

# **Keeping UP Falls Prevention Project**



**Final Submission for the Falls Prevention and Injury  
Prevention Community Grants Program.**

**16 June 2008**

**Project Partners include**



**SOUTH EASTERN SYDNEY  
ILLAWARRA  
NSW HEALTH**



**Australian Government  
Department of Health and Ageing**

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## ***Executive Summary***

The Keeping UP project has been successful in a number of very important areas.

1. It has provided an on-dialysis exercise program for people with chronic kidney disease and at increased risk of falls, and conducted this program in two settings in the Illawarra Region of NSW.
2. Through the Accredited Exercise Physiologists working within each venue, it has developed and implemented a tailored exercise intervention effective in reducing falls risk in a population whose medical condition predisposes them to falls.
3. It has supported the development of an innovative piece of equipment that allows people to exercise the lower limbs while on dialysis.
4. It has demonstrated the benefits of employing an Accredited Exercise Physiologist within Renal Units
5. It has continued to support self-managed change within a population for whom self- management of lifestyle is essential for maintenance and improvement of health and wellbeing.

This project targeted people living with chronic kidney disease and at increased risk of falls, including individuals on dialysis, and also those members of the community with this disease but not yet on dialysis.

The Medical and Nursing staff at the Renal Units in Wollongong and Shoalhaven Hospitals supported the project. The Renal Physicians referred individuals on dialysis to the KUP as well as developing and implementing strategies designed to encourage GPs to refer to the project their patients with chronic kidney disease but not yet on dialysis.

The referral process of individuals in need of Team Care Arrangements is cumbersome, time consuming and largely dependent on Medical Practitioners developing effective and efficient processes that identify eligible patients, develops the Care Plan and gains approval and support from involved Allied Health professionals. These processes and pathways require modification and perhaps even the development of a different paradigm that will allow both referral and payment for these services by AHPs to be carried out in a manner which facilitates patient-centred care.

## ***Keeping Up Project:- Final Report***

This final report meets requirements as per the Deed of Variation #1 signed off on 27<sup>th</sup> March 2008. It represents the final report of “A controlled intervention targeting falls prevention for older people with chronic kidney disease’, also known as the Keeping Up Project.

### **Introduction**

The Keeping Up project targets people with complex and chronic disease, specifically chronic kidney disease, and supports them in self-managing change in lifestyle and increasing physical activity with the intent to reduce the risk of falls. Tailored exercise interventions and self management strategies have been provided by Accredited Exercise Physiologists (AEPs), both within the Renal Units in Wollongong and Shoalhaven and within the larger community.

It implemented two pathways through the project, one for individuals with chronic kidney disease and on dialysis and the second for individuals with chronic kidney disease and not yet on dialysis.

Patients required referral into the project. In the first instance, for those on dialysis this referral came from the Renal Physicians at the Wollongong or Shoalhaven Hospitals Renal Units. For these people, the decision to refer to the KUP was made by the Renal Physician on the basis that exercise would be beneficial for the individual. For those people not yet on dialysis, the referral to the KUP and thus to the community based AEPs was made by the patient’s GP, under Team Care Arrangements.

The patients on dialysis were invited to participate in a program of exercise designed by the AEPs placed within the Renal Unit(s) which was conducted prior to, and during dialysis. Dialyzing sessions are conducted three times a week, each session lasts 5 – 6 hours, so these individuals were provided the opportunity to exercise three times weekly. 35 patients participated in the exercise intervention, gaining statistically significant improvements in a range of areas that reduced falls risk and improved functional fitness.

The patients not on dialysis and referred by their GP, were initially seen by the AEP within the Renal Unit in Wollongong. This step was introduced so that people with the disease could see that exercise while on dialysis was ‘normal’ within those units. At the first meeting with the AEP in the Renal Unit, the patient was provided information about the KUP and some self-management support. They were then on-referred to a local AEP who conducted the allocated number (between 2 and 5) of sessions under Team Care Arrangements and continued to support them with self-management strategies and an exercise program designed to reduce their falls risk.

All patients in the Keeping Up Project were assessed by the Team using the Prince of Wales Medical Research Institute Falls Risk Kit, with assessments conducted on entry into the project, at week 12 and again at week 24. People in the Project were also assessed using the Seniors Fitness Test which provided information about changes in functional fitness as a result of completing the exercise program. There was no charge for the participant for any of these assessments. After 12 weeks of activity intervention provided by the AEP, the participant was provided the opportunity to select one of three pathways for the final 12 weeks. These three were:-

1. Continue with the AEP and pay the agreed amount for each session
2. Transfer to a community based program, paying a slightly reduced fee
3. Participate in a home program developed and monitored by the AEP, at no cost to the participant. After the 24 week period, participants were encouraged to continue with an activity program at a venue of their choice with the activities oriented towards falls prevention.

#### **Physical Activity Mapping undertaken by SESIAHS that could be applied within both the Keeping Up Project and the Better Balance Project within the Illawarra Region**

This information is provided in more detail for the Better Balance Project Report (the related falls intervention for individuals with complex and chronic diseases and at increased of falls). SESIAHS have performed a physical activity mapping process across its region. This mapping has allowed the development of a web link [http://www.sesiahhs.health.nsw.gov.au/publications/health\\_Promotion/fun\\_and\\_fitness.asap](http://www.sesiahhs.health.nsw.gov.au/publications/health_Promotion/fun_and_fitness.asap) and the attached resource :Fun and Fitness for over 55. It was intended that both the KUP and its project partner, the Better Balance Project could have used these resources to offer participants in the community a choice in their decision as to how to access continued support during the second 12 weeks of the program. The options for community based physical activity are listed in the SESIAHS resource which was produced in February 2008 and is appended to the DoHA report. Unfortunately the document may not prove as effective for the population in the KUP because of the nature of their complex and chronic condition, and because the providers of the activity sessions are, in general, neither competent nor insured to provide exercise for people with pathology. This remains the domain of the Accredited Exercise Physiologist.

#### **SESIHHS role in addressing the gaps identified in provision of physical activity opportunities in the Wollongong and Shoalhaven regions**

Notwithstanding the above, SESIAHS Health Promotion Service (HPS) currently supports 24 Registered Fitness Leaders (RFL) who conduct over 80 physical activity classes a week in the Wollongong and Shoalhaven area. The types of physical activity provided include gentle exercise (low intensity exercise classes) such as Heartmoves, Tai Chi and strength training. The establishment on 30<sup>th</sup> March 2007 of an additional two of

these exercise classes in the Figtree and Dapto area helped to ensure as many older people as possible could access these classes.

Because these classes are often run by part-time instructor's, financial support is offered in some cases to the RFLs via a part subsidy of payment for running classes, assistance and payment for some marketing of classes and/or access to a fitness leader's Network where professional development opportunities are provided at a minimal cost.

The Heart Foundation has developed a program of low intensity activities that may be delivered by trained personnel (for further information about Heartmoves, please go to [www.heartfoundation.org.au/Professional\\_Information/Lifestyle\\_Risk/Physical\\_Activity/Heartmoves.htm](http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risk/Physical_Activity/Heartmoves.htm)). The HPS supports these community based fitness leaders and organises Heartmoves reaccreditation workshop for RFLs due for renewal of their registration. Discussion is underway with HPS to consider whether activities relevant to falls prevention can be included as part of this workshop.

