



東華三院  
Tung Wah Group of Hospitals



# An Integrated Rehabilitation Journey: from Hospital to Community

綜合復康之旅：從醫院到社區



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醫院管理局  
HOSPITAL  
AUTHORITY



東華三院  
Tung Wah Group of Hospitals



Hospital Community

R

E

H

A

B

# Stroke Rehabilitation Journey



# Stroke Rehabilitation Journey



# Stroke Rehabilitation Journey

**E**arly  
initiation  
after  
stroke

**H**

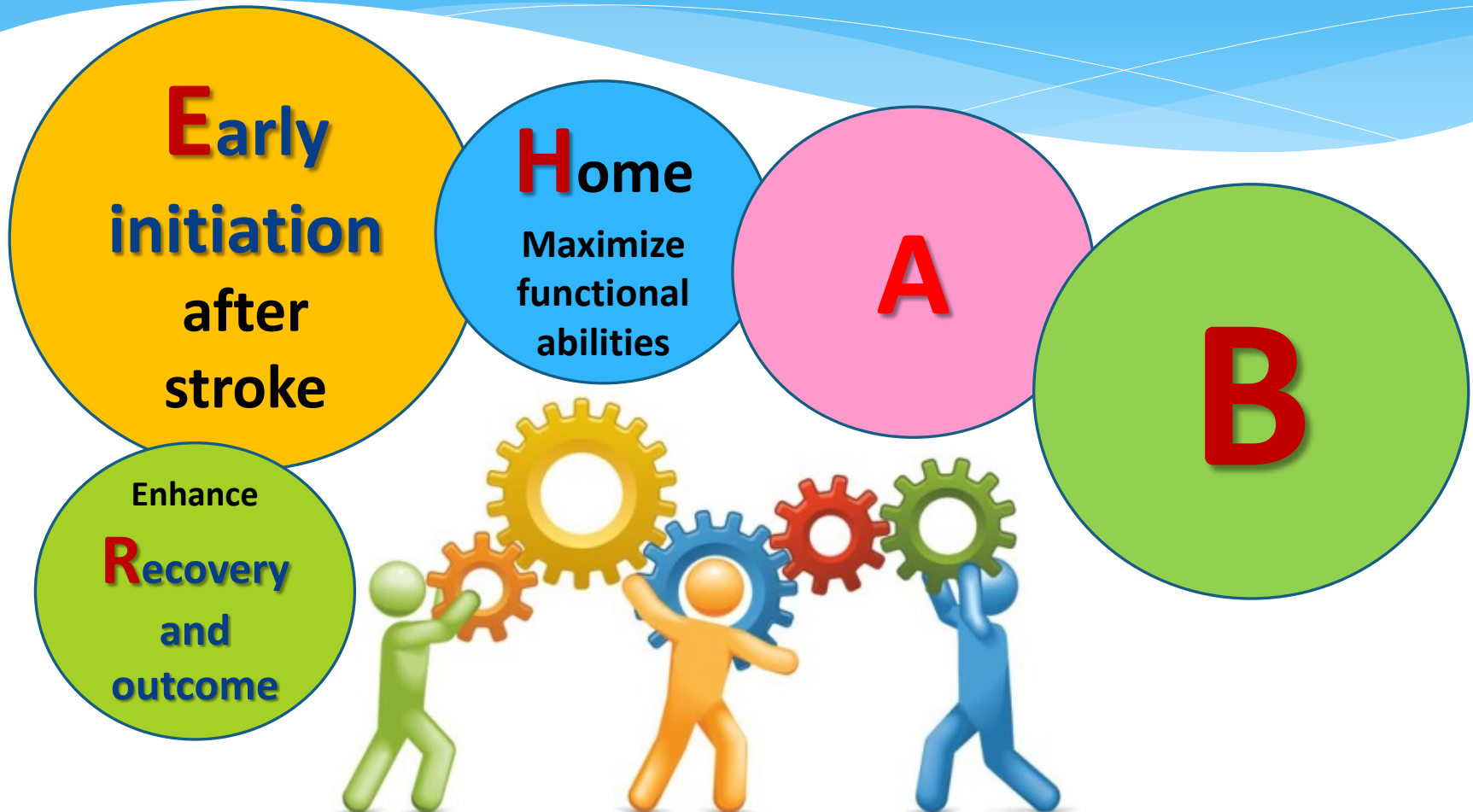
**A**

**B**

Enhance  
**R**ecovery  
and  
outcome



# Stroke Rehabilitation Journey



# Stroke Rehabilitation Journey

**E**arly  
initiation  
after  
stroke

**H**ome  
Maximize  
functional  
abilities

Well-organized  
program with  
Multi-  
disciplinary  
**A**pproach

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outcome

**B**





# Stroke Rehabilitation Journey

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Well-organized  
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# Stroke Rehabilitation Journey

## Team Approach

- Multi-disciplinary
- **Goal** setting
- **Specific treatment** programs
- Early participation of **family** & **care-givers**
- Regular **case conference** & **outcome** measurement



E



R



# HKEC Stroke Rehabilitation

Stroke patients

PYNEH (Acute)



**TWEH**

Community

# HKEC Stroke Rehabilitation

Stroke patients

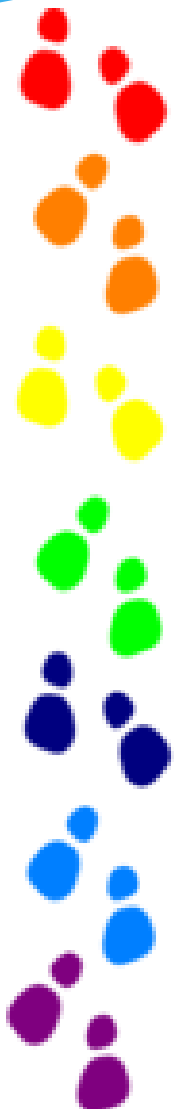
PYNEH (Acute)

**TWEH**

In-patient Rehabilitation

Out-patient Rehabilitation

Community



# TWEH Rehabilitation Team Members

Physician  
specialist

Physiotherapist

Rehab.  
Nursing

Occupational  
Therapist

Speech  
Therapist

Medical  
Social  
Worker

Dietician

Prosthetic  
& Orthotic

Clinical  
Psychologist



# HKEC Stroke Rehabilitation

Stroke patients

PYNEH  
(Acute)

