Health Policy Advisory Committee on Technology

Technology Brief

Health Buddy® for telehealth patients

August 2012
TECHNOLOGY BRIEF

Register ID  WP106

Name of technology  Health Buddy® Telehealth system

Purpose and target group  Telehealth patients with heart failure or post-CABG surgery

Stage of development in Australia

☑️ Yet to emerge
☐ Experimental
☐ Investigational
☐ Nearly established

☐ Established
☐ Established but changed indication or modification of technique
☐ Should be taken out of use

Australian Therapeutic Goods Administration approval

☐ Yes
☒ No
☐ Not applicable

ARTG number

International utilisation

<table>
<thead>
<tr>
<th>Country</th>
<th>Trials underway or completed</th>
<th>Limited use</th>
<th>Widely diffused</th>
</tr>
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<tbody>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>United States</td>
<td>✓</td>
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<td>Canada</td>
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<td>United Kingdom</td>
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<td>Netherlands</td>
<td>✓</td>
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Impact summary

The Health Buddy® device (Bosch Healthcare Incorporated; Palo Alto, CA, USA) is an easy-to-use patient interface used in the home. It assists the self-management and remote monitoring of patients with chronic long-term conditions such as diabetes, chronic obstructive pulmonary disease (COPD) or heart failure (HF) and can be used following surgery such as coronary artery bypass graft (CABG) to facilitate rehabilitation and enable the patient to address common post-operative symptoms. The Health Buddy® can provide health education sessions, coaching to support positive lifestyle changes, and monitoring of patient vital signs and outcomes as measured by certified questionnaires. The home delivery of an interactive disease
management program may promote greater uptake and adherence to management and overcome geographical factors that limit compliance. Devices similar to the Health Buddy® are available in Australia, in addition to telephone health services with a similar aim. This brief specifically investigated the Health Buddy® device when used to manage patients recently hospitalised with CHF or recovering from major cardiac surgery.

**Background**

Cardiovascular disease (CVD) is one of Australia’s most costly diseases and is a leading cause of disability and premature death. Coronary heart disease (CHD) and HF are among the most common forms. HF is typically life-threatening and is associated with poor survival. CHD is the most common cause of HF and risk factors for the disease include age, high blood pressure, alcohol abuse, diabetes and obesity; CABG surgery is a common treatment.

Patients are at the greatest risk of readmission or death in the first month following hospitalisation due to CABG surgery or HF. Disease management programs that follow a major cardiac event or surgery have been developed to modify the risk factors that contribute to disease, with lifestyle modifications to diet and increased physical activity essential for reducing the risk of a subsequent cardiac event. Close monitoring, encouragement and support during this critical period have been shown to improve patient compliance and can lead to reductions in hospital readmission and mortality rates. Regular monitoring is therefore ideal but its implementation may be impractical and costly. Traditionally, monitoring programs include the provision of educational materials (printed resources or audio/videotapes) and can include sessions of low-to-moderate exercise. However, uptake of these programs in Australia has generally been low due to barriers associated with travel time and geography.

Telehealth technologies have been designed to complement traditional methods of disease management, in order to provide health management in the home setting. This has involved the development of disease management programs that can deliver regular and interactive patient interventions; provide coaching and education for reinforcement of lifestyle modifications; and in some systems, monitor patient physiology and alert healthcare providers to changes in patient conditions. Disease management programs delivered via the telephone are currently being offered in Australia through some private health insurers’ hospital coverage plans for chronic disease management including HF and recovery from heart surgery.

Disease management programs can also be delivered by devices placed in the home setting. The Health Buddy® is an example of a telehealth device that has the capacity to deliver a variety of disease management programs, including those for HF and
post-CABG and such devices are in an early stage of development in Australia (personal communication, Department of Public Health, University of Adelaide, 4 May 2012). In addition, the device can monitor physiological data through connectable medical peripherals including blood pressure monitors, blood glucose meters, peak flow meters, pulse oximeters and weight scales.  