The HPS is also aiming to increase the number of Heartmoves accredited leaders and the number of Heartmoves classes where there are gaps in exercise opportunities for older people. According to a mapping exercise which was previously undertaken the areas where there seems to be gaps in the provision of Heartmoves classes includes Unanderra, Warilla, Central Wollongong (golf course area), Albion Park and Bomaderry. These are the likely areas which the HPS will target for the future establishment of Heartmoves classes. Planning for this is currently under way, as is the manner in which the Heartmoves classes might better reflect the needs of a population at risk of falls. There is also considerable discussion in the Medical and Exercise Science and Rehabilitation professions as to whether such an initiative represents 'best practice' as it appears that, in this circumstance, the least credentialed individuals ie RFLs are being encouraged to provide activity sessions for members of the public who are most at risk ie those individuals (with complex and chronic conditions and) at increased risk of falls.

### **Summary of the exercise programs developed and implemented by AEPs within the Keeping Up Project**

This project was conducted in two parts, one component being conducted within the Renal Units, for people living with chronic kidney disease and requiring dialysis on a regular basis, and the other within the larger community for individuals with chronic kidney disease but not yet on dialysis. There were 35 patients who were recruited through the Dialysis Units and 15 who were identified and recruited into the KUP with exercise interventions provided by the AEPs in the community.

35 patients on dialysis were recruited into the KUP and 27 of these patients were assessed at 12 weeks and 18 reassessed after 24 weeks. Adherence to the KUP was thus better than the accepted fitness industry figures of '80% dropping out within 6 months of commencing an activity program', and is testimony to the excellent interactions developed between the patients and the AEPs in Wollongong and Shoalhaven Units. People on dialysis could be considered to be 'sick' and is represented by the fact that 4 people withdrew due to ill health, 3 as a result of changed personal circumstances and

personal issues, 2 as a result of death. One participant discontinued because of a change in their working shift which resulted in this individual undergoing dialysis at a time when the AEP was not on duty in Wollongong Renal Unit.

The exercise intervention designed for use within the Renal Units included activities that could be performed by individuals with a fistula, an access point for transfer of blood from the individual to the dialyzing machine and back. The fistula is the development a large blood vessel which is regularly catheterized for the dialyzing process. On occasions, the fistula design and positioning reduces the range of motion of the limb, as well as the endurance, strength and power of the affected area. Exercise selection and management thus requires awareness of the apparent change in functional fitness of that part of the body, as well as other factors influencing exercise performance ie osteopenia, sarcopenia, very large changes in blood pressure during dialysis, loss of significant amounts of fluid, depression and occasionally, reduced cognitive functioning due to the disease.

The exercise intervention also was designed so that a component of it could be conducted while the individual was on dialysis, as this relatively 'public' demonstration of undertaking physical activity while in the Renal Unit AND on dialysis was considered important in changing the culture within the Renal Units. It was also time efficient, and once the necessary piece of equipment was developed by the University of Wollongong Mechanical Engineering Department, it allowed for accurate determination of exercise intensity and total work performed by the person on dialysis.

The KUP also provided a range of plastic barbells of various weights, some therabands – elasticized bands used to maintain and develop muscle endurance and strength, some pieces of foam of various densities and depths that would challenge the patient's balance while walking on them in a safe environment. We were able to access to a hallway or similar for some controlled walking. *This is the first time that an activity/exercise intervention has been designed to impact falls and falls risk in a population on dialysis.*

At the commencement of the patient's involvement in the KUP, a falls risk assessment was conducted in the Renal Unit using the Prince of Wales Medical Research Institute Falls Risk Assessment Kit – using the Physical Outcomes battery. This test was repeated at 12 weeks and again at 24 weeks.

Patients also undertook the Senior's Fitness Test which provided further information related to functional fitness and included an aerobic test (6 minute walk or similar). The SFT evaluates the functional fitness performance of older adults. One unique feature of the Senior Fitness Test is that it measures physiologic parameters using functional movement tasks, such as standing, bending, lifting, reaching and walking.

The exercises chosen for the KUP included a number targeting the arm and shoulder girdle, (Bicep curl, tricep exercise and shoulder press), some lower limb exercises such as sit to stand, heel raises, and some flexibility exercises. The resistance was set at 10RM, the weight that the patient could manage, in general, a maximum of 10 repetitions.

Patients in the project were encouraged to exercise the non-fistula parts of their body while they were dialysing. Usually, the fistula was created in the arm, and this part of the body was exercised during the pre-dialysing exercise session conducted outside of the ward. When on dialysis, the other arm could then be exercised. Once the mobile ergometer-holding equipment was constructed, it allowed the patient to exercise the lower limbs while undergoing dialysis using the arm-crank device with pedals attached (See Fig 1 below).

Fig 1. Patient within the Renal Unit, demonstrating the construction and positioning of the ergometer-holding device that allowed patients to exercise lower limb while dialyzing. (For further diagrams of this device, please see page 16 and 18)



### Results of these exercise interventions conducted by the AEPs

| Measures                                      | Pre    |        | 12 weeks |        |         | 24 weeks |        |         |
|---|--------|--------|----------|--------|---------|----------|--------|---------|
|   | Mean   | SD     | Mean     | SD     | P value | Mean     | SD     | P value |
| Number of participants assessed               | 34     |        | 27       |        |         | 18       |        |         |
| Falls Risk Score                              | 1.37   | 1.42   | 0.78     | 1.49   | <0.05*  | 0.15     | 0.97   | <0.05*  |
| <i>Vision:</i> edge contrast sensitivity (dB) | 18.38  | 2.79   | 19.22    | 2.89   | <0.05*  | 21.78    | 1.63   | <0.05*  |
| <i>Sensation:</i> Proprioception (degrees)    | 2.28   | 1.58   | 2.63     | 2.39   | >0.05   | 2.06     | 1.72   | >0.05   |
| <i>Strength:</i>                              |        |        |          |        |         |          |        |         |
| R knee extension strength (kg)                | 20.93  | 8.87   | 21.46    | 8.73   | >0.05   | 20.03    | 6.49   | >0.05   |
| L knee extension strength (kg)                | 20.15  | 8.23   | 20.61    | 9.28   | >0.05   | 20.17    | 6.34   | >0.05   |
| R knee flexion strength (kg)                  | 15.61  | 5.53   | 15.92    | 6.16   | >0.05   | 16.09    | 5.32   | <0.05*  |
| L knee flexion strength (kg)                  | 14.76  | 5.47   | 14.94    | 6.28   | >0.05   | 16.03    | 5.84   | <0.05*  |
| R ankle dorsiflexion strength (kg)            | 10.32  | 5.03   | 10.80    | 3.58   | >0.05   | 13.39    | 3.78   | <0.05*  |
| L ankle dorsiflexion strength (kg)            | 10.44  | 4.64   | 11.28    | 3.46   | >0.05   | 13.19    | 3.35   | <0.05*  |
| <i>Speed &amp; Control:</i>                   |        |        |          |        |         |          |        |         |
| Reaction Time - hand (ms)                     | 308.39 | 92.84  | 266.89   | 59.66  | <0.05*  | 245.29   | 31.88  | <0.05*  |
| Reaction Time - right foot (ms)               | 362.14 | 82.43  | 336.76   | 76.79  | <0.05*  | 320.27   | 41.92  | <0.05*  |
| Reaction Time - left foot (ms)                | 376.07 | 110.04 | 339.98   | 81.73  | <0.05*  | 324.09   | 48.06  | >0.05   |
| <i>Balance:</i>                               |        |        |          |        |         |          |        |         |
| Sway on floor - eyes open (mm)                | 83.21  | 52.65  | 67.70    | 24.30  | <0.05*  | 61.41    | 37.49  | >0.05   |
| Sway on floor - eyes closed (mm)              | 107.56 | 34.79  | 96.37    | 20.82  | <0.05*  | 134.06   | 89.49  | >0.05   |
| Sway on foam - eyes open (mm)                 | 155.45 | 107.87 | 132.25   | 50.77  | >0.05   | 124.13   | 63.48  | >0.05   |
| Sway on foam - eyes closed (mm)               | 459.59 | 324.40 | 319.75   | 165.88 | <0.05*  | 293.57   | 168.31 | <0.05*  |
| Maximal balance range (mm)                    | 130.29 | 49.93  | 135.41   | 48.62  | >0.05   | 134.24   | 41.97  | >0.05   |
| Co-ordinated stability (error score)          | 14.45  | 9.91   | 15.31    | 9.34   | >0.05   | 12.47    | 8.39   | >0.05   |
| <b>P value- significant p&lt;0.05</b>         |        |        |          |        |         |          |        |         |



