

Victorian Travelling Fellowship 2006

Report for Department of Human Services

Name: **Dr Frances M Wise**

Title of project: **The successful and innovative management of overweight and obese patients in cardiac rehabilitation programmes**

Study area: **Cardiac Rehabilitation**

Organisation: **Caulfield General Medical Centre, Bayside Health**

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Date of report: 18th December 2006

Project summary

Main outcomes

The main outcome of this study was obtaining new and appropriate methods that we aim to introduce in our own Cardiac Rehabilitation Unit, using existing resources, to reduce and prevent obesity in our cardiac patients, most of whom are at risk of increased morbidity and mortality due to obesity-related illness. Ultimately, we hope to better inform clinical practice in Victoria in the areas of primary and secondary cardiac prevention and health promotion, improve Victorians' quality of life, and alleviate the strain on our health system by reducing avoidable illness.

Main activities undertaken

The main activity undertaken was a study of innovative models of cardiac rehabilitation to reduce a major and preventable cardiac risk factor - obesity. This study was conducted in the USA and UK, in facilities that have reported success with a variety of interventions, including behavioural and dietary interventions, internet case management, and home-based therapy.

Major learnings

- High calorie exercise is a successful strategy for weight loss in cardiac patients.
- Cognitive Behavioural Therapy (CBT) techniques are effective in helping patients lose weight and adopt healthier diet and exercise habits, and can be successfully conducted in group settings within cardiac rehabilitation programmes. Often this is in the setting of cardiac rehabilitation programmes run over 3-4 months, however, which is significantly longer than the six weeks run at Caulfield General Medical Centre (CGMC).
- Long-term support is advised to maximise the chances that patients will maintain gains.
- Weight loss strategies can be offered to cardiac patients and the wider population via innovative community-based programmes including:
 - mobile programmes allowing patients to access affordable, high-quality food

- groups offering cookery lessons, healthy lunches, and physical activity
- health coaching.

Lessons for the Victorian healthcare system

The programmes and interventions observed during this study are eminently suitable for the Victorian healthcare system. Some strategies could be introduced to many cardiac rehabilitation units without increased resources, for example weekly weighing of patients; however, others would require longer programme duration, increased staffing and/or training, for example:

- weekly dietician review and use of patient self-monitoring sheets
- high calorie exercise
- cooking demonstrations
- cognitive-behavioural weight loss strategies in a group setting
- clear protocols for screening, recruitment and follow-up of patients
- the use of the internet for weight loss in cardiac patients
- longer post-discharge follow-up to evaluate maintenance of gains.

3. Description of the study itinerary

A detailed description of each healthcare service and organisation I visited is attached. These descriptions include:

- overview of visit
- the healthcare organisation
- key lessons learned
- suitability to own practice and Victorian healthcare system.

Relevant handouts/literature from the facilities are also available. Copies can be accessed via the Victorian Travelling Fellowship Program.

Visit to Duke University/Duke Health and Fitness Center

18 September 2006

Dr. James Blumenthal 1. Professor of Medical Psychology, Department of Psychiatry and Behavioral Sciences, Duke University
2. Assistant Professor of Medicine at Duke University Medical Center
3. Professor of Psychology in the Department of Psychology: Social and Health Sciences at Duke University
Sandy Kennedy, Exercise Physiologist, Duke Health and Fitness Center
Jessica Tucker, Exercise Physiologist, Duke Health and Fitness Center
Carla Caccia, Dietician, Duke University Medical Center

Overview of visit

The focus of the visit was the weight loss techniques used as part of the Research Projects led by Dr Blumenthal. Accordingly, these will be covered in more detail here compared with the cardiac rehabilitation programme.

Duke University and Duke University Medical Center

Duke University was created in 1924 by James Buchanan Duke as a memorial to his father, Washington Duke. The university offers degrees in arts, sciences, law, divinity, medicine, nursing, engineering, business, and environment and earth sciences. In 2005, 13,088 undergraduate and postgraduate students were enrolled.

The Department of Psychology: Social and Health Sciences investigates human psychological processes in development, health, personality, psychopathology, and social behaviour from a social and behavioural science perspective.

The Division of Medical Psychology, Department of Psychiatry and Behavioral Sciences researches biological, social, psychological, and behavioural factors in human health and disease, and applies this knowledge to the development of interventions for disease prevention, treatment and rehabilitation.

Within these university departments, Dr Blumenthal conducts research into topics such as the effects of exercise or medication on symptoms of depression and

cardiovascular risk markers, and on the benefits of diet, weight loss and exercise in individuals with high blood pressure.

Duke University Medical Center is the name used to group several facilities providing health care on the Duke University campus in Durham, North Carolina. These include Duke University Hospital, Duke Clinic, and the Duke Health and Fitness Center, which provides cardiac rehabilitation. Duke University Medical Center, established in 1930, comprises clinical, training and research programs. The medical centre has one of 40 federally funded comprehensive cancer centres, an eye centre, a general clinical research unit and other highly advanced treatment and research facilities. Duke University Hospital is licensed for 1,050 beds.

Cardiac rehabilitation – Duke Health and Fitness Center information

The Duke Health and Fitness Center offers a comprehensive cardiac rehabilitation program for those recovering from a cardiovascular event, including heart attack, unstable angina, angioplasty and coronary bypass surgery.

A part of the Duke University Medical Center, the Health and Fitness Center draws upon a multidisciplinary team of physicians, exercise physiologists, physician assistants, nurses, nutritionists, physical therapists and psychologists. The Duke Health and Fitness Center is certified by the State of North Carolina and follows the North Carolina Cardiac Rehabilitation guidelines.

Comprehensive nutrition classes teach patients how to lower fat intake, cholesterol and sodium. Advice and information is given on how to prepare heart-healthy meals, how to read food labels and on the latest findings in nutrition research. The programme also offers stress management and behavioural classes, a support group, and encourages participation in meditation, yoga and tai chi classes. Individual consultations with the psychologist are available to help patients adjust and maintain lifestyle changes, manage stress, break habits and overcome barriers to a healthier life.

The weekly Wellness Lecture Series provides comprehensive education in the areas of medicine, health and fitness. The lectures are presented by a variety of healthcare

professionals, including cardiologists, psychologists, exercise physiologists, physical therapists, nurses and nutritionists.

Weight loss strategies – cardiac rehabilitation

For patients in cardiac rehabilitation, there is limited nutrition input, with only one lecture on 'Food Label Reading'. However, at the Duke Health and Fitness Center (at which cardiac rehabilitation is conducted) there is also the 'Getting on Track Weight Loss Program' (attached). This eight-week programme includes:

- ↳ seven interactive classes which include a healthy meal, weight check, progress review and lecture on nutrition, exercise, psychology and medical topics
- ↳ one follow-up group session
- ↳ a workbook
- ↳ a weekly exercise programme.

There is a 10-session follow-up maintenance programme, which includes a weekly meeting for weight checks, progress reviews, problem solving and motivation, and lecture topics including long-term challenges and strategies for weight loss and maintenance.

These programmes incur a registration fee.

Weight loss strategies – the ENCORE Research Project

Although the ENCORE Study is primarily investigating the benefits of diet and exercise for high blood pressure, one of its treatment arms is employing techniques that could be used in the cardiac rehabilitation setting to assist patients with weight loss.

ENCORE Study: Diet and Exercise in adults with high blood pressure

The ENCORE Study (Exercise and Nutritional Interventions for Cardiovascular Health) investigates the benefits of diet (the DASH diet*, a diet high in low fat dairy products as well as fruits and vegetables), weight loss, and exercise in individuals with high blood pressure.

Potential participants must have higher than normal blood pressure (130/85 or greater), be slightly overweight, and not be taking any blood pressure controlling medication. They must first undergo four screening visits over a three-week period to determine their eligibility for the study. During these visits, the researchers measure blood pressure, weight and height, and give a brief physical examination. Those who appear to be eligible undergo a series of medical assessments (blood pressure monitoring, body composition testing, imaging of the heart and arteries, glucose tolerance testing, exercise testing) and are then randomly assigned to one of three groups:

- ↳ a diet and weight loss group
- ↳ a diet only group, or
- ↳ a control group.

All groups last for 16 weeks (four months). For the first two weeks all participants attend the medical centre every day to pick up prepared food. Beyond this point:

The **diet and weight loss group** meets four times a week. Exercise classes are conducted at the Duke Center for Living, and consist of supervised classes three days per week. The exercise is 30 minutes of aerobic exercise (walking, bicycling or jogging). For the first month, subjects work at 50-70 per cent of maximal effort based on an initial treadmill stress test. After this time they work at 75-80 per cent of maximal effort. Each week, weight change, exercise adherence and heart rate are checked.

* **The DASH diet:** Based on studies from the National Heart, Lung and Blood Institute (NHLBI), the DASH diet involves eating more fruits and vegetables, and low-fat or non-fat dairy. The diet also includes whole grain products, fish, poultry and nuts. The DASH diet is reduced in lean red meat, sweets, added sugar, and sugar-containing beverages compared with the typical American diet.

Once a week a diet/behaviour modification group is conducted. This weekly behaviour modification group is conducted by the dietician or psychologist, with monthly group meetings in the maintenance phase. At each meeting:

- ↳ patients weigh in
- ↳ review of progress, including the food diary, in the previous week is carried out, and any problems identified
- ↳ cognitive behavioural techniques are employed in assisting the patients to work on problems or barriers, solve problems and set goals
- ↳ a weekly topic is discussed in the group setting.

Each group comprises three to five patients. Examples of specific dietary guidelines include:

- ↳ translation of calorie level into specific goals, for example, the number of daily serves of vegetables, fruit and low fat dairy
- ↳ meat consumption, for example, $\frac{1}{4}$ plate = lean meat; $\frac{1}{2}$ plate = vegetables.

The weight loss group is conducted using techniques from Cooper Z, Fairburn CG, Hawker DM. **Cognitive-Behavioral Treatment of Obesity: A Clinician's Guide**. Guilford: New York, 2003. According to a Cochrane Review of Psychological interventions for overweight or obesity (Shaw et al, 2006), cognitive-behavioural therapy (CBT) appears to be the psychological treatment of choice inasmuch as they have been demonstrated to facilitate better maintenance of weight loss and reduce weight regain than other therapies. When added to diet and exercise, CBT is more effective than diet and exercise alone as a weight loss strategy.

The **diet only group** meet once a week for dietary classes. This group is advised to only perform their normal activities and not lose any weight. The weekly diet class advises on the DASH diet in a weight maintenance setting (with the same calories as consumed prior to the study).

After the 16-week (four month) program, participants will be reassessed. Finally, one year after the start of the study participants will return to assess blood pressure, body composition, food diary and heart function.

This study is ongoing but the researchers anecdotally report that the weight loss group are achieving successful weight reduction.

Key lessons learned

- Cognitive behavioural techniques are effective in helping patients lose weight and adopt healthier diet and exercise habits.
- Behavioural weight loss can be successfully conducted in-group settings within cardiac rehabilitation programmes.

Suitability for the Victorian healthcare system

The programmes developed by Duke University are eminently suitable for the Victorian healthcare system. Cognitive-behavioural weight loss strategies in a group setting can also be easily applied, as most Victorian cardiac rehabilitation programmes are run as groups for the purposes of education and exercise. The DASH diet could be introduced as a more structured eating plan for cardiac patients. The research project at Duke University had the advantage of being able to provide subjects with all food for the first two weeks, which educates patients in a practical way regarding a healthy diet.

Reference

Shaw K, O'Rourke P, Del Mar C, Kenardy J. Psychological interventions for overweight or obesity. *Cochrane Database of Systematic Reviews* 2005, Issue 2

Available resources:

'Lower Your Blood Pressure Without Medication' Encore, Duke Health.

'Your Guide to Lowering Your Blood Pressure with DASH – DASH Eating Plan' U.S. Department of Health and Human Services, April 2006.

