took place at 1, 3, 6 and 9 months following discharge. The goal was to assist patients to remain adherent to prescribed statins and other medications and also promote adherence to guidelines for LDL-C. During these calls, pharmacists utilised a patient centred counselling algorithm (address general issues, assess, advise, assist, arrange follow-up to help the patients develop a medication adherence plan). In addition the pharmacist facilitated scheduling of repeat blood draws for lipid measurement and provided information, guidelines and prompts to the patient and to the patient's physician or nurse practitioner with regard to LDL-C management. The study pharmacists were trained in the delivery of patient-centred counselling and followed patients centred protocols for the in-patient and telephone contacts. The pharmacists participated in an in-depth training program—which included a role playing session and a 4 hour meeting. One of the study investigators listened to the telephone counselling session for quality control and provided feedback to pharmacists on their counselling skills</p> <p><b>Delivered by:</b> Pharmacist</p> <p><b>Number of telephone calls:</b> 4 or 5? In the abstract it says 5 calls, in the body it says calls were made at 1, 3, 6 and 9 months post discharge</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 9 months</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> LDL-C &lt;100mg/dl. At one year, 65% in the intervention group and 60% in the UC condition achieved an LDL-C &lt;100mg/dL (P=0.29). The highest percentage of those who reached the LDL-C goal were participants who used statins as opposed to those who did not use statins (67% versus 58% – p=0.5) however only about half the patients in both groups were using statins</p> <p><b>Adherence</b> Proportion of prescribed statin medication taken by patients, the proportion of patients prescribed ACE inhibitor and beta-blocker medication. Mean statin adherence was 0.88 in the intervention group and 0.90 in the control (p=0.51)</p>
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	<p><b>Linkages with usual primary care provider:</b> Patients physician or nurse practitioner—was emailed a summary of the discussion after each pharmacist contact with the patients. The email included three categories (adherence, CAD and hyperlipidemia) along with recommendations for each</p> <p><b>Compared to:</b> Usual care</p>	
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Cole 2006<sup>12</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Congestive heart failure (CHF), depression Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b> Primary care</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 24</p> <p><b>% Male:</b> Major depression: 43%, other depression: 50%</p> <p><b>Mean age::</b> 73.8 years Major depression, 77 years Other depression</p> <p><b>Uptake to program:</b> Nineteen patients had entry and follow-up PHQ scores</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess the feasibility of a telephonic nurse double-disease management program (DDMP) for patients with depression and congestive heart failure</p> <p>Pilot study</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Patients entered into a DDMP modeled after Wagner’s chronic illness care model. The model for telephonic care (after determination of eligibility utilising the Patient Health Questionnaire [PHQ]) included 1) an initial telephone call establishing the working relationship, 2) assessment of adherence to the physician’s overall treatment plan, 3) evaluation of side effects from medication, and 4) subsequent calls, at least monthly, with telephonic administration of the PHQ. Calls followed a semi-structured format, and essential outcomes of the call were faxed immediately to the patient’s treating physician. All cases were reviewed at least weekly by the project psychiatrist, who communicated clinical suggestions to the treating physician by fax or phone call. Although the formal telephonic DM interventions were focused on depression care, the nurse also evaluated and encouraged adherence to cardiac medications, and provided general medical education and self-management support for lifestyle alterations</p> <p><b>Delivered by:</b> One DM nurse practitioner (care manager) with general medical, but not specialty psychiatric, experience received training (i.e. individualised depression management and general coaching)</p> <p><b>Number of telephone calls:</b> Monthly</p> <p><b>Duration of calls:</b> 15 mins</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b> Essential outcomes of the call were faxed immediately to the patient’s treating physician. All cases were reviewed at least weekly by the project psychiatrist, who communicated clinical suggestions to the treating physician by fax or phone call</p> <p><b>Compared to:</b> None</p>	<p><b>Outcomes:</b> <b>Health service use</b> <b>Economic outcomes</b></p>
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<p><b>Reference:</b> Copeland 2010<sup>16</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Veteran Affairs (VA)</p> <p><b>Duration of study:</b> 12 months. Retrospectively, 1-year preintervention data were collected to provide baseline assessments</p> <p><b>Number of patients:</b> 220 Intervention, 238 Control</p> <p><b>% Male:</b> 0.99</p> <p><b>Mean age:</b> 70 years (11)</p> <p><b>Uptake to program:</b> 126 Intervention, 172 Control</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess the effect of a telephone intervention to improve QoL among patients with congestive heart failure (CHF)</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> 1-year home-based telephone disease management CHF program. Registered nurses conducted a telephone survey at intake, with reassessments at 6 and 12 months querying participants' knowledge, behavior, and health status. During the scheduled telephone interactions, disease management nurse interventions included education and coaching for behavior change based on guidelines established by the American Heart Association and using motivational interviewing principles. Interventions occurred more frequently in the first 6 months of the program and focused on the participant-specific self-management plan derived from the participant admission history and based on the program focus. The program focus was participant education and behaviour change for fluid weight management, medication adherence, diet, early treatment for escalating symptoms, discussion of recent laboratory values, and vital signs monitoring. The intervention included access to a nurse advice line for symptoms and counselling 24 hours a day 7 days per week, medication compliance reminders, vaccination reminders and printed literature including action plans, workbooks, and post assessment letters, in addition to the scheduled nurse education and motivational interviewing sessions</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> Patients sorted into 3 risk categories that determined the frequency of scheduled telephone interactions over the course of the year (low risk [2 calls], medium risk [7 calls], and high risk [16 calls]). Interventions occurred more frequently in the first 6 months</p> <p><b>Duration of calls:</b> The mean intervention length was 30 to 40 mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Participant's physician was provided with faxed alerts about signs and symptoms of decompensation, as well as notification of gaps between participant-reported practice and guideline</p>	<p><b>Outcomes:</b> Physiological measures of disease</p> <p>After the year long intervention, no differences in clinical outcomes were noted between the intervention group and the control group. No differences in survival were detected</p> <p><b>Quality of life</b> No differences in health-related QoL</p> <p><b>Adherence</b> Intervention group patients reported better compliance with weight monitoring and exercise recommendations</p> <p><b>Functional/health status</b> No significant differences were noted for the mental component score</p> <p><b>Satisfaction</b> No significant differences in satisfaction with care</p> <p><b>Health service use</b> No significant differences were noted for admissions, CHF-related admissions, 30-day readmissions, medication costs</p> <p><b>Economic outcomes</b> The CHF-related costs were higher for the intervention group of</p>
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## Summary of papers of telephone coaching targeting people at level 2

	<p>recommendations. In addition communication to physicians occurred through the VA electronic medical record system regularly and was customary after each scheduled call, providing information on the patient's condition</p> <p><b>Compared to:</b></p>	<p>approx. \$6165, as were overall costs that included the cost of the intervention</p>
<p><b>Reference:</b> Bosworth, 2011<sup>56</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Only some had T2DM Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> From primary care patients in a Veterans Affairs (VA) general internal medicine clinics (VAMC)</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 591</p> <p><b>% Male:</b> 0.92</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b> BP measurements were available for 503 patients (85%) at 18 months of follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To determine which of three interventions was most effective in improving BP control The Hypertension Intervention Nurse Telemedicine Study (HINTS) trial</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Randomised into either: 1) nurse-administered, behavioural management intervention; 2) nurse-administered, physician-directed medication management intervention using a validated clinical decision support system; or 3) combined behavioural management and medication management intervention. All intervention patients were provided a home BP monitor and telemedicine device and advised to measure BP once every other day. BP measurements transmitted to a server. If BP too high intervention was activated, and home BP reassessed at 6 weeks before triggering the intervention again. Behavioural management intervention consisted of 11 tailored health behaviour modules focused on improving hypertension self-management. Verbal information was reinforced with mailed handouts. The nurse used an intervention software application that contained predetermined scripts and patient-specific tailored algorithms for the modules. On triggers in the medication management intervention, a nurse notified and provided a physician with a medication change recommendation based on the decision support software. Physician decided whether to change hypertension medication. Nurse communicated recommended changes to the patient and called the patient 3 weeks afterwards to obtain reports of adverse effects and address patient questions. In the combined intervention group, nurse initially addressed recommended medication adjustments followed by the tailored behavioural intervention</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> Duration of calls: Each encounter consisted of 3 or 4</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> The improvement in BP control relative to usual care at 12 months was statistically significant in the behavioural management group and medication management group and NS in the combined intervention group. At 18 months, only the combined intervention group showed evidence of improved. BP control relative to usual care, (NS). The largest sustained improvement for systolic BP was seen in the combined intervention group (P=.04). By 18 months, the mean systolic BP was lower only in the medication management and combined intervention groups compared with the usual care group (NS). Each intervention demonstrated improvements in BP control or systolic BP at 12 months; none of these improvements were sustained at 18 months and did not result in lower medical care costs. Among those with poor baseline BP control, combined intervention</p>