### **Key findings from the exercise interventions.**

The most important finding is that the falls risk reduced for the participants as a result of being involved in the KUP. A significant reduction in falls risk on EACH occasion of testing is testimony to the effectiveness of the exercise program AND that the exercise intervention was compatible with dialysis. There was also an increase in strength of the lower limb (ankle) dorsiflexion and also of the strength of the left extensors of the lower leg at the knee. This is consistent with involvement in a progressive exercise program for 3 times per week over a 12 week and 24 week period.

A number of changes in parameters related to maintaining balance were statistically significant at 12 weeks, ie sway on the floor with eyes open and closed, and body sway on foam with eyes closed. Improvements in measures of sway on floor with eyes open and sway on foam with eyes closed were also statistically significant at 24 weeks. Interestingly, reaction time for hand and foot movements improved statistically both at 12 and then again at 24 weeks, although there were not any exercises specifically targeting reaction time.

The Seniors Fitness Test results also supported the tenet that these patients had improved functional fitness over the 24 weeks of the program. Statistically significant improvements in performance were noted in :-

| Test                    | On entry | 24 week  |
|-------------------------|----------|----------|
| 6 minute walk           | 281.21 m | 314.35 m |
| Timed Up and Go         | 10.20sec | 9.22sec  |
| Left and right Arm curl |          |          |
| Chair sit and reach (L) | -13.88cm | -11.23cm |

In essence, patients on dialysis in the KUP were more aerobically fit, more agile, and with greater strength in the arm and shoulder girdle, and improved flexibility in the left hamstring muscle group after 24 weeks of exercises conducted with the AEPs. Changes in these parameters support the reduction in falls risk identified through the POWMRI test kit.

### **Evidence that a media campaign has been implemented**

The media campaign for this particular project has been combined with that provided for the BBP and included:

- Brochures and poster were developed outlining the benefits and how to become part of the KUP. These were placed in GP practice waiting rooms. A copy of this material has been provided to DoHA previously.
- Brochures and posters were also provided within the Renal Units in Wollongong and Nowra (provided earlier for DoHA)
- “Stay on your feet” home safety checklist (NSW Health) provided.
- “Don’t slip up on falls prevention” information booklet (DoHA)
- Tailored information on falls was delivered by the EPs involved with the project.

- The local paper published an article on both the KUP/BBP and how to become involved in it.
- Team Leader of the project went on ABC radio to talk about the KUP and the BBP.
- 3 presentations were conducted throughout the Illawarra Region during Senior's Week with a focus on the need for increasing physical activity to maintain functional fitness and to reduce the risk of falls
- Presentations were conducted at local community groups such as the Dapto Senior's and Catholic Women's League to provide information about the projects and how people could become involved.

### **Copy of the case study and Newsletter developed for the project**

Although it had been intended to develop a Newsletter for GPs involved in the KUP, it quickly became evident that the numbers of GPs with patients on dialysis did not warrant the development of a special Newsletter and that feedback to the GPs from the KUP Team and the AEP was preferable. This involved results of the interventions being provided for GPs and letters encouraging GP referral to the project being sent from the Renal Units when patients with chronic kidney disease presented at those Units.

### **Educational programs for Medical and Nursing Staff within NSW health**

One of the responsibilities within the KUP has been the provision of education to medical and nursing staff within SESIAHS. Encouraging an individual to exercise while on dialysis is not well accepted within the medical and nursing communities because of the sensitive nature of the expensive equipment required for dialysis, the OH and S risks to staff, the belief that staff and possibly, patients would not want to do it.

Furthermore, the paradigm that encourages an individual to take control and to self-manage sufficiently to undertake exercise in the Renal Unit is, for some units, foreign. The Renal Units within Wollongong and Shoalhaven Hospitals however, have several years' history of supporting exercise as an intervention being conducted with the Units, with exercise being conducted both before and during dialysis. This made the implementation of the KUP in these Units somewhat less problematic. The exercise intervention with an emphasis on falls and reducing falls risk provided a different set of exercises and procedures in the delivery of it, and these were explained to the Renal Unit staff.

The Accredited Exercise Physiologists, Brianna James in the Wollongong Hospital and Shane Rose in the Shoalhaven Unit (for 9 months) provided educational material related to the benefits of exercise for individuals with chronic kidney disease to medical and nursing staff. Early in the project they usually confirmed the nature of the material with Prof Maureen Lonergan (Head of the Renal Unit) prior to presentation.

· 28th March 07 Renal nurses Program Information – this program provided Renal Nurses with a better understanding of both the KUP and of its rationale. This information is very important, as the culture within the Renal Units often requires attention, in order for the activity interventions to be scheduled, accepted, and successful.

- 19th June 07 Nephrologists/ Renal Registrars Program Information – an educational session focusing on the impact of exercise on renal pathology, and of the renal pathology on the capacity to exercise.
- Sep 07 Program Update Nephrologists/ Renal Registrars – follow-up session on the underlying rationale, and the KUP results to date.
- 29th Oct 07 Southern Hospitals Network Falls Forum; 8.30am-2.45pm Wollongong Hospital Presentation on the role of exercise for patients with renal disease. This was a presentation to the SHNFF, and provided insights into both the program and the outcomes for the medical, allied health and nursing staff who provide falls related services for NSW Health.

**Information on the educational activities provided to promote awareness of exercise programs for people with chronic kidney disease at risk of falls.**

A poster outlining physical activity and the KUP and previously forwarded to DoHA was placed within the Renal Unit administration area. Brochures were printed (previously provided for DoHA) and provided, along with posters, to GP practices for distribution to eligible patients.

The wider community was informed of the KUP and of the benefits of being active and in self-managing more appropriately to include Physical Activity in their life, through presentations provided during Kidney Health Week, and during Senior's week. These presentations occurred on:-

- 1st June 07 Present Well on My Way Forum 2007 Kidney Health Australia Shellharbour Workers Club
- Presentations during Senior's week in April, 2008 to people with kidney disease and other pathologies, living within the community. These were conducted at Corrimal, Wollongong, and at Dapto.

**Evidence of dissemination of information on the role of exercise programs for older people with chronic kidney disease through conferences and article publications.**

The project ran for slightly more than 12 months and the Management Team worked with the AEPs to provide education/information to the professional community through Seminar/ workshops, and conference presentations that were both verbal and poster. A scientific article is currently being written.