Visit to University of Vermont/Fletcher Allen Health Care

22 September 2006

Dr Philip Ades, Director, Fletcher Allen Health Care Cardiac Rehabilitation and Professor Department of Cardiology/Medicine University of Vermont Burlington

Dr Jean Harvey-Berino, Associate Professor and Chair of the Department Of Nutrition and Food Sciences, University of Vermont, Burlington

Patrick Savage, Senior Exercise Physiologist, Fletcher Allen Health Care Cardiac Rehabilitation

Maryann Ludlow, Dietician, Fletcher Allen Health Care Cardiac Rehabilitation

Overview of visit

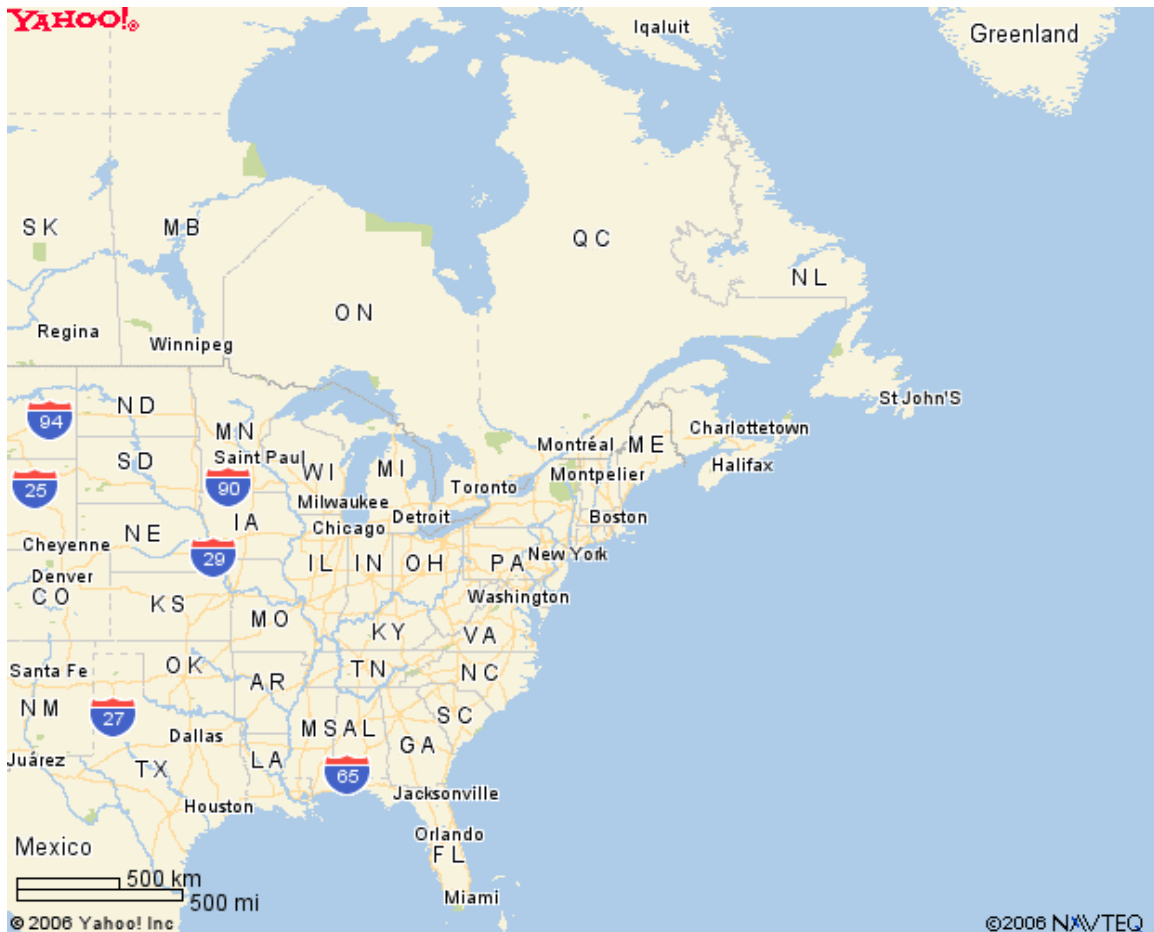
The visit to Fletcher-Allen Health Care provided an opportunity to learn more of the weight loss innovations introduced for the cardiac rehabilitation population. Drs Ades and Harvey-Berino have both published research articles in the area. The purpose of my visit was to gain first hand knowledge of therapies based on this research.

Fletcher Allen Health Care

Fletcher Allen Health Care (FAHC) is an academic medical centre located in Burlington, Vermont, serving Vermont and northern New York. Fletcher Allen Health Care, in alliance with the University of Vermont College of Medicine, is Vermont's only academic health centre and one of 125 in the country. Academic health centres are medical schools, nursing and allied health schools, and teaching hospitals that link together research, medical education training and patient care.

Fletcher Allen Health Care was founded in 1995, through the integration of Fanny Allen Hospital, Medical Centre Hospital of Vermont, and University Health Centre. The organisation provides care at more than 40 patient care sites and 100 outreach clinics in Vermont and northern New York.

During 2005, Fletcher Allen served a population of one million, with 44,173 admissions (inpatients and outpatients).



Cardiac rehabilitation – FAHC information

Cardiac rehabilitation and prevention offers 16-week, prevention-based programmes that target the specific health needs of people with chronic conditions such as obesity, diabetes, chronic heart failure and peripheral artery disease.

The programs take place at cardiac rehab's off-campus facility in Tilley Drive, South Burlington and offer the following features:

- ✎ an initial medical evaluation with a cardiologist or nurse practitioner to evaluate cardiac risk factors and define personal goals
- ✎ an individualised exercise prescription and access to a fully equipped exercise facility
- ✎ guidance and supervision provided by professional staff
- ✎ educational behavioural modification classes
- ✎ an exit evaluation at four months to assess progress and reassess goals
- ✎ an optional long-term membership at the facility is available.

Weight loss strategies

Both Professor Ades and Dr Harvey-Berino have been involved in weight loss programmes and research. As patients apparently were reluctant to take part in behavioural weight loss programmes, high caloric exercise was examined as an alternative weight loss method. A regimen of walking 45-90 minutes every day (at 50 per cent to 60 per cent of peak VO_2), which burnt >1500 cal/week, over four months resulted in a 4.6 kg weight loss without dietary changes.

A more recent randomised control trial examined behavioural weight loss in coronary artery disease. The patient group taking part in usual cardiac rehabilitation, with 800 kcal/week exercise, lost 10 pounds (4.5 kg) in four months. The study group took part in high caloric exercise (3000 kcal/week exercise) and were given a daily caloric goal for dietary purposes. The daily caloric goal was 500 to 1000 calories less than their estimated maintenance energy requirements. Participants were encouraged to eat a diet low in saturated fats, moderate in protein, high in carbohydrates, and rich in grains, fruits and vegetables. At the start of the study, patients underwent a treadmill stress test, and VO_2 max was calculated. In addition, serum lipids and glucose were measured. All tests were repeated at four months.

The study group lost 18lb (8.2 kg) in four months. Patients have continued to receive monthly follow-up to 12 months, and in general keep off two-thirds of weight lost during the study. Patients who participated in the dietary programme with friends had better outcomes.

The Healthy Heart Weight Loss Program

The Healthy Heart Weight Loss Program is based directly on the research described above, is for medical weight loss (for example, patients with cardiac risk factors) for those with BMI > 27 kg/m² with an average to date of 35 kg/m² (there was previously an upper BMI limit of 39.9 kg/m², but now takes patients with BMI up to 50 kg/m²). It incorporates a behavioural weight loss approach and involves a weekly group attendance over four to six months. A typical group comprises 8-10 patients (but can take up to 16).

At the start of the programme, patients undergo a treadmill stress test, and VO_2 max is calculated. In addition, serum lipids and glucose are measured. All tests are repeated at four months. The weekly meeting topics include:

- ↳ self-report involving food diary, exercise diary and weekly weigh/waist measurement
- ↳ introduction and calorie planning
- ↳ increasing physical activity: programmed exercise
- ↳ eating patterns
- ↳ the eating environment
- ↳ eating in social situations
- ↳ reading food labels
- ↳ social support
- ↳ barriers to exercise
- ↳ assertiveness training
- ↳ relapse prevention
- ↳ problem solving
- ↳ increasing your physical activity: lifestyle exercise
- ↳ emotional eating
- ↳ stress management
- ↳ weight loss and exercise (talk given by Patrick Savage)
- ↳ review and maintenance.

Patients are taught to count calories in each meal and establish a dietary routine. As with the research project, the daily caloric goal is 500 to 1000 calories less than their estimated maintenance energy requirements. Patients are encouraged to work on a new habit each week or set a goal, master it, then move on to a new goal (for example, exercising to expend 250 calories per week for two weeks then increase to 500 calories per week). Goals are reviewed when patients attend the weekly group meeting. They are also provided with a range of information leaflets (for example, food pyramids, whole grains, reducing calorie density) and a folder in which to keep them. The group leader employs evidence-based behavioural techniques, based on smoking cessation research and incorporating cognitive-behavioural therapy. The group leader is not required to be a dietician (and in the cardiac rehabilitation setting is usually a nurse trained by Dr Harvey-Berino), but needs to think broadly and have good interpersonal skills.

In assisting patients to develop new healthier habits, the group leader first establishes good rapport with the patients. Old habits are then examined and new habits introduced. Patients are educated regarding the time needed to ingrain new habits (for example, minimum of four months) and tools such as food diaries are introduced. Patients are also educated about measuring portions; they are advised to do this once a week, especially high calorie items.

The cost of the Healthy Heart Weight Loss Program is US\$250 for four months, with a medical consultation for US\$200. The programme is advertised in local newspapers and around the hospital. To date, 180 patients have been treated, with 48 per cent male. Spouses are also welcome to attend. The average weight loss achieved is 15lb (6.8 kg), with improvements in total cholesterol, triglycerides, and low-density lipoprotein.

The programme is now being modified to include high-caloric exercise of at least 1000 calories per week. Patients are encouraged to exercise in their community, for example, gym, mall walking, as well as at home, for example, exercise bike.

V Trim

The V Trim programme is a non-profit weight loss programme conducted over six months (at a cost of US\$535). Patients are usually referred by their general practitioner (GP) or self-referred. Most patients are female. Patients attend weekly and are set a caloric goal for exercise (up to 1000 cal/week). Goals are then set for daily caloric intake based on the exercise goals. As with the research project, the daily caloric goal is 500 to 1000 calories less than their estimated maintenance energy requirements.

Exercise in this programme and in Healthy Heart Weight Loss Program is usually walking although patients are also encouraged to have an indoor alternative (for example, exercise bike) for colder months.

Internet

The use of the internet for weight loss has also been examined. Patients were randomised into either an internet group, or to face-to-face management, and

results suggested both approaches were equally effective. A website has now been developed which provides:

- ↳ a weekly lesson
- ↳ appointment with group leader in the chat room
- ↳ self-monitoring online
- ↳ review of patient self-monitored progress by group leader and feedback to patient via email.

Key lessons learned

- Behavioural weight loss can be successfully conducted in group settings within cardiac rehabilitation programmes.
- High calorie exercise is a successful strategy for weight loss in cardiac patients.
- The internet represents a promising tool for weight loss in cardiac patients.

Suitability for the Victorian healthcare system

The programmes conducted by Fletcher-Allen Health Care are eminently suitable for the Victorian Healthcare System. High calorie exercise in cardiac rehabilitation could be introduced and examined for effectiveness in an Australian setting. Behavioural weight loss strategies in a group setting can also be easily applied, as most Victorian cardiac rehabilitation programmes are run as groups for the purposes of education and exercise. The use of the internet for weight loss in cardiac patients would require extra resources but looks a promising and ultimately cost-effective treatment option.

Available resources:

'Healthy Heart Weight Loss Program – A Fletcher Allen Health Care Medical Program'
Patrick Gym, University of Vermont, Division of Cardiology, Burlington, Vermont.

Visit to Boston Medical Center

22 September 2006

Dr Gary Balady, Director, Preventive Cardiology, Boston Medical Center
Stephanie Zombeck, MS, Chief Exercise Physiologist, Boston Medical Center

Overview of visit

The visit to the Boston Medical Center (BMC) provided an opportunity to learn more of the weight loss innovations in a cardiac rehabilitation unit within a public hospital setting, similar to Caulfield General Medical Centre.

Boston Medical Center

BMC is a private, not for profit, 547-licensed bed academic medical center located in Boston's historic South End. The hospital is the primary teaching affiliate for Boston University School of Medicine. Emphasising community-based care, Boston Medical Center with its mission to provide consistently accessible health services to all is the largest safety net hospital in New England. The most basic definition of a safety net hospital is one that has an 'open door' policy to all individuals regardless of their ability to pay.

Cardiac rehabilitation – BMC information

The multidisciplinary *Cardiac Rehabilitation and Prevention Program* has been certified by the American Association of Cardiovascular and Pulmonary Rehabilitation (AACPA) and provides a range of services within cardiac rehab, from exercise programs to smoking cessation strategies and cholesterol management.