	<p>modules and lasted 12 to 14 minutes. Across the 3 intervention groups, 13.2 mins was the mean time spent by nurses on each completed encounter: 12.0, 13.9, and 13.7 mins in behavioural management, medication management, and combined intervention, respectively</p> <p><b>Duration of the program:</b> 18 months</p> <p><b>Linkages with usual primary care provider:</b> Patients in all four study arms received primary care and management of hypertension according to the discretion of their primary care provider</p> <p><b>Compared to:</b> Usual care. Had no contact with the intervention nurses and did not receive home telemonitoring equipment</p>	<p>significantly decreased systolic BP and diastolic BP at 12 and 18 months</p> <p><b>Health service use</b> None of the intervention groups increased health care use</p> <p><b>Economic outcomes</b> Intervention costs over 18 months were \$947 for behavioural management, \$1275 for medication management, and \$1153 for the combined intervention arm. There was no significant difference in median 18-month total VA medical cost across groups, which ranged from \$5180 per patient for the medication management arm to \$6910 for the behavioural intervention (p=.28)</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Piette 2001<sup>18</sup> Linked paper(s): IDEATel (Pilot)</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: VA patients described as facing no financial barrier to care - eg transport, rural</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> GP or a diabetes centre</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 132 Intervention, 140 Control</p> <p><b>% Male:</b> 0.38</p> <p><b>Mean age:</b> 60.5 years (10)</p> <p><b>Uptake to program:</b> 489 eligible and 272 randomised and completed</p> <p><b>Facilitators:</b> The nurse had access to hospital intranet with access to notes, results and could email providers</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate automated telephone disease management (ATDM) with telephone nurse follow-up as a strategy for improving diabetes treatment processes and outcomes in Department of Veterans Affairs clinics</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> Patient called automated service each week to upload glucose monitoring results. Nurse reviewed data and called patients to discuss their diabetes management, self care, symptom management and medication adherence. Not clear who prepares care plan</p> <p><b>Delivered by:</b> Nurses.</p> <p><b>Number of telephone calls:</b> 13 calls on average (1.1 per month)</p> <p><b>Duration of calls:</b> Automated calls 5–8 mins no information on duration of nurse calls</p> <p><b>Duration of the program:</b> Not clear – ? 12 months</p> <p><b>Linkages with usual primary care provider:</b> Nurse called or emailed referring doctor about health problems and to remind them about prevention tasks. 23% of nurse calls resulted in contact with provider</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> No significant change in HbA1c. HbA1c was significantly lower in intervention group for those <math>\geq 8</math> at baseline (8.7 v 9.2 p=0.04)</p> <p><b>Adherence</b> Regular foot inspection and blood sugar monitoring significantly improved in intervention group (p=0.05) cholesterol test 87 v 78 p 0.05, med foot exam 92 v 72 p 0.0002</p> <p><b>Satisfaction</b> Very satisfied with care</p> <p><b>Health service use</b> Significant increase in: podiatry services 62 v 42 p 0.003, diabetes clinic use 61 v 25 p=0.03</p> <p><b>Economic outcomes</b> Cost \$17–\$30 per patient per year excluding nurse time</p>
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<p><b>Reference:</b> Shea 2007<sup>39</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Large percentage of uninsured and CALD 64% eligible for Medicaid</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> GP</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b></p> <p><b>Mean age:</b> 71 years</p> <p><b>Uptake to program:</b> 1665 randomised and 1417 completed follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> This report summarises the findings of IDEATEL together with information on patient and provider satisfaction and preliminary findings from analysis of Medicare claims data</p> <p><b>Telephone coaching intervention:</b> Home telemedicine unit with modem and videoconferencing system, remote glucose monitoring and secure email</p> <p><b>Delivered by:</b> Project case manager supervised by physician</p> <p><b>Number of telephone calls:</b> N/A</p> <p><b>Duration of calls:</b> N/A</p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Regular contact between case manager and GP with phone, email or fax if treatment needed to be changed</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> HbA1c in intervention group decreased from 7.35% to 6.97% and 0.18% difference with control (p 0.006). The net adjusted reductions for systolic and diastolic BP were 3.4 mmHg (p 0.001) and 1.9 mmHg (p 0.001)</p> <p><b>Satisfaction</b> Patients and PHC providers were very satisfied with the program</p> <p><b>Health service use</b> Higher Medicare claims in intervention group</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Trief 2009<sup>14</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Older people aged over 55</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b> 37 (619)</p> <p><b>Mean age:</b> 70.82 years (6.63)</p> <p><b>Uptake to program:</b> 1443, 222 lost to follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess whether a) diabetes self-efficacy relates to the primary medical outcome of glycaemic control, and to secondary outcomes (BP and cholesterol), and b) whether after an intervention change in diabetes self-efficacy relates to change in these medical outcomes in a group of older, ethnically diverse individuals</p> <p><b>Telephone coaching intervention:</b> A home telemedicine unit (HTU), i.e. a web-enabled computer to upload blood glucose and BP readings, to videoconference with a dietitian/nurse case manager (all CDEs) and to access education and data. Televisits followed a specified case management protocol using case management software, were 30–60 mins long, and occurred every 4–6 weeks. Discussion included diabetes education, nutrition and activity counselling, and collaborative goal setting</p> <p><b>Delivered by:</b> Dietician / nurse case managers</p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Regular information sent to GPs about their patient</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c improvement significantly related to improvements in self-efficacy (<math>p &lt; 0.0001</math>)</p>
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<p><b>Reference:</b> Weinstock 2011<sup>43</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b> 5-year follow-up</p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Further analysis of the IDEATel project to understand differences reported by ethnic groups—5 year results</p> <p><b>Telephone coaching intervention:</b> See above</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcome:</b></p> <p><b>Physiological measures of disease</b> Overall HbA1c decreased by 0.29 (95% CI 0.12–0.46) in Hispanics the change was 0.5 (95% CI 0.22–0.78) <math>p &lt; 0.05</math></p> <p><b>Adherence</b> More glucose uploads resulted in greater reduction in HbA1c</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Weinstock 2011b<sup>42</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b> 5-year follow-up</p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine the effects of the IDEATel telemedicine intervention and pedometer use on physical activity (PA) and impairment in older adults with diabetes</p> <p><b>Telephone coaching intervention:</b> See above</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b></p> <p><b>Functional/health status</b> Lower rate of PA decline with intervention (p=0.0128). Usual care group declined 1 point on 7 point activity scale. Intervention group lower rate of decline on activities of daily living scale p=0.037</p>
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<p><b>Reference:</b> West 2010<sup>44</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable:</p> <p><b>Level of care:</b> NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To describe the use of telemedicine for setting goals for behaviour change and examine the success in achieving these goals in rural underserved older adults with diabetes IDEATel</p> <p><b>Telephone coaching intervention:</b></p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> Goals set at mean 33 televisits per patient</p> <p><b>Adherence</b> 68% behavioural goals achieved or met</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Izquierdo 2003<sup>37</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Some rural</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Medical Centre</p> <p><b>Duration of study:</b> 12 weeks</p> <p><b>Number of patients:</b> 46</p> <p><b>% Male:</b> 0.46</p> <p><b>Mean age:</b> 57.7 years (9.5)</p> <p><b>Uptake to program:</b> 88% completed the 3 visits</p> <p><b>Facilitators:</b> Telemedicine provide means for people in rural areas to receive health care more easily</p> <p><b>Barriers:</b> It looks like the telemedicine intervention was carried out at a centre and the equipment was not in patients homes</p>	<p><b>Study aim:</b> To determine whether diabetes education can be provided as effectively through telemedicine technology as through in-person encounters with diabetes nurse or educators. It looks like this is pilot for IDEATel</p> <p><b>Telephone coaching intervention:</b> Meetings with diabetes nurse via video conferencing. They provided the diabetes education based on the clinic diabetes education program. The sessions were interactive and focused on knowledge, lifestyle and skill development</p> <p><b>Delivered by:</b> Experienced nurses or educators</p> <p><b>Number of telephone calls:</b> 3</p> <p><b>Duration of calls:</b> 2 hours total</p> <p><b>Duration of the program:</b> 12 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Face to face meetings with diabetes nurse / educator. The sessions were interactive and focused on knowledge, lifestyle and skill development</p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> Significant improvement in HbA1c with both interventions (8.6 to 7.8), no difference between the treatment groups. LDL significantly improved but not difference between treatment groups</p> <p><b>Quality of life</b> PAID survey (emotional score) and ADS score improved significantly with both treatment groups</p> <p><b>Satisfaction</b> No difference in satisfaction between the two groups</p>
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<p><b>Reference:</b> Izquierdo 2010<sup>36</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population</b> T2DM Vulnerable: The study population was elderly adults living in rural underserved areas spanning over 30,000 square miles, and participant follow-up was for at least 2 years</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Medical Centre</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 890</p> <p><b>% Male:</b> 0.43</p> <p><b>Mean age:</b> 71.02 years (7.07)</p> <p><b>Uptake to program:</b> Those lost to follow-up were younger, female and longer duration of type 2 diabetes</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> We examine the changes in waist circumference (WC) and body mass index (BMI) in older adults enrolled in a diabetes telemedicine program. The subjects were elderly Medicare beneficiaries participating in the rural (upstate New York) cohort of Informatics and Diabetes Education and Telemedicine, a randomised, controlled trial using telemedicine to improve diabetes care in which the primary outcome was glycemic control</p> <p><b>Telephone coaching intervention:</b> A nurse case manager conducted home video visits to help the patient with diabetes self-management techniques and problem solving strategies. Nurse case managers determined the patient's interest in receiving nutrition counselling with a dietitian within the first few video visits, and those interested were scheduled for a televisit with a dietitian. Those not interested met with the nurse case manager only, but this was rare. After an initial 1 hour nutrition assessment and counselling video visit 30 mins</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b> Duration of the program:</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> No effect of intervention on BMI and WC (1.2 cm intervention vs 1 cm control)</p> <p><b>Health behaviour</b> Significant improvement in diet and exercise with intervention (<math>p=0.002</math>)</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Trief 2007<sup>41</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable:</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b> Those from Upstate New York had biggest improvement in self efficacy and they tended to be beter educated than those from New York City who tended to be Hispanic</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this study is to assess the impact of the IDEATel intervention on secondary psychosocial outcomes</p> <p><b>Telephone coaching intervention:</b> Home telemedicine unit with modem and videoconferencing system, remote glucose monitoring and secure email</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Self-efficacy</b> Intervention subjects improved significantly (versus control subjects) in diabetes self-efficacy (p 0.0001). The effect size (estimated using adjusted for covariate difference scores, expressed in the original units of the scale) of the intervention on self-efficacy was 2.377 (95% CI 1.40 –3.36)</p> <p><b>Quality of life</b> No difference in diabetes distress score</p> <p><b>Functional/health status</b> No difference in depression.</p>
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<p><b>Reference:</b> Young 2005<sup>10</sup> Linked paper(s): PACCTS</p> <p><b>Country:</b> UK</p> <p><b>Target population:</b> T2DM Vulnerable: Low SES</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> PHC</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 596</p> <p><b>% Male:</b> 0.58</p> <p><b>Mean age:</b> 67 years</p> <p><b>Uptake to program:</b> 8.2% of intervention patients could not cope with the telephone calls and left the study</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To determine whether PACCTS using trained nonmedical telephonists supported by specially designed software and a diabetes nurse, can effectively improve glycemic control in type 2 diabetes</p> <p><b>Telephone coaching intervention:</b></p> <p><b>Scripted reactive and planned</b> Telephone calls from care centre to people with type 2 diabetes. They had access to diabetes data from local electronic health record. Calls were initiated every 3 months if HbA1c &gt;7% and monthly if HbA1c &gt;9%. Patients could call in if they wished. Call centre staff trained in motivational interviewing techniques, medication adherence and lifestyle changes</p> <p><b>Delivered by:</b> Trained call centre staff trained by diabetes nurse</p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b> 20 mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care by their GP</p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> 0.31 (0.11–0.52) change in HbA1c intervention compared to usual care. Most change in those at 7-9% at baseline</p> <p><b>Adherence</b> Medication increased more in the PACCTS group than the usual care group (p 0.002)</p> <p><b>Economic outcomes</b> Borderline cost effective</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Long 2005<sup>9</sup> Linked paper(s): PACCTS</p> <p><b>Country:</b> UK</p> <p><b>Target population:</b> T2DM Vulnerable: Patients were randomised from 47 general practices in a deprived urban area in northwest England</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary health care</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 591 patients recruited and randomly assigned in a 2:1 ratio to the intervention and control group</p> <p><b>% Male:</b> Satisfaction questionnaire (57% male in the intervention and 58% male in the control group); 468 people responded giving a response rate of 79%. Acceptability questionnaire: 58% male (but only a 65% response rate—200 users)</p> <p><b>Mean age:</b> Satisfaction: median age of 67–68 years. Acceptability: median age of 69 years</p> <p><b>Uptake to program:</b> variable—higher for satisfaction (79% response rate); acceptability (65%)</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine patients’ views of the acceptability of and satisfaction with telephone care centre support provided to improve blood glucose control in type 2 diabetes</p> <p><b>Telephone coaching intervention:</b> The PACCTS Trial randomised patients into two arms: 1) usual care (the control) ; 2) proactive call centre support in addition to usual care (the intervention). PACCTS involved a stepped call approach. Patients received calls, scheduled for 20 minutes at a pre-arranged date and time, related to their level of blood glucose control: 1) those with poor control (HbA1c more than 9%) received one proactive call per month; 2) those with moderate control (HbA1c 7.1-9%) received one proactive call every 7 weeks; 3) those with good control HbA1c 7% or less) received one proactive call every 3 months. Each scheduled call comprised protocol-based and computer software supported sections about knowledge of diabetes, readiness to make changes, medication adherence, and measurement of glucose control. Interim follow-up calls were arranged if required. Following referral from the telecarers, calls were made by the supervisory diabetes specialist nurse for urgent issues or for routine supplementary counselling and medication change. Patients were also required to keep self-management logs of blood glucose levels and relay these back to the telecare staff during the calls</p> <p><b>Delivered by:</b> Two telecarers who were supported by a diabetes specialist nurse, who in turn was supervised by the consulting physician</p> <p><b>Number of telephone calls:</b> Depends on HbA1c—at least one proactive call every 3 months (4 calls over 12 months) and potentially more than 12 calls if there is poor control</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> Physiological measures of disease Level of glycaemic control</p> <p><b>Health behaviour</b> Behaviour change effects were evaluated in a sample of 25 patients who took part in an in-depth semi-structured interview</p> <p><b>Satisfaction</b> Measured in both the control and intervention, at baseline and at the end of the study. Used the validated Diabetes Satisfaction and Treatment Questionnaire. This includes a measure of satisfaction with treatment and is a self report measure with 8 items. Results - By the end of the trial satisfaction, levels had increased in both groups (30.6–32.3 vs. 32.3–33.2 in the control and intervention groups respectively), and there was statistically significant difference between the intervention and the control group (z 2.266, p 0.023)</p>
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<p><b>Reference:</b> Stone 2010<sup>40</sup> Linked paper(s): DiaTel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> VA Medical Centre with approval from GP</p> <p><b>Duration of study:</b> 3 months and 6 months</p> <p><b>Number of patients:</b> 150</p> <p><b>% Male:</b> N/A</p> <p><b>Mean age:</b> N/A</p> <p><b>Uptake to program:</b> 137 completed</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To compare the efficacy of home telemonitoring with medication management by a nurse practitioner with a monthly care coordination telephone call on glycaemic control</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted reactive</b> Patients attended a 2 hour education session on diabetes and were given a home telemonitoring device. Patients uploaded daily blood sugar readings and a nurse practitioner reviewed the results and provided telephone follow-up for those with very high or low readings. This follow-up included education and self-management support. Nurse also called patient monthly for coaching and SMS</p> <p><b>Delivered by:</b> Nurse</p> <p><b>Number of telephone calls:</b> N/A</p> <p><b>Duration of calls:</b> Mean 1.3 hr per patient per month</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b> VA Medical Centre staff contacted GP for approval and consent for their patient to take part</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c was 0.7% lower in intervention group compared to control (p&lt;0.001)</p> <p><b>Adherence</b> At 6 months the intervention group had significantly more BP medication and dose changes but not lipid or antiglycaemic medication. 7/64 patients did not submit data via phone</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Moyer-Knox 2004<sup>27</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b> An established heart failure (HF) program</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> In previous work, we demonstrated the feasibility of remote telephonically assisted beta blocker (BB) titration and found favourable effects on morbidity, time to target dose, and low withdrawal rates. In the current expanded evaluation, we reasoned that a structured remote telephonic titration protocol would achieve similar benefits. The aim of the study seems to be to evaluate the safety of remote titration of BB rather than the effectiveness of telephone coaching</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted reactive</b></p> <p>Before initiation of BB therapy, patients were seen in the HF clinic by a cardiologist and an advanced practice nurse (APN). A complete history and physical exam confirmed euvoemia and eligibility. Each patient was instructed on the benefits of BB therapy, medication name and starting dose, titration schedule, common side effects, pulse taking, BP and daily weight monitoring (with an estimated counselling time of 1 hour per patient). Patients demonstrated correct pulse taking while the APN was present. This study population was evaluated with the aid of home BP monitoring. If patients did not have access to an automated BP cuff, they were instructed to acquire one or have BPs monitored at a local drug store. If patients reported any difficulty with using the automated BP cuff, they were asked to bring it to the clinic for further education and return demonstration with the APN present. Following the manufacturer guidelines, eligible patients were started on carvedilol 3.125 mg twice daily (BID) and up titrated every 2 weeks as tolerated to a target dose of 25 mg BID. After patients were initiated on the drug they were asked to call the APN with a report of weight, HR, BP, and untoward symptoms 3 times per week (Monday, Wednesday, and Friday). Carvedilol was increased every 2 weeks until the target dose was reached or drug intolerance prevented further titration. On the assigned call-in day, the APN assessed the need for further intervention by evaluating the self-reported vital signs (VS) and any adverse events (AEs). When uptitration was due, the APN phoned the patient to review the new dose, provide education and offer support. When immediate intervention was necessary because of unacceptable VS, weight changes, or AEs, a focused verbal assessment illuminated the situation further and allowed the APN to intervene</p>	<p><b>Outcomes:</b></p>
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	<p>in one or a combination of the following ways: 1) adjust diuretics; 2) alter or stagger concomitant medications; 3) provide education on side effects; 4) reinforce dietary compliance; 5) prescribe and evaluate laboratory and diagnostic testing; 6) schedule clinic visits. Patients were managed via telephone between 8 and 12 weeks or until optimal dosage was reached. An appointment in the HF clinic was scheduled for 1 month after optimisation to evaluate the patients' clinical status</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Anderson 2010<sup>32</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM, coronary artery disease (CAD), CHF, chronic obstructive pulmonary disease (COPD), asthma, hypertension, depression (not all had these) Vulnerable: Majority was Hispanic or African American. Most were of low socioeconomic status and nearly all had Medicaid or were uninsured</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> 2 Community Health Centres</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 146 Intervention, 149 Control</p> <p><b>% Male:</b> 0.42</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b> Of those patients who were randomised, 115 (79%) in the control and 94 (64%) in the intervention group completed the 1-year study</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To test the effectiveness of a supplemental telephonic disease management program compared to usual care alone for patients with diabetes cared for in a community health centre</p> <p><b>Telephone coaching intervention:</b> Patients received 1 year of telephonic disease management. Call content was semi structured. Calls were unscripted, allowing the nurse to address each patient's individual needs whether related to diabetes or other topics</p> <p><b>Delivered by:</b> Specialised nurses</p> <p><b>Number of telephone calls:</b> Patients were called weekly, bi-weekly, or monthly depending on their risk stratification. Patients could be reassigned to receive more or fewer calls if their risk stratification changed at the 6-month assessment or if the patient requested a change in calls</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> No significant differences in the primary outcome (HbA1c) between the intervention and control groups at 12 months. No significant differences for secondary clinical outcome measures ie BMI, BP, LDL-C</p> <p><b>Health behaviour</b> No significant differences for behavioural outcome measures i.e. smoking, or intake of fruits and vegetables, or PA</p> <p><b>Functional/health status</b> Perceived health status did not vary between the 2 groups</p>
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<p><b>Reference:</b> Eakin 2010<sup>34</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension 61.8% had &gt;3 chronic conditions Vulnerable: socioeconomically disadvantaged community</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> 10 primary care practices</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 434 Telephone Counselling (TC) (n=228) Usual care (UC) (n=206)</p> <p><b>% Male:</b> 0.39</p> <p><b>Mean age:</b> 58.2 years (11.8)</p> <p><b>Uptake to program:</b> 434 vs 315</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine the maintenance of behavioral changes 6 months following a 12 month telephone-delivered PA and diet intervention</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Patients from telephone counselling (TC) practices were mailed a workbook on PA and healthy eating and a pedometer to supplement their telephone counselling calls. The intervention was implemented over a 12-month period, with a 4-month intensive call phase (10 calls) and an 8-month maintenance enhancement phase (8 calls). All study outcomes were obtained using computer-assisted telephone interviews (CATI) at baseline, 4, 12, and 18 months, by interviewers who were blind to group allocation</p> <p><b>Delivered by:</b> Counsellors who had bachelors or masters degrees in either public health or health promotion or the allied health sciences</p> <p><b>Number of telephone calls:</b> The median number of calls completed by the TC group was 13 (range: 0–18), with sufficient calls (at least 12 out of 18) being completed by the majority of TC participants (n =146, 64%) and the vast majority of TC participants with 18-month follow-up date</p> <p><b>Duration of calls:</b> Mean 18.2 (SD 4.1) mins</p> <p><b>Duration of the program:</b> 12-month</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> UC. After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They also received a quarterly project newsletter on general health tips, along with brochures on various health topics, including PA and diet</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> For PA, the significant (p. 001) within-groups improvements from baseline observed at 12 months remained at 18 months, in both the TC and UC groups. For all dietary outcomes, significant (p .05) between-groups maintenance effects, similar to end-of-intervention outcomes, remained. Among the UC group, no evidence of a systematic return toward baseline levels or further improvement as none of the differences between the 18-month and 12-month outcomes were statistically significant. Only vegetable intake declined significantly over the noncontact period (within the TC group); all other outcomes were unchanged or improved</p>
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## Summary of papers of telephone coaching targeting people at level 2