The following presentations related to the KUP were provided at conferences/workshops:-

- 14th March 08 Pre Dialysis workshop 'Let's Get Physical'
- 18th June 08 Quality Forum NSW Health – presentation
- 10th June 08 Nurse program update and AEP referral in community
- AAESS 27th-30th March 2008 conference (Melbourne) Poster Presentation
- SHN Quality Forum

And in the near future, following the completion of the project, a number of presentations have been accepted by conference conveners and scheduled:-

- Renal Society of Australasia National 26th-28th June 2008 Conference (Sydney) Poster Presentation
- Australian and New Zealand Society of Nephrology 6-10 Sept 2008 Conference (Newcastle) Poster presentation

### **Summary of the outcomes of the tracking process for hospital admission rates for falls throughout the 12 months of the project period.**

SESAHS has compiled falls injury hospital admission stats for 06-07 which includes the population with CKD. It is difficult to draw conclusions related to these data, and in particular to analyse and gain insights resulting from those falls that occurred in the first part of 2007. Anecdotally however, comments from people on dialysis to nursing and AEP staff have indicated they feel very much more 'sure footed', and their incidence and severity of falls has reduced since being involved in the project. Perhaps more importantly, their fear of falling has also been reduced.

### **Summary of the project, strengths, weaknesses and potential to be applied nationally**

The KUP is a collaborative project with the UoW, SESAHS, and IDGP as partners. Within SESAHS the partners are the Renal Units at Wollongong and Shoalhaven Hospitals, and the Health Promotion Service.

People with chronic kidney disease are at increased risk of falls. The Keeping Up Project is the first project to identify falls risk levels in individuals with chronic kidney disease and on dialysis. It is also the first such project in the research literature to have exercise interventions designed and managed by an AEP within a Renal Unit. The outcomes and insights developed are impressive.

### **Strengths of the Keeping Up Project**

1. The energetic support of the Head of the Renal Unit (Professor Maureen Lonergan) and her preparedness to support increased learning and attitudinal change towards physical activity and exercise conducted within the Renal Unit was one of its greatest strengths. Dr Lonergan was very supportive of the KUP and referred all of her suitable patients to it. She also encouraged similar levels of support within her Physician colleagues, many of whom changed their knowledge, attitude and behaviour related to referral of individuals on dialysis to the KUP.
2. The identification and appointment of Exercise Physiologists with a appropriate demeanour and interpersonal skills effective in reducing anxiety amongst Medical

and Nursing Staff concerned about the implementation of an activity program within the Renal Units was essential. These qualities were very important to the success of the project. There are very few AEPs in NSW with Hospital experience, with the knowledge related to exercise design and the conduct of it within the hospital sector, and the KUP had 2 of them.

3. The Keeping Up Project has been the first such project in Australia targeting falls risk and falls in the population with CKD. As a result of communication between AEPs around Australia and support from the respective units, there are now exercise interventions being conducted in Sydney and in Adelaide (Hampstead Private Hospital) and plans underway for other initiatives in Perth.
4. The design of exercises that could be conducted within very limited space while the patient is within the Renal Unit meant that one of the barriers to participation could be easily addressed. The exercise equipment was small, portable and easy to use for a population that is invariably older, less functionally fit and often with English as a second language.
5. The University of Wollongong Mechanical Engineering Department designed and built equipment for the ergometer used for exercise and allowed it to be attached to the bed on which the patient underwent dialysis. This equipment allowed tailored exercise programs involving lower limbs to be developed and implemented with total work, cadence, work load and distance traveled able to be accessed and recorded for each patient.
6. The excellent outcomes for the patients referred to the KUP confirmed the strength of the project. These outcomes are presented on page 5 and highlight significant changes in aerobic fitness, reaction time, arm and shoulder strength and balance, along with a significant reduction in falls risk.

### **Weaknesses identified through management of the Keeping Up project**

1. *The recruitment processes of those individuals with chronic kidney disease and not yet on dialysis was a challenge.* On attendance at the Renal Unit, patients with chronic kidney disease were provided with a letter to take to their GP from the Renal Physician supporting involvement in the KUP. Although 15 of these patients were referred to the Project, we believe there are many more patients who could have been eligible but for one reason or another, these patients were not referred to the KUP. GPs retain medical management of their patients, and although the Physicians were able to encourage involvement by their patient, it was up to the patient's GP to complete the necessary paperwork that would allow their patient to become involved in the KUP.
2. *Education of GPs and maintaining the KUP 'top of mind' amongst GPs.* The GP was responsible for initiating the Team Care Arrangements under Medicare for their patients and often this presented a barrier to involvement. Furthermore, the

recruitment and continued support of GPs to the KUP was a challenge. Despite the various approaches developed and sustained by the IDGP, and to a limited extent through the SDGP, there were very few referrals of individuals with chronic kidney disease and NOT yet on dialysis. A staff member from the IDGP was employed to provide support to the KUP and the BBP, and worked 5 months at 2 days per week meeting with GPs and Practice Staff educating them about the projects, and reminding them to refer to the appropriate project, and still referral rates were disappointing.

3. *Sustainability through creation of AEP position within Renal Units.* The creation of a position for AEPs within Hospitals requires a different mind set amongst health bureaucrats in NSW. Although successful in their approach at Hampstead Private Hospital (South Australia) with the development of a comprehensive and persuasive Business Case for the appointment of an AEP, the KUP approach to NSW Health and then to SESIAHS for the creation of a position for an AEP at Wollongong Renal Unit was NOT successful. This occurred despite a most telling and 'real' Case Study where an individual on Dialysis and scheduled for a kidney transplant sustained a fall, was hospitalized as a result of the fall and returned home. Unfortunately this individual contracted a serious infection while in Hospital and now has been removed from the transplant list permanently, and will require Dialysis for the remainder of her life. Dialysis costs around \$80,000 per year, per person, so for a person with a life expectancy of 12 years, the costs will be almost \$1,000,000. Employing an AEP to reduce falls risk would seem to an excellent investment.

#### **Potential for the KUP to be applied nationally.**

There is real potential for this kind of intervention to be applied nationally. The implementation at a national level is however, dependent upon Renal Physicians being supportive of exercise within the Renal Unit. It requires support for a change of culture within these units. Furthermore, funding must be made available for the appointment of Accredited Exercise Physiologists, and that funding currently resides with the respective State Governments, under the Health Budget and then disbursed through the various Area Health Services. The appointment of AEPs has occurred within the Hampstead Private Hospital in Adelaide, but as yet, there are only very few employed within Renal Units in Australia.

The referral of patients with chronic kidney disease but not yet on dialysis to AEPs under Team Care Arrangements faces barriers in the current system. Some GPs consider TCAs to be cumbersome to create and time consuming to manage. Furthermore, GP awareness of the knowledge, skills and competencies of AEPs is not well developed. This latter point intimates that GPs are often not aware of best practice with respect to physical activity for people with pathology such as CKD.

A section explaining the manner in which TCAs are developed and funded under Medicare is included in the Appendices.

## **Overall evaluation of the entire Keeping Up project.**

The KUP was very successful at a number of levels, and created a number of questions and challenges in certain areas which, when addressed will improve seamless transition for individuals with chronic kidney disease to allied health professionals and result in more effective management. The preferred AHP will have necessary knowledge, competencies and insurance that will allow them to develop a safe and effective activity program. That professional is the Accredited Exercise Physiologist.

### Benefits for the Patient on dialysis.

At the level of the patient on dialysis, the KUP provided an opportunity for them to undertake an activity program that was safe, effective and fun. It allowed them to do so within the Renal Unit, and at a time while they were dialyzing. The immediate benefits included significant improvement in functional fitness, in reductions in falls risk, and observed improvements in quality of life. It provided patients confidence to make other changes in their life, to return, in many cases, to a somewhat normal level of activity, and to rekindle interests that they had let lapse. Two cases demonstrate this. One gentleman returned to golf after a two year absence and this was very important to him, and another washed the family car for the first time in 3 years. In both cases, their functional fitness, self worth and quality of life improved dramatically as a result of involvement in the KUP.