The programme provides each patient with:

- ↳ initial assessment by a cardiologist
- ↳ exercise testing
- ↳ supervised exercise training
- ↳ personal nutrition evaluation and weight management
- ↳ cholesterol screening and management
- ↳ smoking cessation

- ↳ risk-factor modification and education
- ↳ follow-up maintenance
- ↳ periodic reports to referring physicians.

The Lipid Clinic serves to help prevent the onset or worsening of cardiovascular disease by evaluating and managing high cholesterol and blood lipid levels. The multidisciplinary staff includes physicians, nurses and nutritionists from the sections of cardiology, endocrinology and nutrition and Boston Medical Center. The staff members work closely with each patient's primary care physician. Patients receive an individualised program of medical therapy, nutritional counselling, exercise and education.

Cardiac rehabilitation – general information

The rehab programme is 20 years old and has been in its current location for the last 2.5 years. It is located in the Cardiovascular Clinical Center, a state-of-the-art facility located at 732 Harrison Avenue on the 4th floor. Prior to this it was in a stand-alone facility (health centre/gym) and now benefits from being integrated within the hospital's cardiovascular practice, which includes cardiology outpatient clinics, stress testing, device clinics (pacemakers etc), echocardiogram, tilt-table testing, cardiomyopathy clinics. Because it is located within Boston Medical Center, it also has easier access to nutrition services and behavioural medicine (psychiatry/psychology).

Fifty per cent patients are Medicare (Medicare is a federal health insurance program which is available to most older people >65 years and some disabled persons), 25 per cent are Medicaid (Medicaid is the federal/state insurance of last resort for low income persons) or underinsured, and 25 per cent are insured patients.

The unit admits 150 patients per year, 80 per cent of whom are obese. It admits 3-4 new patients per week and the average time from referral to admission is about two weeks. The cardiac rehab programme runs for 12-16 weeks (Medicare funds 36 sessions but must commence within six months of diagnosis, most insurers fund 36 sessions although some fund as few as 12). Phase II rehab typically runs three sessions per week for 12 weeks, while the Phase III programme runs two sessions a week for a further 12 weeks (Phase II patients have BP and pulse checked on arrival

but are otherwise largely self-directed. They have monthly telemetry). An annual stress test is conducted on Phase III patients.

At any one time, there are 40-50 Phase II patients and approx 30 Phase III patients.

Referrals come from cardiologists, GPs, wards and neighbourhood satellite centres of the hospital. Most patients live within a 10-mile radius of the hospital, and a sizeable proportion is from non-English speaking backgrounds (for example, Hispanic, Asian). Access and parking are a difficulty, and the hospital has some capacity to assist patients, for example, a shuttle service for patients over 60 years, parking permits.

Patient assessment process

Dr Balady conducts the patient's initial assessment. As well as history and examination, the following are performed:

- ↳ BMI/waist
- ↳ weekly weigh
- ↳ Beck Depression Inventory
- ↳ Dartmouth Quality of Life Scale (attached)
- ↳ exercise tolerance test (ETT) to determine METS for exercise prescription (if a patient is initially debilitated, a Borg scale is used to guide exercise prescription until such time as an ETT can be performed)
- ↳ estimation of Target Heart Rate based on Karvonen method (40-85 per cent intensity). The Target Heart Rate is the heart rate range that the participant should try to maintain during exercise. An example calculation using the **Karvonen Method** for a 40 year old with a resting heart rate of 50 bpm for a desired aerobic intensity of 75 per cent would be:
Karvonen target HR
= %intensity/100 x (Maximum HR - Resting HR) + Resting HR
= 0.75 x (220 - 40 - 50) + 50
= 147 per minute
- ↳ ECG
- ↳ fasting lipids (around eight weeks post event or commencement of medication)
- ↳ glucose/HbA1c
- ↳ LFT if on a statin

- ↳ other blood tests as indicated (for example, homocysteine)
- ↳ identification of barriers to participation, for example, non-English speaking background (NESB), education level, transport
- ↳ risk stratification according to AHA Risk Classification:
 - class A (apparently healthy individuals) – no telemetry
 - class B (persons with known, stable cardiovascular disease with a low risk of problems during vigorous exercise but a slightly greater risk than apparently healthy persons) – three sessions telemetry
 - class C (persons at moderate or high risk for cardiac complications during exercise and/or who are unable to self-regulate activity or understand the recommended activity level) – always telemetry.

Dr Balady then spends a further 20 minutes with the patient conducting an initial education session, including an explanation of the pathophysiology of the heart, and using visual aids including MRI and slide show. Despite this, there is a reasonably high dropout rate, in addition to problems with low enrolment (for example, due to NESB).

After this initial assessment, Dr Balady produces a report for the unit that summarises the patient's history and diagnosis, and includes a plan listing treatment goals based on his findings. He may suggest, for example, referral to psychiatry, weight loss, smoking cessation.

General treatment protocol

Patients are assigned an exercise physiologist who is their designated case manager. An individualised programme is devised based on Dr Balady's recommendations, and patient goals for the programme are also reviewed.

Patients attend three times per week for exercise. This involves cardio exercise (such as bike/treadmill) and some strength training is also offered. Diabetic patients have BSL checked pre and post exercise. O₂ sats are performed as required.

If Beck Depression score is >10 or if the patient requests it, a referral is made to behavioural medicine. About 30 per cent of patients are referred and the patient is seen in the Cardiac Rehab Unit.

Patients are also referred for smoking cessation/relapse prevention as required, and social workers and pharmacists are also available on an as needs basis. No occupational therapists are involved and the exercise physiologists assist with return to work.

On discharge, an exercise tolerance test is repeated. A discharge plan is devised for the patient by their exercise physiologist, including home exercise programme. No follow up is conducted post discharge, mainly due to lack of staffing.

A database is maintained by the unit, which contains information obtained on admission and discharge.

Weight loss strategies

If it is determined that a patient would benefit from weight loss, the following are instituted:

- ↳ individual session with dietician (all patients undergo this mandatory session)
- ↳ patients complete a 'rate your plate' questionnaire (attached) on admission and discharge
- ↳ twelve group education sessions covering a variety of topics (attached)
- ↳ cooking demonstrations are also conducted once a month
- ↳ tracking of weekly weight change and attendance rates in dietician group sessions (this is typically fairly poor: 80 per cent will see the dietician in the mandatory session and only a handful will attend at least one class).
- ↳ High calorie exercise five days per week. The goal is at least 2000-calorie expenditure per week, exercising five days per week. In a typical session, a patient will perform at least 30 minutes cardio exercise, with average 200-300 calories expended.

Due to previously poor outcomes, the unit now encourages more individual dietician sessions. For selected patients, referral is also made on discharge to the BMC Group Weight Management sessions. In this program, patients are encouraged to record food intake daily and to participate in a weekly interactive educational group session.

The average weight loss in those with BMI > 40 is 12 lb (5.5 kg), and if BMI 30-40, weight loss is 4 lb (approx 2 kg).

Health promotion

Twice a year the unit conducts a 'Boston Heart Party' where the general public can attend and have screening of blood pressure/glucose/lipids, and receive general advice regarding heart health. The days are staffed by nurses and doctors and are attended by hundreds of individuals. Pharmaceutical companies fund these days.

Key lessons learned

- The cardiac rehabilitation programme at BMC, which incorporates group education and exercise, has reported successful weight loss in its patients, but the programme is run over twelve weeks (with three attendance per week), compared with six weeks in many Victorian programmes.
- Although group sessions for weight loss are successful, poor attendance is a problem.
- High calorie exercise is a successful strategy for weight loss in cardiac patients.

Suitability for the Victorian healthcare system

The strategies used in the cardiac rehabilitation programme at BMC are eminently suitable for the Victorian healthcare system. High calorie exercise, cooking demonstrations and weekly monitoring of patient progress can all be incorporated into group sessions in Victorian cardiac rehabilitation programmes without extra resources. Patient non-attendance in education sessions appears to be less of a problem for Victorian units.

Available resource:

'Cardiac Rehabilitation Nutrition Program' Boston Medical Center.

Visit to Charing Cross Hospital

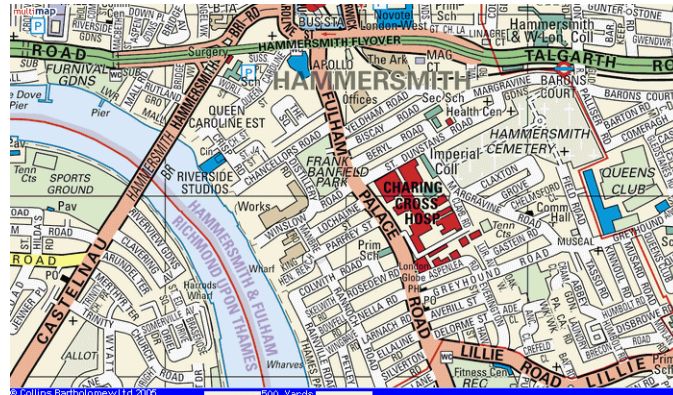
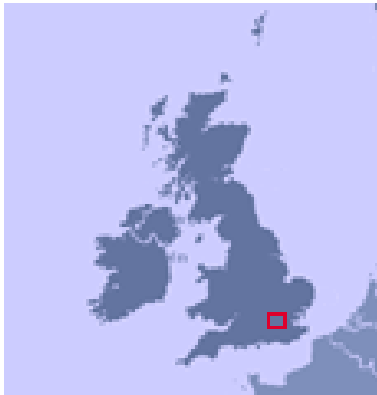
26 September 2006

Dr Susan Connolly, Clinical Research fellow, Cardiovascular Medicine, National Heart and Lung Institute, Imperial College London, Charing Cross Hospital
Sandra Ellis, Dietician, Cardiac Rehabilitation Programme, Cardiovascular Medicine, National Heart and Lung Institute, Imperial College London, Charing Cross Hospital

Overview of visit

Charing Cross Hospital

Charing Cross Hospital is part of the Hammersmith Hospitals NHS Trust, based in North West London. It is a teaching hospital, is the serious injuries centre for West London, and is also known for its research achievements. Imperial College London has a campus on-site and provides close links with all the clinical specialties, including cardiology.



Cardiac prevention and rehabilitation – general information

A nurse-led multidisciplinary team runs the rehabilitation programme. The programme is run over eight weeks and involves once a week attendance for exercise and education. The aim of the programme is to treat all risk factors with specific treatment goals. The key targets include:

- ✎ discontinue smoking
- ✎ making healthier food choices
- ✎ moderate alcohol consumption

- ↳ waist < 94 cm (men), < 80 cm (women)
- ↳ moderate physical activity for 30 minutes at least five times per week
- ↳ blood pressure < 140/85 (if diabetic, BP < 130/80)
- ↳ total cholesterol < 4.0 mmol/l and LDL < 2 mmol/l
- ↳ diabetes is mainly managed in the primary care setting
- ↳ aspirin for all patients, plus beta blockers/ACE inhibitors/statins all at the dose prescribed in clinical trials (for example, EUROACTION).

The unit admits approximately 500 patients per year. Patients are recruited from wards; CCU, the Rapid Access Chest Pain Clinic, and outpatient departments at Charing Cross and Hammersmith Hospitals. Recruitment is done by the cardiac prevention and rehabilitation nurse, with a named nurse remaining the key contact for the patient throughout the programme.

Patient assessment process

The patient and partner attend an initial screening appointment with the cardiac prevention and rehabilitation nurse, physiotherapist, and dietician (proforma attached). As well as history and examination, risk factors are discussed and goals set. The partner and other family members are offered risk factor assessment. The following are assessed:

- ↳ patient and family understanding of risk factors
- ↳ blood pressure
- ↳ blood lipid levels (blood tests are paid for by the hospital)
- ↳ blood glucose or HbA1c
- ↳ current medications
- ↳ hospital anxiety and depression score
- ↳ smoking status and breath carbon monoxide
- ↳ patient's current diet
- ↳ waist measurement
- ↳ BMI
- ↳ patient understanding of cardio-protective diet
- ↳ alcohol consumption
- ↳ patient understanding of exercise
- ↳ patient's current and pre-morbid exercise tolerance
- ↳ any limitations to exercise, co-morbidities

↳ incremental Shuttle walk test.