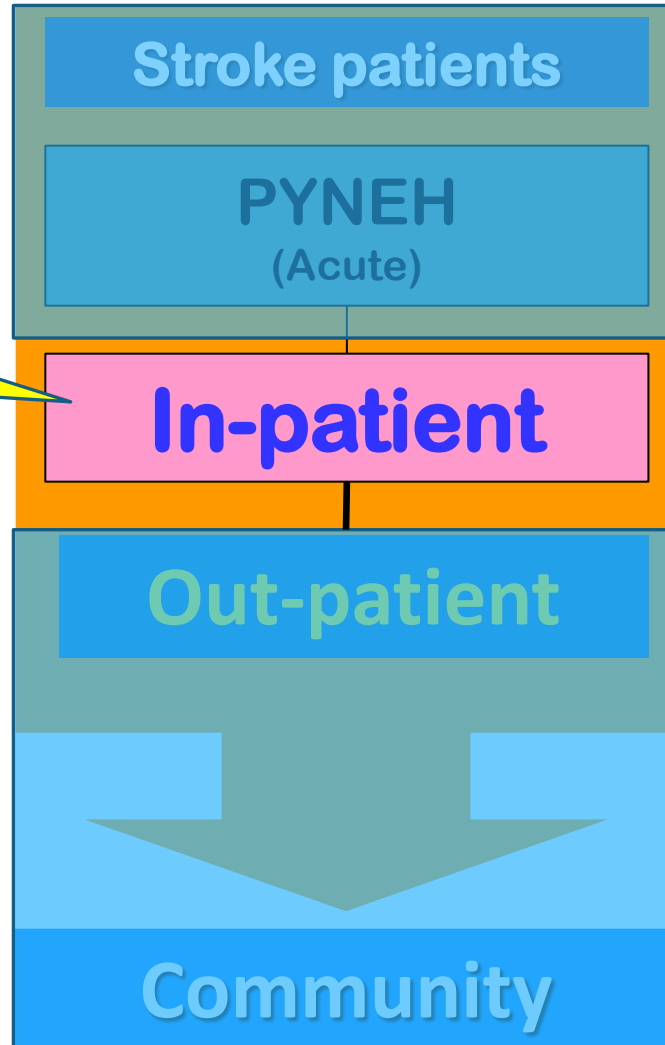
**In-patient  
Phase**

**In-patient**

**Out-patient**

**Mobility  
Standing  
Walking  
Home**

**Community**



# TWEH PT In-patient Training



**LL Mobilization  
exercise**



**UL Mobilization  
exercise**



**Bed mobility  
training**



**Functional Electrical  
stimulation**



**UL strengthening  
exercise (OB pulley)**



**Standing  
training**



**Walking/  
Balance  
training**



**Suspension gait  
training**



# Mobility training



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# Standing Training



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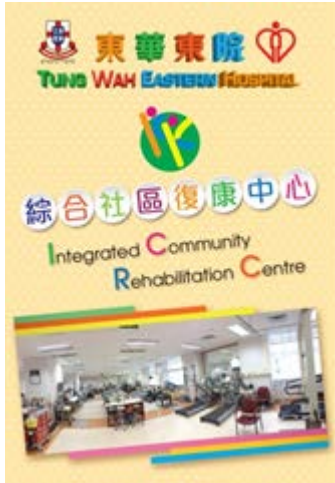


**Walking/  
Balance  
training**



**Suspension gait  
training**

# HKEC Stroke Rehabilitation



Stroke patients

PYNEH  
(Acute)

TWEH

Out-patient  
Phase



1<sup>st</sup> Bridge

Community



# Outpatient Phase in TWEH

## Integrated Community Rehabilitation Centre (ICRC)

綜合社區復康中心



## Traditional Service Model

Stroke patients

Out-patient

Community

## New Model of Community Service

Stroke patients

ICRC

Community Stroke Rehabilitation

TWEH

- Out-patient stroke rehabilitation

ICRC

- *Multi-disciplinary*
- *Integrated care pathway*
- *post-discharge training*
- *Continuation of stroke rehabilitation*

## Traditional Service Model

Stroke patients

Out-patient

Community

## Seamless Model of Community Service

Stroke patients

**ICRC**

Community Stroke Rehabilitation

Out-patient stroke Rehabilitation

**ICRC**

- *Multi-disciplinary*
- *Integrated care pathway*
- *Post-discharge training*
- *Continuation of rehabilitation*

# Integrated Community Rehabilitation Centre (ICRC)

## 綜合社區復康中心

### 綜合社區復康中心

#### 簡介

東華東院位處港島東區，是一所社區醫院，為市民提供全面的住院、普通科及專科門診服務。附設於內科及復康部的綜合社區復康中心於二零零一年成立，為中風及胸肺病者提供一站式專科復康及門診服務。中心的專業復康團隊成員應用先進的儀器、重點及針對性的治療訓練，提升患者自我照顧能力，早日投入社區生活。

#### 服務對象

需要接受專業醫療復康的長期病患者，例如：中風、腦創傷、胸肺疾病、關節炎、帕金森症及其他老人病患者。

#### 轉介手續

可經由東華東院、其他醫療機構或私人執業醫生直接轉介。

#### 服務範圍

由專科醫生、護士、專職物理治療師及職業治療師等，提供專業化的一站式復康評估及治療服務，並且定期舉辦健康講座、病人互助小組活動及分享會等。

- \* Start training **within 1 week** after discharge
- \* **2 hours** per session
- \* **2-3 times** per week
- \* **Disciplines:** Doctor, PT, OT, Nurse, Dietitian, ST, P&O, CP
- \* Transportation: self transport or **rehab bus**



## Manual facilitation



## Body Weight Support Treadmill Training



## Lower limb strengthening exercise



## Treadmill walking training



## Balance training



## Cybex strengthening exercise



## Isokinetic training



## Cardiovascular training

# ICRC- 1<sup>st</sup> Bridge to Community

## Early Stage

- Body weight support treadmill training
- Neuro-facilitation
- Muscle tone control
- Sitting/ standing balance training