The Keeping Up Project allowed individuals on dialysis to develop and increase their self- management skills. Furthermore it supported an increase in functional fitness in individuals who are often quite 'sick' and for a small number for these patients, it provided the increase in functional fitness that improved their prognosis when undergoing kidney transplant.

### At the level of staff within the Renal Unit

The Keeping Up Project provided staff with the potential to improve health outcomes for individuals who are required, by the very nature of their disease, to spend 5-6 hours per day, 3 days per week on dialysis. People on dialysis and in the KUP were reported as having improved demeanour and were often easier for the staff to get along with.

### For the individuals with chronic kidney disease and NOT yet on dialysis

The impact of the KUP for these individuals was focused on reduction in falls risk and an improvement in functional fitness. 15 patients were referred by their GP to the KUP, met with the AEP at the Renal Unit and then were on-referred to their local AEP. Developing both a strategy that is effective in identifying these individuals within the GP practice, and providing the GP with the most recent information related to best practice in co-management of people with this pathology is vital. Implementing a system that encourages referral to appropriate Allied Health Professionals in an efficient and effective manner is also very important for these and other people with complex and chronic conditions.

#### For Exercise Physiologists Australia wide

Amongst Accredited Exercise Physiologists Australia wide, there is now an increased awareness of the role of AEPs within Renal Unit, and within management of individuals with chronic kidney disease in general. Presentations by Brianna James and Team Leader at the AAESS conference in Melbourne March 2008 stimulated significant interest amongst AEPs present, and particularly amongst those who are providing services in areas/regions of Australia where Renal Units are established.

#### Development of a specialized piece of equipment to fix the Monark ergometer to the Bed on which the patient lays for Dialysis.

The Keeping Up Project provided for the development of a specialized piece of equipment that allowed individuals on dialysis to undergo exercise of a known intensity on each occasion they are on dialysis. The piece of equipment is visible in the photogram below, and holds the Monark ergometer in place, and attached to the bed during dialysis. Being able to determine the intensity and the effort required allows the AEP to develop and implement a graded program, one where increases in intensity are provided in safety and that is within the individual's capacity to perform it. This equipment is currently being stored within the Renal Unit at TWH while alternative options for employing an AEP are investigated.



#### **Conclusion**

In essence, it is evident that tailored exercise managed by an AEP is safe and effective with this population – people with chronic kidney disease and on dialysis. Furthermore, a tailored exercise program designed by the AEP is also effective in reducing falls risk in this population who is great risk of falling, and for the sequelae to be serious because of their disease.

The referral processes require attention for people with chronic kidney disease (and indeed all chronic diseases) which allow the GP to refer to Allied Health Professionals.



The current process is inefficient. The number of occasions of service under TCAs, 5 occasions of service in a calendar year, is considered by some GPs and Allied Health Professionals to be ineffective, and a move to evidence-based frequency and number of occasions of service per year is warranted.

Recommendations derived from experiences within the Keeping Up project.

1. Further funding be made available to support exercise interventions targeting falls for individuals undergoing dialysis within Renal Units.
2. Further research as to the effectiveness of these interventions on a range of medical and health related factors be conducted eg the frail aged and people with COPD
3. Accredited Exercise Physiologists be employed within Renal Units to provide specific exercise support for individuals on Dialysis.
4. Review and modification of the funding system for the involvement of Allied Health Professionals, and indeed for the entire Medical and Allied Health Team be implemented. The current system is cumbersome and dependent upon the GP who may have limited experience skills or interest in medical management of their patients. There are models which warrant consideration ie NSW Workers Compensation Scheme where Case Managers are responsible for the management of the client. In that setting, Medical and Allied Health input is managed by the Case Manager.
5. Implementation, either under Medicare or outside of it or an alternative funding model altogether, of an Item number specific to a Falls Group intervention to be delivered by Accredited Exercise Physiologists, similar to that provided for people with Diabetes which is currently provided by AEPs, Dietitians and Diabetes Educators. This would support the development of group activity interventions for those members in the community with chronic kidney disease and at increase for falls in a cost effective manner.
6. Access to appropriately trained Allied Health Professionals for people at risk of falls due to their chronic kidney disease must be simplified. It should be available under Medicare and a system of authorisation for access to this service ought be provided in a timely and efficient manner. It may be that a health professional other than the GP may authorize the service. This could reduce the impact of the

apparent bottleneck resulting from all authorization Medicare currently being solely the province of the GP. This health professional might be a Nurse Practitioner, or as noted earlier, these responsibilities could be organized through a suitably trained and upskilled Case Manager.

7. The involvement of Allied Health professionals in the medical management of patients with complex and chronic disease is encouraged. However, the number of occasions of service under Team Care Arrangements warrants serious consideration. Best practice outcomes suggest that many more sessions are required for effective self-management to be implemented and supported, and for the necessary increases in functional fitness be gained within this population.
8. Notwithstanding the previous comments, when support for lifestyle change and enhanced functional fitness is provided within the community by AEPs in private practice, group and individual interventions must be appropriately funded. These funding arrangements must recognize the limitations of the current system. Administration costs for many Medical and Allied Health professionals, are excessive because the process is tedious and cumbersome.



## Appendix 1

### Keeping Up Project – An exercise-based falls prevention program managed by Exercise Physiologists for patients receiving in-centre haemodialysis.

James, Brianna K <sup>(1)</sup>; Rose, Shane <sup>(2)</sup>; Curtis, Owen C <sup>(3)</sup>; Lonergan, Dr. Maureen A <sup>(4)</sup>

(1) Wollongong Renal Unit, Wollongong Hospital, Australia

(2) Shoalhaven Renal Unit, Shoalhaven Hospital, Australia

(3) University of Wollongong, Wollongong, Australia

(4) S.E. Sydney & Illawarra Area Health Service, Australia

**Introduction:** Patients with End Stage Renal Failure (ESRF) can be predisposed to factors that increase their risk of having an injurious fall. Reduced functional ability as a result of muscle wasting, bone disease, uraemia, cardiomyopathy, secondary anaemia, social emotional problems and fatigue <sup>(2)</sup> all contribute to falls risk. Complications resulting from dialysis can include dizziness post dialysis, postural hypotension, arrhythmias, and can be impacted by polypharmacy. The number of patients undergoing dialysis treatment has tripled from 1981; falls and complications from falls will be a major concern in this area <sup>(1)</sup>. The aim of the study was to assess the effectiveness of an exercise based falls prevention program in the dialysis population on falls risk.

**Method:** Thirty-four patients aged 59-77 yrs and receiving in-centre haemodialysis at Shoalhaven and Wollongong Renal Units participated in the Keeping Up Project funded by the Department of Health and Ageing. Participants' falls risk was assessed prior to entry into the exercise program, at 12 and 24 weeks using the Prince of Wales Medical Research Institute, Physiological Falls Screen. Measurements included: proprioception, lower limb strength, hand and foot reaction time, sway while standing and on foam, maximal balance range and co-ordinated stability. Participants exercised in the Shoalhaven and Wollongong renal units three times a week prior to and during dialysis, for 24 weeks. Participants completed progressive balance and strength training individually tailored by the renal unit Exercise Physiologists and under their supervision. Patients were encouraged to self-manage their exercise program and to exercise independently away from the Renal Unit.