On the basis of the assessment, a rehabilitation plan and home exercise plan are devised and a recruitment letter and copy of the abbreviated core protocol are sent to the GP. Patients are also stratified according to risk*.

***Risk stratification**

Low risk

- *uncomplicated MI, CABG, angioplasty, artherectomy*
- *no resting or exercise induced myocardial ischaemia manifested as angina and/or ST segment displacement*
- *no resting or exercise induced complex arrhythmias*
- *no significant left ventricular LV dysfunction (EF > 50%).*

Moderate risk

- *exercise induced ST-segment depression 1-2 mm or reversible myocardial ischaemia defects on echo*
- *failure to comply with exercise prescription*
- *mild to moderate left ventricular LV dysfunction (EF 31-49%).*

High risk

- *patients with severe CHD and marked (>2mm) exercise induced ST segment depression*
- *MI complicated by heart failure, cardiogenic shock and/or complex ventricular arrhythmias*
- *survivor of cardiac arrest*
- *complex ventricular arrhythmias at rest or appearing or increasing with exercise*
- *severely depressed LV function (EF < 30%)*
- *decrease in systolic blood pressure of > 15 mmHg during exercise or failure to rise consistent with exercise workloads.*

General treatment protocol

Patients attend once a week for exercise and education. This involves one hour of cardio exercise (such as, bike/treadmill/step circuit) and some strength training using hand weights is also offered.

Patients also have one hour of education. Topics include:

- ↳ coronary heart disease
- ↳ dealing with emotions
- ↳ diet and food labelling
- ↳ stress and relaxation
- ↳ cholesterol and weight management
- ↳ medications
- ↳ emergency life support
- ↳ benefits of exercise.

During the course of the programme staff monitor BP, cholesterol, glucose, renal and liver function. During the weekly meeting with the cardiologist recommendations are made for any changes in therapy and prescriptions are given to patients. Review by the cardiologist within the rehabilitation programme can replace other outpatient cardiology appointments. When changes are made to medications GPs are notified by letter.

Patients are provided with a personal record, which folds up to a credit card size and can be carried in the wallet. This includes space to record:

- ↳ attendance
- ↳ summary of targets/goals
- ↳ medications
- ↳ diagnoses
- ↳ procedures, for example, stenting
- ↳ investigations
- ↳ smoking
- ↳ physical activity
- ↳ weight
- ↳ blood pressure
- ↳ cholesterol
- ↳ glucose.

On discharge, the patient and partner are invited back to a repeat screening with the nurse, physiotherapist and dietician, and progress made is discussed. Information is provided regarding exercise classes and walking programmes in the community and

the local heart support group. Reports are sent to the patient, GP, cardiologist and surgeon.

One year after completion of the programme, patients are sent an annual review questionnaire. Lifestyle and risk factors are reassessed and advice reinforced.

A database is maintained by the Unit, which contains information obtained on admission, discharge, and follow-up.

Weight loss strategies

In the EUROACTION project, utilising the Charing Cross model, 15 per cent of overweight patients and 15 per cent of obese patients achieved > 5% weight loss after 16 weeks of intervention. Central obesity was reduced in patients by an average of 1.5 inches (3.7 cm). However, the Cardiac Rehabilitation Programme now utilises weight loss clinics run by the nutrition and dietetics department.

If, during the initial assessment, it is determined that a patient would benefit from weight loss, a patient is referred to the nutrition and dietetics department. Two weight loss clinics are conducted:

- ⌘ general
- ⌘ intensive.

The general clinic offers five visits and is for patients with BMI < 35 kg/m². The intensive clinic offers more frequent visits and monitoring of risk factors, for patients with BMI > 35 kg/m².

The intensive clinic features:

- ⌘ patient and dietician sign agreement form for joining clinic
- ⌘ each visit is 30 minutes and at each visit weight and waist circumference are measured
- ⌘ six clinic visits with the same dietician for all visits
- ⌘ blood pressure monitoring at visits two and six
- ⌘ blood tests before visits two and six for HbA1c, glucose, Chol/Trig/TC:HDL ratio
- ⌘ quality of life (QOL) questionnaire at visits one and five
- ⌘ patient keeps daily food diary.

In addition to the above, the protocol for each intensive clinic visit includes:

1. *Visit one*: Baseline data collected, current physical activity discussed, treatment plan discussed, patient given QOL questionnaire, target weight loss calculated, food diary instigated.
2. *Visit two*: Patient agreement form signed, blood test results discussed, BP checked, QOL questionnaire discussed, energy prescription calculated, food diary/eating pattern discussed, physical activity encouraged, further targets set.
3. *Visit three*: Previous targets discussed, fat intake discussed, food labels discussed, QOL questionnaire discussed, food diary/eating pattern discussed, physical activity encouraged, further targets set.
4. *Visit four*: Previous targets discussed, cooking/shopping/eating out discussed, eating 'triggers' discussed, food diary/eating pattern discussed, physical activity encouraged, further targets set.
5. *Visit five*: Previous targets discussed, blood tests ordered, QOL questionnaire given, food diary/eating pattern discussed, weight maintenance and relapse prevention discussed, physical activity encouraged, further targets set.
6. *Visit six*: Previous targets discussed, blood test results discussed, BP checked, QOL questionnaire discussed, food diary/eating pattern discussed, physical activity encouraged, weight maintenance and relapse prevention discussed.

There is a seven per cent mean weight loss over six months. Patients are followed up at three and six months post-discharge. Sixty-five per cent of patients do not complete the programme, but for those who do, weight loss is maintained.

Key lessons learned

- The cardiac rehabilitation programme at Charing Cross, which incorporates group education and exercise, has reported successful weight loss in its patients, but the programme is run over 16 weeks, compared with six weeks in many Victorian programmes.
- An intensive individualised, goal-oriented, weight loss programme run by dieticians results in successful weight loss, but suffers from a high dropout rate.

Suitability for the Victorian healthcare system

The programmes conducted by Charing Cross Hospital are eminently suitable for the Victorian healthcare system. The weight loss strategies used in the cardiac rehabilitation setting are similar to those already used in Victoria, but the duration of the programme is twice as long. Victorian cardiac rehabilitation units could give consideration to extending their programmes, at least for patients with particular needs such as weight loss. Individual dietician sessions may require extra resources in some facilities, but thought needs to be given regarding the reduction of dropout rates (for example, financial contribution from patients to increase commitment).

Available resources:

'Care Pathway' Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

'HAD scale' Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

'Monitoring, Attendance and Progress Towards reaching Anthropometric, Blood Pressure and Heart Rate Targets' Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

'Initial Shuttle Walk Test Record Sheet' Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

'Dietitian's (sic) Guide to General & Intensive Weight Management Clinic' Therapy Services Department of Nutrition & Dietetics, Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

'10 Tips for Heart Health' Cardiac Prevention and Rehabilitation Service, The Hammersmith Hospital.

Visit to International Centre for Circulatory Health

27 September 2006

Prof Neil Poulter, Professor of Preventive Cardiovascular Medicine, NHLI Division, Imperial College London and Honorary Consultant Physician and Epidemiologist, St Mary's Hospital, London

Ms Violet Henry, Liaison Nurse / Cardiac Rehabilitation Co-ordinator

Ms Suki Chahal, Cardiac Liaison Nurse

Ms Judith Chilcott, Heart Failure Nurse Specialist

Ms Eleanor Cusack, Cardiac Nurse Practitioner RAU

Ms Bebi Khorasani, Cardiac Rehabilitation Nurse

Ms Jill Bunker, Lead Nurse Specialist - Hypertension

Ms Wendy Callister, Nurse Specialist

Overview of visit

The aim of this visit was to learn about the home-based cardiac rehabilitation programme conducted by the St Mary's NHS Trust. In particular, I was interested in the menu-driven approach, which would be valuable in assisting patients with specific needs such as weight **loss**.

St Mary's Hospital and International Centre for Circulatory Health

St Mary's NHS Trust provides general hospital services to local communities in West London and beyond, and specialist services in paediatrics, obstetrics, infection and immunity, ophthalmology, robotic surgery and cardiology. St Mary's is also a teaching hospital for academic research and medical education.

St Mary's Cardiology Service features three laboratories, five full-time consultants and eight consultants linked with other hospitals in the cardiac network. Seventy-five members of staff, including nurses, cardiac technicians and radiographers, assist the consultants. They treat over 4,000 inpatients and 19,000 outpatients a year (not including accident and emergency).

Cardiology services including cardiac rehabilitation are located at the International Centre for Circulatory Health (ICCH). The ICCH is a collaborative venture between personnel from the National Heart and Lung Institute Division of Imperial College

London and St Mary's Hospital NHS Trust. It includes experts in the fields of vascular biology, pharmacology, diabetes, cardiology, clinical investigation and epidemiology, and conducts research in addition to provision of services such as cardiac rehabilitation.

Cardiac rehabilitation – St Mary's information

A team of full time cardiac rehabilitation nurses, physiotherapists, dieticians, pharmacists and a psychologist provide a holistic service for patients who have recently had a heart attack or cardiac treatment. Cardiac programmes include lifestyle advice, exercise classes, counselling and a patient-led support group.

Cardiac rehabilitation – general information

The cardiac rehabilitation programme (CRP) is located in the ICCH, at 59 North Wharf Road, Paddington. The CRP benefits from being integrated within St Mary's Hospital cardiovascular practice. As a public hospital, services are provided free of charge to patients.

The CRP is a nurse-led team that also includes physiotherapists/ exercise instructors, pharmacists, and dieticians, and treats about 20 patients per month. Patients are recruited on St Mary's cardiology wards, where cardiac rehabilitation nursing staff visit daily. The average time from event to rehabilitation admission is about two weeks following stents, and two to four weeks following infarcts. A large proportion of patients are non-local.

The CRP was traditionally a centre-based, standardised rehab programme. However, as a result of poor uptake of the service by patients, an audit was performed and patients were questioned regarding the type of service they required. As a result, a home-based programme was developed with funding from the local Primary Care Trust.*

* Primary Care Trusts are independent NHS bodies, introduced under the Health Act 1999, which receive 80 per cent of the NHS budget. They took over many functions of the former health authorities, and ensure that all health services required in their area are provided, including services from hospitals, dentists, opticians, mental health services, NHS Walk-In Centres, patient transport (including accident and emergency), population screening, and pharmacies. They are also responsible for getting health and social care systems working together to the benefit of patients.

The introduction of home-based cardiac rehabilitation has improved patient uptake to 62 per cent last year and 78 per cent this year (compared with a national average of 32 per cent). Both home-based and centre-based rehabilitation are 'menu-based', where patients can select the components they want, for example, lifestyle management, dietician, smoking cessation, exercise. The menu-based approach is consistent with The National Service Framework for Coronary Heart Disease (*Department of Health. National Service Framework for coronary heart disease. London: Department of Health, 2000*) and national clinical guidelines for cardiac rehabilitation (CR) (*Thompson DR, Bowman GS, Kitson AL, de Bono DP, Hopkins A. Cardiac rehabilitation in the United Kingdom: guidelines and audit standards. Heart 1996; 75: 89-93*), which both state that CR should be based on a patient's individual needs and be 'menu driven'.

All patients are visited at home initially by a cardiac rehabilitation nurse. Cardiac patients are stratified into high-risk patients, who are offered a structured six to twelve week centre-based rehabilitation, or medium-low risk, who are offered home-based rehabilitation. Heart failure patients are only treated within the centre. Patients tend to select the home-based rehabilitation option for reasons including work obligations, difficulty getting out due to old age or frailty, or ill health. The last group may eventually go on to attend centre-based rehabilitation.

***Risk stratification**

Low risk

- *uncomplicated MI, CABG, angioplasty, artherectomy*
- *no resting or exercise induced myocardial ischaemia manifested as angina and/or ST segment displacement*
- *no resting or exercise induced complex arrhythmias*
- *no significant left ventricular LV dysfunction (EF > 50%).*

Moderate risk

- *exercise induced ST-segment depression 1-2 mm or reversible myocardial ischaemia defects on echo*
- *failure to comply with exercise prescription*
- *mild to moderate left ventricular LV dysfunction (EF 31-49%).*

High risk

- *patients with severe CHD and marked (>2mm) exercise induced ST segment depression*
- *MI complicated by heart failure, cardiogenic shock and/or complex ventricular arrhythmias*
- *survivor of cardiac arrest*
- *complex ventricular arrhythmias at rest or appearing or increasing with exercise*
- *severely depressed LV function (EF < 30%)*
- *decrease in systolic blood pressure of > 15 mmHg during exercise or failure to rise consistent with exercise workloads).*

Patient assessment process

The patient's initial assessment is conducted by cardiac rehabilitation staff. As well as history and examination, the following are performed:

- 1) BMI/waist
- 2) hospital anxiety and depression scale (HADS)
- 3) Dartmouth Quality of Life Scale (attached)
- 4) Shuttle walk test

After this initial assessment, a patient's exercise level is determined in terms of METS based on the Shuttle test.

