Cardiac Rehabilitation Program (CRP) was shown to have positive health benefits

- Cardiopulmonary fitness
- Risk factors
- Mortality
- Quality of Life
**Exercise** has a positive beneficial effect on the *pathophysiology* in Coronary Artery Disease, such as:

- Dilation of impaired blood vessels
- Anti-inflammation effect
- Balance autonomic function
- Decrease risk of sudden death
In 2006, only 15% of HKEC CAD in-patients had participated in exercise based CRP

Community based CRP

- Cope with increasing service demand of CR
- Widen service provision (flexible time / place)
- Early community reintegration of patients
Traditional Service Model in CRP

Cardiac patients

Hospital-based CRP in the HA

After patient completed the CRP (Phase II) (usually last for 6 – 8 weeks)

Community

Novel Service Model in CRP

Cardiac patients

Patient without prior CRP in the HA

Appropriate patients are selected for the Community CRP

Community CRP

The CRP (Phase II) started in the Community
Objectives

To evaluate the feasibility and effectiveness of this community-based cardiac rehabilitation program on health parameters improvement.
Study Design

Eligible patients

Tung Wah Eastern Hospital Cardiac Rehabilitation Centre

TSKH Community Ambulatory Centre

東華三院 – 高黃慕貞紀念全人健康中心暨 AJR慈善基金復康診所
TWGHs KWMC MHHC

基督教靈實協會 – 靈實日間社區康復中心
HOH CRDC
Eligible patients

Tung Wah Eastern Hospital
Cardiac Rehabilitation Centre

TSKH
Community Ambulatory Centre

Patients with
- Established CAD
- +/- PCI
- Multiple CV risk factors
- Without prior CRP
Eligible patients

Tung Wah Eastern Hospital Cardiac Rehabilitation Centre

TSKH Community Ambulatory Centre

A. Multidisciplinary Assessment and Risk Stratification (Doctor, Nurse, PT)

B. Outcomes Measurement
   - Exercise stress testing (aerobic capacity)
   - Risk factors (e.g. lipid profile)

C. Education (including dietary advice)

D. Exercise and Activity Prescription
Eligible patients

Tung Wah Eastern Hospital
Cardiac Rehabilitation Centre

TSKH
Community Ambulatory Centre

- Supervised Exercise Training
  (6 sessions - once per week)
  - under supervision of PT
  - cardiopulmonary endurance exercise
  - resistance exercise
  - psychosocial support

- Home Exercise Program
  - prescription, adherence monitoring
Eligible patients

Tung Wah Eastern Hospital Cardiac Rehabilitation Centre

- TSKH Community Ambulatory Centre

Outcome Measurements (Post – CRP)
  - Exercise Stress Test
  - Risk factors (lipid Profile)

Exercise and Activity Prescription
  - Revision

Continue lifelong community exercise (centre or home)
### Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>May 2007 – Jan 2008</td>
</tr>
<tr>
<td>No. of patients</td>
<td>29</td>
</tr>
<tr>
<td>Gender (Male)</td>
<td>24 (83%)</td>
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<tr>
<td>Mean Age</td>
<td>57.7 +/- 10.2 (Range: 43 – 79)</td>
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<tr>
<td>Diagnosis</td>
<td>Ischemic Heart Disease: 17</td>
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<tr>
<td></td>
<td>Acute Coronary Syndrome: 8</td>
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<tr>
<td></td>
<td>Multiple CV Risk Factors: 4</td>
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<tr>
<td></td>
<td>(Low risk group)</td>
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<tr>
<td>Intervention</td>
<td>PCI : 18</td>
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<tr>
<td></td>
<td>Conservative Treatment : 11</td>
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<tr>
<td>Drop-out Rate</td>
<td>0</td>
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<tr>
<td>Adverse Events</td>
<td>0</td>
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</tbody>
</table>
Results

Exercise Capacity as measured by exercise stress test

- Significant improvement in mean exercise capacity of 2.4 +/- 1.3 METs (23% increase)
- Comparable to hospital based service model

* statistically significant (p < 0.0001)
Results

Mean Heart Rate at end of each stage of the Bruce Protocol

- Significant reduction in resting and submaximal workload HR → improve cardiac reserve or function

- Statistically significant (p<0.001)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Mean HR (Pre-)</th>
<th>Mean HR (Post-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting</td>
<td>67</td>
<td>59</td>
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<tr>
<td>Stage 1</td>
<td>84</td>
<td>84</td>
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<tr>
<td>Stage 2</td>
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<td>114</td>
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<td>Stage 3</td>
<td>116</td>
<td>111</td>
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<tr>
<td>Stage 4</td>
<td>137</td>
<td>118</td>
</tr>
</tbody>
</table>

N = 26*   N = 25*   N = 25*   N = 19*   N = 4
Results

Lipid Profile

- Significant reduction in TC, LDL-C and TG
- 70% of patients achieved target LDL-C < 2.6 mmol/L
- Comparable to hospital based service model
Discussion

3 Wins Situation

- Easy accessible
- Flexible time
- Decreased patient stigmatization

- Effective utilization of community resources

- Decrease the service demand in the HA
Community CRP is a feasible model in the provision of rehabilitation in the community. It could improve health outcomes which is comparable to hospital-based model, while the service demand of HA could be reduced.
Acknowledgement

東華東院 – 心臟復康及資源中心
TWEH – CRRC

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