

Effectiveness of Case Management Model on Chronic Heart Failure (CHF) Patients

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Background (1)

- Heart failure (HF) is a complex syndrome
- >5 million Americans diagnosed in year 2004
- Mortality rate ↑ 28 % in the past 10 years (American Heart Association)
- In Hong Kong, CHF patients in QEH account for 11-12 % of total hospital admissions in all HA hospitals → ↑ burden on health care system



Number of CHF Patients and their Admission

	IP Admissions HA	IP Admissions Patient Headcount HA	IP Admissions QEH	IP Admissions Patient Headcount in QEH
2004	27405	15812	2500	1803
2005	27195	15916	2568	1890
2006	25116	14872	2509	1850
2007	16003	9917	1649	1222
Average	26572	15533	2526	1848

Patients diagnosed with CHF (ICD9 CM Code 402, 404 & 428) = 11% of total hospital admissions in HA



Background ⁽²⁾

- Although effective therapies can improve functioning and survival, patients are not receiving full benefits of existing knowledge
- Case management model provide patients with tailored-made and practical help in managing their conditions



Case Management Model Definition₍₁₎

- Traditional Model (crisis intervention) → Case Management Model:
 - More proactive disease management
 - Promote health seeking behavior
 - Improve compliance
 - Patient empowerment



Case Management Model definition₍₂₎

- Continuous monitoring following discharge from hospital by specialty nurse through regular telephone calls with hotline provided → build up rapport & reinforce self management
 - weight monitoring
 - sodium and fluid restriction +/- dietary advice
 - exercise recommendations
 - medication review
 - social and psychological support



Objective

- To evaluate the effectiveness of case management model on
 - Hospital bed occupancy
 - Physical functioning



Case Management Model in Q.E.H

- 4-month intensive multi-disciplinary program in the initial phase
- Educational talks by 6 disciplines
- 8-month subsequent phase—monthly telephone FU by **cardiac nurses** (30-60 min/week)
- Clinical end-points reported at 4 months (6MWT, SF-12 & NYHA classification) and 1 year (Readmission & LOS)



Contributions of 6 disciplines

- Cardiologists – patient referral and medical supports
- Cardiac nurses – case managers
- Physiotherapists – exercise prescription
- Pharmacists – drug knowledge
- Dietitians – diet advice
- Clinical psychologists – psychological support
- Community partnership – “Care For Your Heart”



體重記錄表

體重目標 (你的醫生建議) : _____

*量度體重應在每天起床小便後及未進食任何食物前進行

日期	體重 (公斤)	日期	體重 (公斤)

運動日誌

日期 時間	運動前 血壓脈搏	運動項目及時間	辛苦 程度	氣喘 程度	運動後 血壓脈搏	備註
3/1/05 10:30am (例子)	102/70, P68	慢速步行20分鐘+ 徒手操	13	2	128/80, P84	沒有不適

Methods (1)

- Retrospective data collection from March 2005 to Feb 2008 in QEH
- Patients admitted for CHF would be screened and assessed by Cardiac Ambulatory Care Team



Methods (2)

Outcome measures:

Initial phase

- 6-minute walk test (6MWT)
- Chinese (Hong Kong) Short Form-12 Health Survey (SF-12): Physical Component Score and Mental Component Score- self perception on own health
- NYHA (New York Heart Association) classification