General treatment protocol – home based rehabilitation

Each patient is assigned a rehabilitation nurse and an exercise instructor. Nursing visits take from 45-60 minutes (a cardiac rehabilitation nurse sees three to four patients per day) to address risk factor management, such as lifestyle management.

Patients are also assisted with smoking cessation/relapse prevention as required, and dieticians and pharmacists are also available on an as-needs basis. No occupational therapists are involved.

On discharge, patients are referred back to the GP, who is asked to check on outcome measures, including BP and cholesterol. A discharge plan is devised for the patient by their exercise instructor, including a home exercise programme. No follow up is conducted post discharge, mainly due to lack of staffing.

A database is maintained by the Unit, which contains information obtained on admission and discharge.

Weight loss strategies

If it is determined that a patient would benefit from weight loss, the following are instituted:

- discussion of strategies both on the acute ward and again during home visits, as part of risk factor management
- individual session with dietician if required. This is conducted on completion of the cardiac rehabilitation programme.

Key lessons learned

- Home-based cardiac rehabilitation can be successfully conducted and more than doubles rates of patient participation in cardiac rehabilitation.
- Lack of follow-up post-discharge due to staff shortages is a shortcoming of this programme, as patients' maintenance of gains remains unknown.
- Weight loss strategies can be targeted in the St Mary's programme as part of the 'menu-driven' approach to cardiac rehabilitation.

Suitability for the Victorian healthcare system

The programme conducted by St Mary's NHS Trust is eminently suitable for the Victorian healthcare system. Increased rates of patient participation in cardiac rehabilitation would be a desirable outcome, but the programme could be further improved in the Victorian setting with cognitive-behavioural techniques, a greater emphasis on weight management (where appropriate) and with post-discharge follow-up to evaluate maintenance of gains.

Visit to York University

2 October 2006

Professor Bob Lewin, Director, British Heart Foundation Care and Research Group, Department of Health Sciences University of York

Overview of visit

The aim of this visit was to learn about research the development of 'offshoots' of the Heart Manual for different clinical groups, including the angina plan, the angioplasty plan and the Road to Recovery Programme. All of these implement cognitive behavioural (CBT) techniques to achieve behavioural change, and may provide useful models for developing a similar approach to helping patients lose weight.

York University



Angina plan

The angina plan is a home-based cardiac rehabilitation programme using CBT techniques for patients presenting with angina. There are 300,000 new cases in the UK each year. Health providers are trained via distance learning (including manual and video). Seven hundred facilitators have been trained since 2002. In Manchester, lay workers are being trained; such workers are either those with heart disease or living with significant others with heart disease. Training is for ten hours per week for

a month, including instruction in motivational interviewing. Six have been trained following screening by a cardiac rehabilitation nurse, and are working ten hours per week for £6 per hour.

At the first patient interview, misconceptions are dispelled and self-management techniques are introduced. Patients also complete a risk factor quiz. Advice is given regarding exercise such as walking, with patients commencing a regimen of exercise that they would be capable of on a 'bad' day. Goal setting and pacing are also introduced, with targets set for activities and diet. Patients are instructed to record daily progress.

Follow-up occurs either by phone or face-to-face. Goals are reviewed and more goals set. Contact is made at weeks one, four, eight and twelve, but can be negotiated, and if a patient goes on holiday, goals are planned ahead. At the end of the programme patients are referred on if there are any outstanding issues, for example, dietician for weight loss.

A randomised controlled trial has compared patients using the angina plan with patients receiving routine nurse care including written information from the British Heart Foundation. The angina plan patients experienced a 40 per cent reduction in angina by six months, with less anxiety and depression and higher levels of exercise.

Another site is using the angina plan in a group setting at a community facility. Referrals are received from GPs and Rapid Access Chest Pain Units, with 300 patients per year treated. Patients attend twice a week for eight weeks. Goal setting occurs in the group, as does physical instruction for a walking programme and gym programme. An audit of the last three years revealed that patients suffered less anxiety and depression, less angina, and lower blood pressure.

The Road To Recovery Programme

The Road to Recovery programme is a home-based exercise programme for cardiac patients, originating from the British Heart Foundation. The emphasis is on self-managed exercise rather than goal setting, and may be the only cardiac rehabilitation option offered in some areas. Although methods can differ between facilities using the programme, staff tends to include nurses and physiotherapists or exercise instructors. Patients are provided with an information pack and exercise

DVD and taught how to use the Borg Scale of Perceived Exertion and a heart rate monitor. Patients are assessed at the start with the Shuttle Walk or treadmill exercise testing. During the programme, staff contacts patients weekly via phone for seven weeks. At the end patients attend for reassessment and de-briefing. The programme is currently being evaluated in terms of patient satisfaction.

Other initiatives

Similar programmes have been developed for other diagnostic groups, based on the angina plan. An angioplasty plan exists for those pre or post angioplasty/stent, and a HeartOp plan for those undergoing coronary artery surgery. The latter has been tested in a randomised controlled trial with 200 subjects, and resulted in less depression and greater levels of exercise.

Heart failure nurses are also available for community-based management of patients with heart failure. The nurses visit patients in their homes for assistance with diet, medications (some of which nurses can prescribe), lifestyle, exercise and self-help. A randomised controlled trial revealed that such home visits resulted in fewer hospital re-admissions. The nurses also liaise with other health care professionals, attend medical appointments with patients, and are involved in palliative care for more severely affected patients.

The university is also testing a heart failure plan, which uses symptoms (for example, fatigue, breathlessness) as the basis of patient goal setting. It is also developing an online problem-based training programme for facilitators at diploma or degree level, which will be available from April 2007.

Key lessons learned

- Home-based cardiac rehabilitation can be successfully conducted for patients with angina, and for those requiring assistance with developing an exercise routine.
- Home-based management for heart failure patients, using appropriately skilled staff, can reduce re-admission rates. Home-based rehabilitation for this group is being developed and appears promising.

Suitability for the Victorian healthcare system

The home-based programmes described, including the angina plan and the Road to Recovery Programme, are eminently suitable for the Victorian healthcare system. The programmes are cost-efficient and effective, although safety does not appear to have been specifically assessed. Home-based programmes would be particularly appealing to those who would find it difficult to attend centre-based therapy, for example, those in rural areas, the elderly, and those who have already returned to work. The keys to success would include the use of appropriately trained staff and clear protocols for screening, recruitment and follow-up of patients.

Visit to the East Riding and Hull Cardiac Rehabilitation Service

5 October 2006

Anita Trotman-Beasty, Cardiac Rehabilitation Service Manager/Lead Nurse, The East Riding and Hull Cardiac Rehabilitation Service, East Riding of Yorkshire Primary Care Trust

Angela Newlove, Cardiac Active Lifestyle Advisor, The East Riding and Hull Cardiac Rehabilitation Service, East Riding of Yorkshire Primary Care Trust

Overview of visit

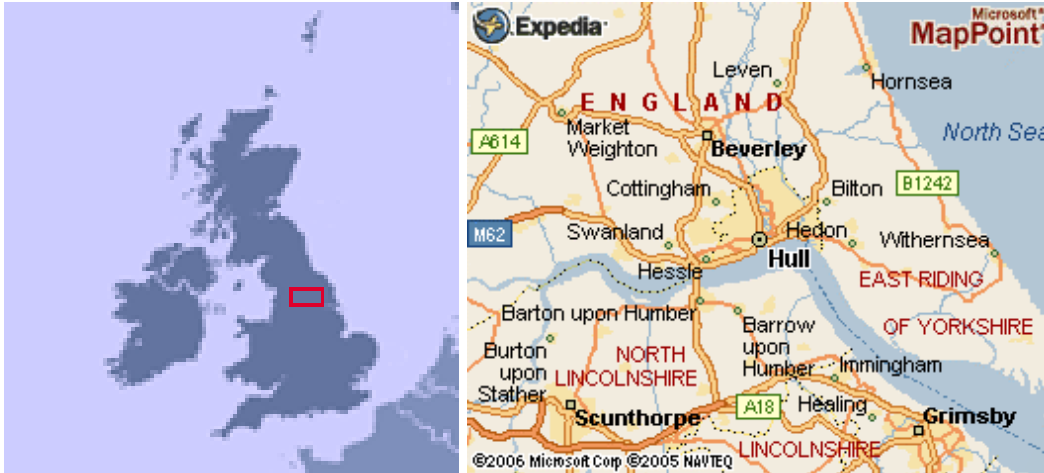
The aim of this visit was to learn about how the Heart Manual is applied in a real-life clinical situation. It was indeed valuable to gain knowledge regarding the operating procedures involved, and discuss the patient outcomes using the Heart Manual. In addition, I learned about the HEARTLINK programme run in the community by the Cardiac Rehabilitation Service, which provided important care to patients in a NHS Trust area where hospital-based services were very limited.

East Riding of Yorkshire Primary Care Trust

The East Riding and Hull Cardiac Rehabilitation Service is part of the East Riding of Yorkshire Primary Care Trust, based in Hull. The new East Riding of Yorkshire Primary Care Trust (PCT) was created on 1st October 2006, combining the East Yorkshire and Yorkshire Wolds and Coast PCTs. Primary Care Trusts (PCTs) are NHS organisations responsible for leading and developing local health services. The PCT core role is to:

- ↳ manage and develop primary and community health services
- ↳ commission hospital and specialist services
- ↳ improve the health of their local populations, addressing inequalities in health.

The East Riding of Yorkshire PCT serves approximately 300,000 people living within the East Riding of Yorkshire area.



East Riding and Hull Cardiac Rehabilitation Service – general information

The rehabilitation service covers all of East Riding and offers a home based cardiac rehabilitation programme (known as Phase II Cardiac Rehabilitation) using the Heart Manual. This has been in use here since 1999, and is administered by trained health visitors (community facilitators). Patients following myocardial infarct are referred from the three acute hospitals in the area and are seen by a health visitor within a week. The Heart Manual is introduced whilst the patient is still in hospital and continued at home – if a patient does not meet the criteria for the Heart Manual, he or she is followed up by a specialist nurse attached to the service.

After completing the Heart Manual, a 12-week review is arranged and the patient's local GP or practice nurse checks serum cholesterol. Based on patient outcome, patients are triaged into one of three services:

1. Discharged from cardiac rehabilitation with information regarding support groups and Phase IV long-term exercise and education groups within the community, for example, local sports centres, gyms and health centres.
2. Those with ongoing needs are referred as appropriate, for example, to dietician, psychologist, specialist nurse.

3. Those who have not thrived on the Heart Manual or need further guidance are offered a Phase III supervised hospital programme. These patients are ultimately referred on for Phase IV groups.

All patients undergo a 12-month visit by facilitators. Patient outcomes are passed on to the local practice nurse for yearly follow-up, and audit information is forwarded to the national centre.

The programme's operating procedures are attached.

As the PCT is currently in debt, no additional NHS funds are available to expand the Cardiac Rehabilitation Service. Accordingly, alternative sources of funding have been sought. For example, money has been obtained from the national lottery to fund services for patients following coronary artery bypass grafts (see the HEARTLINK Programme below). One cardiac nurse is available for the region to administer the 'angioplasty plan' for angioplasty/stent patients who are not eligible for the Heart Manual. The British Heart Foundation has also funded four 'heart failure nurses' for the region. There are no services for patients with pacemakers, angina or implantable defibrillators as the main diagnosis. It should also be noted that patients over 75 years of age with heart disease/heart attack are treated by general physicians rather than cardiologists and therefore may not be referred for cardiac rehabilitation.

Patient assessment process

After a referral is received for Phase II cardiac rehabilitation, a patient is contacted within 24 hours of discharge. Within the next seven to ten days the community facilitator visits the patient at home, and this initial assessment includes the risk assessment*, Dartmouth CO-OP and Hospital Anxiety and Depression (HAD) scales (attached). The Dartmouth CO-OP questionnaire tracks physical and psychological improvements, quality of life, functional capacity, retention and relapse, and long-term behaviour change. These scales are repeated at the week twelve home visit, and serum cholesterol is arranged. At twelve months post discharge, the patient again undergoes the risk assessment*, Dartmouth CO-OP and HAD scales. At each time point results are entered into the programme's database.