The Health Buddy® has an easy to read screen with four large blue buttons for patients to interact with, and has been designed particularly for the targeted age group (≥65 years). Sessions can be delivered as often as required, and usually take 8-10 minutes to complete. Responses are delivered to a secure data server by a telephone line (without affecting normal telephone services), and the next scheduled intervention is delivered in return. Clinicians or nurse project managers can view patient responses, monitor patient compliance, and assist with troubleshooting issues patients may have with use of the device. Positive patient satisfaction has been reported in early studies.  

Clinical need and burden of disease  
Mild forms of HF can present with few symptoms; however, with further progression of the disease, chronic fatigue, reduced capacity for physical activity and shortness of breath can occur. HF is life threatening and generally irreversible but treatment may lengthen and improve the quality of life and reduce hospital admissions.  

In 2007-08, there were approximately 3.5 million Australians with long-term CVD; of these, 685,000 had been diagnosed with CHD and 277,880 with HF. Respectively, these figures represent 3 and 1.3 per cent of the Australian population. As age is a risk factor for CVD, prevalence is likely to increase as the population ages.  

In 2009-10, there were approximately 5,000 CABG procedures performed in Australia and approximately 45,000 hospitalisations due to HF. In that same year, there were 8,426 hospitalisations in New Zealand due to heart failure.  

In 2004-05, CVD accounted for 11 per cent ($AUS 5.94 billion) of Australian healthcare expenditure. More than half was for hospital-admitted patients ($3.01 billion). Hospitalisations account for the majority of costs associated with HF, with recent hospitalisations associated with increased risk of rehospitalisation or death, contributing further to the financial burden of the disease.  

Diffusion of technology in Australia  
The Health Buddy® is not currently registered on the ARTG, and there is no indication of device use in Australia.  

A range of similar devices that deliver disease management programs remotely have been registered with the ARTG and are currently available in Australia; however, the
degree of diffusion and amount of use is relatively unknown (Table 1). ACT Health currently provides home telemonitoring services through the Chronic Disease Management Unit, for patients with HF, COPD and diabetes using the TMC Health Monitor (TeleMedCare Pty. Ltd., Sydney, Australia). Patients who have had at least one hospital admission or presentation to an emergency department due to one of the indications may be referred to the service by physicians or through specialised clinics.

### Table 1  Telemonitoring devices on the ARTG

<table>
<thead>
<tr>
<th>Telemonitoring device ARTG number</th>
<th>Approval date</th>
<th>Approved indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemedcare Pty Ltd - Patient monitor, multiparameter 156416</td>
<td>29/10/08</td>
<td>The TMC Health Monitor is intended to facilitate monitoring and transmission to a remote server of certain physiological parameters relevant to the remote management of health status and chronic disease conditions.</td>
</tr>
<tr>
<td>Tunstall Australasia Pty Ltd - Telemedicine system RTX3370: 157160 RTX3371: 161774</td>
<td>25/11/08</td>
<td>14/05/09</td>
</tr>
<tr>
<td>Intel Australia Pty Ltd - Telemetry system, physiological signal 162440</td>
<td>12/06/09</td>
<td>Transmission, reception, recording and viewing of wireless physiological signals (commonly known as vital signs) via the telephone or Internet over a distance. These are sent from a transmitter connected to an ambulatory patient and/or from other devices used by the patient so that the patient can be monitored when remote to static patient monitoring systems or medical care facilities</td>
</tr>
<tr>
<td>Intel-GE Care Innovations LLC - Telemetry system, physiological signal 190681</td>
<td>14/10/11</td>
<td>Transmission, reception, recording and viewing of wireless physiological signals (commonly known as vital signs) via the telephone or Internet over a distance. These are sent from a transmitter connected to an ambulatory patient and/or from other devices used by the patient so that the patient can be monitored when remote to static patient monitoring systems or medical care facilities</td>
</tr>
<tr>
<td>Philips Electronics Australia Ltd - Telemedicine system, video conferencing 194669</td>
<td>17/02/12</td>
<td>To be used to pass on patient data from a person’s home to their medical provider and information from the medical provider to the patient.</td>
</tr>
</tbody>
</table>