## Late Stage

- Gait training
- Strengthening exercise
- Advanced balance training
- Cardiovascular training
- Care-giver education

# ICRC- 1<sup>st</sup> Bridge to Community

## Early Stage

### Manual Facilitation



### Ergometer Training



### Body Weight Support Treadmill Training



### Gait/ Balance training



- Neuro-facilitation
- Muscle tone control
- Body weight support treadmill training
- Sitting/ standing balance training

# ICRC- 1<sup>st</sup> Bridge to Community

- Gait training
- Strengthening exercise
- Advanced balance training
- Cardiovascular training
- Care-giver education

## Late Stage

**Advanced  
Balance Training**



**Cybex Strengthening  
exercise**



**Kinetron  
Strengthening exercise**



**Biostep training**



# Robotic-assisted Therapy





# Robotic-assisted Therapy– Indications

- \* **Stroke**
- \* Spinal Cord Injury (SCI)
- \* Traumatic Brain Injury (TBI)
- \* Multiple Sclerosis (MS)
- \* Parkinson`s Disease
- \* Cerebral Palsy (CP)
- \* Orthopedic problems



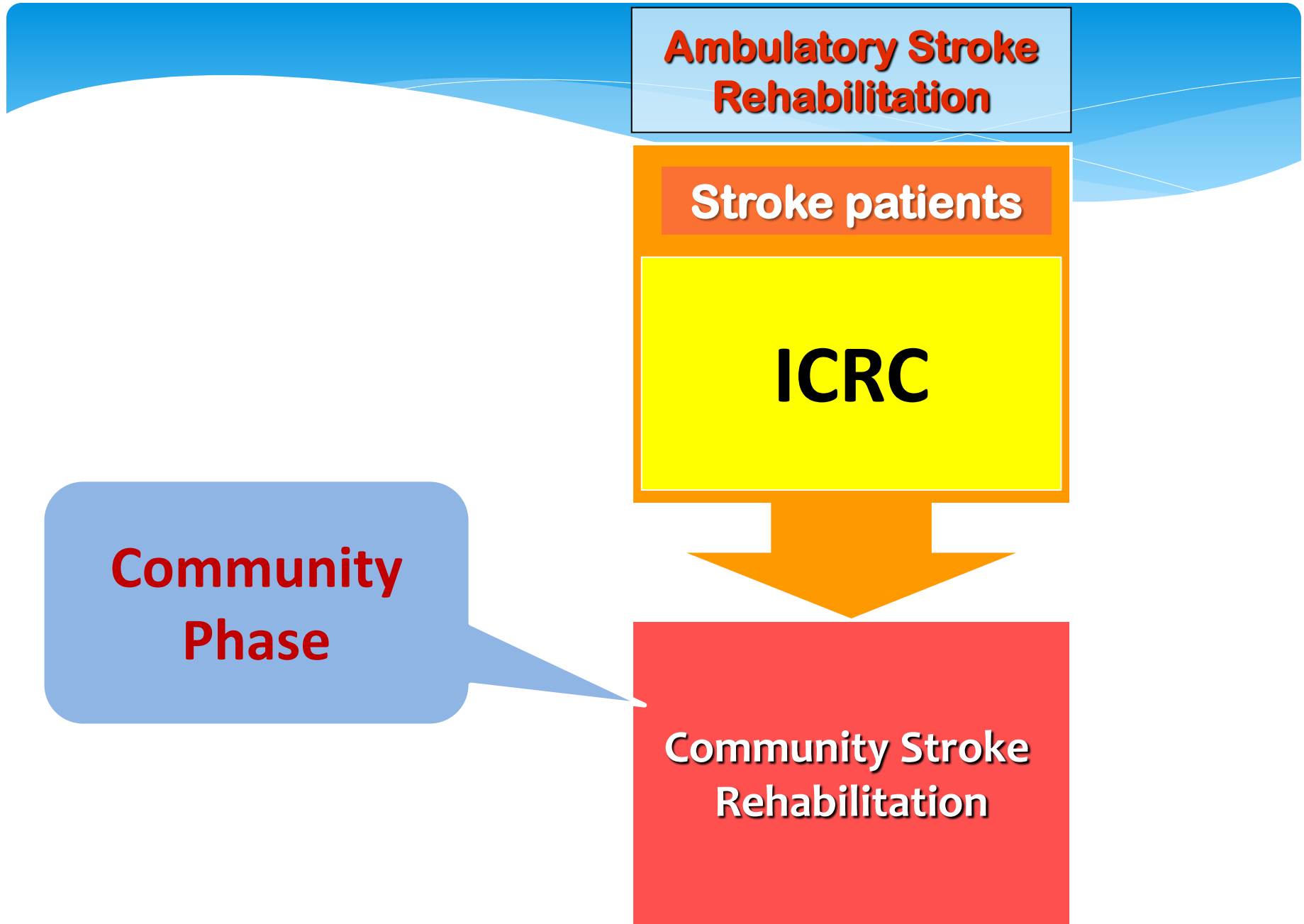
# **Ambulatory Stroke Rehabilitation**

**Stroke patients**

**ICRC**

**Community  
Phase**

**Community Stroke  
Rehabilitation**





## **Traditional Service Model**

**Stroke patients**

**Out-patient  
PT/OT sessions**

**Community**

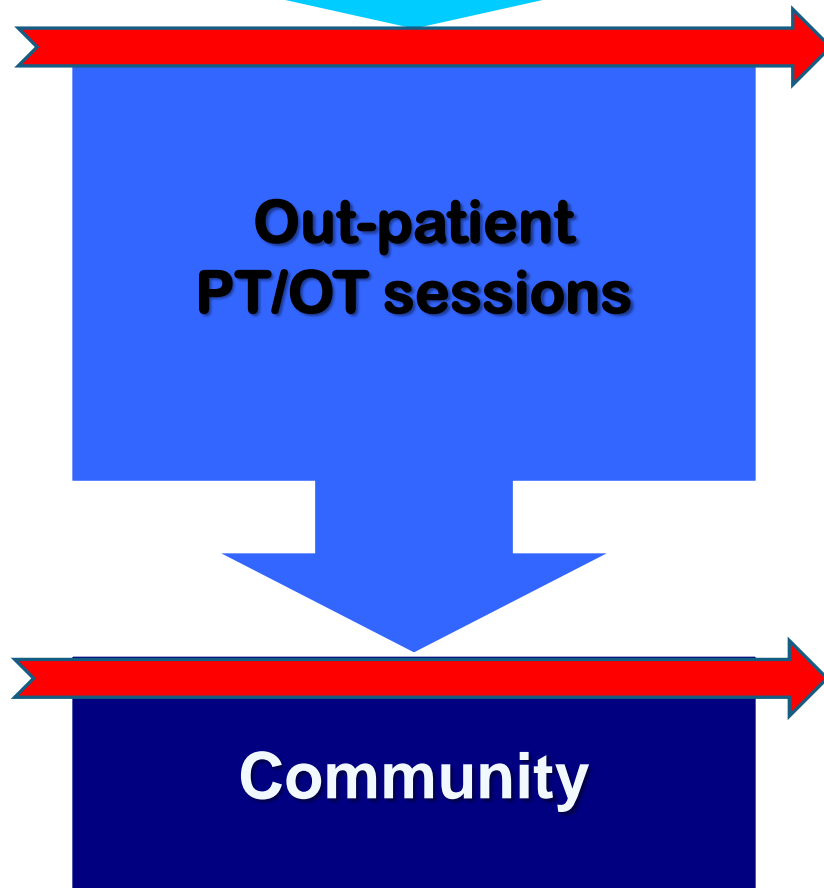
## **New Model of Community Service**

**Stroke patients**

**TWEH ICRC**

**Appropriate case are selected  
to community service**

**Community Stroke  
Rehabilitation**