***Risk stratification**

Low risk

- *uncomplicated MI, CABG, angioplasty, artherectomy*
- *no resting or exercise induced myocardial ischaemia manifested as angina and/or ST segment displacement*
- *no resting or exercise induced complex arrhythmias*
- *no significant left ventricular LV dysfunction (EF > 50%).*

Moderate risk

- *exercise induced ST-segment depression 1-2 mm or reversible myocardial ischaemia defects on echo*
- *failure to comply with exercise prescription*
- *mild to moderate left ventricular LV dysfunction (EF 31-49%).*

High risk

- *patients with severe CHD and marked (>2mm) exercise induced ST segment depression*
- *MI complicated by heart failure, cardiogenic shock and/or complex ventricular arrhythmias*
- *survivor of cardiac arrest*
- *complex ventricular arrhythmias at rest or appearing or increasing with exercise*
- *severely depressed LV function (EF < 30%)*
- *decrease in systolic blood pressure of > 15 mmHg during exercise or failure to rise consistent with exercise workloads.*

General treatment protocol

As stated previously, patients undergo an initial interview seven to ten days following hospital discharge. The community facilitator administers the questionnaires and goes through the Heart Manual with the patient. The contents of the Heart Manual are covered in the report on the visit to Astley Ainslie Hospital, Edinburgh. The facilitator contacts the patient by phone at weeks three and six and visits at week twelve, and twelve-months post-discharge. If, at week six, the patient is not getting sufficient exercise, he or she is referred for hospital based group exercise (known as Phase III rehabilitation). In this way it is hoped that the hospital-based service targets those who most need it. As previously described, patients are ultimately referred on for Phase IV rehabilitation in the community.

In 2003, there were 726 patients within East Riding with myocardial infarct. Of these, 632 were enrolled with the Heart Manual, while 94 were referred for specific therapies via the cardiac liaison nurse (for example, patients with severe co-existing arthritis may be referred for individual physiotherapy). At discharge, 35 per cent were discharged as fit, 26 per cent were referred back to their GP for follow-up, 8 per cent were referred on to a counsellor, 11 per cent to the cardiac liaison nurse, and 20 per cent referred to the Phase III hospital based cardiac rehabilitation. At twelve-months post discharge, patients are compared with the National Services Standards Framework from the Department of Health. Results included:

- ↳ 55 per cent had a BMI < 30kg/m²
- ↳ 61 per cent had blood pressure < 140/85
- ↳ 60 per cent were not smoking
- ↳ 60 per cent were active (30 minutes exercise x 5 days per week)
- ↳ 62 per cent were taking aspirin
- ↳ 60 per cent were taking a beta blocker
- ↳ 80 per cent were taking a statin (for cholesterol).

Cardiac active lifestyle advisor and HEARTLINK

For patients following coronary artery bypass grafts (CABG), the community HEARTLINK Programme is available, run by the cardiac active lifestyle advisor (CALA). This programme has been available since October 2005. The CALA attends cardiothoracic outpatient clinics to assess patients six weeks post-op for suitability for the programme. Patients are risk-stratified (a Chest to Step Tool, which is a validated measure of metabolic equivalents (METs) is being purchased to stratify patients according to guidelines from the British Association of Cardiac Rehabilitation (BACR)). Higher-risk patients are referred for hospital-based Phase III rehabilitation, but this is a limited resource. At this point the CALA also provides the patient with an exercise diary and encourages family involvement and support. The CALA then contacts the BACR Exercise Instructor, who will be supervising the actual HEARTLINK Programme, and provides them with a copy of the referral form and exercise guidelines. The CALA can also set up home-based exercise programmes for patients who chose not to attend HEARTLINK.

The HEARTLINK Programme includes exercise and education at a cost of £2.55 per class. The programme is conducted at local leisure centres, is supervised by a BACR

Instructor, and is a ten-week rolling programme. At the end of the ten weeks, patients may continue in the programme or join other activities offered by the centre as recommended by the BACR Instructor.

The patient is initially screened for any exclusion criteria, for example, unstable angina, acute heart failure, unstable diabetes, severe shortness of breath. Exercise capacity is assessed, with an aerobic exercise tolerance test if appropriate. Patients are provided with a target heart rate and instruction regarding the Rating of Perceived Exertion. The BACR Exercise Instructor provides supervision and exercise guidance of all patients, and records attendance, blood pressure and heart rate each week.

Education sessions are provided weekly and include:

- ↳ lower your blood cholesterol
- ↳ lose weight for good
- ↳ supermarket shop
- ↳ stress and your heart
- ↳ walk your heart to health
- ↳ your guide to medication
- ↳ reduce your blood pressure
- ↳ keep your heart active
- ↳ let's talk about sex
- ↳ questionnaires and follow-up.

Six or seven centres are now running HEARTLINK programmes. They are only offered to patients following CABG or stent (the latter group is usually offered the 'angioplasty plan' first, and then joins HEARTLINK subsequently. Patients are followed up at three and twelve months with the Dartmouth CO-OP questionnaire.

From October 2005 to June 2006, 112 patients have attended the HEARTLINK programme. Fifty per cent have gone on to join a gym long-term, and none have required hospital readmission.

Weight loss strategies

Within the Heart Manual, information is provided to assist patients in achieving healthy weight. This includes:

- ↳ components of healthy diet in coronary artery disease
- ↳ fats, including tips to reduce saturated fats
- ↳ information on fibre, starchy foods, oily fish, salt, fruit and vegetables, and alcohol
- ↳ meal suggestions
- ↳ being overweight and how to tackle it
- ↳ eating out.

If, at the end of the programme, further assistance is required for weight loss the patient can be referred for dietician input. A Weight Management Course has recently been set up at the local lifestyle centre, and cardiac patients do attend. A lifestyle advisor, supervised by a dietician, runs this programme. At a cost to the patient of £1 per session, the programme includes:

- ↳ a 45 minute circuit class
- ↳ education sessions
- ↳ advice re food
- ↳ calorie prescription
- ↳ introduction and use of food diary for participants.

No outcomes are available as yet, as the programme had only been running for six weeks at the time of my visit.

Key lessons learned

- Home-based cardiac rehabilitation can be successfully conducted with a third of patients requiring no other therapy input, and only one in five requiring additional hospital-based rehabilitation.
- Appropriately staffed community services such as HEARTLINK can safely and effectively meet patient needs as an alternative to hospital-based therapies, providing patients are properly screened for suitability.

- A community based programme can be a useful stepping stone for introducing patients to other community based activities (for example, gym), thus enhancing the chances that patients will continue to exercise.
- Weight loss strategies can be introduced within both home-based and community-based settings.

Suitability for the Victorian healthcare system

The programmes conducted by the East Riding PCT are eminently suitable for the Victorian healthcare system. Within the budgetary confines of the NHS, programmes need to be cost-efficient, even allowing for the fact that alternative funding has been obtained from the national lottery. The keys to success would include the use of appropriately trained staff (especially for those working in non-hospital settings, for example, leisure centres), and clear protocols for screening, recruitment and follow-up of patients.

Available resources:

'H.E.A.R.T. Link Heart Education & Active Rehabilitation Therapy...add years to your life & life to your years' brochure, East Riding & Hull NHS.

'East Riding & Hull Cardiac Rehabilitation Programme' service chart, East Riding & Hull NHS.

'Community Facilitator Visiting Protocol' service chart, East Riding & Hull NHS.

'Cardiac Active Lifestyle Advisor Service' chart, East Riding & Hull Cardiac Rehabilitation Service.

'Community H.E.A.R.T. Link Programme: Heart Education & Active Rehabilitation Therapy – A Date with Your Heart' operating procedures, East Riding & Hull Cardiac Rehabilitation Service.

'Physical Activity Readiness Questionnaire' Tone Zone.

'Cardiac Rehabilitation Questionnaire' Dartmouth Co-op.

**Visit to University Department of Human Nutrition,
Glasgow Royal Infirmary**

9th October 2006

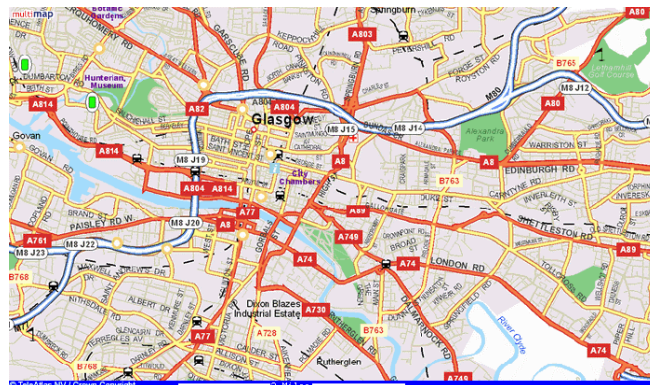
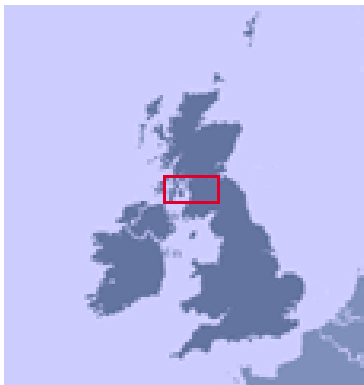
Dr Catherine Hankey, Lecturer, University Department of Human Nutrition, Division of Developmental Medicine, University of Glasgow, Royal Infirmary
Wilma Leslie, Researcher, University Department of Human Nutrition, Division of Developmental Medicine, University of Glasgow, Royal Infirmary

Overview of visit

The visit to the Department of Human Nutrition in Glasgow provided an opportunity to learn more of successful dietary interventions studied in cardiac rehabilitation patients by this department.

Glasgow Royal Infirmary

Glasgow Royal Infirmary is situated on Castle Street, in Glasgow. The hospital was built between 1792 and 1794 by James Adam (1732-94) and was the sixth such infirmary hospital in Scotland. The hospital was rebuilt in 1907-1914. Numerous extensions have been added and the Glasgow Royal Infirmary remains the principal hospital for much of the eastern section of the city. The hospital has around 1000 beds and provides a broad range of services.



University Department of Human Nutrition – department information

The University Department of Human Nutrition (also known as 'Human Nutrition at Glasgow') provides a focus for the study of human nutrition issues within the university, generally adopting a multi-disciplinary team approach encouraging extensive collaboration and joint working with other university departments.

The department was established in Glasgow University in 1990 reflecting the growth in importance of human nutrition in basic science, in public health and in clinical practice. It now forms an important part of the Division of Developmental Medicine, but much of its work involves close collaboration with other parts of the medical faculty and other university departments.

The University Department of Human Nutrition carries out a very extensive research programme. Broad categories of research include:

- ↳ body composition, growth and energy balance
- ↳ interactions of food and gut
- ↳ plant products and nutrition
- ↳ food choice, health and disease
- ↳ obesity and weight management.

Research into dietary change in cardiac rehabilitation

As part of the Scottish Diet Action Plan, a grant was obtained by the University Department of Human Nutrition to look at dietary change in different clinical settings including rehabilitation. A total of 98 patients participating in cardiac rehabilitation following myocardial infarction were studied. The control group of patients received usual care in cardiac rehabilitation (initial assessment by nursing/physio/dietician, followed by weekly attendance for one hour of exercise for 12 weeks, with only one dietician group lecture).

The patients in the intervention group received individual dietary sessions conducted by a research nurse with dietary training. Each of the four intervention sessions lasted 40 to 60 minutes. The session topics included:

1. dietary overview and weight management advice if BMI > 25

2. increasing fruit and vegetable intake
3. increasing intake of oily fish
4. reducing fat intake.

Patients were assigned an energy deficit diet (500 calories less than that required to maintain the patient's current weight). Patients made use of self-monitoring sheets, which were reviewed at each session. Patients were also provided with recipe books, but the researchers found that patients were more interested in making their usual meals healthier.

Appointments were timed to suit the patient, including evenings. Accordingly, there was a low dropout rate.

At the end of the 12-week study period, the following were noted:

- ↳ 65 per cent of the intervention group were eating five portions of fruit/vegetables per day, versus 31 per cent of the control group
- ↳ lipid levels improved more in the intervention group
- ↳ the control group mean weight increased, whereas the intervention group weight was stable (further, patients reported that they had succeeded in keeping off the weight they had initially lost in hospital)
- ↳ There was a 2kg difference in mean weight between the intervention group and the control group.