**Results:** Results at time of abstract writing, project is expected to conclude 1 April 2008.

| Measures                                      | Pre   |      | 12 weeks |      | P value | 24 weeks |      | P value |
|---|-------|------|----------|------|---------|----------|------|---------|
|   | Mean  | SD   | Mean     | SD   |         | Mean     | SD   |         |
| Number of participants assessed               | 34    |      | 27       |      |         | 18       |      |         |
| Falls Risk Score                              | 1.37  | 1.42 | 0.78     | 1.49 | <0.05*  | 0.15     | 0.97 | <0.05*  |
| <i>Vision:</i> edge contrast sensitivity (dB) | 18.38 | 2.79 | 19.22    | 2.89 | <0.05*  | 21.78    | 1.63 | <0.05*  |
| <i>Sensation:</i> Proprioception (degrees)    | 2.28  | 1.58 | 2.63     | 2.39 | >0.05   | 2.06     | 1.72 | >0.05   |
| <i>Strength:</i>                              |       |      |          |      |         |          |      |         |
| R knee extension strength (kg)                | 20.93 | 8.87 | 21.46    | 8.73 | >0.05   | 20.03    | 6.49 | >0.05   |
| L knee extension strength (kg)                | 20.15 | 8.23 | 20.61    | 9.28 | >0.05   | 20.17    | 6.34 | >0.05   |
| R knee flexion strength (kg)                  | 15.61 | 5.53 | 15.92    | 6.16 | >0.05   | 16.09    | 5.32 | <0.05*  |
| L knee flexion strength (kg)                  | 14.76 | 5.47 | 14.94    | 6.28 | >0.05   | 16.03    | 5.84 | <0.05*  |
| R ankle dorsiflexion strength (kg)            | 10.32 | 5.03 | 10.80    | 3.58 | >0.05   | 13.39    | 3.78 | <0.05*  |

|                                      |        |        |        |        |        |        |        |        |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| L ankle dorsiflexion strength (kg)   | 10.44  | 4.64   | 11.28  | 3.46   | >0.05  | 13.19  | 3.35   | <0.05* |
| <i>Speed &amp; Control:</i>          |        |        |        |        |        |        |        |        |
| Reaction Time - hand (ms)            | 308.39 | 92.84  | 266.89 | 59.66  | <0.05* | 245.29 | 31.88  | <0.05* |
| Reaction Time - right foot (ms)      | 362.14 | 82.43  | 336.76 | 76.79  | <0.05* | 320.27 | 41.92  | <0.05* |
| Reaction Time - left foot (ms)       | 376.07 | 110.04 | 339.98 | 81.73  | <0.05* | 324.09 | 48.06  | >0.05  |
| <i>Balance:</i>                      |        |        |        |        |        |        |        |        |
| Sway on floor - eyes open (mm)       | 83.21  | 52.65  | 67.70  | 24.30  | <0.05* | 61.41  | 37.49  | >0.05  |
| Sway on floor - eyes closed (mm)     | 107.56 | 34.79  | 96.37  | 20.82  | <0.05* | 134.06 | 89.49  | >0.05  |
| Sway on foam - eyes open (mm)        | 155.45 | 107.87 | 132.25 | 50.77  | >0.05  | 124.13 | 63.48  | >0.05  |
| Sway on foam - eyes closed (mm)      | 459.59 | 324.40 | 319.75 | 165.88 | <0.05* | 293.57 | 168.31 | <0.05* |
| Maximal balance range (mm)           | 130.29 | 49.93  | 135.41 | 48.62  | >0.05  | 134.24 | 41.97  | >0.05  |
| Co-ordinated stability (error score) | 14.45  | 9.91   | 15.31  | 9.34   | >0.05  | 12.47  | 8.39   | >0.05  |

P value- significant  $p < 0.05$

Conclusion: A falls prevention exercise programme of 12 weeks has shown to significantly decrease falls risk by 57% at 12 and 109% at 24 weeks. A falls prevention exercise programme is a positive intervention for patients on dialysis, patients reported they were able to self manage their own exercise program and to exercise independently with confidence. This project supports other research on the positive impact of the Exercise Physiologist, as a valued health professional in the dialysis setting.

#### References:

1. Australian Institute of Health and Welfare, (2005), *Chronic Kidney Disease in Australia 2005*, pp8-38, Canberra
2. Knap, B., Buturovic-Ponikvar, J., et al. (2005) *Therapeutic Apheresis & Dialysis*, 9(3): R211-213

Appendix 2 RSA Conference Abstract

**THE EFFECT ON NUTRITION AND BIOCHEMISTRY  
OF AN EXERCISE-BASED FALLS PREVENTION PROGRAM MANAGED BY  
ACCREDITED EXERCISE PHYSIOLOGISTS FOR PATIENTS RECEIVING  
SATELLITE HAEMODIALYSIS**

**Aim:** To assess the impact of an exercise based falls prevention program prescribed by a Accredited Exercise Physiologist (AEP) in the haemodialysis (HD) population on patients' nutrition, biochemistry and lean muscle mass assessed by Dual Energy X-ray Absorptiometry (DEXA).

**Background:** Patients on HD have multiple factors that increase their risk of having falls, injury and hospitalisation.

**Method:** Thirty-four satellite HD patients aged 54-83 yrs at Shoalhaven and Wollongong Renal Units participated in project funded by the Department of Health and Ageing. Patients nutrition status was assessed by the Dietitian using the Subjective Global Assessment tool at Wollongong renal unit only, at baseline (n=17), at 12 weeks (n=13) and 24 weeks (n=11). Blood levels of phosphate, albumin and corrected calcium were taken at baseline and every month. Urea reduction rate and Kt/v was taken at baseline and at 6 months. Participants exercised three times a week prior to and during HD, for 24 weeks. Participants completed progressive balance and strength training individually tailored and supervised by AEP. Patient's fat and lean body mass was calculated at baseline (n=8) and at six months (n=4) by DEXA.

This study will be completed by July 2008.

**Interim Results:**

Using DEXA, there was an increase in lean muscle mass and decrease in fat. There was no significant change in blood results over the six month period. There was no negative effect on HD quality.

**Conclusion:** The exercise program had a positive effect on lean muscle mass in HD patients. We await further studies to determine if this translates to measurable clinical benefit. Intervention by an AEP in the HD setting is of benefit.

### Appendix 3

## **KEEPING UP PROJECT – AN EXERCISE-BASED FALLS PREVENTION PROGRAM MANAGED BY ACCREDITED EXERCISE PHYSIOLOGISTS (AEPs) FOR PATIENTS RECEIVING IN-CENTRE HAEMODIALYSIS**

**Aim:** The aim of the study was to assess the effectiveness of an exercise based falls prevention program prescribed by an Accredited Exercise Physiologist (AEP) in the haemodialysis population on falls risk and functional ability.

**Background:** Patients with End Stage Renal Failure (ESRF) have multiple factors that increase their risk of having falls, injury and hospitalisation. Reduced functional ability as a result of muscle wasting, bone disease, uraemia, cardiomyopathy, secondary anaemia, social emotional problems and fatigue all contribute to falls risk.

**Method:** Thirty-four patients aged 54-83 yrs (mean = 69.4yrs) and receiving in-centre haemodialysis at Shoalhaven and Wollongong Renal Units participated in the Keeping Up Project funded by the Department of Health and Ageing. Participants' falls risk was assessed prior to entry into the exercise program, and at 12 and 24 weeks using the Prince of Wales Medical Research Institute, Physiological Falls Screen (POWRI-PFS). At baseline and at 24 weeks, physiological tests were performed by the AEP to assess flexibility, upper and lower strength, and aerobic capacity. Participants exercised three times a week prior to and during dialysis, for 24 weeks and completed progressive balance and strength training individually tailored by and under supervision of the AEP

**Results:** The programme at 12 weeks demonstrated a decrease in falls risk compared to baseline of 57% (n=30) at 12 and 109% (n=23) at 24 weeks by the POWRI-PFS. Patients improved in six minute walk (mean=33.8m, n=19, p<0.5), timed up and go (mean=98s, n=17, p<0.5), 10RM bicep curl (mean=1kg, n=15, p<0.1), L knee flexion strength (mean=1.5kg, n=23, p<0.1) and dorsi-flexion strength (mean=3kg, n=23, p<0.1).