# Collaboration

**Stroke patients**



**Tung Wah Eastern Hospital  
ICRC**



**Haven of Hope**



**Community Rehabilitation Day Centre**



# Community Partner

## 基督教靈實協會 靈實日間社區康復中心

Haven of Hope Community Rehabilitation Day Centre  
(HOH CRDC)



# Seamless Collaboration

**TWEH ICRC**



**HOHCRDC**



**TWEH ICRC**

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# Seamless Collaboration

TWEH ICRC



HOHCRDC

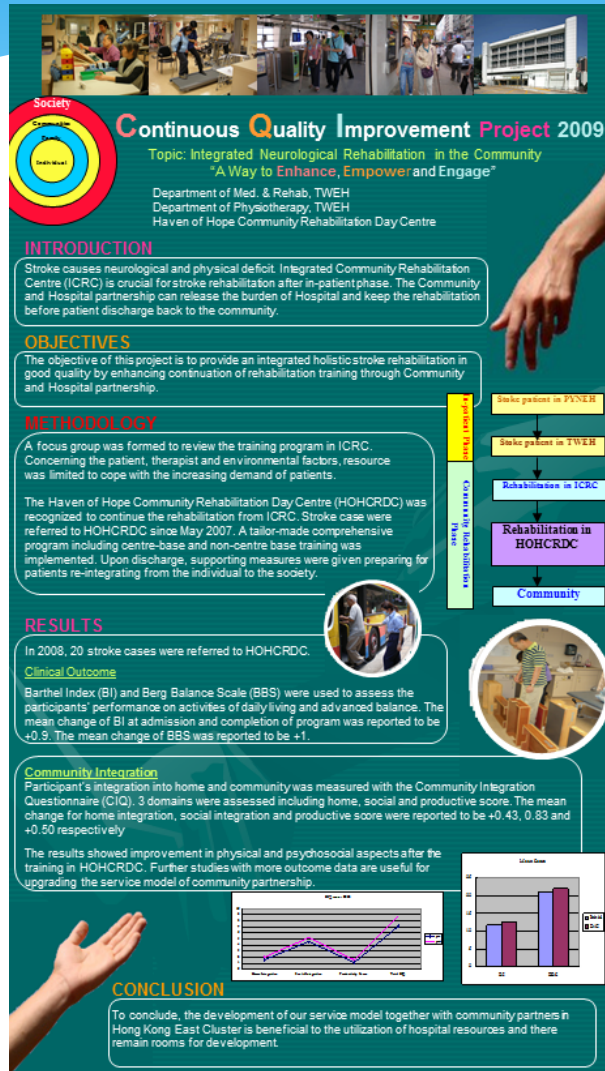


Report back  
(referred cases)

Statistics

Volunteer visit

# Outcome & Evaluation



## CQI project 2009

- Integrated Neurological Rehabilitation in the Community  
 "A Way to Enhance, Empower and Engage"
- It showed improvement in functional ability, balance performance and community integration



# Outcome measurements

- \* **Physical** : Berg's Balance Scale (BBS)
- \* **Functional**: Modified Barthel Index (MBI)
- \* **Social Integration**: Community Integration Questionnaire (CIQ)

# Outcome measurements

## Functional

### Modified BI

Barthel Index (BI)

Patient Name: \_\_\_\_\_ Rater Name: \_\_\_\_\_ Date: \_\_\_\_\_

Activity Score

**FEEDING**  
0 = unable  
5 = needs help cutting, spreading butter, etc., or requires modified diet  
10 = independent

**BATHING**  
0 = dependent  
5 = independent (or in shower) \_\_\_\_\_

**GROOMING**  
0 = needs to help with personal care  
5 = independent face/hair/teeth/shaving (implements provided)

**DRESSING**  
0 = dependent  
5 = needs help but can do about half unaided  
10 = independent (including buttons, zips, laces, etc.)