A sub-analysis of the patients' partners or supporters showed that these individuals improved their diet markedly and reduced blood lipids, suggesting that the study intervention may be useful in primary prevention.

At follow-up nine months later, there were still some differences between the two groups but these were not significant, as the intervention group was not maintaining their improvements. The researchers suggest that ongoing monthly review and support may improve longer-term outcomes.

The challenge now is to incorporate the intervention into usual practice. A survey of members of the British Association of Cardiac Rehabilitation revealed that most cardiac rehabilitation programmes in the UK offer only one session with the dietician

with no follow-up. Further, no specific weight management advice is given. Incorporating specific dietary interventions would probably need to be in the group setting, as individual sessions are expensive.

Key lessons learned

- Successful weight loss and healthy eating strategies (including calorie prescription and dietary education) can be introduced within the cardiac rehabilitation setting.
- Long-term support is advised to maximise the chances that patients will maintain gains.
- The one-on-one approach used in this study has not been adopted widely in UK cardiac rehabilitation programmes due to limited resources.

Suitability for the Victorian healthcare system

The dietary intervention studied here could be adopted by Victorian cardiac rehabilitation units with existing or slightly increased resources, given many have access to dietician input already. The success of the intervention depends in part on weekly review and use of patient self-monitoring sheets rather than one-off consultations offered in some Victorian settings.

Visit to Royal Alexandra Hospital, Paisley

11 October 2006

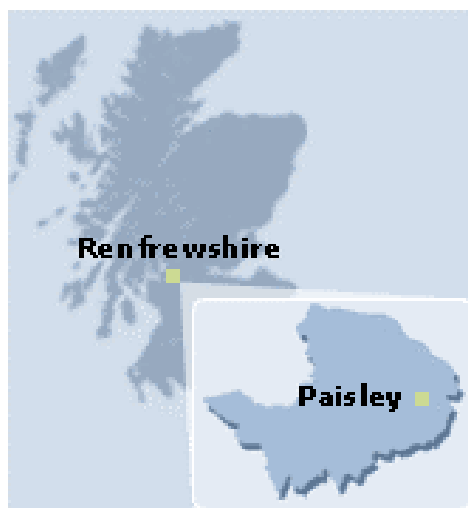
Dr Paul McIntyre, Cardiologist, Cardiac Rehabilitation Unit
Carol Ann Turnbull, Physiotherapist, Cardiac Rehabilitation Unit
Gillian MacNeill, Dietician, Cardiac Rehabilitation Unit
Mhairi Campbell, Co-ordinator, Cardiac Rehabilitation Unit

Overview of visit

The visit to Paisley provided an opportunity to witness the innovations introduced for the local population under the Have a Heart Paisley (HaHP) programme. Paisley has one of the highest rates of coronary heart disease (CHD) in Scotland, with the CHD death rate up to 50 per cent higher than Scotland as a whole. Have a Heart Paisley has been instituted to assist the people in making and maintaining healthier choices in diet and lifestyle. The purpose of my visit was to gain first hand knowledge of this innovative programme, including weight loss strategies and the cardiac rehabilitation programme.

Royal Alexandra Hospital

The Royal Alexandra Hospital (RAH) is a busy district general hospital providing a full range of general hospital and maternity services from a modern facility on a 78-acre site in the town of Paisley.



The hospital serves a population of over 200,000 from a mixed urban and rural area. As well as providing healthcare to the people of Renfrewshire, it provides major trauma and emergency surgical care for Lomond and Argyll, stretching as far as Oban.

More than 2,300 staff operates over 600 beds, day case and outpatient services. There is a full 24-hour accident and emergency service, an intensive care unit, a high dependency unit and a coronary care unit.

Have a Heart Paisley and health promotion

Have a Heart Paisley was established in 2000 as a national health demonstration project to reduce heart disease and promote healthier, longer lives for the people of Paisley.

Phase 1 of Have a Heart Paisley (HaHP) included over 100 community projects, including nurse led secondary prevention, menu based cardiac rehabilitation, public health education and awareness, and Paisley Heart Awards.

In Phase 2, HaHP will deliver a targeted programme for the 'at risk' population (aged 45-60), and for those with heart disease, in Paisley. The aim is to improve heart health by tackling risk factors and unmet needs for treatment. There are three dimensions planned:

✎ *Primary prevention:* 45-60 year olds are screened for cardiovascular risk. This screening assessment is performed by a Have a Heart Paisley nurse, and will take place at the participant's choice of venue: at their home, a local community centre or a primary care facility. Taking approximately 40 minutes, the assessment will use the following criteria to estimate the participant's risk of developing heart disease:

- age
- total cholesterol
- blood pressure
- smoking status
- sex
- HDL cholesterol
- diabetes status

Those who are deemed high risk for cardiovascular disease (>20% risk of any CVD in 10 yrs) will be referred for health coaching. This trial service will offer

participants the opportunity to link up with a personal health coach, who will help them identify the health behaviour changes they wish to make and support them in making these changes. As well as linking with existing support services, participants will be able to access additional interventions, set up by Have a Heart Paisley to specifically help those going through the health coaching service.

Participants' use of the service will be built around their own individual needs. However, everyone involved will have a data collection point at three, six and twelve months, where the baseline measurements will be repeated (cholesterol repeated at twelve months only). Lifestyle information relating to the risk factors associated with heart disease will also be gathered at the first health coaching session and revisited at these points. The information gathered will therefore identify not only changes in health, but any behaviour change achieved pertaining to diet, level of physical activity, smoking status and wellbeing.

↳ *Cardiac rehabilitation / secondary prevention:* for patients with acute coronary syndromes (myocardial infarction, new onset or worsening angina, revascularisation procedures, and new onset or worsening heart failure), menu-based cardiac rehabilitation is offered. A randomised control trial is currently comparing hospital-based Phase III cardiac rehabilitation with community centre-based cardiac rehabilitation. For patients with chronic stable coronary heart disease, medical therapy is optimised and patients are stratified for exercise into low/moderate and high risk. The latter group are referred to Phase III cardiac rehabilitation. Low/moderate patients are referred to a health coach. Regarding exercise, moderate risk patients are referred to a British Association of Cardiac Rehabilitation (BACR) instructor, and low risk patients take part in unsupervised community based exercise. Both groups are assisted with smoking cessation and healthy eating.

↳ Promotion of intervention uptake, facilitation of learning and development, and dissemination of information.

Knowledge gained from the work of Have a Heart Paisley is also helping to guide future policy and practice in the prevention and treatment of heart disease throughout Scotland.

Cardiac rehabilitation – information provided by Royal Alexandra Hospital

Have a Heart Paisley's Health at Heart Centre offers a menu based cardiac rehabilitation programme at the Royal Alexandra Hospital.

The programme offers extended cardiac rehabilitation services to all patients who are seen in the hospital with a new diagnosis or worsening of heart disease. The variety of classes available at the purpose-built Health at Heart Centre has widened to suit individual needs. These changes have resulted in a dramatic increase in the number of people attending the exercise classes.

This hospital based cardiac rehabilitation programme is now being expanded into the community setting in order to ensure that as many patients as possible access the service. Community based cardiac rehabilitation will be targeted to those most suitable to exercise in that environment and it is hoped that this new opportunity will increase the number of patients attending and completing the programme.

Those patients identified as being most suitable for hospital-based cardiac rehabilitation will continue to be seen in the hospital setting and services at the RAH are being further developed as part of this new phase of work.

Cardiac rehabilitation – general information

The RAH offers cardiac rehabilitation at various phases. These are:

- ✎ Phase I: this occurs on the acute ward following admission for myocardial infarction. Patients are assessed by physiotherapist, nursing staff and a dietician and given advice.

- ✎ Phase II: following discharge home, patients are contacted on two occasions by health assessors.

- ✎ Phase III: outpatient cardiac rehabilitation is offered twice weekly for twelve weeks (26 weeks for heart failure). Patients are stratified into 'low', 'moderate' or 'advanced' levels.

An alternative home-based programme is also offered. This was initially set up for patients who wished to return to work early, but is actually used more by elderly

patients who would otherwise had difficulty getting to the outpatient cardiac rehabilitation programme at the hospital.

The hospital had 713 cardiac rehabilitation admissions in 2005, half of which were admitted to Phase III. This represents 25-30 new patients per month, and 700 treatments per month.

General treatment protocol (Phase III cardiac rehabilitation)

As previously stated, Phase III rehabilitation comprises twice weekly sessions for twelve weeks. Patients have individual exercise prescription. All patients perform 15 minutes of warm up exercise followed by one hour of exercise: low and moderate groups take part in a circuit group, while the advanced group takes part in a gym programme incorporating cardiovascular exercise and strength training. For diabetic patients, blood glucose levels are checked pre and post exercise.

In the patient waiting area, notice boards display health information, which is changed monthly. A television also plays an education DVD recorded by the staff.

Extra sessions are available, including dance sessions, group outings (for example, bowling, tennis, visits to art galleries), and cooking demonstrations.

Weight loss strategies

Staff offer to weigh all patients, although this is not compulsory. Patients attend weekly education sessions and are provided with a folder of written information. This includes patient handouts from the British Heart Foundation and the British Dietetic Association on various topics, for example, 'The Truth about Fad Diets' and 'Wholegrains – the Way to Go'.

Have a Heart Paisley have also instituted projects to assist the local population with weight loss and healthy eating. These include:

Heart matters

Have a Heart Paisley's mobile food initiative is operated by Capability Scotland's Whitehaugh Centre. The 'Heart Matters on the Move' project benefits local communities by providing easy access to healthy, affordable, good quality food.

Beechwood Busters

One of Have a Heart Paisley's flagship projects, this smoking cessation initiative expanded to include a weight management class with exercise and stress management components. Spurred on by the project's success, Beechwood Management Committee has gone on to work with Have a Heart Paisley to develop a healthy lunch club and a programme of physical activities for people of all ages and abilities.

Lifeline Blackhall

This programme focuses on healthy eating, with cookery classes and fun activities such as line dancing.

Healthercise/ Living Plus

Run by Renfrewshire Council's Sports Development Unit, the Healthercise project offered a six-week course of physical activity aimed at introducing people to the benefits of regular exercise. Courses were tailored to the abilities of each participant and consisted of a gym workout, swimming sessions and health information. The programme was free of charge and open to anyone living in Paisley over the age of 16, and included additional 'drop-in' fitness sessions and sports activities.

Health Behaviour Change Network

This network offers help in making the kind of behaviour changes that will improve heart health. Part of the work of Have a Heart Paisley, it focuses on the three main causes of heart disease: smoking, lack of physical activity and unhealthy eating.

In addition to offering practical advice, the network provides links to a wide range of local services and activities that can help support these lifestyle changes.

The Health Behaviour Change Network is also being used to monitor the progress of those participating in Have a Heart Paisley's health coaching service. This new trial service for the people of Paisley aims to demonstrate how one-to-one support can help people make changes that will improve their health.

Key lessons learned

- The success of the approach in Paisley has been in its multi-focal nature, with secondary prevention strategies, cardiovascular risk screening for the general population, menu-based cardiac rehabilitation, public health education and promotion, and community-based groups.
- Weight loss strategies can be offered to cardiac patients and the wider population via innovative community-based programmes including:
 - mobile programmes allowing patients to access affordable, high-quality food
 - groups offering cookery lessons, healthy lunches, and physical activity
 - health coaching.

Suitability for the Victorian healthcare system

The programmes conducted by the Have a Heart Paisley programme are eminently suitable for the Victorian healthcare system. The programme could be adapted with involvement of cardiac rehabilitation units, community rehabilitation and community health centres, leisure centres and home-based therapy and coaching.

Available resource:

'Welcome to Cardiac Rehabilitation at the Health At Heart Centre' Have a Heart Paisley' service information booklet, Royal Alexandra Hospital, Paisley.