<p><b>Reference:</b> Goode 2011<sup>35</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: socioeconomically disadvantaged community</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> General practices</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 434 TC (n=228); UC (n=206)</p> <p><b>% Male:</b> 0.39</p> <p><b>Mean age:</b> 58.2 years (11.8)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b> Language or cultural barriers might explain why intervention dose was lower for non-whites</p>	<p><b>Study aim:</b> To examine associations of intervention dose with behaviour change outcomes in a telephone counselling intervention for PA and dietary change</p> <p><b>Telephone coaching intervention:</b> Patients from TC practices were mailed a workbook on and healthy eating and a pedometer to supplement their telephone counselling calls. The intervention was implemented over a 12-month period: calls were made weekly for the first 3 weeks, then twice weekly until 4 months (initiation phase), and then monthly for the remaining 8 months (maintenance enhancement phase). The intervention protocol allotted up to 10 attempts per call in an effort to reach the participants. A patient-centred motivational interviewing approach to telephone health behaviour counselling was used. All study outcomes were obtained using CATI at baseline, 4, 12, and 18 months, by interviewers who were blind to group allocation</p> <p><b>Delivered by:</b> Counsellors who had bachelors or masters degrees in either public health or health promotion or the allied health sciences</p> <p><b>Number of telephone calls:</b> 18</p> <p>Median number of total calls 13 (range 0–18). The median numbers during initial and maintenance-enhancement phases were 7 (0–10) and 6 (0–8) respectively</p> <p><b>Duration of calls:</b> the mean (SD) call duration was 18.2 (4.1) mins</p> <p><b>Duration of the program:</b> 12-month</p> <p><b>Linkages with usual primary care provider:</b> UC. After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They also received a quarterly project newsletter on general health tips, along with brochures on various health topics, including PA and diet</p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b></p> <p>Categorisation of calls:</p> <ul style="list-style-type: none"> <li>• Low: 0–10 total calls</li> <li>• Medium: 11–15 total calls</li> <li>• High: 16–18 total calls</li> <li>• Low: 0–5 initial phase calls</li> <li>• Medium: 6–8 initial phase calls</li> <li>• High: 9–10 initial phase calls</li> <li>• Low: 0–4 Maintenance/Enhancement phase calls</li> <li>• Medium: 5–7 Maintenance/Enhancement phase calls</li> <li>• High: 8 Maintenance/Enhancement phase calls</li> </ul> <p>Relative to low call completion, high completion during the maintenance/enhancement phase was associated with significantly greater behavioural improvement for total fat intake, saturated fat intake, fibre intake, and MVPA. For most health behaviours examined, call completion in the maintenance/enhancement phase was more strongly associated with behavioural change than was call completion during the initiation phase</p>
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<p><b>Reference:</b> Lawler 2010<sup>38</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: Yes the trial was conducted in a socioeconomically disadvantaged community—there are a greater percentage of single-parent families, unemployment and foreign born residents</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary care clinics</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 434 individuals (10 practices) 228 allocated to the Intervention (5 practices) and 206 allocated to Usual care (5 practices)</p> <p><b>% Male:</b> 39.9</p> <p><b>Mean age:</b> 58.2 years</p> <p><b>Uptake to program:</b> 53 lost in the intervention group, and 40 in the control group therefore Usual care (n=203) and Telephone counselling (n=223)</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Within a 12-month, telephone-delivered diet and PA intervention with multiple behavioural outcomes, we examined the extent and co-variation of multiple health behaviour change. Is a change in one's health behavior associated with the likelihood of changing others?</p> <p><b>Telephone coaching intervention:</b> Directly with patients. Cultural values integrated into the intervention were an emphasis on personalised caring, trust, inclusion of the family</p> <p><b>Delivered by:</b> Counsellors were masters-level graduates with a background in nutrition and given additional training in PA promotion and motivational interviewing techniques and the constructs of social cognitive theory, which underpinned the intervention</p> <p><b>Number of telephone calls:</b> Median number of total calls completed was 13 (range 0-18) they were scheduled to receive 18 calls over the 12 months</p> <p><b>Duration of calls:</b> 18.2 (SD 4.1) mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They were also sent off-the-shelf brochures on a variety of health topics, including PA and diet, and a project newsletter with general health tips</p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> More than half (53.4%) of UC participants made no changes in the number of health risk behaviours at 12 month's follow-up, and less than a third (32.8%) reduced their risk behaviours by one or more, compared to those in the telephone counselling group where just over a third (38.6%) made no changes and more than half (52.5%) reduced their risk behaviours by at least one. Those in the telephone counselling group were more than twice as likely than those in the UC group to make greater reductions in multiple behaviours over the course of the intervention, even after adjustment for the number of behaviours not being met at baseline (OR 2.42 95% CI 1.43, 4.11)</p> <p>Covariation among health behaviours— Participants who made improvements in total fat, saturated fat, vegetables, and PA were significantly more likely to make a greater number of improvements to other unrelated behaviours, having adjusted for group allocation and the number of behavioural risk factors present at baseline. Confidence intervals were wide, so the true strength of associations is difficult to discern; however, the increase in odds of making more changes were generally substantial</p>
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## Summary of papers of telephone coaching targeting people at level 2

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		<p>(OR &gt;2). Participants who improved their fruit intake showed a similar trend towards making more other behavioural changes, but the relationship did not reach statistical significance. Reduced odds of making changes to unrelated behaviours were only seen with fiber intake, and this relationship did not reach statistical significance</p>
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<p><b>Reference:</b> Eakin 2009<sup>33</sup> Linked paper(s):</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: Yes the trial was conducted in a socioeconomically disadvantaged community - there are a greater percentage of single-parent families, unemployment and foreign born residents</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary care clinics</p> <p><b>Duration of study:</b> 12 months (I think). The study outcomes were obtained at baseline, 4 and 12 months. However for the data collection phase of the study was conducted over two years and nine months. I assume they recruited practices at different times, and that intervention itself only last 12 months</p> <p><b>Number of patients:</b> 434 individuals (10 practices) 228 allocated to the intervention (5 practices) and 206 allocated to usual care (5 practices)</p> <p><b>% Male:</b> 0.399</p> <p><b>Mean age:</b> 58.2 years</p> <p><b>Uptake to program:</b> in the intervention group 20 were lost to follow-up and 33 discontinued the intervention, in the control group 15 were</p>	<p><b>Study aim:</b> A cluster RCT of a telephone counselling intervention for PA and diet was conducted, targeting patients with type 2 diabetes or hypertension, recruited from ten primary care practices in Queensland, Australia. The intervention was initiated via physician referral and took place entirely over the telephone, with patients from a disadvantaged community. The purpose of the trial was to achieve, in a challenging patient sample, change in health behaviours that are known to be important precursors to improved disease management outcomes</p> <p><b>Telephone coaching intervention:</b> Concrete solutions and problem solving in response to problems with self-care. The intervention group was contacted by telephone, on average, within 5 days after hospital discharge and thereafter at a frequency guided by the software and nurse care manager judgement. Printed educational material in the desired language was mailed to patients monthly and as needed when specific information was requested.</p> <p><b>Delivered by:</b> Counsellors were masters-level graduates with a background in nutrition, and given additional training in PA promotion and motivational interviewing techniques and the constructs of social cognitive theory, which underpinned the intervention</p> <p><b>Number of telephone calls:</b> 18</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They were also sent off-the-shelf brochures on a variety of health topics, including PA and diet, and a project newsletter with general health tips</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> The primary study outcomes were minutes and sessions of MVPA per week, percent of calories from total fat and saturated fat, grams of fiber, and servings of vegetables and fruit. At 12 months, patients in both groups increased MVPA by a mean of 78 mins per week (SE 10). Significant intervention effects (telephone counselling minus usual care) were observed for: calories from total fat (decrease of 1.17%; p 0.007), energy from saturated fat (decrease of 0.97%; p 0.007), vegetable intake (increase of 0.71 servings; p 0.039), fruit intake (increase of 0.30 servings; p 0.001), and grams of fiber (increase of 2.23 g; p 0.001)</p>
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## Summary of papers of telephone coaching targeting people at level 2

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lost to follow-up and 25 discontinued the intervention		
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**Facilitators:**