Patients are expected to interact with the device daily, with responses reviewed each weekday; patient responses form a Modified Early Warning Score, and if this score exceeds a set threshold, or if the patient’s clinical data measurements are outside of the set parameters, the patient is contacted by a provider to verify their condition, provide advice over the telephone, schedule a home or clinic visit or be referred to their general practitioner or emergency department.
The service is provided in the initial instance for three months, with further use assessed after this time. Patient evaluation of the program has highlighted the added confidence patients have with regard to understanding and managing their conditions, in addition to added encouragement and support that would otherwise be unavailable.

Additionally, the Australian Department of Veterans’ Affairs is conducting a three-year trial of telemonitoring as part of the National Broadband Network rollout. The trial is due to begin late in 2012.

**Comparators**

In Australia, cardiac rehabilitation (CR) programs are available to all patients after an acute cardiac event. These programs usually include weekly education and exercise sessions of low-to-moderate intensity in the 6-8 week post-event period. They aim to facilitate recovery of functioning and physical activity and to promote lifestyle modifications to reduce disease risk factors and prevent death or readmission to hospital. In spite of these benefits, overall attendance is not ideal, in the range of 37-66 per cent. An Australian study that investigated patient participation in outpatient clinic CR programs observed that attendance was higher for patients who had a significantly shorter travel time.

There are at least six home telemonitoring devices that deliver disease management programs registered with the ARTG for use in Australia (Table 1). These devices are similar to the Health Buddy® as they have been designed for a range of disease indications including HF, provide coaching and education in the home setting, and monitor patient disease status through medical peripherals and patient questionnaires. Some devices can also enable video conferencing between the patient and health professionals (including the TMC Health Monitor); however, this additional feature requires an internet connection and, as such, may have limited accessibility for the target group.

**Safety and effectiveness**

Four randomised controlled trials (RCTs) that assessed the use of the Health Buddy® were included in this brief; three investigated use in patients with HF and one investigated patients post- CABG.

**Weintraub et al (2010)**

**Study description**

This RCT (level II evidence) aimed to determine the incremental effect of using the Health Buddy® in the management of HF over a 90-day period following hospitalisation. Patients were included in the study if they had been hospitalised for
HF within the previous two-week period. Multiple exclusion criteria for example were the presence of another illness that limited life expectancy or caused disability, acute myocardial infarction within 30 days prior to enrolment, and the absence of a working telephone line in the home.

Patients (n=188) were randomised into intervention (n=95) and control (n=93) arms. Average age was 69 years, with 124/188 male (66%). Groups were not significantly different except that at baseline the intervention group had a significantly higher ejection fraction (32.1% intervention; 27.2% control, \( p=0.05 \)) which may indicate a disparity of disease severity between the groups.

The control group received an established nurse-directed HF disease management program that included an enrolment visit at discharge or at two week follow-up, and educational materials that emphasised awareness of HF disease states, importance of dietary and medication compliance, and methods for self-management. Over the 90-day period, patients received weekly telephone calls to review their clinical status.

Participants in the intervention group received the same disease management program plus the Health Buddy® device. The device measured and transmitted body weight, blood pressure, and heart rate data and patients were expected to interact with the device daily, answering questions that related to symptoms, functional status and medication compliance. Answers were characterised into low-, intermediate- or high-risk responses. The primary end point was the relative event rate of hospitalisation for HF during the 90-day study period.