Visit to Heart Manual Team, Astley Ainslie Hospital,

Edinburgh

12th October 2006

Louise Taylor, Heart Manual Trainer and Franchise Director

Hafrun Taylor, Lead Health Psychologist and Heart Manual Trainer

Mary Ramsay, Heart Manual Co-ordinator

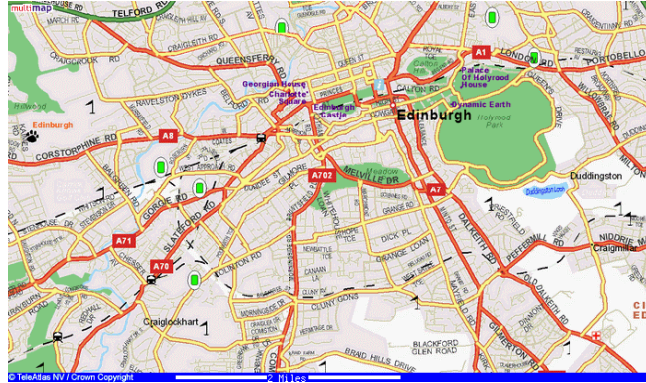
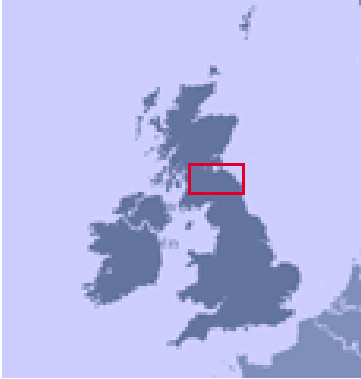
Overview of visit

The visit to the Heart Manual Team provided an opportunity to learn more about the Heart Manual in detail. The purpose of my visit was to gain first hand knowledge of the content of the manual and the training involved for facilitators. In particular, I was interested to learn about the weight loss strategies included in the Heart Manual.

Astley Ainslie Hospital

The Heart Manual is part of the range of rehabilitation services offered by NHS Lothian – Primary and Community Division, Astley Ainslie Hospital, Grange Loan, Edinburgh EH9 2HL.

A convalescent hospital and rehabilitation centre in the Grange district of Edinburgh, the Astley Ainslie Hospital opened in 1923 in a parkland setting, 2 miles (3km) south of the city centre. Today, the hospital has more than 200 beds. The Astley Ainslie Hospital specialises in rehabilitation services (in patient and day patient) for people with a variety of conditions such as stroke, brain injury, cardiac limb and mobility problems.



The Heart Manual - information provided by the programme

The Heart Manual is the UK's leading home-based rehabilitation programme for patients recovering from acute myocardial infarction (MI). The manual, shown to be clinically effective in repeated studies, provides a standardised approach for more than 250 major NHS users across the UK, contributing to the recovery of more than 10,000 heart attack patients every year.

The Heart Manual is suitable as a stand-alone rehabilitation programme or can be integrated with existing hospital or primary care based programmes.

The Heart Manual – general information

The Heart Manual is a six week home-based self help programme, with patients progressing themselves in terms of exercise and risk factor modification according to information provided within the manual.

A specially trained 'facilitator' delivers the programme to the patient. The facilitator checks the patient's progress with the programme, encourages compliance with the exercises in the manual, and helps to solve any problems with the manual.

The Heart Manual was developed and validated in a three year study of patients following myocardial infarction (MI), resulting in less anxiety and depression, better quality of life, fewer readmissions to hospital and less contact with the GP. The Heart Manual includes:

- 🔗 a work book, diaries, record sheets and information
- 🔗 an audio CD including advice for the family and a stress management course.

The programme approach is based on Cognitive Behavioural Therapy techniques.

These include:

- ↳ changing patients' beliefs and attributions (cardiac misconceptions)
- ↳ self-recording (for example, exercise)
- ↳ self help for psychological problems
- ↳ relaxation and stress management.

The cost of the manual and programme is £20 per patient, with the cost being met by Regional Health Boards.

Patient assessment process

There is an initial face-to-face session where the patient and family are introduced to the programme, book and CD in hospital or soon after discharge. The facilitator then contacts the patient by phone or home visit at one, three and six weeks to discuss progress using a semi-structured interview.

Patients are given the Hospital Anxiety and Depression Scale (HADS) on admission and discharge from the programme, and results are used to triage patients for psychological intervention.

At the end of the six-week programme patients are reviewed, usually in the setting of the patient's outpatient review in the relevant cardiology unit. Feedback can then be provided to the patient's physician regarding progress. At this point patients undergo treadmill testing and are risk stratified*. Patients can then be triaged into Phase III hospital based rehabilitation (equivalent to Phase II rehabilitation in Australia) if needed. At Astley Ainslie Hospital, Phase III rehabilitation involves twice weekly attendance for six weeks.

***Risk stratification**

Low risk

- *uncomplicated MI, CABG, angioplasty, artherectomy*
- *no resting or exercise induced myocardial ischaemia manifested as angina and/or ST segment displacement*
- *no resting or exercise induced complex arrhythmias*
- *no significant left ventricular LV dysfunction (EF > 50%).*

Moderate risk

- *exercise induced ST-segment depression 1-2 mm or reversible myocardial ischaemia defects on echo*
- *failure to comply with exercise prescription*
- *mild to moderate left ventricular LV dysfunction (EF 31-49%).*

High risk

- *patients with severe CHD and marked (>2mm) exercise induced ST segment depression*
- *MI complicated by heart failure, cardiogenic shock and/or complex ventricular arrhythmias*
- *survivor of cardiac arrest*
- *complex ventricular arrhythmias at rest or appearing or increasing with exercise*
- *severely depressed LV function (EF < 30%)*
- *decrease in systolic BP of > 15 mmHg during exercise or failure to rise consistent with exercise workloads).*

General treatment protocol

The manual is divided into three sections:

- ↳ *Part One: Your Heart Attack: the Facts.* Essential information for patients recovering in hospital.
- ↳ *Part Two: The Weekly Programme.* In six weekly sections, a phased programme of home based exercises, health education, risk factor reduction and stress management. Information regarding risk factors are provided, as well as week-by-week pages where patients can record daily exercise, walking and daily activities.
- ↳ *Part Three: Facts and advice to help your recovery.* Extra information and answers to frequently asked questions – about medicines, tests and revascularization procedures, anxiety, stress and depression, and further chest pains.

Weight loss strategies

Within the Heart Manual, information is provided to assist patients in achieving healthy weight. This includes:

- ↳ components of healthy diet in coronary artery disease
- ↳ fats (including tips to reduce saturated fats)
- ↳ information on fibre, starchy foods, oily fish, salt, fruit and vegetables, and alcohol
- ↳ meal suggestions
- ↳ being overweight and how to tackle it
- ↳ eating out.

If at the end of the programme further assistance is required for weight loss, the patient can be referred for dietician input.

Facilitator training

Facilitators complete a two-day facilitator training course, a practical introduction to the Heart Manual. The course covers the psychological and clinical background to rehabilitation, administering the programme, dealing with patients and assessing progress. The training courses are conducted every six to eight weeks during the year, and cost £360 (AU\$900).

The two-day course is delivered jointly by a cardiac nurse and a clinical/health psychologist to groups of up to fourteen trainee facilitators. Courses are held in Edinburgh and by arrangement at venues across the UK. Subjects covered are:

- ↳ the history of cardiac rehabilitation and the last 30 years of research
- ↳ important issues in cardiac rehabilitation – what do patients want, what should they want, and what about their families and carers?
- ↳ what do patients believe are the causes of MI and how do these beliefs contribute to the outcomes of rehabilitation?
- ↳ psychological aspects – ‘normal’ progress of psychological adjustment to MI
- ↳ specific problems and their management – undue anxiety, phobias, panic attacks, hyperventilation, sleep problems, unwarranted illness behaviour and disability, and the overactivity/rest cycle
- ↳ relaxation – what it is, why bother, and how to help patients and carers
- ↳ use of structured interviews, questionnaires and audit measures

- ↳ suitability and selection of patients for the Heart Manual
- ↳ implementation of the Heart Manual Programme.

A certificate of attendance is awarded for successful completion of the course. One-day refresher courses are also available.

To use the Heart Manual overseas (for example in Australia) a licence agreement is established with the Heart Manual team. Users can adapt the manual to suit local needs and conditions, but Astley Ainslie Hospital retains copyright.

Key lessons learned

- Home-based cardiac rehabilitation can be successfully conducted using the Heart Manual.
- Weight loss strategies can be included within a home-based rehabilitation programme.
- A formalised facilitator-training programme exists for those wishing to use the Heart Manual.

Suitability for the Victorian healthcare system

The Heart Manual is suitable for use within the Victorian healthcare system. Despite requiring facilitator training in Edinburgh, the manual has been introduced in other countries including New Zealand. The Heart Manual would provide a ready-made programme for home-based rehabilitation, and includes a weight loss component to assist cardiac patients achieve healthy weight. It incorporates cognitive-behavioural techniques to facilitate behavioural change.

Available resources:

'The Heart Manual: help yourself to a healthy future' service brochure, Astley Ainslie Hospital, NHS Lothian – Primary & Community Division.

'The Heart Manual – Questions and Answers' Astley Ainslie Hospital, NHS Lothian – Primary & Community Division.

'The Heart Manual', 'Heart Manual Facilitator Training' and 'The Heart Manual for Patients from Minority Communities' leaflets, Astley Ainslie Hospital, NHS Lothian – Primary & Community Division.

4. Improving the Victorian healthcare system

What impact will the study have on your own work practice?

I aim to introduce some strategies into the CGMC Cardiac Rehabilitation Unit based on my study. These include:

- a greater focus on patient-directed goal setting for weight loss, especially in the early stages of cardiac rehabilitation
- the introduction of more regular monitoring of progress, for example weekly weighing, food diaries
- the development of written materials for patients wishing to lose weight, based on materials collected during my study.

Since my return, I have also attended a workshop run by the Heart Research Centre on 'Motivational Interviewing' to enhance my clinical skills in keeping with techniques employed in facilities visited.

What impact will it have on your organisation?

In addition to the measures described above, I will be working with other team members in the Cardiac Rehabilitation Unit to introduce other innovations. These may include use of different scales, for example 'Rate your Plate' or the Dartmouth Co-op, and training of staff members in conducting more interactive group education sessions (via Heart Research Centre workshops, for example).

Based on these changes, and in-services I have been invited to give to staff at CGMC, I anticipate that clinical practice at CGMC will benefit from lessons learned in this study.

What steps will you undertake in the short to medium term to improve the Victorian healthcare system?

In the short to medium term I plan, in conjunction with the Cardiac Rehabilitation Unit at CGMC, to implement some of the innovations I observed during my travels. These are described above. In addition, I have taken steps to develop research projects to evaluate other strategies in a cardiac rehabilitation setting – see below.

Results will be shared with other Victorian cardiac rehabilitation units, for example, via conference presentations.

I believe these steps will enhance the cardiac rehabilitation services available in Victoria. In addition, I would ultimately plan to introduce 'wellness' projects involving other services (for example, general practice, community health centres) for cardiac patients or those at risk of cardiac disease, and explore the feasibility of introducing other innovations in the Victorian setting, for example the use of internet.

5. Sharing and promoting the project

I have already given in-services regarding my travel and learnings to the following:

- Heart Research Centre (Blackwood Street, North Melbourne)
- Staff of Cardiac Rehabilitation Unit, Caulfield General Medical Centre
- Caulfield Community Rehabilitation (incorporates the Therapy in the Home and Community Rehabilitation Centre teams)

In addition I have been invited to give a presentation to the Dietetics/Nutrition Department at Caulfield General Medical Centre.

As a result of my presentation for the Heart Research Centre (HRC), an agreement was reached with the HRC to explore collaborative research opportunities based on knowledge gained during my travels. In 2007, we hope to develop research proposals examining the utility of cognitive behavioural techniques for weight loss in cardiac rehabilitation, and examining the effects of high caloric exercise in coronary artery disease.

6. Feedback - key lessons learned

The aim of this project was to study, and ultimately to adopt in our own unit, innovative models of cardiac rehabilitation to reduce a major and preventable cardiac risk factor – obesity. The opportunity to visit facilities in USA and UK has proved extremely valuable in terms of providing practical information regarding programmes and treatments that have potential utility in Victorian cardiac rehabilitation units. This opportunity is greatly appreciated.

Other aspects that have been useful include:

- The induction meeting in January to cover topics such as action plans, costs, and receipting. Exchanging information with other fellows was also very valuable.
- The Action Plan was helpful in planning the trip and recording contact details. Initially, it would have been even more helpful to have a model or completed Plan to look at, as a 'how-to' guide.
- General support from Paula Marsh was also very much appreciated.

I understand that the VTF has now been modified to include funds for the implementation of a clinical project on return home from travel. I think this is an excellent idea, as I am now faced with the prospect of securing funding for the three to four project ideas I wish to implement.