**BOWELS**  
0 = incontinent (or needs to be given enema)  
5 = occasional accident  
10 = continent

**BLADDER**  
0 = incontinent, or catheterized and unable to manage alone  
5 = occasional accident  
10 = continent

**TOILET USE**  
0 = dependent  
5 = needs some help, but can do something alone  
10 = independent (on and off, dressing, wiping)

**TRANSFERS (BED TO CHAIR AND BACK)**  
0 = unable, no sitting balance  
5 = major help (one or two people, physical), can sit  
10 = minor help (verbal or physical)  
15 = independent \_\_\_\_\_

**MOBILITY (ON LEVEL SURFACES)**  
0 = immobile or < 50 yards  
5 = wheelchair independent, including corners, > 50 yards  
10 = walks with help of one person (verbal or physical) > 50 yards  
15 = independent (but may use any aid; for example, stick) > 50 yards \_\_\_\_\_

**STAIRS**  
0 = unable  
5 = needs help (verbal, physical, carrying aid)  
10 = independent \_\_\_\_\_

**TOTAL (0 - 100):** \_\_\_\_\_

## Social Integration

### Community Integration Questionnaire (CIQ)

**Community Integration Questionnaire (CIQ)**  
融入社區問卷

服務者姓名: _____	服務者編號: _____	填表者: _____
年齡: _____	性別: 男 / 女	調查日期: ____年__月__日
職業: _____	婚姻狀態: 單身 / 已婚 / 離 婚 / 喪偶	教育程度: 未過小學 / 小學 / 中學 / 大學

CIQ 評分: Home Integration Score (item 1 to 5) 家庭融入分數 _____	Total CIQ Score (range from 0 to 29) CIQ 總分 _____
Social Integration Score (item 6 to 11) 社會融入分數 _____	
Productivity Score (item 12 & jobschool Variable) 生產力分數 _____	

1' 在日常家務中，通常誰人負責購買雜貨及日用品？ ___ 2 由你負責 ___ 1 你或其他人負責 ___ 0 其他人負責	4' 誰人負責照顧你家的孩子？ ___ 2 由你負責 ___ 1 你或其他人負責 ___ 0 其他人負責 ___ *不適用/家中沒有17歲以下的孩子
2' 在日常家務中，通常誰人負責準備膳食？ ___ 2 由你負責 ___ 1 你或其他人負責 ___ 0 其他人負責	5' 誰人安排社交活動，如家庭或社交聚會？ ___ 2 由你負責 ___ 1 你或其他人負責 ___ 0 其他人負責
3' 在你家中，通常誰人負責日常家務活動？ ___ 2 由你負責 ___ 1 你或其他人負責 ___ 0 其他人負責	Home Integration Score (sum of 1 through 5) = _____ * score is average of items 1, 2, 3, and 5
Updated on 3/9/2009	

## Physical

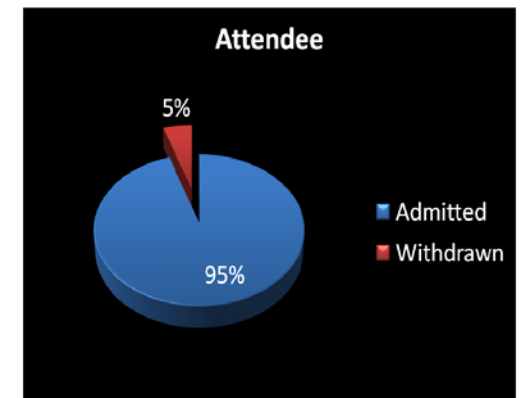
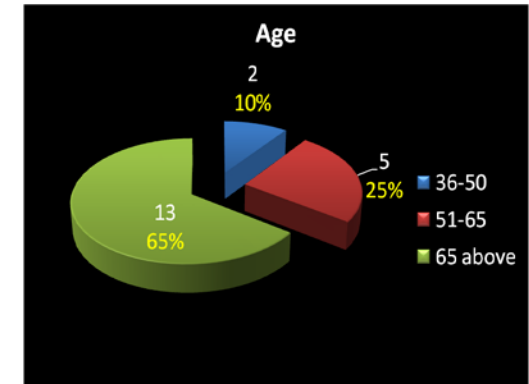
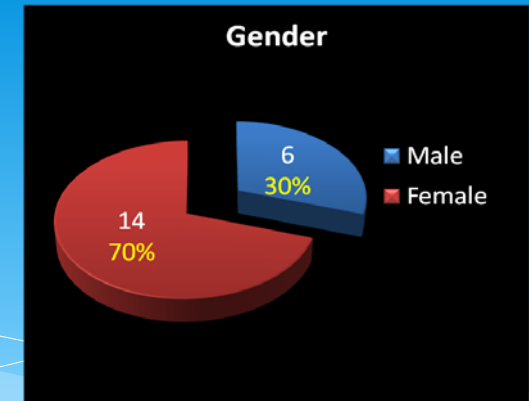
### Berg balance Scale

BERG-BALANCE SCALE

- Sitting to standing**  
INSTRUCTIONS: Please stand up. Try not to use your hands for support.  
4 able to stand without using hands and stabilize independently  
3 able to stand independently using hands  
2 able to stand using hands after several tries  
1 needs minimal aid to stand or to stabilize  
0 needs moderate or maximal assist to stand
- Standing unsupported**  
INSTRUCTIONS: Please stand for two minutes without holding  
4 able to stand safely for 2 minutes  
3 able to stand for 2 minutes with supervision  
2 able to stand for 30 seconds unsupported  
1 needs several tries to stand for 30 seconds unsupported  
0 unable to stand for 30 seconds unassisted
- Sitting with back unsupported but feet supported on floor or on a stool**  
INSTRUCTIONS: Please sit with arms folded for 2 minutes  
4 able to sit safely and securely for 2 minutes  
3 able to sit for 2 minutes under supervision  
2 able to sit for 30 seconds  
1 able to sit for 10 seconds  
0 unable to sit without support for 10 seconds
- Standing to sitting**  
INSTRUCTIONS: Please sit down  
4 sits safely with minimal use of hands  
3 controls descent by using hands  
2 use back of legs against chair to control descent  
1 sits independently but has uncontrolled descent  
0 needs assistance to sit