**Barriers:**

<p><b>Reference:</b> Pinto 2011<sup>28</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CAD Vulnerable: no</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Hospital cardiac rehabilitation patients</p> <p><b>Duration of study:</b> 12 months. After the 6 month intervention, bi monthly phone calls were provided to prompt regular physical activity</p> <p><b>Number of patients:</b> 130 (intervention 64, Control 66)</p> <p><b>% Male:</b> 0.792</p> <p><b>Mean age:</b> 63.6 years Uptake to program: 44 intervention group, 52 control group (20 lost in the intervention group and 14 in the control group) doesn't say why</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess the effects of a theory-based 6-month exercise counselling intervention on maintenance of exercise behaviour after completion of Phase II cardiac rehabilitation</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> The intervention coordinator reviewed the patient's exercise prescription received on discharge from the cardiac rehabilitation program. The participant was given home logs to monitor exercise participation and a pedometer to wear during exercise activities that involved walking. Each participant received calls weekly over the first 2 months, biweekly for the next 2 months and monthly for the last 2 months. Participants were mailed an information tip-sheet on exercise and one on cardiovascular health for each call during the 6 month program. A feedback letter summarising the participants exercise progress and supporting motivation was sent to them at Weeks 4, 8, 12, 16, and 20</p> <p><b>Delivered by:</b> Unclear – Intervention Coordinators</p> <p><b>Number of telephone calls:</b> 14 calls</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> The control group received calls from the intervention coordinator at the same intervals as the intervention group over the entire study period. During the calls the Symptom Questionnaire was administered to monitor general health problems. The group also received tip-sheets on cardiovascular health. After completing the 12 month assessment, participants received the exercise tip-sheets</p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> Lipid outcomes, c-reactive protein—no differences were seen in these measures at 6 and 12 months</p> <p><b>Health behaviour</b> Assessment of PA and motivational readiness for exercise. The intervention group reported significantly higher exercise participation than the control group at 12 months (difference of 80 mins). Group difference in exercise at 6 months were nonsignificant. The intervention significantly increased the probability of participants' exercising at or above PA guidelines and attenuated regression in motivational readiness at 6 and 12 months</p> <p><b>Functional/health status</b> Self reported physical functioning: SF-36 was significantly higher in the intervention group at 12 months, but not at 6 months</p>
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**Table 3: Summary of papers of telephone coaching targeting people at level 3**

<p><b>Reference:</b> Wheeler 2010<sup>45</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Community setting - home health care agency (HHA)</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 41</p> <p><b>% Male:</b> 0.34</p> <p><b>Mean age:</b> 72 years (12.7)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this pilot study was to assess the effectiveness of regular telephone interventions by nursing students on outcomes of HF patients in the home</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Patients receiving care from HHA for 1– 4 weeks and then were followed up by the student nurse phone calls</p> <p><b>Delivered by:</b> Student nurses</p> <p><b>Number of telephone calls:</b> 1–2 times per week</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12–14 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care from HHA</p>	<p><b>Outcomes:</b> <b>Quality of life</b> No difference</p> <p><b>Health service use</b> Intervention group had fewer readmissions (not significant)</p>
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<p><b>Reference:</b> Jerant 2003<sup>17</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> After hospital admission</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 37</p> <p><b>% Male:</b> 0.54</p> <p><b>Mean age:</b> 70.2 years(12.1)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The current report details the relative impact of the three types of home nursing follow-up interventions on these patient-centred outcomes and nursing content and efficiency indicators</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> During all types of nursing encounters, the Visiting Nurse Association (VNA) CHF Care Steps protocol was used to guide patient assessment (Strategic HealthCare Programs, 1997). This protocol includes assessment of items such as vital signs, activities of daily living, coping skills, medication use, dietary factors, and degree of signs and symptoms such as dyspnea and weight gain. Patients are educated regarding each item, and patient-centred goals for the frequency and content of follow-up visits are developed</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> 9.3 telemedicine (video) or 6.1 telephone calls</p> <p><b>Duration of calls:</b> 12 mins</p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Study nurse sent details to PHC provider who made changes to medication etc</p> <p><b>Compared to:</b> UC or video conferencing</p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> No difference in weight, smoking or salt intake between groups</p> <p><b>Quality of life</b> No difference in QoL between groups</p> <p><b>Adherence</b> No difference in medication compliance between groups</p>
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## Summary of papers of telephone coaching targeting people at level 3

<p><b>Reference:</b> Hartford 2002<sup>46</sup> Linked paper(s):</p> <p><b>Country:</b> Canada</p> <p><b>Target population:</b> CAD Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> A large, tertiary care teaching hospital</p> <p><b>Duration of study:</b> 8 weeks</p> <p><b>Number of patients:</b> Patient–partner dyads (n=166)</p> <p><b>% Male:</b> 84% Intervention, 88% Control</p> <p><b>Mean age:</b> Intervention: 62.7 years (9.1) Intervention, 63.0 years (8.2) Control</p> <p><b>Uptake to program:</b> The dropout rate was 21%</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b> Measuring anxiety with a female interviewer may have resulted in male patients feeling it was not socially acceptable to communicate increased anxiety, thus decreasing the study’s ability to detect a patient intervention effect. Self-report measures to “social desirability” bias and may result in an inability to distinguish true anxiety levels from masked anxiety levels</p>	<p><b>Study aim:</b> To determine the effectiveness of an information and support telephone intervention for reducing anxiety in patients who have undergone coronary artery bypass graft surgery and in their partners</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> For patient–partner dyads in the treatment group, a discharge intervention was conducted on the day of discharge. Patient and partner together were provided with information about medication for pain relief, distances to walk, rest stops during the drive home, the nurse’s 24-hour number, and when the nurse would call again. This was followed by 6 telephone calls. During the calls, patients and partners were spoken to separately. There were 4 measurement times: T1 or baseline; T2; week 4 (T3); and week 8 (T4)</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> 6: on days 1, 2, and 4 and weeks 1, 2, and 7 after discharge</p> <p><b>Duration of calls:</b> 20 to 60 mins</p> <p><b>Duration of the program:</b> 7 weeks</p> <p><b>Linkages with usual primary care provider</b></p> <p><b>Compared to:</b> The control group received UC which did not include systematic follow-up</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> Patients Beck Anxiety Inventory (BAI) score: no main effects for group or time were found</p> <p>Partners' BAI score: A borderline significant main effect for group (<math>p=.0501</math>) and a significant main effect for time were found</p>
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<p><b>Reference:</b> Holmes-Rovner 2008<sup>47</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Coronary artery disease (acute coronary syndrome) Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> 5 community hospitals that participated in the American College of Cardiology Guidelines Applied to Practice (GAP) QI program one year prior to the present trial</p> <p><b>Duration of study:</b> 8 months</p> <p><b>Number of patients:</b> Consent=719 Baseline interviewed: n=525 Intervention (n=268); Control (n=257)</p> <p><b>% Male:</b> 35% Intervention, 38% Control</p> <p><b>Mean age:</b> 59.0 yrs [12.0] Intervention, 60.5 yrs [11.9] Control</p> <p><b>Uptake to program:</b> Intervention group: Completed final 8 month interview n=202 Control group: Completed final 8 month interview n=186</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b> The intervention approach itself was not a good match for these patients. It came</p>	<p><b>Study aim:</b> To test the effectiveness of a six-session outpatient telephone-based counselling intervention to improve secondary prevention (behaviours, medication) in patients with acute coronary syndrome (ACS) following discharge from hospital, and impact on physical functioning and QoL at 8 months post discharge</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Patients were randomised within each hospital to 1) hospital quality improvement (QI-only) or 2) quality improvement plus brief telephone coaching (QI-plus). (The Heart After-Hospital Recovery Planner (HARP) intervention). Patients in the QI-plus arm received a six-session health behaviour change telephone counselling program during the first three months after discharge. Initial patient contact approximately 2 weeks post-hospital discharge. Behaviour change strategies included behavioural staging, motivational interviewing, goal setting, relapse prevention, and obtaining social support. Patients were encouraged to identify at least one current behaviour they intended to improve and set weekly goal(s). Each patient and his/her family received an information booklet and goal worksheets</p> <p><b>Delivered by:</b> One health educator (coach) trained in behaviour change and motivational counselling</p> <p><b>Number of telephone calls:</b> Weekly for six weeks. Of the 175 patients entering the program, all completed more than four sessions, with a mean number of sessions of 5.9 (SD=0.34)</p> <p><b>Duration of calls:</b> 15 to 30 mins each (behavioural staging, goalsetting, relapse prevention, and social support)</p> <p><b>Duration of the program:</b> 6 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Both intervention and control groups received the QI program by virtue of having been admitted to GAP hospitals. GAP is a translational program shown to improve physician adherence to guidelines, but ends at discharge. GAP patients received a written discharge contract listing recommended outpatient</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> There were no statistically significant differences in medication use between the intervention and control groups for beta blockers, aspirin, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, and lipid lowering medication at the three time points.</p> <p>The intervention increased self-reported PA at 3 and 8 months (OR=1.53, p&lt;0.02). Differences in the odds of smoking cessation and weight loss participation were not statistically significant</p> <p><b>Quality of life</b> No difference in QoL by intention-to-treat</p> <p><b>Functional/health status</b> No difference in functional status by intention-to-treat</p>
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## Summary of papers of telephone coaching targeting people at level 3

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<p>on top of an ongoing QI program in which patients consistently received standard in-hospital counselling suggesting that for the majority of patients, instruction in hospital appears to have been important and effective, and that additional counselling outside the context of follow-up office care added only a little benefit</p>	<p>medications, cardiac rehabilitation recommendations, and health behaviour changes (smoking cessation, diet modification, and exercise), as well as numerical values for ejection fraction and cholesterol</p>	
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<p><b>Reference:</b> Riegel 2006<sup>15</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF, depression Vulnerable: Hispanics of Mexican origin—the percentage of heart failure patients rehospitalised for heart failure or other causes, total hospital days, and total hospital charges are significantly higher in California Hispanics than non-Hispanic whites</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Self identified Hispanics were recruited from 2 community hospitals close to the US-Mexico border. Patients with a primary or secondary diagnosis of heart failure, living in the community and planning to return to the community after hospital discharge were eligible to participate</p> <p><b>Duration of study:</b> Not clear, there was a 2 year enrollment period. There was a 6 month intervention period</p> <p><b>Number of patients:</b> The intervention was received by 58 of the 70 patients randomised to the intervention group</p> <p><b>% Male:</b> 0.46</p> <p><b>Mean age:</b> 72 + or – 11 years</p> <p><b>Uptake to program:</b> <b>Facilitators:</b> <b>Barriers:</b></p>	<p><b>Study aim:</b> We tested the effectiveness of telephone case management in decreasing hospitalisations and improving health-related quality of life (HRQL) and depression in Hispanics of Mexican origin with Heart Failure</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Features can be overridden based on clinical judgment. The nurse case managers were affiliated with the hospital, not individual providers, so they did not titrate medications or coordinate follow-up care. The emphasis of the intervention was on education, monitoring, and guidance. The intervention was refined to be culturally appropriate by the bilingual/bicultural collaborators (nurse case managers, physician coinvestigator, research assistant)</p> <p><b>Delivered by:</b> Two bilingual/bicultural Mexican-American registered nurses with special training in HF</p> <p><b>Number of telephone calls:</b> Patients received an average of 13.5 calls (median 13), and families received an additional 8.4 (median 7), with most calls early on after discharge, an additional 4.6 (median 3) case management contacts involved a consultation with another health professional</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b> Nurse case managers telephoned physicians as needed and mailed reports on patient progress at regular intervals. Reports mailed to physicians noted when patients were not receiving medications advocated in clinical guidelines, to support evidence-based practice</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Health service use</b> Heart failure rehospitalisation was the primary outcome variable. Other variables were all-cause hospitalisations, days in the hospital (HF and all-cause), multiple readmissions (more than 1 in 3 or 6 months), acute care costs (HF and all-cause), and all cause mortality. No significant group differences were found in HF hospitalisations, HF readmission rate, HF days in the hospital, HF cost of care, all-cause acute care use or cost, mortality, HRQL or depression. The intervention reduced acute care resource use initially, but the within-group variability was so great that the difference did not reach statistical significance</p>
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## Summary of papers of telephone coaching targeting people at level 3