**Effectiveness**

During the 90-day follow-up period there were 12 hospitalisations for HF experienced in the intervention group by 10 of 95 participants (10.5%) with 30 hospitalisations by 19 of 93 subjects (20.4%) in the control group. This meant participants in the intervention group had 50 per cent fewer events versus the control group (95% CI [0.25, 0.99], \( p=0.05 \)). The rate at which a participant experienced at least one hospitalisation at 90 days in the intervention group was 0.27 (95% CI [0.05, 1.29]) compared to 0.54 (95% CI [0.14, 2.12]) in the control group. Four (4.2%) participants in the intervention group were lost to follow-up, primarily due primarily to problems in installing and connecting the modem to the local phone. Five deaths were observed: 4/93 (4.3%) in the control group and 1/95 (1.1%) in the intervention group (\( p=0.209 \)). The authors commented that short-term benefit had been demonstrated although the study did not examine long-term benefit.
Danskey & Vasey (2009)\textsuperscript{14}

Study description

The aim of this RCT (level II evidence) was to evaluate the impact of the Health Buddy® disease management program on the health and functional status, self-management and utilisation of health services of patients with HF. Participants were recruited upon admission to 10 home health agencies across the United States for home services. They had a primary or secondary diagnosis of HF, telephone line in the home and patient/caregiver ability to communicate in English and visualise information on the device screen. Participants were on average 78 years old.

The trial was conducted in two phases; during phase one, all eligible participants received the Health Buddy® for the duration of home care. The standard length of home health service was 60 days or less, and was based on an evidence-based clinical pathway protocol for the management of HF, with certain milestones required before discharge. Phase two was defined as the 180 days following discharge from formal home health services. Upon discharge, patients (n=108) were randomly assigned to the intervention group (n=64) who would continue to use the Health Buddy® or to the control group (n=44) who received no further telehealth or home health services (note that the method of randomisation was not described).

In phase one, the Health Buddy® asked patients questions related to health status and self-management of HF; this continued during phase two for only the patients in the intervention group. At the end of phase two, the control participants were asked the same questions posed by the Health Buddy® during a telephone interview. Clinical measures of HF symptoms were additionally recorded (shortness of breath and frequency of respiratory treatments). Change in functional status was determined based on questions in relation to activities of daily living, including the ability to walk independently, prepare meals, perform housekeeping and manage medications. Health service utilisation data was collected for the number of home health service visits, inpatient admissions with HF diagnosis and number of visits for emergency care.

Effectiveness

Participants in the intervention group self-reported a significantly lower score for the HF symptom questionnaire (2.016 intervention; 3.15 control, $p<0.001$) which may be indicative of better health status.

The use of the Health Buddy® appeared to improve HF self-management with a significantly more favourable response from the intervention group in five of the eight questions; namely, medically prescribed increase of diuretic dose in response to instances of shortness of breath ($p<0.05$), ankle swelling ($p<0.001$) or sudden weight gain ($p<0.001$), consistency in the time of day the patient weighed...
themselves \((p<0.001)\), and if they had weighed themselves that day \((p≤0.05)\). No significant difference between the groups was observed for the remaining three questions referring to use of a salt shaker, whether medicines are refilled before bottles are empty and medication compliance.

During phase one of the study, there was no significant difference between the groups for health services utilisation. During phase two, participants in the intervention group were significantly less likely to experience an inpatient admission, with zero (0%) patients reported, compared to 13/46 (28%) patients in the control \((p<0.001)\). Intervention patients were also significantly less likely to receive emergency care, with zero (0%) patients presenting to emergency, compared to 12/46 (26%) patients in the control \((p<0.001)\). Patient satisfaction with the device was high, with 54/58 (93%) of participants who used the device for the whole study reportedly ‘satisfied’ or ‘very satisfied’. The device was rated ‘easy’ or ‘very easy’ to use by 56/58 (97%) of participants.