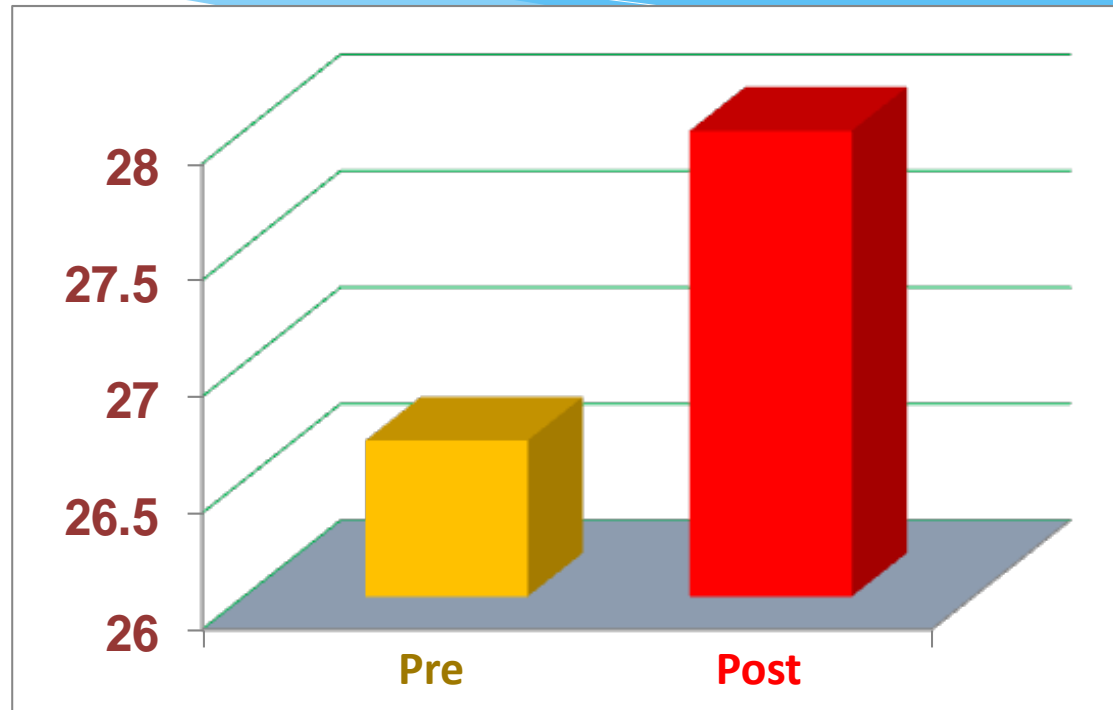
# Results

Years	2008 – 2009
No. of patients	59 (20 completed program for analysis)
Gender (Female)	6 (30%)
Mean Age	57.6 (Range: 36 – 80)
Diagnosis	CVA Infarction: 13 Haemorrhage: 5
Drop-out Rate	1
Adverse Events	0



# Physical ability

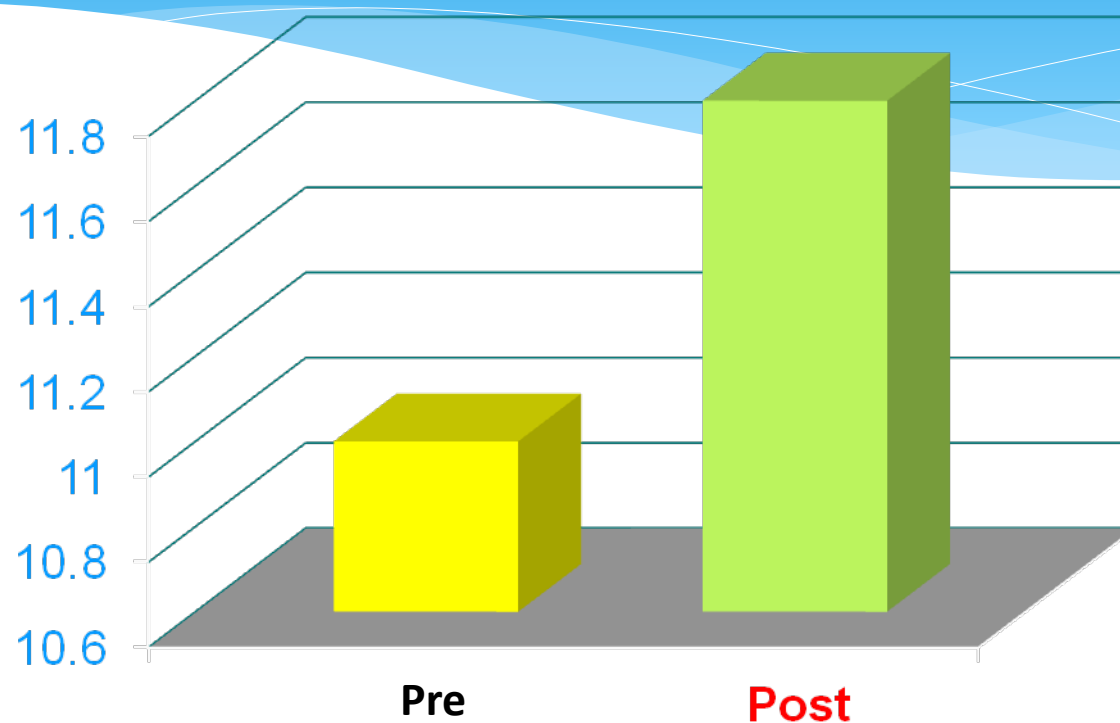
## Berg's Balance Scale (BBS: 56)