<p><b>Reference:</b> Shearer 2007<sup>49</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Hospital in patients</p> <p><b>Duration of study:</b> 12 weeks</p> <p><b>Number of patients:</b> 87</p> <p><b>% Male:</b> 64</p> <p><b>Mean age:</b> 76 years (8.32)</p> <p><b>Uptake to program:</b> 87 started not clear how many finished ? 68</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this study was to examine the effects of a telephone-delivered empowerment intervention (EI) on clinically and theoretically relevant outcomes in patients with HF, including purposeful participation in goal attainment, self-management of HF, and perception of functional health</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Self-management, goal attainment and functional health status. Patient empowerment through motivational interviewing. Patient centred</p> <p><b>Delivered by:</b> Heart failure nurse</p> <p><b>Number of telephone calls:</b> 6</p> <p><b>Duration of calls:</b> N/A</p> <p><b>Duration of the program:</b> 12 weeks</p> <p><b>Linkages with usual primary care provider:</b> Study nurse contacted GP for permission to include patient</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Self-efficacy</b> Self-Management of Heart Failure (SMHF) scale significant change with intervention p=0.001</p> <p><b>Health behaviour</b> Power as Knowing Participation in Change Tool VII (PKPCT) no difference</p> <p><b>Functional/health status</b> SF-36 no difference</p>
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<p><b>Reference:</b> Carroll 2006<sup>50</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CAD (MI), T2DM, hypertension, CHF (but not in all patients) Vulnerable: Unpartnered older (over the age of 65 years) adults</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Three urban medical centres</p> <p><b>Duration of study:</b> 12 weeks (in fact the last data collection was at 12 months but not reported here)</p> <p><b>Number of patients:</b> 132 randomised to one of the three groups 46 randomised to the peer advisor group 43 to the Advance Practice Nurse (APN) group 43 assigned to the standard care group</p> <p><b>% Male:</b> ~70</p> <p><b>Mean age:</b> 75.8±6.5 Peer advisor, 74.9±6.3 APN 77±7.1 Standard care</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To compare the effect of two self-efficacy interventions, a peer advisor and an APN, to a group who received standard care after MI</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Subjects were randomly assigned to 1) a peer advisor intervention group, 2) an APN intervention group, or 3) a standard care group. Both of the intervention groups also received standard care. The peer advisor was a 'graduate' of a local cardiac rehabilitation program and aged over 60 years and had to have a history of MI. Each peer advisor was trained. Frequent contact was maintained with the peer advisor by an APN associated with the study</p> <p><b>Delivered by:</b> APN or peer advisor</p> <p><b>Number of telephone calls:</b> Intervention groups received a telephone call either from the peer advisor or the APN once a week for the 12 weeks after discharge from the hospital</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Standard care. At all three medical centres, standard care consisted of discharge instructions provided by the clinical nurse. Discharge instructions included a review of medications, diet, PA, symptom management and follow-up appointments. No further contact with the clinical nurse was available to the subjects in this study</p>	<p><b>Outcomes:</b> <b>Self-efficacy</b> Mean self-efficacy scores for the recovery behaviours were similar amongst the three groups at baseline, and increased over the 12-week period for all groups</p> <p><b>Health behaviour</b> There were similar changes in self-efficacy for performing recovery behaviours, the actual performance of recovery behaviour, physical and mental health across both intervention groups and the standard care group</p> <p><b>Functional/health status</b> Although not statistically significant, the APN coached group demonstrated the largest change from baseline in the physical and mental health composite summary scores of the MOS SF-36</p> <p><b>Satisfaction</b> Older unpartnered adults after MI who received an intervention from an APN or a peer advisor did express anecdotally satisfaction with this intervention</p>
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## Summary of papers of telephone coaching targeting people at level 3

<p><b>Reference:</b> Creason 2001<sup>48</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: ?</p> <p><b>Patients recruited from:</b> Either by direct referral from their physician, the primary nurse in the hospital, or the cardiac case manager screening patients who have been admitted to the hospital with diagnosis of CHF</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 18 months after the program's initiation, 62 patients had been enrolled. Control patients (n=231)</p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To improve patient education on caring for CHF before and after hospital discharge thus improving QoL and minimising complications once the patient is home</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> At 48 hrs after patient discharge, the clinic registered nurse (RN) contacts the patient via telephone for the first time. This RN will call the patient twice weekly for 2 weeks, then once each week for 4 weeks, (after which Prime Life (that generally cares for the elderly) will call the patients once each month for 1 year. If the patient has any questions/problems, the cardiac case manager is immediately notified so that she can call the patient and if indicated the physician</p> <p><b>Delivered by:</b> RNs with cardiac experience</p> <p><b>Number of telephone calls:</b> Twice weekly for 2 weeks, then once each week for 4 weeks, after which Prime Life (that generally cares for the elderly) will call the patients once each month for 1 year</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 6 weeks</p> <p><b>Linkages with usual primary care provider:</b> Case managers and the physicians got united as a result of participating in this program</p> <p><b>Compared to:</b> Patients with CHF admitted to the hospital but not enrolled in the CHF telemanagement program</p>	<p><b>Outcomes:</b> <b>Functional/health status</b> Functional outcomes improved (no statistics given) Patients learning needs were decreased significantly at the end (no statistics given)</p> <p><b>Health service use</b> Readmission rate: Intervention: 2% Control: 12%</p>
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<p><b>Reference:</b> Hanssen 2007<sup>51</sup> Linked paper(s):</p> <p><b>Country:</b> Norway</p> <p><b>Target population:</b> Coronary artery disease (AMI) Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> University Hospital</p> <p><b>Duration of study:</b> 6 months</p> <p><b>Number of patients:</b> 288 (n=156) Intervention (n=132) Control</p> <p><b>% Male:</b> 84.6% Intervention, 76.5% Control</p> <p><b>Mean age:</b> 59.5 years (12.9) Intervention, 60.9 years (10.8) Control</p> <p><b>Uptake to program:</b> I: 138 vs 137</p> <p><b>Facilitators:</b> The essential aspects of the intervention were to provide tailored information and education on the basis of the patient's individual needs, and to respond to and support his or her adaptive coping strategies with regard to taking prescribed medication, healthy eating, ceasing smoking, and increasing PA</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess the short-term effects of a nurse-led telephone follow-up intervention to provide information and support to patients with acute myocardial infarction after their discharge from hospital</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Intervention group received, in addition to the current clinical practice, a structured intervention encompassing telephone follow-up and an open telephone line. Telephone follow-up calls started the first week after discharge, then weekly for the first 4 weeks. Then after 6, 8, and 12 weeks. The last phone call made after 24 weeks. The patients could stop the telephone follow-up calls if they preferred, but were encouraged to accept the first 5–6 calls. Open telephone line slot times open 2 days a week, 3 hours each time (Mondays and Thursdays)</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> Median of six calls (interquartile range: 5–8 calls)</p> <p><b>Duration of calls:</b> Average of 6.88 min (SD: 3.89).</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Routine post discharge care. Patients were managed in accordance with the current clinical practice, which encompassed one visit to a physician at the outpatient clinic 6–8 weeks after discharge, and subsequent visits to the patient's general practitioner</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> A significant difference with respect to frequency of PA in favour of the intervention group after 6 months (p=0.004). More participants in the intervention group than the control group had ceased smoking at the 6-month follow-up (p =0.055)</p> <p><b>Functional/health status</b> In both groups, health-related quality of life improved significantly over time on most subscales. A statistically significant difference in favour of the intervention group was found on the 36-item Short Form Health Survey Physical Health Component Summary Scale (p =0.034) after 6 months. No difference was found between the groups on the Mental Health Component Summary Scale</p>
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## Summary of papers of telephone coaching targeting people at level 3

<p><b>Reference:</b> Esposito, 2008<sup>52</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Diabetes, CAD, or CHF Cancer, dementia, peripheral artery disease (PVD), asthma, depression. (38% had 5 or more conditions) Vulnerable:</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b> First 18 months of The LifeMasters Supported SelfCare demonstration program evaluated</p> <p><b>Number of patients:</b> 33000</p> <p><b>% Male:</b> About 1/3rd male</p> <p><b>Mean age:</b> About 30% of demonstration enrollees were age 65 or younger, and about 9% were age 85 years or over</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess the impact of telephonic patient education and monitoring services over the first 18 months of operations on hospital or emergency room (ER) use, Medicare expenditures, quality of care, or prescription drug use for the 33,000 enrollees</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted reactive</b> LifeMasters classifies active patients who are willing to participate fully in the intervention as mediated and who participate less than fully as instructional. Mediated patients agreed to accept telephone calls from LifeMasters nurse DM staff (once a week and no less than every other week) and measuring and reporting to LifeMasters their vital signs and symptoms weekly. The intervention is primarily telephonic, but also has an in-person component. Specific DM services include educating patients about their medical conditions, helping patients adhere to physicians' treatment plans, and improving patients' self-care skills. LifeMasters assigns each mediated patient their own nurse care manager who either only called them or met them as well. Intervention components include patient assessment, care planning, routine nurse monitoring, patient self-monitoring, education, care coordination, and service arrangement</p> <p><b>Delivered by:</b> Registered/community nurses</p> <p><b>Number of telephone calls:</b> Through June 2006, one-third of enrollees were mediated for at least 1 month during their first 6 months of enrollment</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> The mean number of months enrolled was 9.5 and one-quarter of enrollees were enrolled for more than 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Instructional patients agreed only to receive a quarterly health magazine or an occasional telephone call from program staff</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> In the first year after enrollment, there were no significant treatment-control differences in quality-of-care measures (process of care and clinical outcomes) despite the fact that there was substantial room for improvement</p> <p><b>Adherence</b> Prescription drug utilisation: over the first 6 months only two significant treatment-control differences, which suggests that these differences may be due to chance rather than to program impacts. The proportion of treatment group members with one or more pharmacy claims is slightly, but significantly larger than the proportion in the control group. Despite the fact that all enrollees had CAD, CHF, or diabetes, use of clinically recommended cardiovascular medications was not significantly different. However, more treatment group members did have claims for non-statin antihyperlipidemic agents and other miscellaneous cardiovascular agents compared with the control group (p=0.018)</p>
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		<p><b>Satisfaction</b> Significantly more treatment than control group members reported that a nurse, disease manager, or social worker helped them to arrange care (34.6 versus 21.2 percent, <math>p &lt; 0.001</math>)</p> <p><b>Health service use</b> Over the first 18 months, treatment-control differences in the proportion of patients with a hospital admission and the average annualised number of admissions per year were small (NS). The proportion of patients with an ER visit was about 1 percentage point smaller for the treatment group than for the control group (26.6 versus 27.7 percent; <math>p = 0.009</math>). Though this difference is statistically significant, it suggests that the program's effect was very small. Treatment-control differences in either the proportion of patients with an ER visit or the average annualised number of ER visits per year were small and not statistically significant. Thus, impacts on ER use are at best very small</p> <p><b>Economic outcomes</b> Medicare expenditures over the first 18 months for the treatment</p>
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### Summary of papers of telephone coaching targeting people at level 3

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		group were \$25 lower than control group costs (NS). However, for beneficiaries with CHF who resided in highcost South Florida counties, the program reduced Medicare expenditures by 9.6%
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**Table 4: Summary of papers of telephone coaching targeting vulnerable populations**