**Conclusion:** An exercise program targeting falls prevention and functional ability designed and delivered by an AEP is beneficial for patients on dialysis. It further supports the role of exercise in dialysis patients and indicates the AEP should become a member of the multidisciplinary team managing dialysis patients.

## **Appendix 4**

### **‘Well On My Way’**

#### **Wollongong, New South Wales Consumer Forum**

#### **Report 2007**



### **1. Rationale**

Self-management awareness, education and support are highlighted repeatedly in the literature as an important and successful approach to the management of chronic kidney disease. Self-management training is required to target consumers, carers and health professionals, as all are participants in health care decisions.

A forum focusing on sharing experiences, knowledge and practical skills is an excellent opportunity to promote self-management amongst consumers, carers, health professionals and Kidney Health Australia.

### **2. Goal**

To assist in empowering people with chronic kidney disease and their carers so that they can improve their quality of life by sharing and gaining new insights into better self management.

### **3. Objectives**

By the end of the educational forum participants will have been provided with:

1. Opportunities for people with chronic kidney disease, family members and carers to interact with others who have similar experiences and conditions.
2. An interactive, educational experience that facilitates expression of concerns and feelings in a safe and secure environment.
3. Exposure to positive, self-management strategies through various mediums such as story telling, interactive and didactic sessions.

### **4. Planning**

The ‘Well on My Way’ New South Wales consumer forum is an initiative of Kidney Health Australia.

Kidney Health Australia was the host organisation providing secretariat support and funding. The Wollongong Renal Centre assisted with planning and providing expert advice on subjects for discussion and acquisition of presenters.

Consultation commenced January 2007 with the Wollongong Renal Centre, which oversees all renal services in the Illawarra and Shoalhaven region.

The forum was the first of this type hosted by Kidney Health Australia in the region. Many of these education forums are held within metropolitan areas and are sometimes difficult for

consumers from regional areas to attend. The aim of this forum was to attract consumers from southern metropolitan Sydney, the South Coast and Southern Highlands of NSW.

### Planning Cycle

| <b>MONTHS PRIOR</b>                 | <b>6</b> | <b>5</b> | <b>4</b> | <b>3</b> | <b>2</b> | <b>1</b> | <b>0</b> | <b>+1</b> | <b>+2</b> |
|-------------------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| Formation of Implementing Committee | ✓        |          |          |          |          |          |          |           |           |
| Forum program drafted               |          | ✓        |          |          |          |          |          |           |           |
| Venue/catering booked               |          | ✓        |          |          |          |          |          |           |           |
| Presenters confirmed                |          |          | ✓        |          |          |          |          |           |           |
| Promotion strategy developed        |          |          | ✓        |          |          |          |          |           |           |
| Brochures drafted/printed           |          |          |          | ✓        |          |          |          |           |           |
| Promotion strategy implemented      |          |          |          |          | ✓        | ✓        |          |           |           |
| Participants registered             |          |          |          |          |          | ✓        |          |           |           |
| Forum implemented                   |          |          |          |          |          | ✓        |          |           |           |
| Evaluation completed                |          |          |          |          |          |          | ✓        |           |           |
| Report submitted                    |          |          |          |          |          |          | ✓        |           |           |

### 5. Funding

The James N. Kirby Foundation provided total funds for the forum.

### 6. Implementation

**The consumer forum was successfully implemented on Friday 1<sup>st</sup> June 2007 at the Shellharbour Workers Club Function Centre at Shellharbour, NSW from 10.00am until 14.45pm. The Shellharbour Workers Club provided the auditorium free of charge.**

#### 6.1 Participants

68 people registered to attend the forum on the day. Of this group most people were aged between 50 – 70 years.

Forum participants represented the following groups:

| <b>Condition</b>     | <b>Number of People</b> |
|----------------------|-------------------------|
| Kidney and Carers    | 66                      |
| Health Professionals | 2                       |
| <b>TOTAL</b>         | <b>68</b>               |

#### 6.2 Promotion

40 fliers were distributed six weeks prior to the forum. These fliers were followed up by 800 brochures throughout all renal units in Southern and Western Metropolitan Sydney, Southern NSW and some areas of Western NSW. A similar forum is planned to cater for the northern sector of the state in Newcastle in September, 2007.



The forum was promoted on the Kidney Health Australia website, through local Wollongong media, via the Wollongong Renal Centre and other renal units.

### **6.3 Registration**

All participants were asked to register before the forum but approximately 20% registered on the day.

Registration asked participants to identify:

- Age
- Whether they were affected by CKD or in a family/carer role
- Dietary needs
- Special needs (eg – wheelchair)

Details were provided by approximately half the participants with some people needing special dietary arrangements to be made on the day. Shellharbour Workers Club staff arranged these requests at the last minute with no difficulty.

Upon registration on the day, participants were given a registration pack containing:

- Brochures, publications and fact sheets from Kidney Health Australia
- Kidney Health Australia membership forms.
- Fridge magnets and car bumper stickers
- Evaluation form

### **6.4 Dietary Needs**

Morning tea and a light finger food lunch were provided. Diabetics, vegetarians and those affected by celiac disease were catered for.

### **6.5 Program**

*10.00 – 10.30 am – Registration and morning tea*

*10.30 – 10.45 am – Welcome*

MC, Sarah Dwyer

Clinical Nurse Educator, Wollongong Renal Centre

*10.45 – 11.05 am – Kidney Health Australia overview*

Janine Bevan

National Manager – Health Programs, Consumer & Government Relations, Kidney Health Australia

*11.05 – 11.35 am – Latest research in kidney disease – keynote speaker*

Dr. Maureen Lonergan – Director of Renal Service, Wollongong Renal Centre

*11.35 – 12.20pm – Relationships and Chronic Illness – keynote speaker*

Heather McAlpine, Coordinator, Relationships Australia, Wollongong

*12.20 – 13.05pm – Lunch*

*13.05 – 13.35 pm – Patient story ; Ian*

*13.35 – 14.05pm – Eating Well With Kidney Disease*  
Kelly Lambert, Dietitian, Wollongong University.

***14.05 – 14.35 – Exercise and Chronic Illness***

**Shane Rose and Brianna James, Exercise Physiologists, Wollongong and Shoalhaven Renal Units.**

*14.35 – 14.45 – Evaluation, Lucky Door Prize and Close*  
Sarah Dwyer and Janine Bevan

Appendix 5

On SESIH Letterhead

Dear Dr \_\_\_\_\_,

**RE: Patient name:** \_\_\_\_\_ **DOB:** \_\_\_\_\_

Your patient is attending the Renal Clinic at Wollongong Hospital. They have been identified as being at increase risk of having a fall. Would you be happy to refer your patient to an Accredited Exercise Physiologist under Team Care Arrangements to the Keeping Up Project for reducing their risk of having a fall.

**What is an Exercise Physiologist?**

Accredited Exercise Physiologist (AEP) have been identified by Royal College of General Practitioners as helpful in the management of patients with chronic and complex conditions. Please find attached an information sheet with private AEP details as well as an interesting article on the role of Exercise Physiologists as an allied health provider to help make your decision.

**What is the Keeping Up Project?**

The Keeping Up Project is an Australian first, this project is specifically designed to help you manage people within your practice who have Chronic Kidney Disease and who are at increased risk of falls.