**Boyne et al (2012)**

**Study description**

The aim of this multicentre RCT (level II evidence) was to determine if telemonitoring reduces HF hospitalisations in comparison to usual care. Consecutive patients with HF that were 18 years or older and capable of providing informed consent were recruited through an outpatient clinic. Patients were excluded if the Health Buddy® system was physically or cognitively impractical, or when their expected life span was less than one year. Three hospitals in the Netherlands screened 870 patients; of these, 488 were ineligible or refused to participate, leaving 382 patients enrolled into the trial. Participants were randomly assigned to the intervention \((n=197)\) or control \((n=185)\) study arms, using a computer-generated randomisation procedure. The average age of the participants enrolled was 71 years, with baseline demographics between the two groups similar, aside from a predominance of atrial fibrillation in the intervention group \((p=0.007)\).

The Health Buddy® was used by the intervention group to communicate a daily dialogue about symptoms, knowledge and behaviours; responses were categorised into risk profiles and answers transferred to the program leaders: a HF nurse and nurse assistant. High-risk responses for symptoms triggered an immediate response by the HF nurse. Four different programmes of daily dialogue were used depending on the disease management focus the patient required (focus on symptoms, education or adherence, or monitoring of disease). The Health Buddy® was not used to transfer information regarding patient vital signs, with heart rate and blood pressure information collected during face-to-face contact. The control group
received nurse-led usual care, which included oral and written educational information, and psychosocial support as needed.

Baseline characteristics were gathered at the first visit after enrolment and follow-up was one year; within this period, the control group received four standard follow-up visits, with the intervention group only requiring two. Hospitalisations were identified during follow-up visits and included a review of medical records; and these were collected by nurses not involved in patient care. Follow-up was incomplete in 81 of the 382 participants (21%), with 43 of 185 (23%) from the control group, and 38 of 197 (19%) from the intervention group; reasons included death, increasing physical impairment, stress or loss of motivation.

**Effectiveness**

The primary outcome measure was time to first HF hospitalisation; secondary outcomes included the combined endpoint of HF admission and all cause death, the number of re-admissions for HF, all hospitalisations, and days in hospital for HF, cardiovascular and other-cause hospitalisations, mortality and number of visits to the heart failure clinic. No significant differences were observed between the two groups with regards to all of the primary and secondary outcomes. The authors concluded that the neutral effect observed in these results may have been caused by the under powering of the population in addition to using medically well treated study groups.

Cox regression analysis was performed to demonstrate the influence of baseline characteristics on admissions for HF, and an important interaction between group assignment and HF duration was observed (odds ratio (OR) = 0.983, 95% CI [0.970, 0.995]). Sub-group analyses additionally showed that patients with HF of duration less than 18 months had significantly fewer HF admissions (3/98 in the intervention group compared to 11/88 in the control group, Mann-Whitney p=0.026), and significantly less readmissions, with no readmissions of patients in the intervention group compared to five patients with 11 admissions in the usual care group (Mann-Whitney p=0.024).

**Barnason et al (2009)**

**Study description**

This RCT (level II evidence) examined the effect of the Health Buddy® on physical activity, functioning and healthcare utilisation in older patients after CABG surgery. Patients aged ≥65 who had undergone CABG surgery and who did not meet exclusion criteria (485 of 785 assessed, primarily due to use of home healthcare or an extended care facility) were eligible to participate (n=280). Included patients were randomly allocated to the intervention (n=143) or control (n=137) group. Mean age
was 71 years with no significant demographic or clinical differences between the groups.

Patients in the control group received usual care which included participation in CR, whilst those in the intervention group received both usual care and the Health Buddy® device. Uptake of CR was not significantly different between the two groups (~80%).

Participants in the intervention group were expected to use the Health Buddy® daily for six weeks to deliver strategies designed to address the commonly recurring symptoms experienced following CABG surgery. Of the 280 patients who initially consented to participate in the study, 49 did not receive their allocated intervention: 34/143 (24%) from the intervention group and 15/137 (11%) from the control; with the most common reason cited as “subject burden”, assumed to be too onerous a task to add to their lives (n=36). In addition, a further six of 143 patients were excluded from the analysis in the intervention group due to equipment malfunction (n=3) and inability to complete intervention protocol (n=3). One participant from each group was further lost to follow-up.