<p><b>Reference:</b> Amoako 2007<sup>30</sup> Linked paper(s): Amoako 2008</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Older African American women</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II-I</p> <p><b>Patients recruited from:</b> Self</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 68</p> <p><b>% Male:</b> 0</p> <p><b>Mean age:</b> 55–65 years</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this study was to test the efficacy of an individualised psychoeducational diabetes uncertainty management intervention (DM-UMI) directed at managing diabetes-related uncertainties and delivered by a nurse via telephone to OAAW</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Motivational interviewing techniques &amp; focused on four aspects of type 2 diabetes: diagnosis/prognosis, treatment concerns, economic/social/family aspect and self-care. It was driven by the women's needs</p> <p><b>Delivered by:</b> Trained African American nurse</p> <p><b>Number of telephone calls:</b> 1 per week for 4 weeks</p> <p><b>Duration of calls:</b> 10–60 mins</p> <p><b>Duration of the program:</b> 4 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Health behaviour</b> Reduced diabetes uncertainty in intervention group (<math>p &lt; 0.05</math>)</p> <p><b>Satisfaction</b> Found it convenient and improved their problem solving skills</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Amoako 2008<sup>31</sup> Linked paper(s): Amoako 2007</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM, Hypertension Vulnerable: Older African American women</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Clinics and physicians' offices</p> <p><b>Duration of study:</b> 6 weeks</p> <p><b>Number of patients:</b> 68 38 Intervention, 30 Control</p> <p><b>% Male:</b> 0</p> <p><b>Mean age:</b> 61 years (9.5)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate a telephone intervention to reduce uncertainty (through problem-solving strategies, information, cognitive reframing, and improved patient-provider communication)—namely, to measure its effects on diabetes self-care (diet, medicines, foot care, exercise, blood sugar test) and psychosocial adjustment</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Intervention was implemented on the phone every week for four weeks and was embedded in a semistructured clinical interview that included open-ended questions, direct exploration, and use of reflective comments</p> <p><b>Delivered by:</b> African American geriatric nurse practitioner</p> <p><b>Number of telephone calls:</b> 1 per week for 4 weeks</p> <p><b>Duration of calls:</b> 10 to 60 min</p> <p><b>Duration of the program:</b> The experimental group received the intervention for 4 weeks</p> <p><b>Linkages with usual primary care provide:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> Exercise significantly improved in intervention group &lt;.001. Intervention group showed improvement in diet, medications (NS)</p> <p><b>Quality of life</b> Psychosocial adjustment significantly improved in intervention group. &lt;.001</p> <p><b>Adherence</b> Intervention group showed improvement foot care (NS). Minimal difference between groups on blood sugar testin</p>
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<p><b>Reference:</b> Piette 2001<sup>18</sup> Linked paper(s): IDEATel (Pilot)</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: VA patients described as facing nofinancial barrier to care—e.g. transport, rural</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> GP or a diabetes centre</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 132 Intervention; 140 Control</p> <p><b>% Male:</b> 0.38</p> <p><b>Mean age:</b> 60.5 years (10)</p> <p><b>Uptake to program:</b> 489 eligible and 272 randomised and completed</p> <p><b>Facilitators:</b> The nurse had access to hospital intranet with access to notes, results and could email providers</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate automated telephone disease management (ATDM) with telephone nurse follow-up as a strategy for improving diabetes treatment processes and outcomes in Department of Veterans Affairs clinics</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> Patient called automated service each week to uplaod glucose montioring results. Nurse reviewed data and called patients to discuss their diabetes management, self care, symptom management and medication adherence. Not clear who prepares care plan</p> <p><b>Delivered by:</b> Nurses</p> <p><b>Number of telephone calls:</b> 13 calls on average (1.1 per month).</p> <p><b>Duration of calls:</b> Automated calls 5-8 mins no information on duration of nurse calls</p> <p><b>Duration of the program:</b> Not clear –? 12 months</p> <p><b>Linkages with usual primary care provider:</b> Nurse called or emailed referring doctor about health problems and to remind them about prevention tasks. 23% of nurse calls resulted in contact with provider</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> No significant change in HbA1c. HbA1c was significantly lower in intervention group for those <math>\geq 8</math> at baseline (8.7 v 9.2 <math>p=0.04</math>)</p> <p><b>Adherence</b> Regular foot insepction and blood sugar monitoring significantly improved in intervention group (<math>p=0.05</math>) cholesterol test 87 v 78 p 0.05, med foot exam 92 v 72 p 0.0002</p> <p><b>Satisfaction</b> Very satisfied with care</p> <p><b>Health service use</b> Significant increase in:podiatry services 62 v 42 p 0.003, diabetes clinc use 61 v 25 <math>p=0.03</math></p> <p><b>Economic outcomes</b> Cost \$17-30 per patient per year excluding nurse time</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Shea 2007<sup>39</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Large % of uninsured and CALD 64% eligible for Medicaid</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> GP</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b></p> <p><b>Mean age:</b> 71 years</p> <p><b>Uptake to program:</b> 1665 randomised and 1417 completed follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> This report summarises the findings of IDEATEL together with information on patient and provider satisfaction and preliminary findings from analysis of Medicare claims data</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> Home telemedicine unit with modem and videoconferencing system, remote glucose monitoring and secure email</p> <p><b>Delivered by:</b> Project case manager supervised by physician</p> <p><b>Number of telephone calls:</b> N/A</p> <p><b>Duration of calls:</b> N/A</p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Regular contact between case manager and GP with phone, email or fax if treatment needed to be changed</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c in intervention group decreased from 7.35% to 6.97% and 0.18% difference with control (p = 0.006). The net adjusted reductions for systolic and diastolic BP were 3.4 mmHg (p = 0.001) and 1.9 mmHg (p = 0.001)</p> <p><b>Satisfaction</b> Patients and PHC providers were very satisfied with the program</p> <p><b>Health service use</b> Higher Medicare claims in intervention group</p>
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<p><b>Reference:</b> Trief 2009<sup>14</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Older people aged over 55 years</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b> 37 (619)</p> <p><b>Mean age:</b> 70.82 years (6.63)</p> <p><b>Uptake to program:</b> 1443, 222 lost to follow-up</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To assess whether a) diabetes self-efficacy relates to the primary medical outcome of glycaemic control, and to secondary outcomes (BP and cholesterol), and b) whether, after an intervention, change in diabetes self-efficacy relates to change in these medical outcomes in a group of older, ethnically diverse individuals</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> A home telemedicine unit (HTU), i.e. a web-enabled computer to upload blood glucose and BP readings, to videoconference with a dietitian/nurse case manager (all CDEs) and to access education and data. Televisits followed a specified case management protocol using case management software, were 30 to 60 mins long, and occurred every 4 to 6 weeks. Discussion included diabetes education, nutrition and activity counselling, and collaborative goal setting</p> <p><b>Delivered by:</b> Dietician/nurse case managers</p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Regular information sent to GPs about their patient</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c improvement significantly related to improvements in self-efficacy (p&lt;0.0001)</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Weinstock 2011<sup>43</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b> 5-year follow-up</p> <p><b>Number of patients:</b> 1665</p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Further analysis of the IDEATel project to understand differences reported by ethnic groups - 5 year results</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> See above</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Overall HbA1c decreased by 0.29 (95% CI 0.12-0.46) in Hispanics the change was 0.5 (95% CI 0.22-0.78) p&lt;0.05</p> <p><b>Adherence</b> More glucose uploads resulted in greater reduction in HbA1c</p>
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<p><b>Reference:</b> Weinstock 2011b<sup>42</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b> 5-year follow-up</p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine the effects of the IDEATel telemedicine intervention and pedometer use on PA and impairment in older adults with diabetes</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> See above</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Functional/health status</b> Lower rate of PA decline with intervention (p=0.0128). Usual care group declined 1 point on 7 point activity scale. Intervention group lower rate of decline on activities of daily living scale p=0.037</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> West 2010<sup>44</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To describe the use of telemedicine for setting goals for behaviour change and examine the success in achieving these goals in rural underserved older adults with diabetes IDEATel</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b></p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Health behaviour</b> Goals set at mean 33 televisits per patient</p> <p><b>Adherence</b> 68% behavioural goals achieved or met</p>
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<p><b>Reference:</b> Izquierdo 2003<sup>37</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Some rural</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Medical Centre</p> <p><b>Duration of study:</b> 12 weeks</p> <p><b>Number of patients:</b> 46</p> <p><b>% Male:</b> 0.46</p> <p><b>Mean age:</b> 57.7 years (9.5)</p> <p><b>Uptake to program:</b> 88% completed the three visits</p> <p><b>Facilitators:</b> Telemedicine provide means for people in rural areas to receive health care more easily</p> <p><b>Barriers:</b> It looks like the telemedicine intervention was carried out at a centre and the equipment was not in patients homes</p>	<p><b>Study aim:</b> To determine whether diabetes education can be provided as effectively through telemedicine technology as through in-person encounters with diabetes nurse or educators. It looks like this is pilot for IDEATel</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> Meetings with diabetes nurse via video conferencing. They provided the diabetes education based on the clinic diabetes education program. The sessions were interactive and focused on knowledge, lifestyle and skill development</p> <p><b>Delivered by:</b> Experienced nurses or educators</p> <p><b>Number of telephone calls:</b> Three</p> <p><b>Duration of calls:</b> 2 hours total</p> <p><b>Duration of the program:</b> 12 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Face to face meetings with diabetes nurse / educator. The sessions were interactive and focused on knowledge, lifestyle and skill development</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Significant improvement in HbA1c with both interventions (8.6 to 7.8), no difference between the treatment groups. LDL significantly improved but not difference between treatment groups</p> <p><b>Quality of life</b> PAID survey (emotional score) and ADS score improved significantly with both treatment groups</p> <p><b>Satisfaction</b> No difference in satisfaction between the two groups</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Izquierdo 2010<sup>36</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: The study population was elderly adults living in rural underserved areas spanning over 30,000 square miles, and participant follow-up was for at least 2 years</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Medical Centre</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 890</p> <p><b>% Male:</b> 0.43</p> <p><b>Mean age:</b> 71.02 years (7.07)</p> <p><b>Uptake to program:</b> Those lost to follow-up were younger, female and longer duration of type 2 diabetes</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> We examine the changes in waist circumference (WC) and body mass index (BMI) in older adults enrolled in a diabetes telemedicine program. The subjects were elderly Medicare beneficiaries participating in the rural (upstate New York) cohort of Informatics and Diabetes Education and Telemedicine, a randomised, controlled trial using telemedicine to improve diabetes care in which the primary outcome was glycemic control</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> A nurse case manager conducted home video visits to help the patient with diabetes self-management techniques and problem solving strategies. Nurse case managers determined the patient's interest in receiving nutrition counselling with a dietitian within the first few video visits, and those interested were scheduled for a televisit with a dietitian. Those not interested met with the nurse case manager only, but this was rare. After an initial 1-hour nutrition assessment and counselling video visit 30 mins</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> No effect of intervention on BMI and W (1.2 cm intervention v 1 cm control)</p> <p><b>Health behaviour</b> Significant improvement in diet and exercise with intervention (p=0.002)</p>
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<p><b>Reference:</b> Trief 2007<sup>41</sup> Linked paper(s): IDEATel</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: Medically underserved population</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b></p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b></p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b> Those from Upstate New York had biggest improvement in self efficacy and they tended to be better educated than those from New York City who tended to be Hispanic</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The purpose of this study is to assess the impact of the IDEATel intervention on secondary psychosocial outcomes</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive</b> Home telemedicine unit with modem and videoconferencing system, remote glucose monitoring and secure email</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Self-efficacy</b> Intervention subjects improved significantly (versus control subjects) in diabetes self-efficacy (<math>p = 0.0001</math>). The effect size (estimated using adjusted for covariate difference scores, expressed in the original units of the scale) of the intervention on self-efficacy was 2.377 (95% CI 1.40 –3.36)</p> <p><b>Quality of life</b> No difference in diabetes distress score</p> <p><b>Functional/health status</b> No difference in depression</p>
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<p><b>Reference:</b> Kelly 2005<sup>25</sup> Linked paper(s):</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM Vulnerable: 10% Chinese speaking</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: III</p> <p><b>Patients recruited from:</b> PHC</p> <p><b>Duration of study:</b> 18 months</p> <p><b>Number of patients:</b> 343</p> <p><b>% Male:</b> 0.43</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> The Good Life Club project was a 3 year demonstration project funded by DoHA. The project utilised a number of interventions to support people with diabetes to improve self-management of their condition and more effectively utilise existing local health services</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Individual telephone coaching by practice nurses and allied health professionals to support behaviour change of participants. Clients were telephoned monthly by the coach to review progress toward their goal, and to support their self efficacy through enhancing positive behavioural strategies</p> <p><b>Delivered by:</b></p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Care plan from GP was plan but occurred at time when not common. SM plan developed and patient encouraged to discuss this with their GP. In addition 3 monthly reports provided for GP</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Functional/health status</b> Self rated health improved after taking part in the program – pain, fearfulness, worry, frustration</p>