Subsequent phase

- 1-year re-admission rates and hospital length of stay

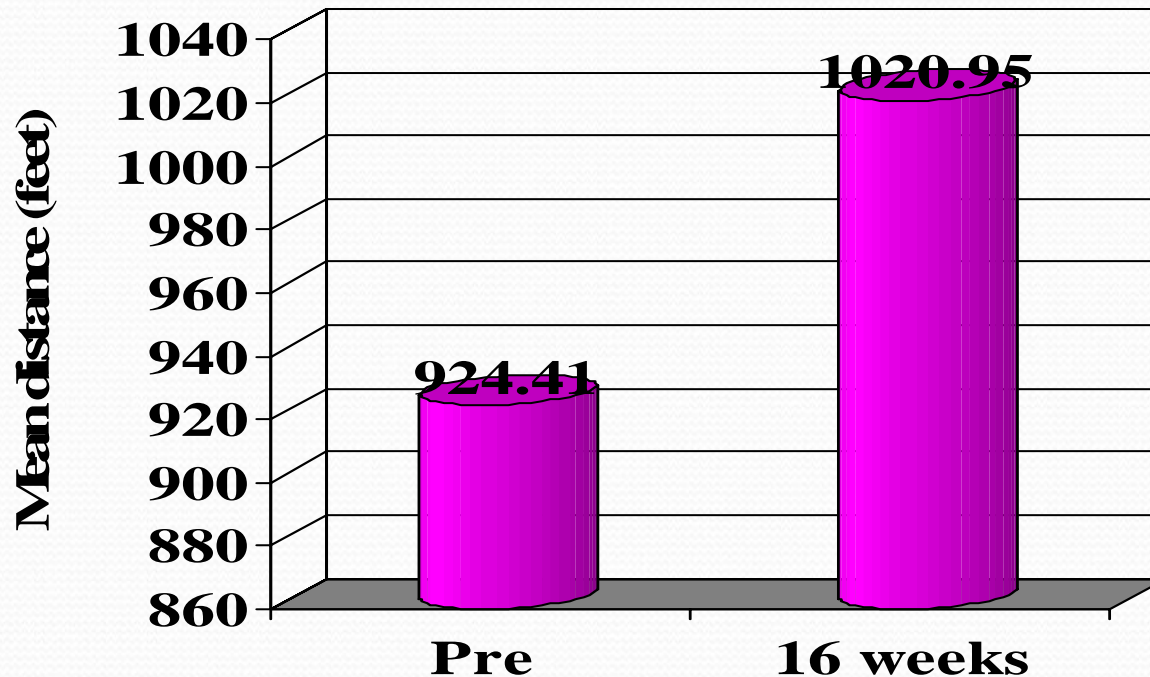


Results

- March 2005 to February 2008
- 127 patients were recruited
- 71 males and 56 females
- Mean age = 69 ± 11 years
- Ejection fraction: $47.4 \pm 18.2\%$
- 14 patients died, 5 of them died of end stage HF, 9 from other medical diseases and 21 patients dropped out
- 89 patients completed initial phase



Distance in 6-minute walk test (6MWT)