Baseline measures for physical activity, physiological and psychosocial functioning were recorded at time of discharge, and then at 3 and 6 weeks and 3 and 6 months post-operation. At each follow-up period, participants were queried regarding healthcare use.

**Effectiveness**

No statistically significant differences were observed between the two groups in physiological or psychosocial functioning. They also had similar rates of rehospitalisation, emergency department visits and clinic visits for cardiac-related problems. The authors postulated that the lack of differences between groups could have been due to the subject sample being comprised of patients who were less impaired or disabled pre-CABG compared with other similar studies.

**Cost impact**

As healthcare providers may have the capacity to intervene upon early signs of health deterioration, telehealth devices, including the Health Buddy®, may reduce health spending and the burden to the healthcare system by decreasing emergency care or hospital admissions. This functionality appears to improve when greater quality and quantity of data, as is collected by the device is captured and results in adjustments to follow-up regimens delivered using the device. As hospitalisations account for most of the costs associated with HF, this may reduce healthcare costs.

A recent case-control study that examined use of the Health Buddy® for different indications identified savings of US$312-542 per person per quarter of US Medicare
spending on hospital and medical claims. Subgroup analyses identified the greatest savings for patients with HF.\textsuperscript{17}

The Health Buddy® device costs approximately US$475, with an expected life span of five years. With the variety of management programs available, data requirements for each may differ depending on the level of patient interaction and type of medical peripheral used; ongoing costs of US$50-200 per month per patient have been estimated to include the costs of the peripherals and management of data.\textsuperscript{4} In comparison, an alternative telemonitoring device with video-conferencing abilities, the TMC Health Monitor, has an estimated cost of A$3,000 per unit, with data management costs per year estimated at $1,200.\textsuperscript{18} It is uncertain what is included in these data management costs. The Health Buddy® may additionally be coupled with a video-conferencing device for patients who require this function, total costs of these devices and on-going management costs would presumably be comparable to the TMC Health Monitor.\textsuperscript{18}

**Ethical, cultural or religious considerations**

Telehealth devices may provide greater benefits for rural and remote patients who may be less able to attend traditional CR programs.

**Other issues**

Weintraub et al\textsuperscript{3} and the cost-effectiveness case-control study\textsuperscript{17} were partially or fully funded by the manufacturer.

Subgroup analyses conducted on the study population from Barnason et al\textsuperscript{16} suggest that use of the Health Buddy® may be more beneficial in women\textsuperscript{19} and patients with higher disease burden.\textsuperscript{20}

There may be some indication that patients that use the device may develop a false sense of security, and delay presentation to the hospital.

In Australia, disease management programs that are delivered by telephone are provided with some private health insurers’ hospital coverage plans. The betterhealth On Call program, provided by Medibank through Medibank Health Solutions, is a telephone-based support service that connects patients with a range of health professionals, including registered nurses and psychologists. The program includes the development of an individualised 12-month plan, with regular coaching and support in combination with educational sessions aimed to improve health status.\textsuperscript{6} After 12 months, patients are reviewed for further continuation of services.

A similar telephone-based program which is offered by other private health insurers, including Bupa, is the COACH Program\textsuperscript{®}. This program is targeted to members who have recently been discharged from hospital due to CVD. Qualified dieticians, trained
in cardiovascular disease management, maintain regular contact with patients in the six to nine months after admission, and provide education, coaching and support to reduce disease risk factors to prevent future cardiovascular events. 