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<p><b>Reference:</b> Young 2005<sup>10</sup> Linked paper(s): PACCTS</p> <p><b>Country:</b> UK</p> <p><b>Target population:</b> T2DM Vulnerable: Low SES</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> PHC</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 596</p> <p><b>% Male:</b> 0.58</p> <p><b>Mean age:</b> 67 years</p> <p><b>Uptake to program:</b> 8.2% of Intervention patients could not cope with the telephone calls and left the study</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To determine whether PACCTS, using trained nonmedical telephonists supported by specially designed software and a diabetes nurse, can effectively improve glycemic control in type 2 diabetes</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive and planned</b> Telephone calls from care centre to people with type 2 diabetes. They had access to diabetes data from local electronic health record. Calls were initiated every 3 months if HbA1c &gt;7% and monthly if HbA1c &gt;9%. Patients could call in if they wished. Call centre staff trained in motivational interviewing techniques, medication adherence and lifestyle changes</p> <p><b>Delivered by:</b> Trained call centre staff trained by diabetes nurse</p> <p><b>Number of telephone calls:</b></p> <p><b>Duration of calls:</b> 20 mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care by their GP</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> 0.31 (0.11–0.52) change in HbA1c intervention compared to UC. Most change in those at 7–9% at baseline</p> <p><b>Adherence</b> Medication increased more in the PACCTS group than the usual care group (p 0.002)</p> <p><b>Economic outcomes</b> Borderline cost effective</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Long 2005<sup>9</sup> Linked paper(s): PACCTS</p> <p><b>Country:</b> UK</p> <p><b>Target population:</b> T2DM Vulnerable: Patients were randomised from 47 general practices in a deprived urban area in northwest England</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary health care</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 591 patients recruited and randomly assigned in a 2:1 ratio to the intervention and control group</p> <p><b>% Male:</b> Satisfaction questionnaire (57% male in the intervention and 58% male in the control group); 468 people responded giving a response rate of 79%. Acceptability questionnaire: 58% male (but only a 65% response rate—200 users)</p> <p><b>Mean age:</b> Satisfaction: median age of 67–68 years. Acceptability: median age of 69 years</p> <p><b>Uptake to program:</b> variable – higher for satisfaction (79% response rate); acceptability (65%)</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To examine patients' views of the acceptability of and satisfaction with telephone care centre support provided to improve blood glucose control in type 2 diabetes</p> <p><b>Telephone coaching intervention:</b> <b>Scripted reactive and planned</b> The PACCTS Trial randomised patients into two arms: 1) usual care (the control) ; 2) proactive call centre support in addition to usual care (the intervention). PACCTS involved a stepped call approach. Patients received calls, scheduled for 20 mins at a pre-arranged date and time, related to their level of blood glucose control: 1) those with poor control (HbA1c more than 9%) received one proactive call per month; 2) those with moderate control (HbA1c 7.1-9%) received one proactive call every 7 weeks; 3) those with good control HbA1c 7% or less) received one proactive call every 3 months. Each scheduled call comprised protocol-based and computer software supported sections about knowledge of diabetes, readiness to make changes, medication adherence, and measurement of glucose control. Interim follow-up calls were arranged if required. Following referral from the telecarers, calls were made by the supervisory diabetes specialist nurse for urgent issues or for routine supplementary counselling and medication change. Patients were also required to keep self-management logs of blood glucose levels and relay these back to the telecare staff during the calls</p> <p><b>Delivered by:</b> Two telecarers who were supported by a diabetes specialist nurse, who in turn was supervised by the consulting physician</p> <p><b>Number of telephone calls:</b> Depends on HbA1c - at least one proactive call every 3 months (4 calls over 12 months) and potentially more than 12 calls if there is poor control</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Level of glycemic control</p> <p><b>Health behaviour</b> Behaviour change effects were evaluated in a sample of 25 patients who took part in an in-depth semi-structured interview</p> <p><b>Satisfaction</b> Measured in both the control and intervention, at baseline and at the end of the study. Used the validated Diabetes Satisfaction and Treatment Questionnaire. This includes a measure of satisfaction with treatment and is a self report measure with 8 items. Results—By the end of the trial satisfaction, levels had increased in both groups (30.6–32.3 vs. 32.3–33.2 in the control and intervention groups, respectively), and there was statistically significant difference between the intervention and the control group (z 2.266, p 0.023)</p>
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<p><b>Reference:</b> Walker 2011<sup>26</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b>T2DM Vulnerable: Lower SES and immigrants - members of health care worker fund</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence:</p> <p><b>Patients recruited from:</b> Members of health care worker fund</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 526</p> <p><b>% Male:</b> 36.9</p> <p><b>Mean age:</b> 55.5 years (7.3)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b> Patients did not even need to go to medical centre for HbA1c test – dry blot and mailed</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To compare the effectiveness of a telephonic and print intervention over 1 year to improve diabetes control</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Trained health educators provided telephone intervention with focus on medication adherence and lifestyle changes. Program was patient centred and involved goal setting, empowerment and self-efficacy</p> <p><b>Delivered by:</b> Trained health educators</p> <p><b>Number of telephone calls:</b> 7.9 +/- 2.1</p> <p><b>Duration of calls:</b> 14.1 +/- 4.6 mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Printed materials</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> HbA1c 0.4% lower in intervention compared to control (95% CI 0.1–0.7 p=0.009). The greater the intensity (<math>\geq 6</math> calls) the greater the change in HbA1c</p> <p><b>Adherence</b> Medication use change of <math>\geq 20\%</math> in those not on insulin was improved with intervention (p=0.005)</p>
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<p><b>Reference:</b> Anderson 2005<sup>23</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM Vulnerable: African Americans</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Community People self enrolled</p> <p><b>Duration of study:</b> 1 year</p> <p><b>Number of patients:</b> 239 125: six-session program 114: Wait-listed control group One of the two 1-year long Interventions n=224</p> <p><b>% Male:</b></p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To evaluate the impact of a problem-based empowerment patient education program specifically tailored for urban African Americans with type 2 diabetes</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Patients were randomly assigned to either a six-week 2-hour weekly group sessions (intervention group) or a six-week wait-listed control group (this control group also had the six-week 2-hour weekly group sessions after waiting for six weeks). After completing the six sessions, all patients were invited to participate in one of two follow-up interventions: Intervention: Receive a monthly individually-scheduled phone call</p> <p><b>Delivered by:</b> Nurse</p> <p><b>Number of telephone calls:</b> 12</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 1 year</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> A monthly support group</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Assessment measures included HbA1C, lipids, BP, weight</p> <p>Both control and intervention patients showed a broad array of small-to-modest positive changes during the six-week RCT. These gains were maintained or improved upon during the one-year follow-up period. No between-group differences existed in HbA1c for the phone and support group follow-up interventions. For patients in the two follow-up interventions a positive correlation was seen between the number of follow-up contacts and their one-year HbA1C values</p>
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<p><b>Reference:</b> Anderson 2010<sup>32</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> T2DM, CAD, CHF, COPD, asthma, hypertension, depression (not all had these) Vulnerable: Majority was Hispanic or African American. Most were of low socioeconomic status, and nearly all had Medicaid or were uninsured</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> 2 Community Health Centres</p> <p><b>Duration of study:</b></p> <p><b>Number of patients:</b> 146 Intervention, 149 Control</p> <p><b>% Male:</b> 0.42</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b> Of those patients who were randomised, 115 (79%) in the control and 94 (64%) in the intervention group completed the 1-year study</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To test the effectiveness of a supplemental telephonic disease management program compared to usual care alone for patients with diabetes cared for in a community health centre</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Patients received 1 year of telephonic disease management. Call content was semi-structured. Calls were unscripted, allowing the nurse to address each patient's individual needs, whether related to diabetes or other topics</p> <p><b>Delivered by:</b> Specialised nurses</p> <p><b>Number of telephone calls:</b> Patients were called weekly, bi-weekly, or monthly depending on their risk stratification. Patients could be reassigned to receive more or fewer calls if their risk stratification changed at the 6-month assessment or if the patient requested a change in calls</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 months.</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b></p> <p><b>Physiological measures of disease</b> No significant differences in the primary outcome (HbA1c) between the intervention and control groups at 12 months. No significant differences for secondary clinical outcome measures ie BMI, BP, LDL-C</p> <p><b>Health behaviour</b> No significant differences for behavioural outcome measures i.e. smoking, or intake of fruits and vegetables, or PA.</p> <p><b>Functional/health status</b> Perceived health status did not vary between the two groups</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Brennan 2010<sup>11</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Vulnerable: privately insured African Americans</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Self-identified African Americans in HMO plans. Primary care physician (PCP) office</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 320 Disease Management Program (DMP) 318 Light Support Program (LSP)</p> <p><b>% Male:</b> 0.33</p> <p><b>Mean age:</b></p> <p><b>Uptake to program:</b> 638 completed initial assessment, and 485 completed follow-up assessment</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To determine whether a telephonic nurse disease management (DM) program designed for African Americans is more effective than a home monitoring program alone to increase BP control among African Americans enrolled in a national health plan</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> The intervention group, consisted of a high intensity, multimodal, culturally competent DMP. The control group was a LSP. All participants received BP monitors and written and nurse-directed phone call instructions to measure their BP at home at regular intervals. DM nurses initiated monthly calls to the intervention group with the goals of improving their hypertension knowledge and supporting lifestyle changes and adherence to the DASH (Dietary Approaches to Stop Hypertension) diet</p> <p><b>Delivered by:</b> DM nurses. all DM nurses received special training in cardiac care and completed cultural competency training</p> <p><b>Number of telephone calls:</b> The median number of completed calls per participant was 3, with a range of 1 to 10</p> <p><b>Duration of calls:</b> Between 15–20 mins</p> <p><b>Duration of the program:</b></p> <p><b>Linkages with usual primary care provider:</b> Three quarterly reports that contained the patient’s most recent self-reported BP and DM goals were sent to each intervention group participant’s PCP office</p> <p><b>Compared to:</b></p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Systolic BP was lower in the intervention group <math>p=0.03</math>; there was no difference for diastolic BP. The intervention group was 50% more likely to have BP incontrol <math>p=0.052</math> and 46% more likely to monitor BP at least weekly <math>p=0.02</math> than the control group</p> <p><b>Health behaviour</b> The intervention group was 46% more likely to monitor BP at least weekly <math>p=0.02</math> than the control group</p> <p><b>Adherence</b> There were no statistically significant differences between the groups in the use of two or more antihypertensive medication classes</p> <p><b>Health service use</b> There were no statistically significant differences between the groups in the mean number of PCP, cardiologist, and specialist physician visits</p> <p><b>Economic outcomes</b></p>
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<p><b>Reference:</b> Carroll 2006<sup>50</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Coronary artery disease (MI), diabetes, hypertension, CHF (but not in all patients) Vulnerable: Unpartnered older (over the age of 65 years) adults</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Three urban medical centres</p> <p><b>Duration of study:</b> 12 weeks (in fact the last data collection was at 12 months but not reported here)</p> <p><b>Number of patients:</b> 132 randomised to one of the three groups 46 randomised to the peer advisor group, 43 to the APN group 43 assigned to the standard care group</p> <p><b>% Male:</b> ~70</p> <p><b>Mean age:</b> 75.8±6.5 years Peer advisor, 74.9±6.3 APN, 77±7.1 Standard care</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> To compare the effect of two self-efficacy interventions, a peer advisor and an APN, to a group who received standard care after MI</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Subjects were randomly assigned to 1) a peer advisor intervention group, 2) an APN intervention group, or 3) a standard care group. Both of the intervention groups also received standard care. The peer advisor was a 'graduate' of a local cardiac rehabilitation program and aged over 60 years and had to have a history of MI. Each peer advisor was trained. Frequent contact was maintained with the peer advisor by an APN associated with the study</p> <p><b>Delivered by:</b> APN or peer advisor</p> <p><b>Number of telephone calls:</b> Intervention groups received a telephone call either from the peer advisor or the APN once a week for the 12 weeks after discharge from the hospital</p> <p><b>Duration of calls:</b></p> <p><b>Duration of the program:</b> 12 weeks</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Standard care. At all three medical centres, standard care consisted of discharge instructions provided by the clinical nurse. Discharge instructions included a review of medications, diet, PA, symptom management and follow-up appointments. No further contact with the clinical nurse was available to the subjects in this study</p>	<p><b>Outcomes:</b> <b>Self-efficacy</b> Mean self-efficacy scores for the recovery behaviours were similar amongst the three groups at baseline, and increased over the 12-week period for all groups.</p> <p><b>Health behaviour</b> There were similar changes in self-efficacy for performing recovery behaviours, the actual performance of recovery behaviour, physical and mental health across both intervention groups and the standard care group</p> <p><b>Functional/health status</b> Although not statistically significant, the APN coached group demonstrated the largest change from baseline in the physical and mental health composite summary scores of the MOS SF-36</p> <p><b>Satisfaction</b> Older unpartnered adults after MI who received an intervention from an APN or a peer advisor did express anecdotally satisfaction with this intervention</p>
<p><b>Reference:</b></p>	<p><b>Study aim:</b> To examine the maintenance of behavioural changes 6 months</p>	<p><b>Outcomes:</b></p>