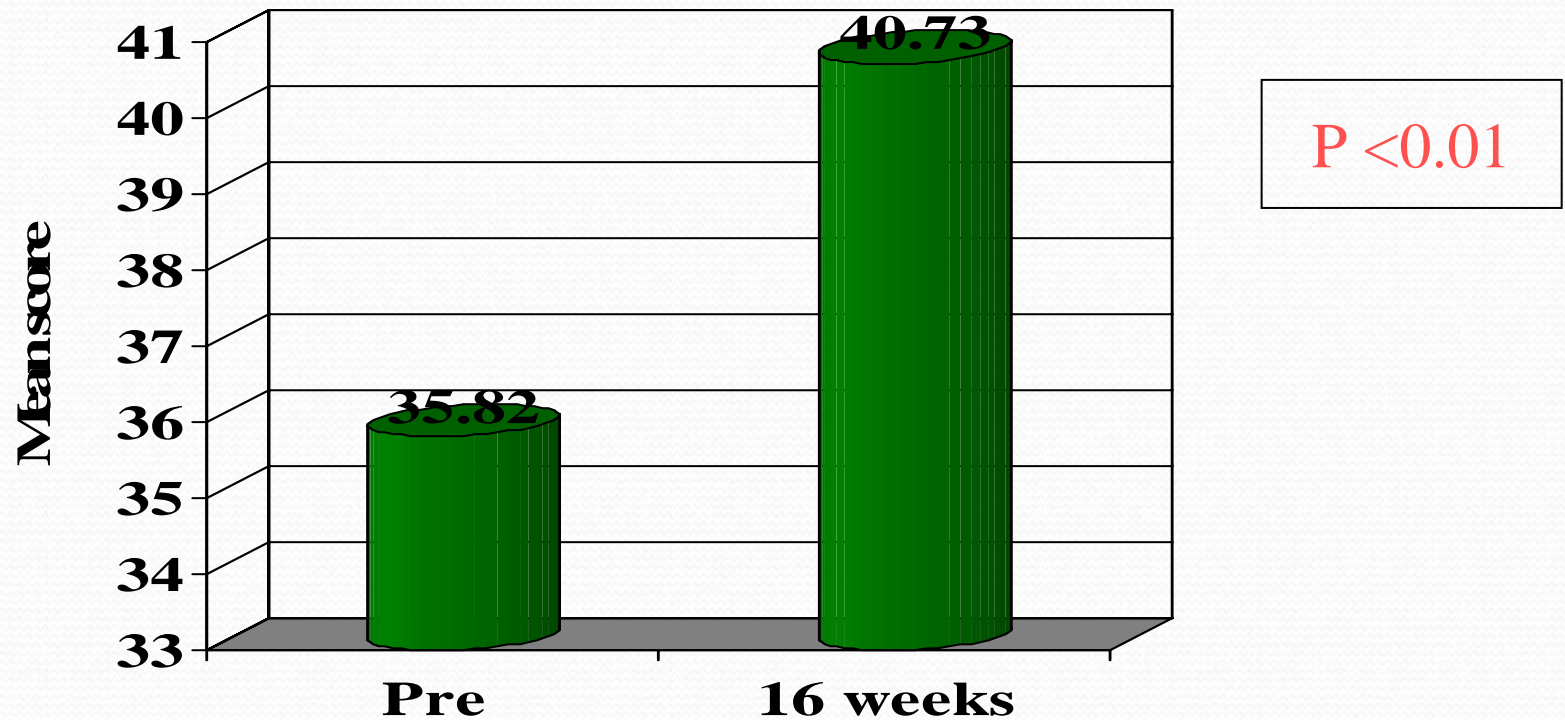
$P < 0.01$



↑ in distance covered ⇒ ↑ exercise tolerance

Short Form-12 (SF-12) Health Survey

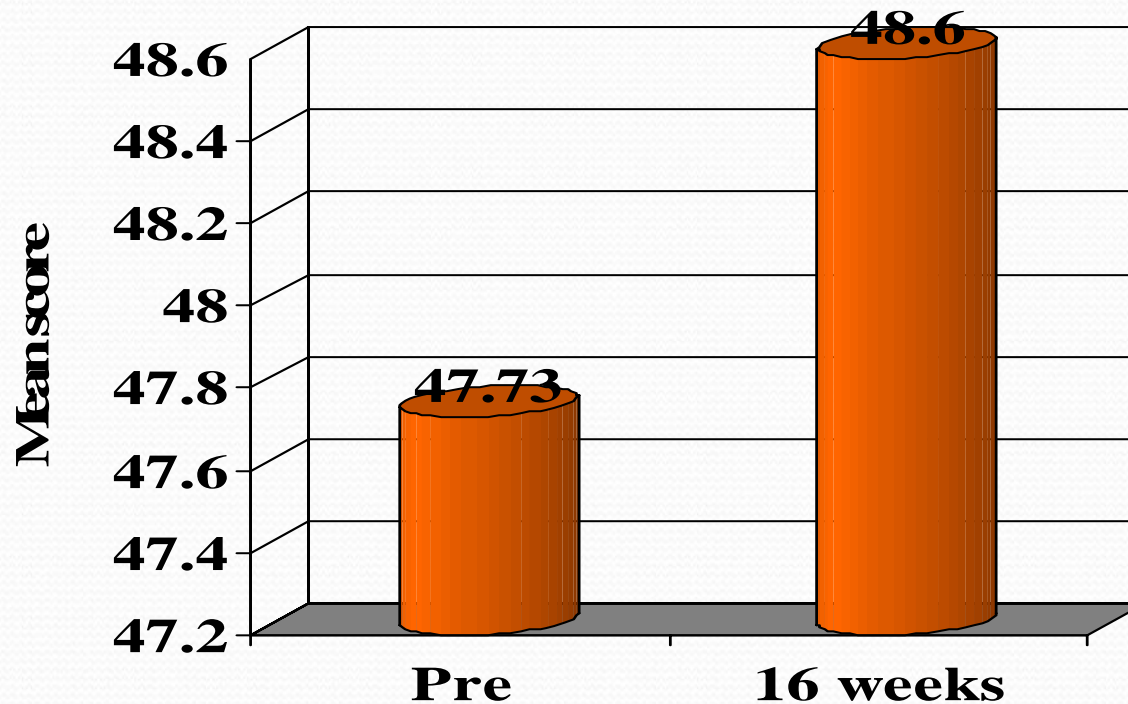
Physical Component Score



patients perceived a better physical health status