Summary of findings

The studies included for the HF indication suggest that Health Buddy® use is associated with a decreased likelihood of rehospitalisation events. The study with the most favourable outcomes for Health Buddy® recruited patients who required home health services, and may not have necessarily included patients recently hospitalised. Consequently, the HF experienced by the patients in this trial may not have been as severe as in those patients recruited from hospital; however conversely this trial may have also included a subset of patients who did not require a follow-up program delivered to the same extent as that provided by the Health Buddy® device. Importantly, duration of the disease as reported in the study by Boyne et al may contribute to the rehospitalisation rate and therefore have affected the effectiveness outcomes reported for the Health Buddy® device, as patients with HF of duration of 18 months or more were observed to have significantly fewer hospitalisations with the use of the Health Buddy®. The study included for the CABG indication found no significant differences, however subsequent sub-group analyses studies have suggested greater benefits in women or patients with a greater disease burden. Further study to investigate these benefits is required.

Three of the four studies included in this brief appeared to use the Health Buddy® for the delivery of daily programs that only questioned patients regarding their symptoms and management of disease rather than use the additional functionality of the device to monitor patient vital signs. Significantly, the study that did monitor patient vitals signs observed 50 per cent fewer hospitalisation events in the group monitored by the device.

Health Buddy® appears to be a cheaper alternative to other telemonitoring devices on the market, and is associated with high levels of patient satisfaction and ease of use. As the device transfers data through the telephone connection, the internet is not required, and as such, may be more accessible to the target group. Telephone delivered disease management programs are an additional alternative that are currently being provided to members of certain private health insurance companies, and may provide similar benefits.

HealthPACT assessment:

Given the increased burden of chronic diseases, and expanding role of chronic disease management, telehealth devices may have greater applications and implications. Based on the results of the four RCTs the use of telehealth devices
appear to reduce the rate of rehospitalisation and therefore cost burden to the healthcare system as well as provide an alternative to attending traditional outpatient clinic CR programs. For the indication of HF or following CABG surgery which was assessed in this Technology brief, HealthPACT recommended that further research on this technology is not warranted.

**Number of studies included**

All evidence included for assessment in this Technology Brief has been assessed according to the revised NHMRC levels of evidence. A document summarising these levels may be accessed via the HealthPACT web site.

Total number of studies 4
Total number of Level II studies 4

**References**


Search criteria to be used

Telemonitoring, Health Buddy, Congestive heart failure, Coronary artery bypass
Appendix A

Expert clinical opinion

Clinical advice and opinion regarding the safety and effectiveness results, user-friendliness; as well as the impact the introduction of the Health Buddy® device would have on current clinical practice was received.

Clinical practice

The clinical benefits of the device depend upon the quality of the overall home telehealth system design, including components such as the clinical management algorithms used, back-up systems, the setting of alerts and prioritisation of events as well as the communication with the patient’s usual medical practitioner. Systems should be designed outlining which healthcare professionals will be involved and to what extent, including hospital staff, paramedics and ambulance staff as well as general practitioners and specialists.

Patient selection

One of the four RCTs included in this technology brief included patients who had been admitted to home health agencies, compared to the other three RCTs in which patients were recruited following discharge after receiving CABG surgery or treatment for HF. As a result, the greatest effect was observed in the patients who had been identified as requiring home health management, exemplifying the outcome of appropriate patient selection. Of the patients included following discharge, it is likely that only a portion of those may have required home health monitoring and thereby would not have benefitted from the use of the Health Buddy® device to a similar extent as those admitted for home health management.

User-friendliness

The text-based aspect of the device appeared simple to operate, and this is an important consideration concerning the quality of the appliance as it is designed for elderly people with chronic conditions. As the device is connected via the telephone this will increase the accessibility of the device for those in regional areas or patients who do not have an internet connection or information technology skills.

Cost benefits

The cost of the overall clinical management system design would be substantial, and this would be the key driver of the cost-effectiveness of the use of the device, opposed to the cost of the purchase of the Health Buddy® device. The cost-effectiveness would most likely benefit from economies of scale and would be more cost-effective if set up using an existing health call centre.