## Summary of papers of telephone coaching targeting vulnerable populations

<p>Eakin 2010<sup>34</sup>          Linked paper(s): Eakin  <b>Country:</b> Australia  <b>Target population:</b> T2DM or hypertension          61.8% had &gt;3 chronic conditions          Vulnerable: socioeconomically disadvantaged community  <b>Level of care:</b> 2          NHMRC Level of Evidence: II  <b>Patients recruited from:</b> 10 primary care practices  <b>Duration of study:</b> 12 months  <b>Number of patients:</b> 434          TC (n=228)          UC (n=206)  <b>% Male:</b> 0.39  <b>Mean age:</b> 58.2 years (11.8)  <b>Uptake to program:</b> 434 vs 315  <b>Facilitators:</b>  <b>Barriers:</b></p>	<p>following a 12 month telephone-delivered PA and diet intervention</p> <p><b>Telephone coaching intervention:</b>  <b>Unscripted planned</b>          Patients from telephone counselling (TC) practices were mailed a workbook on PA and healthy eating and a pedometer to supplement their telephone counselling calls. The intervention was implemented over a 12-month period, with a 4-month intensive call phase (10 calls) and an 8-month maintenance enhancement phase (8 calls). All study outcomes were obtained using CATI at baseline, 4, 12, and 18 months, by interviewers who were blind to group allocation</p> <p><b>Delivered by:</b> Counsellors who had bachelors or masters degrees in either public health or health promotion or the allied health sciences</p> <p><b>Number of telephone calls:</b> The median number of calls completed by the TC group was 13 (range: 0–18), with sufficient calls (at least 12 out of 18) being completed by the majority of TC participants (n = 146, 64%) and the vast majority of TC participants with 18-month follow-up date</p> <p><b>Duration of calls:</b> Mean 18.2 (SD 4.1) mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care (UC). After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They also received a quarterly project newsletter on general health tips, along with brochures on various health topics, including PA and diet</p>	<p><b>Health behaviour</b>          For PA, the significant (p.001) within-groups improvements from baseline observed at 12 months remained at 18 months, in both the TC and UC groups</p> <p>For all dietary outcomes, significant (p .05) between-groups maintenance effects, similar to end-of-intervention outcomes, remained. Among the UC group, no evidence of a systematic return toward baseline levels or further improvement as none of the differences between the 18-month and 12-month outcomes were statistically significant. Only vegetable intake declined significantly over the noncontact period (within the TC group); all other outcomes were unchanged or improved</p>
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<p><b>Reference:</b> Goode 2011<sup>35</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: socioeconomically disadvantaged community</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> General practices</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 434 TC (n=228) UC (n=206)</p> <p><b>% Male:</b> 0.39</p> <p><b>Mean age:</b> 58.2 years (11.8)</p> <p><b>Uptake to program:</b></p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b> Language or cultural barriers might explain why intervention dose was lower for non-whites</p>	<p><b>Study aim:</b> To examine associations of intervention dose with behaviour change outcomes in a telephone counselling intervention for PA and dietary change</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Patients from TC practices were mailed a workbook on PA and healthy eating and a pedometer to supplement their telephone counselling calls. The intervention was implemented over a 12-month period: calls were made weekly for the first 3 weeks, then twice weekly until 4 months (initiation phase), and then monthly for the remaining 8 months (maintenance/enhancement phase). The intervention protocol allotted up to 10 attempts per call in an effort to reach the participants. A patient-centred motivational interviewing approach to telephone health behaviour counselling was used. All study outcomes were obtained using CATI at baseline, 4, 12, and 18 months, by interviewers who were blind to group allocation</p> <p><b>Delivered by:</b> Counsellors who had bachelors or masters degrees in either public health or health promotion or the allied health sciences</p> <p><b>Number of telephone calls:</b> 18 Median number of total calls 13 (range 0–18). The median numbers during initial and maintenance/enhancement phases were 7 (0–10) and 6 (0–8) respectively</p> <p><b>Duration of calls:</b> the mean (SD) call duration was 18.2 (4.1) mins</p> <p><b>Duration of the program:</b> 12-month</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Usual care (UC). After each assessment, patients from UC practices were mailed a one-page letter with brief feedback on their assessment results. They also received a quarterly project newsletter on general health tips, along with brochures on various health topics, including PA and diet</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> Categorisation of calls: Low: 0–10 total calls Medium: 11–15 total calls High: 16–18 total calls Low: 0–5 initial phase calls Medium: 6–8 initial phase calls High: 9–10 initial phase calls Low: 0–4 Maintenance/Enhancement phase calls Medium: 5–7 Maintenance/Enhancement phase calls High: 8 Maintenance/Enhancement phase calls</p> <p>Relative to low call completion, high completion during the maintenance/enhancement phase was associated with significantly greater behavioural improvement for total fat intake, saturated fat intake, fibre intake, and MVPA. For most health behaviours examined, call completion in the maintenance/enhancement phase was more strongly associated with behavioural change than was call completion during the initiation phase</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Lawler 2010<sup>38</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: Yes the trial was conducted in a socioeconomically disadvantaged community — there are a greater percentage of single-parent families, unemployment and foreign born residents</p> <p><b>Level of care:</b> 2 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary care clinics</p> <p><b>Duration of study:</b> 12 months</p> <p><b>Number of patients:</b> 434 individuals (10 practices) 228 allocated to the intervention (5 practices) and 206 allocated to usual care (5 practices)</p> <p><b>% Male:</b> 39.9</p> <p><b>Mean age:</b> 58.2 years</p> <p><b>Uptake to program:</b> 53 lost in the intervention group, and 40 in the control group therefore Usual care (n=203) and Telephone counselling (n=223)</p> <p><b>Facilitators:</b></p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Within a 12-month, telephone-delivered diet and PA intervention with multiple behavioural outcomes, we examined the extent and co-variation of multiple health behaviour change. Is a change in one's health behaviour associated with the likelihood of changing others?</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Directly with patients. Cultural values integrated into the intervention were an emphasis on personalised caring, trust, inclusion of the family</p> <p><b>Delivered by:</b> Counsellors were masters-level graduates with a background in nutrition, and given additional training in physical activity promotion and motivational interviewing techniques and the constructs of social cognitive theory, which underpinned the intervention</p> <p><b>Number of telephone calls:</b> Median number of total calls completed was 13 (range 0–18) they were scheduled to receive 18 calls over the 12 months</p> <p><b>Duration of calls:</b> 18.2 (SD 4.1) mins</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> After each assessment, patients from usual-care practices were mailed a 1-page letter with brief feedback on their assessment results. They were also sent off-the-shelf brochures on a variety of health topics, including PA and diet, and a project newsletter with general health tips</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> More than half (53.4%) of usual care participants made no changes in the number of health risk behaviours at 12 month's follow-up, and less than a third (32.8%) reduced their risk behaviours by one or more, compared to those in the telephone counselling group where just over a third (38.6%) made no changes and more than half (52.5%) reduced their risk behaviours by at least one. Those in the telephone counselling group were more than twice as likely than those in the usual care group to make greater reductions in multiple behaviours over the course of the intervention, even after adjustment for the number of behaviours not being met at baseline (OR, 2.42; 95% CI 1.43, 4.11)</p> <p>Covariation among health behaviours—Participants who made improvements in total fat, saturated fat, vegetables, and PA were significantly more likely to make a greater number of improvements to other unrelated behaviours, having adjusted for group allocation and the number of behavioural risk factors present at</p>
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		<p>baseline. Confidence intervals were wide, so the true strength of associations is difficult to discern; however, the increase in odds of making more changes were generally substantial (OR &gt;2). Participants who improved their fruit intake showed a similar trend towards making more other behavioural changes, but the relationship did not reach statistical significance. Reduced odds of making changes to unrelated behaviours were only seen with fiber intake, and this relationship did not reach statistical significance</p>
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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Eakin 2009<sup>33</sup> Linked paper(s): Eakin</p> <p><b>Country:</b> Australia</p> <p><b>Target population:</b> T2DM or hypertension Vulnerable: Yes the trial was conducted in a socioeconomically disadvantaged community - there are a greater percentage of single-parent families, unemployment and foreign-born residents</p> <p><b>Level of care:</b> NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Primary care clinics</p> <p><b>Duration of study:</b> 12 months (I think). The study outcomes were obtained at baseline, 4 and 12 months. However for the data collection phase of the study was conducted over two years and nine months. I assume they recruited practices at different times, and that intervention itself only last 12 months</p> <p><b>Number of patients:</b> 434 individuals (10 practices) 228 allocated to the intervention (5 practices) and 206 allocated to Usual care (5 practices)</p> <p><b>% Male:</b> 0.399</p> <p><b>Mean age:</b> 58.2 years</p> <p><b>Uptake to program:</b> in the intervention group 20 were lost to follow-up and 33 discontinued the intervention, in the control group 15 were lost to follow-up and 25 discontinued the intervention</p>	<p><b>Study aim:</b> A cluster RCT of a telephone counselling intervention for PA and diet was conducted, targeting patients with type 2 diabetes or hypertension, recruited from ten primary care practices in Queensland, Australia. The intervention was initiated via physician referral and took place entirely over the telephone, with patients from a disadvantaged community. The purpose of the trial was to achieve, in a challenging patient sample, change in health behaviours that are known to be important precursors to improved disease management outcomes</p> <p><b>Telephone coaching intervention:</b> <b>Unscripted planned</b> Concrete solutions and problem solving in response to problems with self-care. The intervention group was contacted by telephone, on average, within 5 days after hospital discharge and thereafter at a frequency guided by the software and nurse care manager judgement. Printed educational material in the desired language was mailed to patients monthly and as needed when specific information was requested</p> <p><b>Delivered by:</b> Counselors were masters-level graduates with a background in nutrition, and given additional training in PA promotion and motivational interviewing techniques and the constructs of social cognitive theory, which underpinned the intervention</p> <p><b>Number of telephone calls:</b> 18</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b> Not stated</p> <p><b>Compared to:</b> After each assessment, patients from usual-care practices were mailed a one-page letter with brief feedback on their assessment results. They were also sent off-the-shelf brochures on a variety of health topics, including PA and diet, and a project newsletter with general health tips</p>	<p><b>Outcomes:</b> <b>Health behaviour</b> The primary study outcomes were minutes and sessions of MVPA per week, percent of calories from total fat and saturated fat, grams of fiber, and servings of vegetables and fruit. At 12 months, patients in both groups increased MVPA by a mean of 78 minutes per week (SE 10). Significant intervention effects (telephone counselling minus usual care) were observed for: calories from total fat (decrease of 1.17%; p 0.007), energy from saturated fat (decrease of 0.97%; p 0.007), vegetable intake (increase of 0.71 servings; p 0.039), fruit intake (increase of 0.30 servings; p 0.001), and grams of fiber (increase of 2.23 g; p 0.001)</p>
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<b>Facilitators:</b>		
<b>Barriers:</b>		

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## Summary of papers of telephone coaching targeting vulnerable populations

<p><b>Reference:</b> Han 2010<sup>22</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> Hypertension Vulnerable: Monolingual Korean Americans (one of the most underserved minority populations in the USA)</p> <p><b>Level of care:</b> 1 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Ethnic churches, groceries and through ethnic media</p> <p><b>Duration of study:</b> 15 months</p> <p><b>Number of patients:</b> 445</p> <p><b>% Male:</b> ~50</p> <p><b>Mean age:</b> 52 years</p> <p><b>Uptake to program:</b> 445 vs 360 at 15 months</p> <p><b>Facilitators:</b> The success of telephone outreach was influenced by the dose of the intervention, the participant's employment status, and the number of years of residence in the USA.</p> <p><b>Barriers:</b></p>	<p><b>Study aim:</b> Nurse telephone counselling can improve the management of chronic conditions, but the effectiveness of this approach in underserved populations is unclear. This study evaluated the use of bilingual nurse-delivered telephone counselling in Korean Americans (KAs) participating in a community-based intervention trial to improve management of hypertension. Our purpose was twofold: 1) to characterise the receptivity of the telephone counselling as a function of the sociodemographic and disease-related characteristics of the sample; and 2) to compare key behavioural outcomes by the dose of counselling</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> The intervention had 3 components: 1) structured psycho-behavioural education; 2) home BP monitoring with a tele-transmission system; and 3) telephone counselling by a bilingual nurse. After a six-week in-class or mailbased hypertension education course and a six-week test period for home BP monitoring, at three months, participants were randomly assigned to two groups: Intervention: more intensive (MI) biweekly (n=203)</p> <p><b>Delivered by:</b> Bilingual nurses</p> <p><b>Number of telephone calls:</b> About 18 calls per person for the MI and about 10 calls per person for the less intensive (LI) groups</p> <p><b>Duration of calls:</b> The length of calls was longest for the first counselling session (18.1±7.8 min). The average length of the subsequent counselling sessions for the MI group was longer than that for the LI group (p &lt; 0.001)</p> <p><b>Duration of the program:</b> 12 months</p> <p><b>Linkages with usual primary care provider:</b></p> <p><b>Compared to:</b> Received LI (n=194) monthly telephone counselling for 12 months. There was no "control" group in the study and hence it is not possible to determine whether the intervention is better than usual care</p>	<p><b>Outcomes:</b> <b>Physiological measures of disease</b> Changes in BP outcomes reported elsewhere</p> <p><b>Health behaviour</b> Other health behaviours improved significantly, except for smoking, with a reduction in alcohol consumption and increase in exercise for both groups (p &lt; 0.01 for all within-group tests). None of these behavioural outcomes differed between the two groups. The result suggests that monthly telephone counselling for 12 months may be as effective as more frequent, biweekly counselling</p> <p><b>Adherence</b> At three months, the proportion of patients taking antihypertensive medication was similar for both groups. Over the 12-month counselling period, both groups showed a positive trend toward an increase in medication-taking. The MI group showed a slightly greater increase in the number of patients reporting medication taking (6.5%, p=0.041 for the within-group change), while the increase in the LI group was NS</p>
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<p><b>Reference:</b> Riegel 2006<sup>15</sup> Linked paper(s):</p> <p><b>Country:</b> USA</p> <p><b>Target population:</b> CHF, depression Vulnerable: Hispanics of Mexican origin - the percentage of HF patients rehospitalised for HF or other causes, total hospital days, and total hospital charges are significantly higher in California Hispanics than non-Hispanic whites</p> <p><b>Level of care:</b> 3 NHMRC Level of Evidence: II</p> <p><b>Patients recruited from:</b> Self identified Hispanics were recruited from two community hospitals close to the US-Mexico boarder. Patients with a primary or secondary diagnosis of HF, living in the community and planning to return to the community after hospital discharge were eligible to participate</p> <p><b>Duration of study:</b> Not clear, there was a 2 year enrollment period. There was a 6 month intervention period</p> <p><b>Number of patients:</b> The intervention was received by 58 of the 70 patients randomised to the intervention group</p> <p><b>% Male:</b> 0.46</p> <p><b>Mean age:</b> 72 + or - 11 years</p> <p><b>Uptake to program:</b> <b>Facilitators:</b> <b>Barriers:</b></p>	<p><b>Study aim:</b> We tested the effectiveness of telephone case management in decreasing hospitalisations and improving health-related quality of life (HRQL) and depression in Hispanics of Mexican origin with Heart Failure</p> <p><b>Telephone coaching intervention:</b> <b>Scripted planned</b> Features can be overridden based on clinical judgment. The nurse case managers were affiliated with the hospital, not individual providers, so they did not titrate medications or coordinate follow-up care. The emphasis of the intervention was on education, monitoring, and guidance. The intervention was refined to be culturally appropriate by the bilingual/bicultural collaborators (nurse case managers, physician coinvestigator, research assistant)</p> <p><b>Delivered by:</b> Two bilingual/bicultural Mexican-American registered nurses with special training in HF</p> <p><b>Number of telephone calls:</b> Patients received an average of 13.5 calls (median 13), and families received an additional 8.4 (median 7), with most calls early on after discharge, an additional 4.6 (median 3) case management contacts involved a consultation with another health professionals</p> <p><b>Duration of calls:</b> Not stated</p> <p><b>Duration of the program:</b> 6 months</p> <p><b>Linkages with usual primary care provider:</b> Nurse case managers telephoned physicians as needed and mailed reports on patient progress at regular intervals. Reports mailed to physicians noted when patients were not receiving medications advocated in clinical guidelines, to support evidence-based practice</p> <p><b>Compared to:</b> Usual care</p>	<p><b>Outcomes:</b> <b>Health service use</b> Heart failure rehospitalisation was the primary outcome variable Other variables were all-cause hospitalisations, days in the hospital (HF and all-cause), multiple readmissions (more than 1 in 3 or 6 months), acute care costs (HF and all-cause), and all cause mortality. No significant group differences were found in HF hospitalisations, HF readmission rate, HF days in the hospital, HF cost of care, all-cause acute care use or cost, mortality, HRQL, or depression. The intervention reduced acute care resource use initially, but the within-group variability was so great that the difference did not reach statistical significance</p> <p><b>Economic outcomes</b></p>
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