**Improvement in balance by 5%**

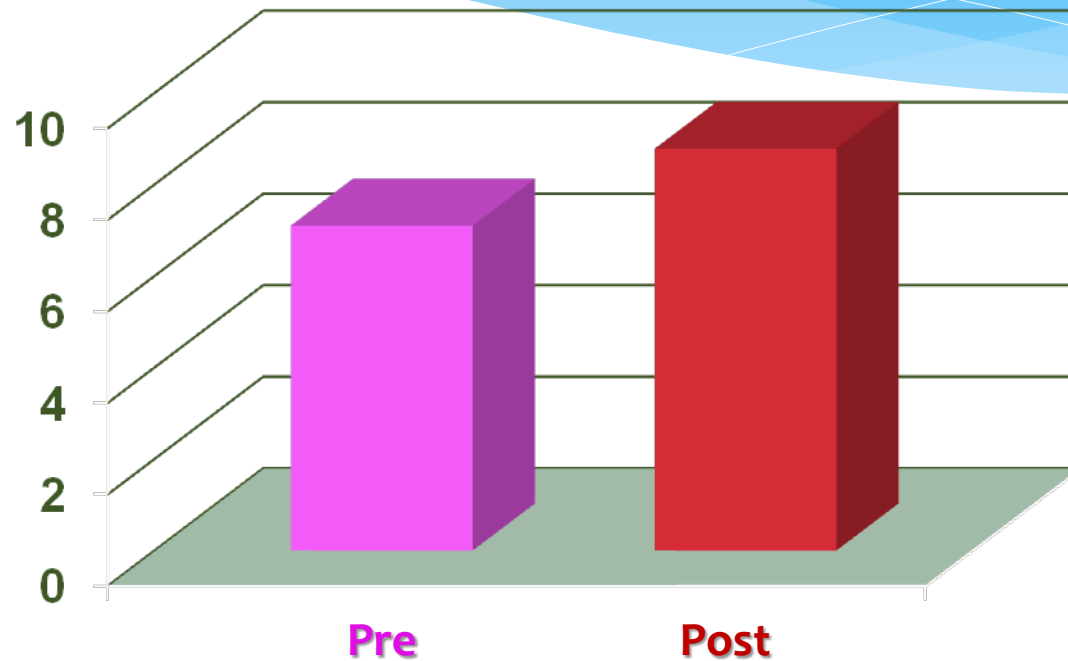
# Functional ability

## Modified Barthel Index (MBI total 20)



**Improvement in functional ability by 8%**

# Social reintegration Community Integration Questionnaire (CIQ total 29)



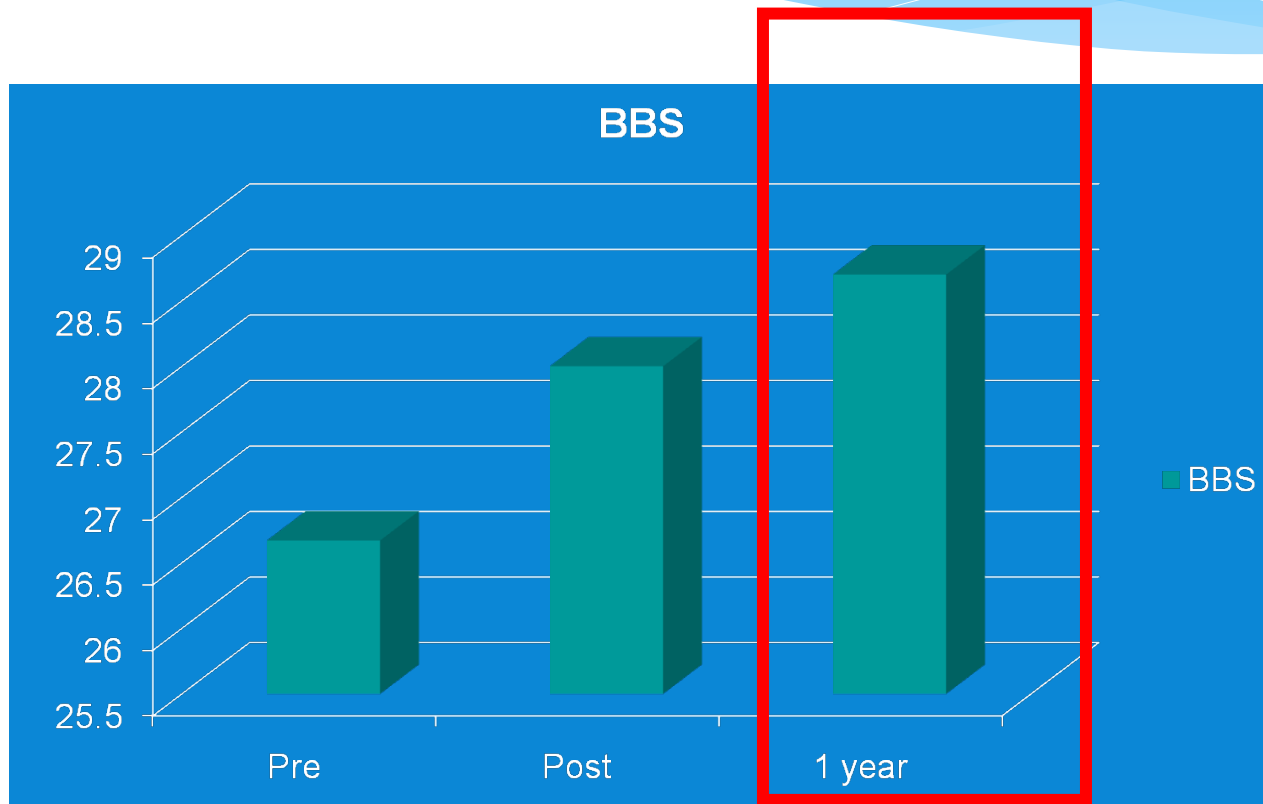
**Improvement in social reintegration by 24%**