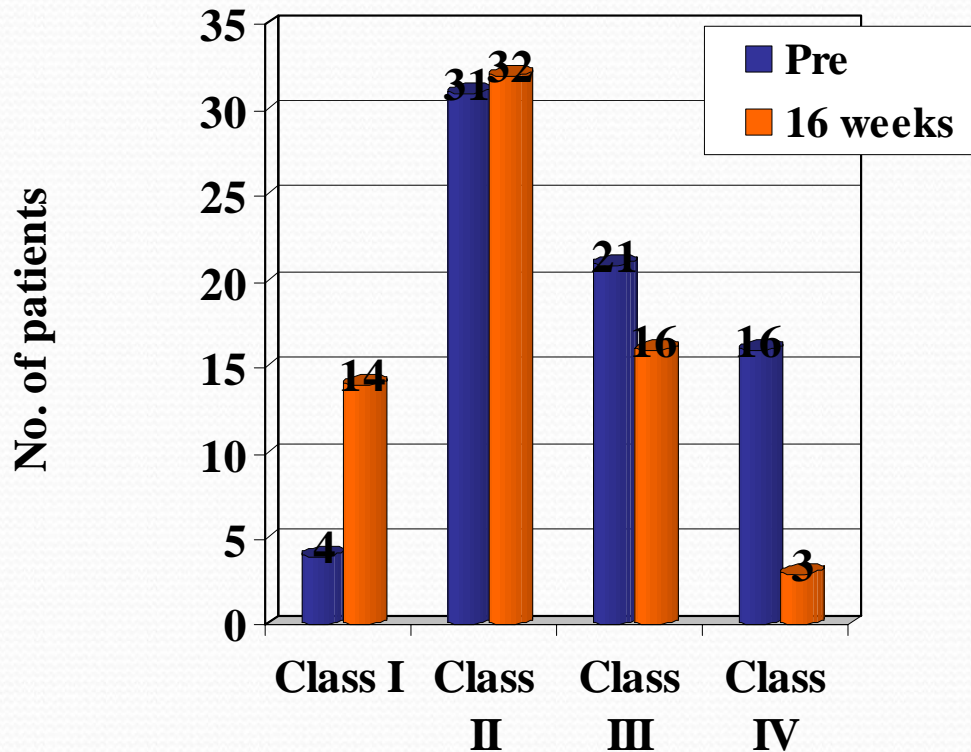
Short Form-12 (SF-12) Health Survey Mental Component Score



$P = 0.674$



Change in Functional Class



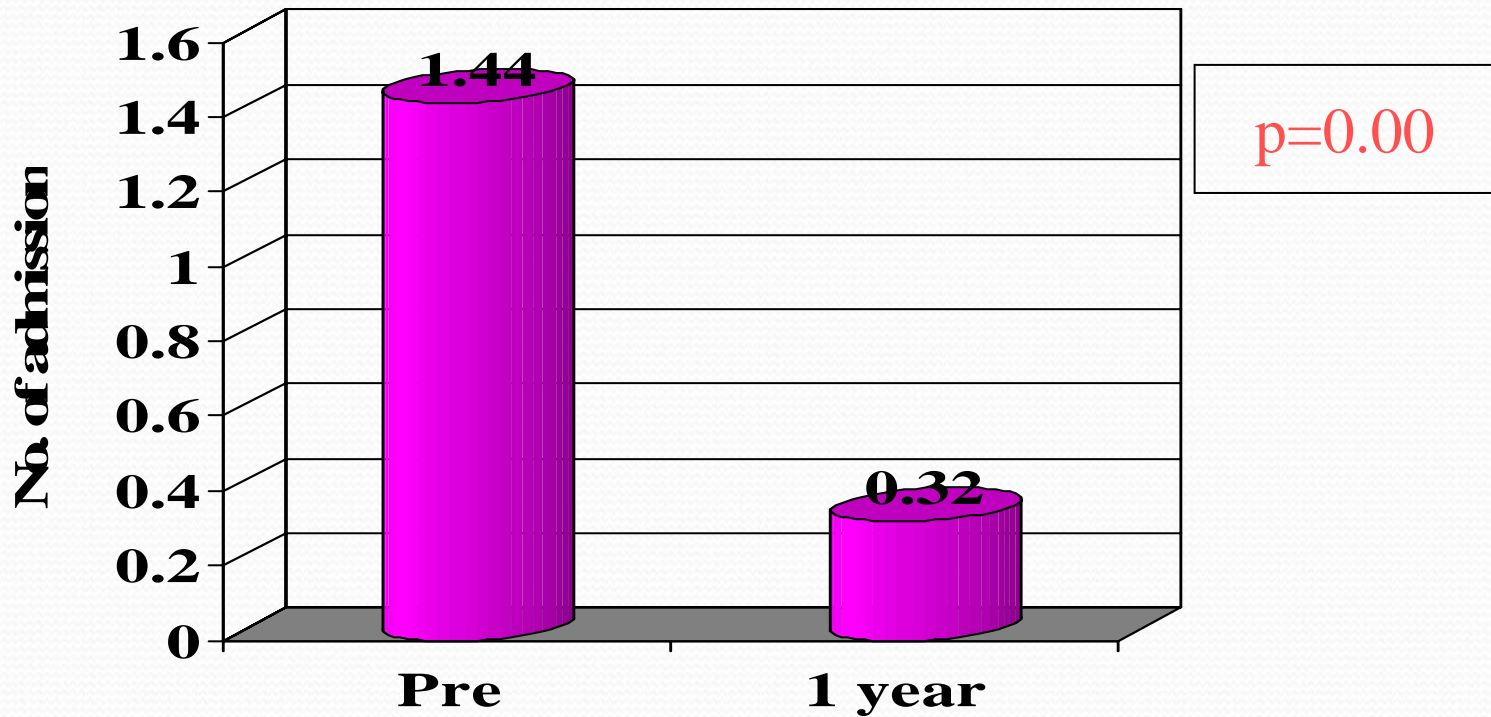
29 (45%) -improved 1 class
1 (1%)-improved 2 class
28 (45 %)- no change
7 (10 %)- deteriorated