Your patient will see the community AEP for their nominated occasions of service. The AEP will design and develop a physical activity program targeting falls risk, and deliver this over a 12 week period.

Being a part of the Keeping Up Project your patient as well as receiving your chosen nominated sessions to the community AEP, will be assessed for their falls risk by the validated Prince of Wales Medical Research Falls Kit before and at the conclusion of their nominated sessions. You and your patient will receive a report with areas identified that your patient might be at falls risk. Your patient will also have a free appointment with an AEP at the Renal Unit for support with self-management strategies.

Following reassessment of falls risk, your patient, with your approval, will be referred to either further service with the AEP, referral to a community based program of activity, or have the AEP develop home based intervention.

Yours truly,

Eg. Dr M. Lonergan

## Appendix 6

Information sheet for practice staff to assist them to identify people with chronic kidney disease and encourage referral the KUP

# Information for Surgery Staff

If you believe a patient is likely to have had a fall, or a 'near miss' in the last year or so:-

1. Give them a felt tipped pen, and ask them to fill in the Quick Falls Risk Check
2. Ensure they take the completed form with them when they see the Doctor.
3. Collect the Risk Check form from them on their return from seeing the Doctor.
4. Please clean off the markings ready for the next patient.

**Patient Falls Risk Quick Check  
in 2 simple steps**

**Step 1**

*If you have **NOT** had a fall,  
in the past year, tick here*

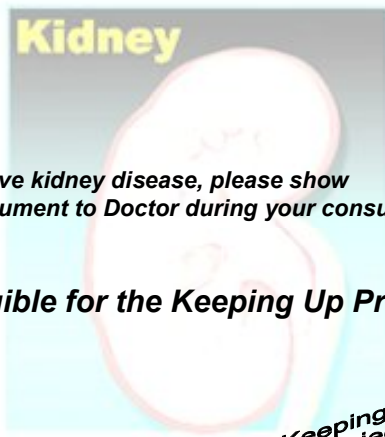
*If you **HAVE** had a fall,  
or **VERY NEARLY FALLEN**  
in the past year, tick here*



**Step 2**

*If you have kidney disease, please show  
This document to Doctor during your consultation*

**Am I eligible for the Keeping Up Project ?**



## Appendix 7

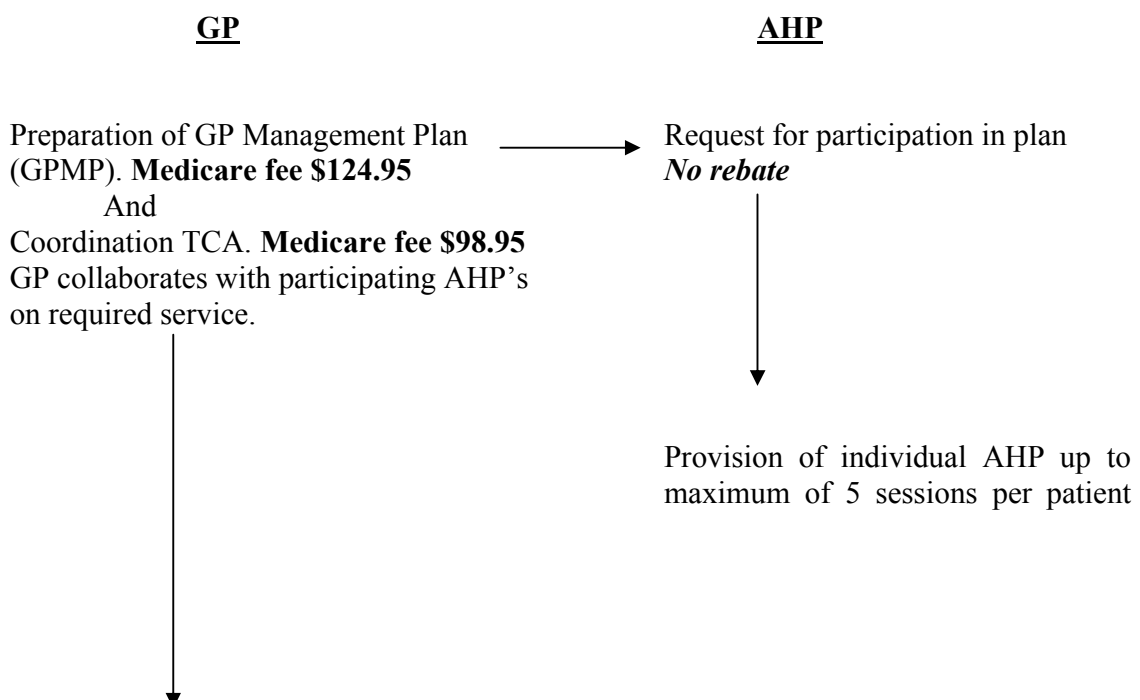
The following section explains the operation of the TCA under Medicare and is important in providing insights as to why a National implementation might present challenges under the current system.

The system of referral the KUP (and its partner project, the Better Balance Project) were evaluating was *the EPC referral to an allied health professional (AHP) for an individual with complex and chronic care needs (in this case chronic kidney disease) and at risk of falls or having a fear of falling*. The process of EPC referral is explained below.

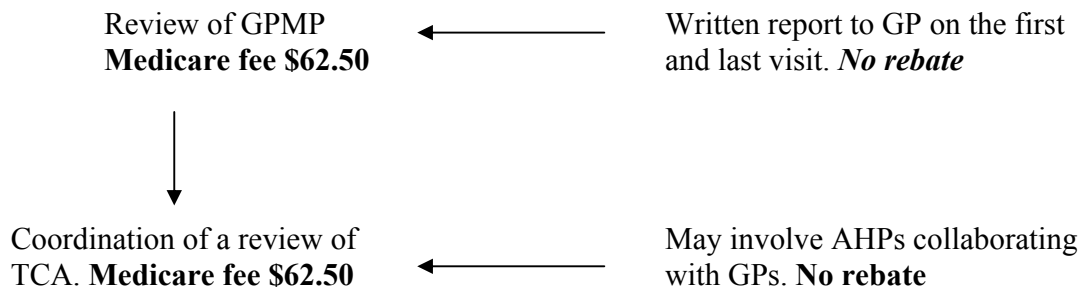
The EPC system of referral was established in 1999 to enhance medical management of chronic disease in Australia. It was introduced to provide opportunities for GPs to access allied health practitioner expertise in the co-management of individuals with complex and chronic disease. On 6th September 2005, then Minister for Health and Ageing Mr Tony Abbott announced the inclusion of Exercise Physiology services into the Allied Health Professional team, and from the January 1 2007 EPs were included under the Medicare allied health scheme, a decision which allowed referred patients to receive services from EPs under Medicare.

Chronic Disease Management (CDM) Medicare items were introduced in 2004 to allow Medicare rebates to be paid for individual allied health services. Up to five allied health services can be provided under Medicare, in a calendar year. The introduction of the CDM items was aimed at improving coordinated quality care using a multidisciplinary team approach. For an AEP to gain access to the CDM items the GP must put in place a Team Care Arrangement (TCA) which requires a GP and at least 2 other health professionals to take part in the care of the patient. If both of these AHPs are in private practice, they have to share the five sessions. The allocation of the sessions however, is determined by the GP on the basis of appropriate medical management. The flow and reimbursement for referral is best seen in the below flow diagram.

### Allied health services under Medicare Chronic Disease Management items



shared between 2 AHP per calendar year. **Medicare rebate \$47.85**



It is understandable why some GPs might not be interested in utilizing this system, even when co-management of a patient with complex and chronic conditions might be in the patient's best interests.