**Well, can the results be  
maintained ?**

# Physical ability

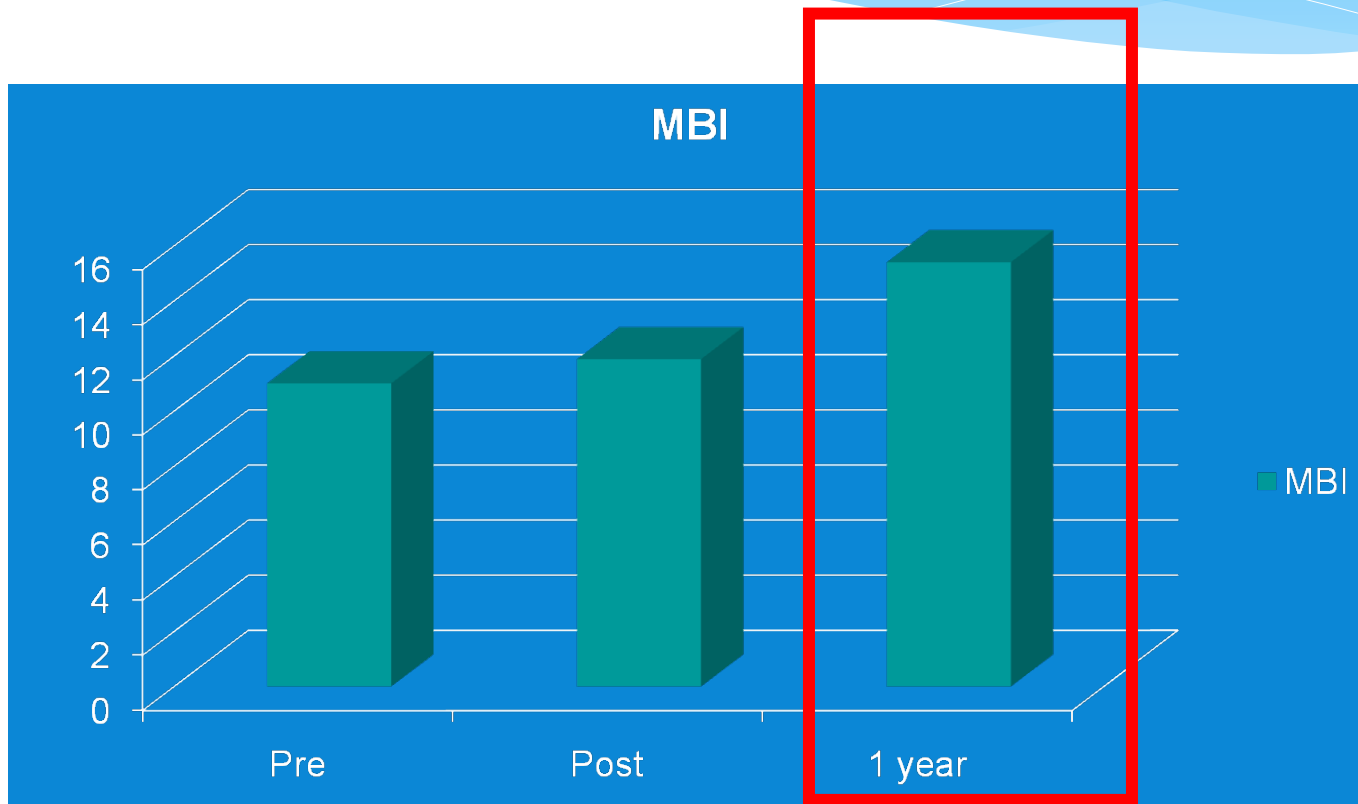
## Berg's Balance Scale (BBS: 56)



**Further Improvement in BBS by 2.5%**

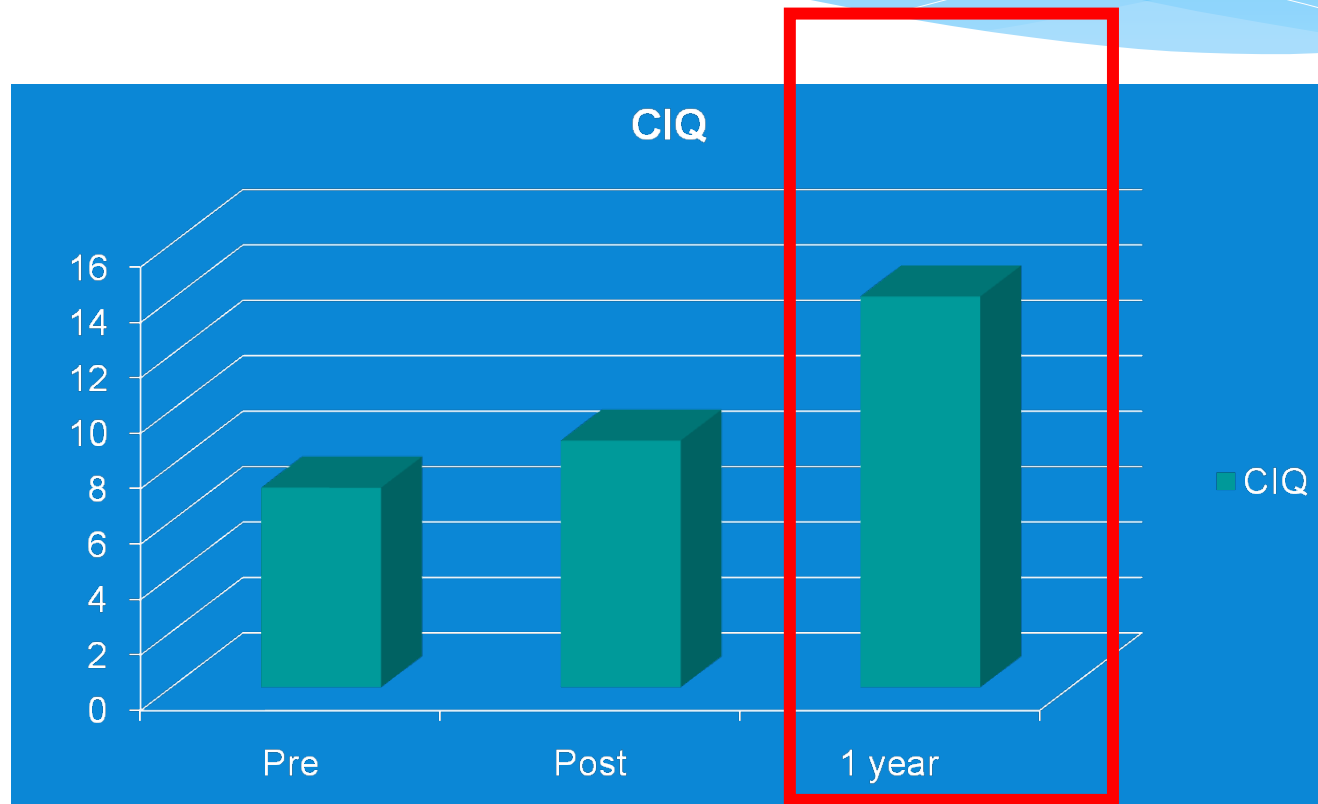
# Functional ability

## Modified Barthel Index (MBI total 20)



**Further Improvement in functional ability by 29.6%**

# Social reintegration: Community Integration Questionnaire (CIQ total 29)



**Further improvement in social reintegration by 58.4 %**

# 3 Win Situation



- **Continuation** of rehabilitation
- **Early discharge** to community
- **Social** reintegration
- Patient being **empowered**



- Effective **utilization** of community resources
- Engaging the **community partner**



- **Seamless** stroke care (esp. community phase)
- The **growing demand** is better managed

# Bring Home Messages

- \* **Ambulatory** Centre rehabilitation (ICRC) provides the first bridge
- \* **Community Partner** (HOHCRDC) serves the final bridge effectively for **community re-integration**, both **physically** and **psychologically**
- \* **Seamless Rehabilitation Journey** **with continuous improvement**



# Acknowledgement