$P < 0.000$, $Z = -4.27$

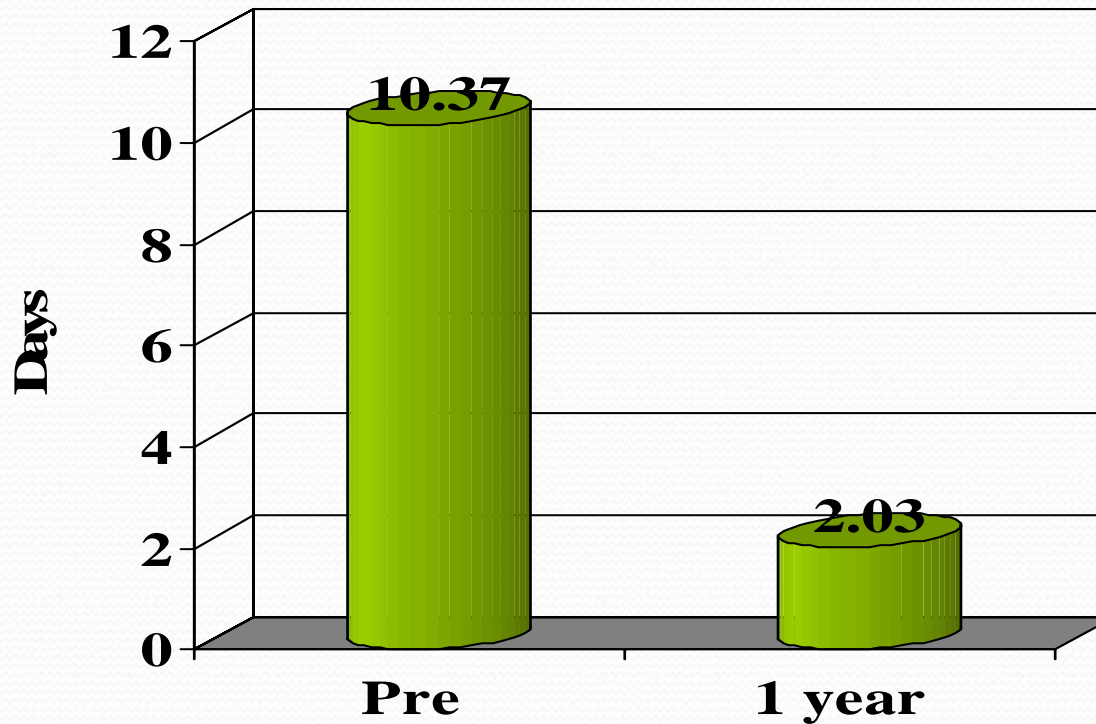
(Wilcoxon signed ranks test for pre- and post- test functional level)



1-year readmission rate due to CHF



Average Hospital Length of Stay



$p=0.00$



Conclusions

Case Management Model utilizing minimum nursing time:

- Provides evidence-based care
- Patients perceive better physical health status
- Improves physical functional class
- Shortens hospital length of stay
- Reduces hospital readmissions
- Promotes patient health seeking behavior

Case Management Model for CHF is cost-effective!



Limitations

- With the existing resources, not all the patients admit for CHF were recruited into program
- Monthly telephone calls (instead of more frequent calls) may limit patients' compliance behaviour



Further Directions

- Expansion of current CHF program to recruit more patients
- Case management model approach not only beneficial to CHF patients but also other chronic illnesses



Thank you!

